

Dedication

I dedicate this thesis to my Family: to my Parents - my Father Prof. Dr. Mihail Bakulin and my Mother Dr. Ludmila Bakulina. To my Husband Roman. To my Daughters Varvara and Katya.

And to my Grandfather Vladimir Kutovoj
[16 July, 1927 – 31 December, 2016].

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Abbreviations

- AAU** – Assigned Amount Unit
- AF** – Adaptation Fund
- AFOLU** – Agriculture, Forestry and Other Land Use
- AIE** – Accredited Independent Entity
- APA** – Ad Hoc Working Group on Paris Agreement
- AR** – Assessment Report
- A/R** – Afforestation and Reforestation
- CAP** – Common Agricultural Policy
- C&I** – Criteria and Indicators
- CBD** – Convention on Biological Diversity
- CBDR** – Common but Differentiated Responsibilities and Respective Capabilities
- CCB** – Climate and Biodiversity Standard
- CCS** – Carbon Capture and Storage
- CDIP** – Climate Doctrine Implementation Plan
- CDM** – Clean Development Mechanism
- CDM EB** – Clean Development Mechanism Executive Board
- CER** – Certified Emission Reductions
- CEN** – European Committee for Standardization
- CGE** – Consultative Group of Experts
- CH₄** – Methane
- CIFOR** – Center for International Forestry Research
- CITES** – Convention on International Trade in Endangered Species of Wild Fauna and Flora
- CMA** – Conference of Parties, Serving as a Meeting of Parties to the Paris Agreement
- CMP** – Conference of Parties, serving as a Meeting of the Parties to the Kyoto Protocol
- CMS** – Convention on Conservation on the Conservation of Migratory Species of Wild Animals
- CO₂** – Carbon Dioxide
- COP** – Conference of Parties
- CPF** – Collaborative Partnership on Forests

CSD – Commission on Sustainable Development
CIFOR – Center for International Forestry Research
CITES – Convention on International Trade in Endangered Species of Wild Flora and Fauna
DFN – Danone Fund for Nature
DNA – Designated National Authority
DOE – Designated Operational Entity
EC – European Commission
ECCP – European Climate Change Program
ECOSOC – Economic and Social Council of the United Nations
EEA – European Environmental Agency
EFI – European Forest Institute
EP – European Parliament
ESD – Effort Sharing Decision
EIA – Environmental Impact Assessment
EIT – Economy in Transition
ERU – Emission Reduction Units
ETS – Emission Trading System
EU – European Union
EU MS – European Union Member States
FAO – Food and Agriculture Organization of the United Nations
FCPF – Forest Carbon Partnership Facility
FDP – Focal Designated Point
FLEGT – Forest Law Enforcement Governance and Trade
FMRLs – Forest Management Reference Levels
FMP – Forest Management Plan
FRA – Forest Resource Assessment
FSC – Forest Stewardship Council
G77 – Group 77
GA – General Assembly
GEF – Global Environmental Facility
GCF – Green Climate Fund
GDP – Gross Domestic Product
GEF – Global Environment Facility

GHG – Greenhouse gas
GPG – Good Practice Guidance
GtC – Giga Tons of Carbon
Ha - hectares
HWP – Harvested Wood Products
IEA – International Energy Agency
ICCROM – the International Centre for the Study of the Preservation and Restoration of Cultural Property
ICJ – International Court of Justice
ICOMOS – International Council on Monuments and Sites
ICRAF – World Agroforestry Center
IFF – Intergovernmental Forum on Forests
ILC – International Law Commission
INC – Intergovernmental Negotiating Committee
IPCC – Intergovernmental Panel on Climate Change
IPF – Intergovernmental Panel on Forests
IPS – International Peatland Society
INDC – Intended Nationally Determined Contributions
ITTA – International Tropical Timber Agreement
ITTO – International Tropical Timber Organization
ITTC – International Tropical Timber Council
ILC – International Law Commission
IUCN – International Union for Conservation of Nature
IUFRO – International Union of Forest Research Organization
JI – Joint Implementation
JISC – Joint Implementation Supervisory Committee
JRC – Joint Research Centre
JSC – Joint Stock Company
Km – kilometers
LBA - Legally Binding Agreement
LEG – Least Developed Countries Expert Group
LDC – Least Developed Countries
LULUCF – Land Use Land Use Change and Forestry
ICER – long-term Certified Emission Reductions

- MCPFE** – Ministerial Conference on the Protection of Forests in Europe
- MEA** – Multilateral Environmental Agreement
- MEDT** – Ministry of Economic Development and Trade
- MOP** – Meeting of the Parties
- MRV** – Measurement, Reporting and Verification
- MS** – Member States
- Mtoe** – million tons of oil equivalent
- NAMAs** – Nationally Appropriate Mitigation Actions
- NDC** – Nationally Determined Contributions
- NDF** – Non-Detriment Finding
- NEEAPs** – National Energy Efficiency Action Plans
- NFMS** – National Forest Monitoring Systems
- NFP** – National Forest Programs
- NGO** – Non Governmental Organization
- NHZ** – Nut Harvesting Zone
- NLBI** – Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests
- NWFPS** – Non Wood Forest Products
- NWHS** – Natural World Heritage Site
- N₂O** – Nitrous Oxide
- OECD** – Organization for Economic Cooperation and Development
- QUELRO (/C)** – Quantified Emission Limitation or Reduction Objective (/Commitment)
- PCCB** - Paris Committee on Capacity Building
- PDD** – Project Design Document
- RCPs** – Representative Concentration Pathways
- REDD +** - Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Sinks in Developing Countries
- RES** – Renewable Energy Sources
- RF** – Russian Federation
- RF MED** – Russian Federation Ministry of Economic Development

Roshydromet – the Federal Service for Hydrometeorology and Environmental Monitoring

RRF – Rapid Response Facility

SBSTA – Subsidiary Body for Scientific and Technological Advice

SBI – Subsidiary Body for Implementation

SCCF – Special Climate Change Fund

SDC – Sustainable Development Co-Benefits

SEA – Strategic Environmental Assessment

SEE – State Ecological Expertise

SFM – Sustainable Forest Management

STRP – Scientific and Technical Review Panel

SWD – Staff Working Document

TEU – Treaty on the European Union

TFEU – Treaty on the Functioning of the European Union

TCT – Tribal Commune Tiger

tCER – temporary Certified Emission Reductions

TWAIL – Third World Approaches to International Law

UN – United Nations

UNCCD – United Nations Convention on Combatting Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa

UNCED – United Nations Conference on Environment and Development

UNCHE – United Nations Conference on Human Environment

UNCLOS – United Nations Convention on the Law of the Sea

UNCOD – United Nations Conference on Desertification

UNDP – United Nations Development Program

UNECE – United Nations Economic Commission for Europe

UNEP – United Nations Environment Program

UNESCO – United Nations Educational, Scientific, and Cultural Organization

UNFCCC – United Nations Framework Convention on Climate Change

UNFF – United Nations Forum on Forests

UN GA – United Nations General Assembly

UNTS – United Nations Treaty Series

VCLT – Vienna Convention on the Law of Treaties

VPA – Voluntary Partnership Agreements

WCMC – World Conservation Monitoring Center

WCS – World Conservation Strategy

WFD – Water Framework Directive

WG – Working Group

WHC – World Heritage Convention

WMO – World Meteorological Organization

WPFBD – Work Program Forest Biological Diversity

WHC – World Heritage Convention

WHFP - World Heritage Forest Program

WWF – World Wide Fund for Nature

Probleemstelling / Problem Overview (Dutch)

De internationale rechtsgebieden inzake de mondiale vraagstukken klimaatverandering en de ontbossing en aantasting van bossen, welke beide gebaseerd zijn op wetenschappelijk bewijs dat tijdens de totstandkoming van de betreffende milieuwetten aanwezig was, zijn tamelijk onafhankelijk en parallel aan elkaar ontwikkeld. Enerzijds is er een uitgebreid internationaal regime tegen klimaatverandering dat is toegespitst op het reguleren van broeikasgasemissies, opgericht door het Raamverdrag van de Verenigde Naties inzake klimaatverandering ('United Nations Framework Convention on Climate Change' of 'UNFCCC'). Anderzijds bestaat er iets als 'internationaal bosrecht', wat eerder een verzameling is van regels en procedures die vervat zijn in een gamma aan verdragen en niet-bindende instrumenten die tot doel hebben om de globale ontbossing terug te draaien, bossen te beschermen en een duurzaam bosbeheer te promoten ('sustainable forest management' of 'SFM'). Recent wetenschappelijk onderzoek toont echter aan dat beide milieuvraagstukken nauw met elkaar verbonden zijn en dat zij dus niet door compleet los van elkaar staande internationale regimes zouden moeten worden gereguleerd. De wetgeving inzake klimaatverandering heeft bijvoorbeeld betrekking op de kwesties die momenteel ook worden gereguleerd door de internationale wetgeving rondom bosbeleid. Deze verbondenheid leidt tot diverse wisselwerkingen tussen beide regimes (zoals synergetische, conflicterende en neutrale). Voornamelijk de conflicterende interacties kunnen de milieuproblemen verder doen toenemen wanneer zij niet tijdig worden gedetecteerd en opgelost. Het bestrijden van klimaatverandering zou bijvoorbeeld in bepaalde gevallen kunnen bijdragen aan de mondiale ontbossing en degradatie van bossen.

Chapter I: Introduction to the Research.

The present chapter provides introduction to the research. The first part of the chapter gives an overview of the problem and establishes the essential research context (1.1.). The second part of the chapter discusses the objectives of the research in the framework of the existing legal scholarship (1.2.). The third part of this chapter poses the main research questions (1.3.). The fourth part of the introductory chapter provides an overview of the research (1.4.), followed by a part on the structure and methodology of the research (1.5.).

1.1. Problem Overview.

International environmental law, based on the scientific evidence, available at the time, has commenced to address the global environmental problems such as climate change, deforestation and forest degradation relatively independently from and parallel to one another. On the one hand, there is a comprehensive international climate change regime, established by the United Nations Framework Convention on Climate Change (UNFCCC),¹ focusing on the regulation of GHG emissions. On the other hand, there is the international forest law, as a vague aggregate of rules and processes included in a desperate array of treaties and non-binding instruments, aiming at reversing the loss of forest cover worldwide, forest protection and sustainable forest management (SFM). The most recent scientific evidence provides, however, that the global environmental problems are interconnected and do not fit neatly into a single international environmental regime. Thus, the regulation of the climate change issue touches upon the topics, subject to the international forest law. This gives rise to various interactions between the international forest-related environmental regimes (e.g. synergetic, conflicting, and neutral). Conflicting interactions, in particular, if not detected and addressed timely, may further exacerbate the global environmental problems. For instance, combatting climate change may contribute to global deforestation and forest degradation.

¹ UNFCCC, adopted 9 May 1992, in force 21 March 1994.

1.1.1. Forests under International Climate Change Regime: Setting the Context.

Established by the UNFCCC, the international climate change regime has recognized the positive role of forests for climate change mitigation from the start. The ultimate objective of the regime is to achieve "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".² The UNFCCC regime envisages policies and measures in order to "cover all relevant sources, sinks and reservoirs of GHG".³ Based on their common, but differentiated responsibilities,⁴ all contracting parties have a commitment to promote and cooperate on practices and processes that control, reduce or prevent anthropogenic emissions of GHG in all relevant sectors, including forestry.⁵ Furthermore, forests are explicitly included as sinks and reservoirs of GHG, which the parties are committed to conserve and enhance.⁶ In 2015, the existing forest-related provisions, frameworks and decisions under the international climate regime were anchored into the Paris Agreement (article 5).⁷ In this context, the relationship with forests lies in the climate related functions and services of forests, which are directly addressed by the international climate change regime.

A number of mechanisms under the international climate change regime allow countries to account for the source/sink value of forest practices. These include the Land-Use, Land-Use Change and Forestry (LULUCF) guidelines, which developed countries can use in order to measure carbon stored by forestry and land management practices. There are also the afforestation and reforestation (A/R) guidelines of the clean development mechanism (CDM), which allow the

² UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 2.

³ UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 3.3.

⁴ Since the adoption of the UNFCCC, the principle has been the cornerstone principle of the international climate change regime. The 2015 Paris Agreement recognizes and builds on the principles, established by the UNFCCC and notably on the principle of "common, but differentiated responsibilities and respective capabilities". However, in comparison to the UNFCCC, the Paris Agreement, specifies, that the CBDRC is to be implemented "in the light of different national circumstances". For further information see, subsection 3.2.3.2. "Core Legal Principles", section 3.2.3. "The Paris Agreement", part 3.2. "International Regulatory Climate Change Regime" of the present thesis.

⁵ UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 4.1. (c).

⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 4.1. (d).

⁷ Paris Agreement, adopted 12 December 2015, in force 4 November 2016.

developed countries to invest in forestry projects in developing countries. Besides, there are the LULUCF guidelines for the Joint Implementation mechanism (JI), which allow the Annex I countries to implement forestry projects that increase removals by sinks in another Annex I country. One more important mechanism is the "REDD +" mechanism, which aims at incentivizing mitigation action in developing countries and at channeling the developed countries' financial resources to do so. The acronym "REDD +" aims at capturing under one heading the multiple activities such as reducing emissions from deforestation and from forest degradation (i.e. the "REDD"), as well as conservation and enhancement of forest carbon stocks and the sustainable forest management (SFM, i.e. the "+"). Similar to other forest-related mechanisms under the international climate change regime, the mechanism is built on methodological guidance and a framework for GHG emissions measuring, reporting and verification (MRV).

The international climate change regime encourages the use and development of renewable and sustainable energy production. Through bio-energy production forests provide for the benign alternatives to fossil fuels. In comparison to fossil fuels, wood biomass is viewed as a "less emitting" (or even arguably as a "carbon neutral") source of energy. There are, however, concerns, that the growing demand for bioenergy from forests will become a further driver of deforestation as the world's energy demands increase. Thus, the Food and Agriculture Organization of the United Nations (FAO) envisages an increase in the global demand for wood in the coming years.⁸ In a similar line, scholars anticipate that by 2060 there will be a six-fold increase in the world demand for fuel wood. This will lead to an increased competition for forest use (e.g. forestry products previously used to manufacture e.g. sawn wood, wood pulp and paper will instead be used for energy production) and will place further pressure on forests health.⁹

⁸ FAO, *State of the World's Forests 2009*, 2009, p. IX.

⁹ R. Raunkar et al., *Global Outlook for Wood and Forests with the Bioenergy Demand Implied by Scenarios of the Intergovernmental Panel on Climate Change, Forest Policy and Economics*, 12, 2010, pp. 48, 55.

At the time of writing the research the precise requirements of forestry obligations under the 2020 international climate change regime remain unclear. However, because of the significance of the forest functions and services for climate mitigation, it is safe to suggest that “in order to stabilize GHG concentrations in the atmosphere” the regime will continue further incorporating forests into its climate-related activities.

1.1.2. Forest under International Forest Regime¹⁰: Setting the Context.

Besides climate - related functions forests produce a variety of other functions, services and values. Thus, wood products are important commodities. Forests provide essential habitats for numerous species and harbor up to ninety percent of the world’s terrestrial biodiversity. Forests are important to subsistence gatherers, who depend on them for a variety of valuable products ranging from the non-wood forest products (NWFP) such as, for instance, nuts, mushrooms, and raw materials for medicine to firewood for local households. Forest provide important protective functions, including such as, for instance the prevention of soil erosion and the maintenance of the world’s water resources. Beyond this, forests provide for aesthetic, cultural and spiritual services. Various international environmental regimes protect these other forest functions, services and values¹¹ (e.g. the Convention on Biological Diversity (CBD),¹² the International

¹⁰ The aggregate of international instruments on forests has commonly been accorded the term “international forest regime”. The term “international forest regime” derives from the international relations studies and has also been expanded into international environmental law terminology. The term has been introduced by Schally (1993), further assessed by Tarasofsky (1996, 1999) and picked up by Humphreys (1999, 2006). McDermott et al (2007) splits up the “Legally Binding Forest-Related Global Instruments” and the “Non-Legally Binding Global Forest Instruments” and terms the former ones the “forest-related regime”. Dimitrov et al. (2005) assume that the lack of an international forest treaty allows to describe the international arrangement on forests as a “non-regime” – “transnational policy arenas characterized by the absence of multilateral agreements for policy coordination among states”. Rayner et al describes the current forest governance framework as a “regime complex”: a set of specialized regimes and other governance arrangements more or less loosely linked together, sometimes mutually reinforcing, but at other times overlapping and conflicting. According to Eikermann (2015) the regime “provides for a complex multilayered set of values, objectives, principles, obligations, guidelines recommendations, rules of procedure, decisions, resolutions from international and NGOs, treaty organs, standard setting and certification businesses, establishing a multi-instrument approach to international forest regulation”. For more information on the “international forest regime” see, L. Giessen, Reviewing the main characteristics of the international forest regime complex, *International Forestry Review*, 15, 2013, pp. 60-70.

¹¹ Due to the environmental focus of the research, treaties specific to the rights of indigenous peoples and local communities, the World Trade Organization Law, and regional forest-related treaties are not mentioned.

¹² Convention on Biological Diversity, adopted 5 June 1992, in force 29 December 1993.

Tropical Timber Agreement (ITTA),¹³ the World Heritage Convention (WHC),¹⁴ the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),¹⁵ the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention),¹⁶ and the UN Convention on Combatting Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD)¹⁷).

There are also the international political processes, i.e. the 1992 Forest Principles,¹⁸ Chapter 11 of Agenda 21 on "Combatting Deforestation",¹⁹ the United Nations Forum on Forests (UNFF),²⁰ and the most recent international soft-law agreement on forests – the 2007 United Nations Forest Instrument,²¹ which have been initiated in order to provide for a comprehensive international regulation on forests. The shared global objectives on forests are to: (1) "Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation; (2) Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people; (3) Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products derived from sustainably managed forests; (4) Reverse the decline in official development assistance for sustainable forest management and mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management".²²

¹³ International Tropical Timber Agreement, adopted 1 January 1994, in force 1 January 1997.

¹⁴ Convention for the Protection of the World Cultural and Natural Heritage, adopted 23 November 1972, in force 17 December 1975

¹⁵ Convention on International Trade in Endangered Species of Wild Fauna and Flora, adopted 3 March 1973, in force 1 July 1975.

¹⁶ Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, adopted 2 February 1971, in force 21 December 1975.

¹⁷ UN Convention to Combat Desertification, adopted 17 June 1994, in force December 1996.

¹⁸ Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted 14 June 1992.

¹⁹ Agenda 21, adopted 13 June 1992.

²⁰ UNFF. // <<http://www.un.org/esa/forests/>>, last viewed 12 April 2017.

²¹ Non-legally Binding Instrument on All Types of Forests, adopted 17 December 2007.

²² UN Forest Instrument, adopted 22 October 2007, part IV, Global Objectives on Forests; UNFF, Report of the Sixth Session, 27 May 2005 and 13-24 February 2006, ECOSOC Official Records, 2006, Supplement No. 22, UN Doc. E/CN.18/2006/18, Decision NO. E/2006/42, para 3, Global

The fragmented nature of the international forest law has been countered by the emergence of new forms of forest regulation through instruments such as forest certification. Forest certification operating both, at the international and regional level and increasingly involving private stakeholders, such as corporations and non-governmental organizations (NGOs), convey the idea that forest management standards can be shaped through market-based instruments.²³

1.1.3. International Climate Change Regime and International Forest Regime: Forests at the Intersection.

Scientific research demonstrates that the environmental problems, namely, global climate change and deforestation are interrelated.²⁴ On the one hand, intact old-growth forests are more resilient to climate change and it is for this reason that reversing the loss of forest cover worldwide, forest protection and SFM provide for a sound adaptation strategy for climate change. On the other hand, in a number of ways forests also contribute to the aim of climate change mitigation. Thus, forests act as carbon sinks and reservoirs. Old-growth forests store most of the carbon dioxide (as opposed to the growing trees), thus constituting reservoirs of carbon over a longer span of time. Besides, when forests are burnt or when they decompose, they turn to a significant source of carbon. Therefore, measures to prevent and/or reduce deforestation and forest degradation lead to the reduction of GHG emissions to the atmosphere. Finally, forests provide a being alternative to fossil fuels. Wood biomass is being viewed as a “less emitting” (or even sometimes arguably referred to as a “carbon neutral”) source of energy in comparison to fossil fuels.

Objective on Forests; ECOSOC, E/2015/42-E/CN.18/2015/14, International Arrangement on Forests beyond 2015.

²³ Market-based instruments are instruments that impose a price or opportunity cost on each unit of pollution, waste, stress or resources consumption by regulated actors. In contrast to command measures, which require or forbid specific conduct by each actor, economic instruments enlist the price system to steer behavior in the desired direction, while giving each actor flexibility to determine the quantity of its pollution (“how much” flexibility) as well as the appropriate control measures (“how” flexibility). Since each actor/user bears a cost for each unit of pollution, etc., it faces continuing incentives to limit and further reduce its level. The level of tax or fee or the number of allowances issued may be designed to achieve a given environmental quality result. See, R. B. Stewart, Instrument Choice, in D. Bodansky, et al (eds), *The Oxford Handbook of International Environmental Law*, 2010, p. 151.

²⁴ See chapter II “Climate Change and Forests, Scientific Background” of the current thesis for more information.

The interdependence of the ecological processes results in a very close relationship between the subject matter with which the international climate change regime and the international forest regime are concerned. This interrelation leads to a linkage of the environmental problems addressed by the environmental regimes at hand. It also leads to a linkage of the means, provided for under the rules of the international climate change regime and the international forest law, which are intended to solve the environmental problems of climate change, deforestation and forest degradation. Thus, the ecological and legal interdependence is one of the reasons why the international climate change regime and the international forest law are subject to (conflicting, synergetic and neutral) interactions with regards to forest regulation.

In the climate change and forest context, the environmental process are rather complex and are based upon the linkages of many factors. Human interference with these factors can trigger unpredictable environmental changes. The same applies to the solutions humans apply to address the environmental problems, since these solutions can also lead to environmental impacts not predicted and/or only later discovered by environmental science. Thus, for instance forest-related solutions applied to address the climate change problem, can have a ripple effect, causing new problems in the process (e.g. creating perverse incentives under the international climate change regime – intentionally or not – may contribute to the further driving of deforestation and forest degradation). A lack of full scientific understanding of ecological interdependencies makes it more challenging to avoid, detect, and solve potential conflicting interactions that are based upon linked ecological factors.

One more reason why the international climate change regime and the international forest regime are prone to (overlapping, competing and conflicting) interactions with regards to forests is the fact that the international forest governance lacks a focal instrument and/or an administration with a comprehensive forest mandate. The international forest-related treaties pursue very different environmental objectives. The forest-related processes under the international environmental treaties, including those under the international climate change regime, exist in parallel to one another and are further

developed without the benefit of due consideration being given to potential forest-related conflicting interactions with other forest-related agreements either during their negotiation or at a later stage of their existence. And even though at the international level the forest-related treaties may not directly collide to their objectives and/or obligations and may be well compatible, the means to pursue the aims and duties under the international environmental agreements may initiate forest-related (conflicting) interactions in a later phase, involving the implementation of obligations into (sub) national law. More specifically, with regard to the international forest regulation, the implementation of a single forest-related treaty regime may disregard forest-specific objectives at the implementation level by prioritizing the ultimate objective of a regime over the forest-specific objectives and concerns.

Up until now, although in general the need for cooperation and coordination is recognized by the multiple forest-related regimes and their organs, the extent to which the various environmental regimes interact with regards to forest regulation and/or may be in conflict with one another remains underexploited.

1.2. Objectives of the Research and Literature Review.

The main objective of the research is to investigate the interactions between the international climate change regime and the international forest regime in order to identify conflicts, gaps and synergies with regards to forest regulation.²⁵ In literature the fact that various regulatory regimes interact with one another in ways that have significant consequences, not merely for the attainment of their ultimate objectives, but also as sources of more or less prominent unintended negative consequences, is not new. In the past years interactions between regimes have received a growing number of scholarly contributions.²⁶ The international legal scholarship has elaborated on the interactions between the

²⁵ Please note that the focus of the research is on the interactions of regimes, rather than of treaties. A regime is not synonymous with a treaty (although it can be based on one), but also includes decision-making procedures and organizational arrangements that may be constituted by an intergovernmental arrangement. According to M. Young "regimes are sets of norms, decision-making procedures and organizations coalescing around functional issue areas and dominated by particular modes of behavior, assumption and biases", M. Young (ed.), *Regime Interaction in International Law, Facing Fragmentation*, 2012, p. 11.

²⁶ M. Young (ed.), *Regime Interaction in International Law, Facing Fragmentation*, 2012; H. Van Asselt, *The Fragmentation of Global Climate Governance*, 2015; R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003; O. R. Young, et al, *Institutional Dimensions of Global Environmental Change, Fit, Interplay and Scale*, 2002.

branches of international law, primarily focusing on the discussion of the consequences of the "fragmentation of international law".²⁷ The literature on the fragmentation of international law has focused, primarily, on the international economic law and human rights law,²⁸ even though some discussions have occurred on the issues within the context of international environmental law,²⁹ and more specifically, climate change law³⁰ and within the international forest governance.³¹ Furthermore, there are some piecemeal case studies examining specific interactions involving the international climate change regime and usually one other environmental issue area (e.g. biodiversity,³² and ozone layer depletion³³). There are detailed studies, involving the international climate change regime and several other environmental regimes, but they remain rare.³⁴ As of now, there is no comprehensive study focusing on the forest-related interactions, including also those at the implementation level, between the international climate change regime and the international forest law.

Understanding of the forest-related interactions and their consequences (e.g. conflicts, gaps, synergies) opens up the possibility to suggest means for their management. Thus, the second objective of the research is to suggest means for dealing with the consequences of the forest-related interactions at the

²⁷ International Law Commission (ILC), *Fragmentation of International Law, Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, UN Doc. A/CN.4./L.682, 13 April 2006.

²⁸ A. Cassimatis, *International Human Rights Law, and Fragmentation of International Law, International and Comparative Law Quarterly*, 56, 3, 2007; P. Delimatsis, *The Fragmentation of International Trade Law*, *Journal of World Trade*, 45, 1, 2011; A. Orakhelashvili, *The Interaction between Human Rights and Humanitarian Law: Fragmentation, Conflict, Parallelism or Convergence?*, *European Journal of International Law*, 19, 1, 2008.

²⁹ D.K. Anton, *Treaty Congestion in Contemporary International Environmental Law*, in Sh. Alam, et al (eds), *Routledge Handbook of International Environmental Law*, 2012; M. Young (ed.), *Regime Interaction in International Law, Facing Fragmentation*, 2012.

³⁰ M. Young, *Climate Change Law and Regime Interaction*, *Carbon and Climate Law Review*, 4, 2, 2011; H. Van Asselt, *The Fragmentation of Global Climate Governance*, 2015; C. P. Carlarne, *Good Climate Governance: Only a Fragmented System of International Law Away?*, *Law and Policy*, 30, 4, 2008; R. Rayfuse, Sh. Scott (eds), *International Law in the Era of Climate Change*, 2012.

³¹ R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013.

³² C. M. Pontecorvo, *Interdependence between Global Environmental Regimes: The Kyoto Protocol on Climate Change and Forest Protection*, *Zeitschrift für Ausländisches Öffentliches Recht und Völkerrecht*, 59,3, 1999; E. Morgera, *Far Away, so Close, A Legal Analysis of the Increasing Interactions between the Convention on Biological Diversity and Climate Change Law*, *Climate Law*, 2, 2011, pp. 85-115.

³³ E. Rosental, R. Watson, *Multilateral Efforts to Reduce Black Carbon Emissions: A Lifeline for the Warming Arctic?*, *Review of European Community and International Environmental Law*, 20, 1, 2011. See also, R. Wolfrum, N. Matz, *Conflicts in Environmental Law*, 2003.

³⁴ H. Van Asselt, *The Fragmentation of Global Climate Governance*, 2015.

international level. Such management is aimed at capturing the synergies between the interacting environmental regimes and the minimization of (actual and/or potential) conflicting interactions. Existing legal research provides a first indication of how conflicting interactions in international environmental law may be addressed by legal and political means.³⁵

The investigation into the forest-related interactions between the international climate change regime and the international forest law is not merely of academic significance. Most states participate in a multitude of international environmental regimes and generally seek to ensure that compliance with the commitments under one regime does not undermine compliance with others. In the climate change and forest context, it makes sense to ensure that forest-related activities under the international climate change regime contribute to achieving (and/or at least does not undermine) the global forest-specific objectives. This, in turn, will result in enhanced contribution of forests towards the ultimate objective of the international climate change regime. Ensuring that forest-related activities under one regime contribute to achieving the objectives of another may be stirred by the pursuit of an overarching goal, such as promoting mutual supportiveness, enhancing normative coherence and/or coordination between the forest-related international environmental regimes. It may also be inspired by a more pragmatic desire to reduce the doubling efforts and increase efficiency, i.e. so as not to waste the existing financial, administrative and technical resources. There are at least two challenges for actors, participating in the forest-related international environmental regimes: (1) to comply with all their forest-related commitments stemming from various international environmental treaties and processes; and (2) to monitor and report the implementation of various forest-related international treaties and processes. Hence, there are genuine reasons to be concerned with the forest-related interactions between international environmental regimes at the international level, at the implementation level and, furthermore, to suggest the legal means of how to cope with the variety of international forest-related treaties and processes at the international level.

³⁵ R. Wolfrum, N. Matz, *Conflicts in Environmental Law*, 2003.

1.3. Research Questions.

- How do the international climate change regime and the international forest regime interact at the international level with regards to forest regulation: are there forest-related conflicts, gaps and synergies?;
- How do the regimes interact at the implementation level? Does compliance with the international climate change regime lead to (new) conflicting forest-related interactions in (sub) national environmental regulation (e.g. perspectives from the European Union (EU) and the Russian Federation (RF)? What forest-related regulatory gaps is it possible to detect?;
- How to manage the consequences of the forest-related interactions at the international level?

1.4. Research Overview.

In order to answer the research questions the dissertation envisages seven chapters. The first chapter is the general introduction to the research. The second chapter provides the essential scientific background for the purpose of the legal research in the dissertation. In the following, chapters three and four investigate the two interacting elements with regards to international forest regulation. Chapter three elaborates on the international climate change regime, established by the UNFCCC. Chapter four embraces, on the one hand, the international political processes on forests that have been initiated in the spirit to provide for a comprehensive international regulation of forests (i.e. the Forest Principles, Chapter 11 of Agenda 21 on "Combating Deforestation", the UNFF, and the UN Forest Instrument), and, on the other hand, the forest-related international treaties and their associated regimes (i.e. the Ramsar Convention, the CITES, the WHC and the CBD). These forest-related treaties and their regimes, similar to the UNFCCC and its regime, have not been designed to apply to forests directly, but may be interpreted *ex-post* to capture forests within their scope. Chapter five is the actual analysis of the forest-related interactions between the environmental regimes at the international level. The chapter suggests that the fragmentation of the international forest-related instruments, together with the lack of the tools to overcome this fragmented state of affairs in the international forest regulation, hamper systematic forest-related synergies and virtually preclude a consolidated implementation of the international forest-

related instruments. This leads to a situation where conflicting interactions, although generally rooted in the international forest-related instruments themselves, may realize their potential in a later phase, involving the implementation of international forest-related obligations into (sub) national law. Subsequently, in order to examine this more precisely, chapter six investigates the forest-related interactions under the international climate change regime at the implementation level (perspectives from the EU and the RF). Finally, chapter seven provides the overarching dissertation, which unites all the findings of the research, answers the main research questions and puts forth an outlook to the solution proposed.

1.5. Research Structure and Methodology.

Each chapter of the research (e.g. "I.") is subdivided into parts (e.g. "1.1."), sections (e.g. "1.1.1."), subsections (e.g. "1.1.1.1.") and, further, subsubsections (e.g. "a.", "b.", "c.", etc.). The main methodology employed throughout the research is desktop research and legal analysis.

Chapter I "Introduction" provides the general introduction to the research. First, it gives an overview of the problem, addressed by the research and establishes the essential research context. Second, the chapter discusses the objectives of the research in the framework of the existing legal scholarship. Third, the chapter poses the research questions. Lastly, the chapter provides an overview of the research structure and methodology.

Chapter II "Climate Change and Forests: Scientific Background" provides for the essential scientific background for the purpose of the legal research in the dissertation. By synthesizing the existing scientific knowledge on climate and forests the chapter aims to answer the following questions: What does contemporary science tell us about climate and forests? What are the main causes and consequences for the environmental problems, such as climate change, deforestation and forest degradation? How are they interconnected? Both, climate and forests, are complex environmental systems, which are described in the chapter through their components, major functions and variability. The first part of the chapter focuses on climate and its change. The

second part of the chapter focuses on forests and the global environmental problems of deforestation and forest degradation. The third part of the chapter elaborates on how climate change and forests are interconnected. As forest ecosystems represent a part of the complex climate system, the two systems are intricately entwined, they are interconnected by various feedbacks and interactions. A change in the climate system causes a change in forest ecosystems, and the change in forest ecosystems ultimately leads to additional changes in the climate system. Four major roles of forests in climate change are identified. And the impacts of climate change on forests are briefly described. The information in the chapter is based, mostly, on the recent scientific articles and scientific literature in the field, relevant reports of the IPCC, WMO, FAO, UNFF, and UNEP. The recent information, provided by the environmental NGOs, such as Greenpeace, WWF and Forest Watch is also taken into consideration, when relevant.

Chapter III "Forests under the International Climate Change Regime" investigates the international climate change regime with regards to forest regulation. The investigation in the chapter aims to answer the following questions: How are forests regulated under the international climate change regime? What are the challenges, gaps and conflicts with regards to forest regulation under the international climate change regime? Answering this question requires, first, the general understating of the international climate change regime, its structure, major principles and major actors. Currently, the core components of the regime are the UNFCCC,³⁶ its Kyoto Protocol³⁷ and the recent Paris Agreement.³⁸ States are the main principle actors, both, in the creation of the regime and its implementation. However, the regime's institutions, such as Conference of Parties (COP), the Meeting of the Parties to the Kyoto Protocol (CMP), and the Meeting of the Parties to the Paris Agreement (CMA) are also relevant: the subsequent development of the regime, and, which is of particular significance for the research, the clarification and specification of the regime's general obligations with regard to forests, take place through the COP/CMP/CMA negotiations. In the context of the international climate change

³⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994.

³⁷ Kyoto Protocol to the UNFCCC, adopted 11 December 1997, in force 16 February 2005.

³⁸ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016.

regime forest issues are, primarily, negotiated within the frameworks of Land Use Land Use Change and Forestry (LULUCF), the Kyoto flexible mechanisms, namely the Clean Development Mechanism (CDM) and the Joint Implementation mechanism (JI), and the “Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries” (REDD +) instrument. In the context of the research questions, the chapter analyzes the core elements of the international climate change regime, namely, the 1992 UNFCCC,³⁹ the 1997 Kyoto Protocol⁴⁰ and the 2015 Paris Agreement;⁴¹ furthermore, the forest-related decisions of COP, CMP, and CMA; and the relevant guidelines and forest-related materials, provided for by the relevant institutions⁴² under the international climate change regime.

Chapter IV “Forests and Climate Change under the International Forest Regulation” investigates the international forest regime. This chapter has a two-fold objective: to investigate the international forest regulation and to analyze how the regulation addresses climate change issues in the forest context. First of all, the chapter answers the question: How are forests regulated under the international environmental law? This is a challenging task on its own. In comparison to the international climate change regime, established by the UNFCCC, there is no “singular international forest law” to which COP decisions further add. Instead of a basis in a single convention, agreement and/or a protocol, provisions related to forests are scattered through the pieces of hard, soft and private international law. The chapter, first, investigates the evolution

³⁹ UNFCCC, adopted 9 May 1992, in force 21 March 1994.

⁴⁰ Kyoto Protocol to the UNFCCC, adopted 11 December 1997, in force 16 February 2005.

⁴¹ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016.

⁴² Please note that the term “institution” may lead to confusion as the term has a different meaning to international lawyers and international relations scholars. Depending on the specific definition adopted, international institutions may refer to formal organizations, norms or social practices. For international lawyers “international institutional law” more narrowly refers to the law of international organizations. If not specified otherwise the research utilizes the generic term “institutions” as encompassing both “treaty organs and international organizations”. See, D. Bodansky, J. Brunne, E. Hey, *The Oxford Handbook of International Environmental Law*, 2007, pp. 236-237, p.752; J. Klabbers, *An Introduction to International Institutional Law*, 2002; A. Boyle, *Saving the World? Implementation and Enforcement of International Environmental Law through International Institutions*, *Journal of Environmental Law*, 3, 1991, pp. 229 – 245; R. Churchill, G. Ulfstein, *Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law*, *American Journal of International Law*, 94, 2000, pp. 623 – 659.

of the “international forest regime” under the international environmental law.⁴³ This provides for an overview of the “international soft, hard and private law”, which constitutes the “international forest regime” and allows for the subsequent selection of the forest-related treaties and the international political processes for the following analysis. The research proceeds with the in-depth investigation of the forest - specific international political processes and the selected forest-related treaties, which focus on nature conservation and wildlife protection.⁴⁴ Subsequently, each selected international forest specific political process and each selected forest-related treaty is analyzed. First, the international political processes, which have been initiated in the spirit to provide for a comprehensive regulation on forests, namely, the Chapter XI on Combating Deforestation of Agenda XXI,⁴⁵ the 1992 Forest Principles,⁴⁶ the 2007 UN Forest Instrument,⁴⁷ and UNFF process.⁴⁸ Second, the international environmental treaties, which have not been created to apply directly to forests, but may be interpreted *ex post* to capture forests under their scope, namely, the Ramsar Convention,⁴⁹ the WHC,⁵⁰ the CITES⁵¹ and the CBD.⁵² The second question answered by the chapter is: How do the selected international forest-related instruments and processes respond to the issues of climate change? The investigation in chapter four allows to identify the challenges, associated with international forest regulation, and to consider the value of forest and climate change regulation under the selected international environmental law.

Chapter V “Evaluation of Forest-related Interactions between the Environmental Regimes at the International Level” analyses the forest-related interactions between the international environmental regimes at the international level. The

⁴³ Due to the environmental focus, treaties specific to the rights of indigenous peoples and local communities, and the World Trade Organization Law are not mentioned.

⁴⁴ The selection allows to exclude from the scope of the research such treaties, that pursue, at the first instance, other objectives than nature conservation and nature protection (e.g. International Tropical Timber Agreement (ITTA) with its primary objective of “trade expansion”). See, ITTA, adopted 1 January 1994, in force 1 January 1997.

⁴⁵ Agenda 21, adopted 13 June 1992.

⁴⁶ Non-legally Binding Instrument on All Types of Forests, adopted 17 December 2007.

⁴⁷ UN Forest Instrument, adopted 22 October 2007.

⁴⁸ UNFF. // < <http://www.un.org/esa/forests/>>, last viewed 14 April 2017.

⁴⁹ Ramsar Convention, adopted 2 February 1971, in force 21 December 1975.

⁵⁰ Convention for the Protection of the World Cultural and Natural Heritage, adopted 23 November 1972, in force 1 November 1983.

⁵¹ Convention on International Trade in Endangered Species of Wild Fauna and Flora, adopted 3 March 1973, in force 1 July 1975.

⁵² Convention on Biological Diversity, adopted 5 June 1992, in force 29 December 1993.

chapter aims to answer the main research questions: How do the international environmental regimes interact with regards to forest regulation? What are the consequences of the interactions at the international level (e.g. conflicts, gaps, synergies)? And which legal means is it possible to suggest in order to manage the interactions? The first part of the chapter, i.e. "Analytical Framework" sets the point of reference, i.e. the analytical framework for investigating the interactions. The part focuses on "fragmentation" as a concept to describe and analyze the multiple overlapping with regards to forest regulation environmental regimes. The second part of the chapter, i.e. "Forests in the International Environmental Law: Evaluation of Interactions", is the actual analysis. First, the part investigates the interactions between the selected forest-related treaties (the UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES, and the CBD). The analyzed interacting elements include: objectives, principles, concepts, norms, tools and measures. Beyond the rather "textual" interactions (i.e. the interactions, stemming from the text of the treaties) the part investigates such interacting elements as party membership and the interactions, stemming from the activities and outputs of COPs. Besides, the part considers soft-hard law interactions in the context of the international forest regulation. Interactions of the investigated elements may result in conflicting (e.g. competing, overlapping, duplicating), synergetic or neutral effects. Furthermore, it is possible to identify gaps, which have been overlooked and/or due to the absence of enabling possibility, have not been addressed by the treaties' actors. Part three, i.e. "Fragmentation of the International Forest Regulation" brings the findings of the chapter together. Finally, part four, i.e. "Evaluation of Forest-related Interactions between the Selected Environmental Regimes at the International Level: Promoting Cooperation and Coordination", suggests the legal means to manage the interactions with regards to forest regulation at the international level.

Chapter VI "Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (Perspectives from the EU and the RF)" represents the analysis of the forest-related interactions under the

international climate change regime at the implementation level.⁵³ The chapter aims to answer the following questions: How do the international regimes interact with regards to forest regulation at the implementation level? Does compliance with the international climate change regime lead to (new) conflicting interactions in the (sub) national environmental regulation? What regulatory gaps is it possible to detect at the implementation level?

In order to examine the forest-related interactions at the implementation level the research investigates the implementation of the international climate change regime by the EU and by the RF. Both, the EU and the RF, provide good examples for the purpose of the research. Thus, the EU is often discussed by legal scholars as an environmental leader, capable of shaping international environmental agendas.⁵⁴ Combating climate change has been indicated as one of the key strategic priorities for the EU.⁵⁵ The commitment to promote measures at the international level “to deal with regional and worldwide environmental problems and, *in particular, combating climate change*” is codified in the Lisbon Treaty as one of the major EU environmental objectives.⁵⁶ Moreover, climate change action is part of the EU’s ten-year growth strategy, “Europe 2020”: “climate and resources challenges require drastic action” and therefore the EU has pledged to “[...] outreach to other parts of the world in pursuit of a worldwide solution to the problem of climate change”.⁵⁷ Having accepted the rules of the international climate change regime, the EU is committed to contributing to the fight against global warming by developing and

⁵³ The thesis adopts the definition of national implementation as “measures, which parties take to make international agreements operative in their domestic law”. See, chapter VI “Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (Perspectives from the EU and the RF)”.

⁵⁴ S. Oberthur, C. Kelly, *EU Leadership in International Climate Policy: Achievements and Challenges*, *International Spectator*, 43, 35, 2008; J. Gupta, M. Grubb (eds), *Climate Change and European Leadership: A Sustainable Role for Europe?*, 2000; C. Parker, C. Karlsson, *Climate Change and the European Union’s Leadership Moment: An Inconvenient Truth*, *Journal of Common Market Studies*, 48, 923, 2010.

⁵⁴ E.C., *EU Recipient of the 2012 Nobel Peace Prize, From War to Peace: A European Tale*. // <http://europa.eu/rapid/press-release_SPEECH-12-930_en.htm>, last viewed 24 October 2016.

⁵⁵ EC, *Climate Action, EU Climate Action*. // <http://ec.europa.eu/clima/citizens/eu/index_en.htm>, last viewed 07 October 2016; E.C., *Communication from the Commission, Europe 2020, A Strategy for Smart, Sustainable and Inclusive Growth*, COM (2010), 2020 final, 03 October 2010.

⁵⁶ TFEU, *Consolidated Version of the Treaty on the Functioning of the European Union*, 2008, O.J. C 115/49, art. 191 (1), para 5. Emphasis added.

⁵⁷ E.C., *Communication from the Commission, Europe 2020, A Strategy for Smart, Sustainable and Inclusive Growth*, COM (2010) 2020 final, 03 March 2010.

implementing national law and policy aimed at mitigation of and adaptation to climate change. A number of the EU law and policy instruments in the short and long term will directly and indirectly affect forests. Furthermore, the EU MS have actively taken part in forestry projects under the CDM flexibility mechanism.

In contrast to the well-developed EU climate law and policy, the RF climate law and policy has been "lagging behind the actual needs to protect climate".⁵⁸ And despite the fact that more than 20 percent of the world's forests are located in the territory of RF, forest integration into the climate law and policy has been rather limited up until now. For the purpose of the research the RF's experience in the implementation of JI forestry projects is of particular significance. Two out of the three in total currently registered under the international climate change regime JI forestry projects are carried out in the RF.

In order to answer the research questions of the chapter the first part sets the point of reference. It reviews the implementation of the international climate change regime into the environmental law and policy of the EU and of the RF. What are the (sub) national obligations under the international regime? Which forest-related measures have been adopted in order to comply with the international climate obligations? Each following part of the chapter investigates a specific forest-related implementation of the obligations under the international climate change regime. Thus, the second part of the chapter investigates how forests are regulated under the climate law and policy on the LULUCF sector. What is the value of the LULUCF accounting rules for forest regulation? The third part focuses on climate law and policy on renewable energy sources (RES). What is the value of the sub (national) climate law and policy on RES for forest regulation? The fourth part of the chapter investigates the implementation of CDM and JI forestry projects. What is the value of climate law and policy governing CDM and JI forestry projects for forest regulation?

⁵⁸ U. A. Ruskova, *Climate Policy of the Russian Federation and Solving the Problem of Global Climate Change*, (*Климатическая Политика РФ и Решение Проблем Изменения Глобального Климата*), *Vestnik MGMIU*, (Вестник МГИМО), 1 (40), 2015, p. 171; see also A. Korppoo, M. Gutbrod, S. Sitnikov, *Russian Law on Climate Change*, in C. P. Carlarne, K. R. Gray, R. Tarasofsky (eds), *The Oxford Handbook of International Climate Change Law*, 2016.

Finally, the fifth part brings the findings of the chapter together and provides some concluding remarks.

Chapter VII "Conclusions: Overall Evaluation and Recommendations" concludes the research. It presents the overarching dissertation, which unites the findings of all its chapters. The research points out to conflicting interactions between the regimes, outlines the key gaps where attention from policy-makers is needed and provides suggestions on how to enhance synergies between the selected environmental regimes. Final conclusions provide an answer to the research questions as to how do the international climate change regime and the international forest regime interact? and how to manage the consequences of the forest-related interactions at the international level? The chapter puts forth an outlook to the solution proposed.

Chapter II. Climate Change and Forests: Scientific Background.

The first step in answering the research question “How do the international climate change regime and the international forest regime interact with regard to forests?” is to provide a scientific background on the environmental interdependencies between climate change and forests for the legal research in the dissertation. What does contemporary science tell us about climate and forests? What are the causes and impacts of the environmental problems such as climate change, deforestation and forest degradation? How are they interconnected? Answering these questions is an important step in the research, as the findings of the chapter allow for establishing of the interdependence between the ecological processes, which lead to a close relationship between the subject matter with which the international climate change regime and the international forest law are concerned. At a later stage of the research, the scientific background allows for a comparative evaluation, e.g. whether the interacting environmental regimes under consideration take the full account of the most recent scientific knowledge and respond effectively to the contemporary environmental problems, such as climate change, deforestation and forest degradation. Thus, the present chapter investigates the scientific interdependence of climate change and forests: What roles do forests have in the changing climate? How does climate change impact forests globally?

This chapter represents a synthesis of the existing knowledge on climate change and forests from scientific literature. Both, “climate” and “forests” are complex environmental systems, which are described in the chapter through their components, major functions, and variability. The major causes for the environmental problems such as climate change, deforestation and forest degradation and their impacts are discussed. The first part of the chapter focuses on climate and its change (2.1.). The second part describes forests, deforestation and forest degradation (2.2.). As forest ecosystems represent a part of the complex climate system, the two systems are intricately entwined; they are interconnected by various feedbacks and interactions. A change in the climate system causes a change in forest ecosystems, and the change in forest ecosystems ultimately leads to additional changes in the climate system. These interactions are subjected to a close scrutiny in the third part of the chapter

(2.3.). Part four is the interim conclusion. It brings the findings of the three parts of the chapter together (2.4.).

2.1. Climate and Climate Change: General Background.

Understanding the scientific interdependence between climate change and forests first requires understanding what climate and its change are? This part provides a brief explanation of what constitutes “climate” and distinguishes between natural climate variability and anthropogenic climate change (2.1.1.); explains the greenhouse effect and its major causes (2.1.2.); followed by an explanation of its impacts (2.1.3). Finally, the major findings of the section are summarized (2.1.4.).

2.1.1. Weather, Climate and Climate Change.

Climate is a highly complex system that ties together the atmosphere, oceans, land surface as well as animal and terrestrial ecosystems.⁵⁹ In a more scientifically accurate way “climate” is the state of the climate system. It can be described in terms of statistical descriptions of the central tendencies and variability of relevant elements such as temperature, precipitation, atmospheric pressure, humidity and winds or through combinations of elements, such as weather types and phenomena that are typical to a location, region or the world for any period of time.

Climate is often described as an “average weather”. Whereas “weather” is what is happening in the atmosphere at a particular place at any given time, characterized by temperature, wind, precipitation, etc.; “climate” refers to the weather pattern in a certain area over a longer period, typically decades or even longer. Thus, a multitude of extreme weather events or patterns can indicate a change in the climate system. These changes are captured in the term “climate

⁵⁹According to the definition used by the IPCC, “climate system” is the highly complex system consisting of five major components: *the atmosphere* (i.e. the envelope of gas surrounding the Earth), *the hydrosphere* (i.e. liquid water at the Earth’s surface and underground (e.g. oceans, rivers, lakes), *the cryosphere* (i.e. water in its frozen state (e.g. glaciers, snow, ice), *the lithosphere* (the upper layer of the solid Earth, both continental and oceanic) and *the biosphere* (all living organisms and ecosystems over the land and in the oceans). S. Planton (ed.), Annex III: Glossary in *Climate Change, 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2013*, p. 1451.

variability”.⁶⁰ Variability may occur due to natural internal processes (e.g. condensation of water vapor in clouds; ocean variability; ice sheet change; etc.) or external “forcings”, both natural and anthropogenic (e.g. volcanic eruptions; modulations in the solar cycles; human-induced changes in the composition of the atmosphere or in land use).

The IPCC uses the terms “climate variability” and “climate change” almost interchangeably.⁶¹ The UNFCCC distinguishes between climate variability attributable to natural causes and climate change attributable to human activities altering the atmospheric composition. Article 1.2. of the UNFCCC defines “climate change” as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.⁶²

2.1.2. Climate Change and Greenhouse Effect: Causes.

Human induced climate change happens when anthropogenic GHG emissions amplify the natural greenhouse effect, global average surface temperatures increase and other changes within the climate system take place (e.g. sea level rises, weather patterns change, ice sheets melt, etc.).⁶³ Natural greenhouse effect is the process by which the surface of the planet warms with the radiation coming from the atmosphere. Roughly one-third of the solar energy that reaches the top of the Earth’s atmosphere is reflected directly back to space. The remaining two-thirds is absorbed by the surface and, to a lesser extent, by the atmosphere. To balance the incoming energy, the Earth radiates the same amount of energy back to space. The greenhouse effect warms the surface of

⁶⁰ IPCC, Climate Change, 2014, Synthesis Report, Contribution of the Working Groups I, II, and III, to the Fifth Assessment Report of the IPCC, 2014, p. 121.

⁶¹ According to the IPCC “Climate Change” is a variation in either the mean state of climate and/or the variability of its properties that persist for an extended period, typically decades or longer. IPCC, Climate Change, 2014, Synthesis Report, Contribution of the Working Groups I, II, and III, to the Fifth Assessment Report of the IPCC, 2014, p. 121.

⁶² UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 1.2.

⁶³ Please note, that a rise in the global average surface temperatures is the best known indicator of climate change. See, IPCC, Climate Change 2013, The Physical Science Basis, Frequently Asked Questions, p. 7.

the planet when this thermal radiation is absorbed by the atmosphere, including clouds, and reradiated back on Earth.⁶⁴

The natural greenhouse effect is caused by the atmospheric greenhouse gases (GHG) such as water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), ozone (O₃) and chlorofluorocarbons (CFCs),⁶⁵ which effectively act as a blanket that traps radiation (heat) and prevents most of the thermal radiation from entering outer space. Without these gases and their heat trapping abilities, the average temperature at the Earth's surface would be below the freezing point of water. The natural greenhouse effect increases the mean temperature on Earth to a life sustaining 14 °C.⁶⁶

Increases in the concentration of GHGs in the atmosphere may lead to less radiation entering outer space, which can gradually increase the temperature of the lower atmosphere and the Earth's surface, i.e. "global warming".⁶⁷ In scientific terms, the net radiative balance⁶⁸ at the top of the atmosphere is changed, which leads to radiative forcing (rf)⁶⁹ of the atmosphere. Increased GHG concentrations result in positive radiative forcing, while additional cooling

⁶⁴ IPCC, Climate Change 2007, The Physical Science Basis, Frequently Asked Questions, What is the Greenhouse Effect, 1.3.// < https://www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-1-3.html >, last viewed 16 April 2017.

⁶⁵ These greenhouse gases together constitute less than one per cent of the atmosphere, which consists almost entirely of nitrogen (78,1%) and oxygen (20,9%) together with a number of trace gases. None of these gases can trap radiation.

⁶⁶ Without the natural greenhouse effect, the Earth's average surface temperature would be around minus 19 °C.

⁶⁷ IPCC, Climate Change 2007, the Frequently Asked Questions, What is the Greenhouse Effect, p. 95, p. 99. See also, Encyclopedia, Earth and the Environment. // <<http://www.infoplease.com/encyclopedia/science/global-warming.html>>, last viewed 23 November 2015.

⁶⁸ Net Radiative balance describes the net flow of energy into Earth in the form of shortwave radiation and the outgoing infrared long wave radiation into space. See, M. Chiacchio, F. Solomon, F. Giorgi, P. Stackhouse Jr., The Global Energy Budget with a regional Climate Model over Europe, European Geosciences Union General Assembly, 15, 2013.

⁶⁹ "Radiative Forcing" is a measure of the influence that a factor has in altering the balance of incoming and outgoing energy in the Earth-Atmosphere system. The IPCC defines RF as "the change in the net, downward minus upward, radiative flux at the tropopause [the boundary between the troposphere and the stratosphere] or top of atmosphere due to a change in an external driver of climate change, such as, for example, a change in the concentration of carbon dioxide or the output of the Sun". In other words, RF may be understood as a difference of sunlight absorbed by the Earth and energy reradiated back to space. Causes of RF include changes in GHG concentrations. RF is expressed in Watts per square meter (Wm⁻²). See, S. Planton (ed.), Annex III: Glossary in Climate Change, 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2013, p. 1460.

of the Earth, for example, through an increase in aerosols,⁷⁰ would be described as negative radiative forcing. Albeit not instantaneously,⁷¹ any radiative forcing alters the surface and ocean temperatures and affects weather patterns. As can be seen in Figure 1, concentrations of GHG have increased dramatically since pre-industrial times. For example, concentrations of CO₂ have increased by more than 40 percent since 1750.

Figure 1: Global abundances (relative number of molecules) of key greenhouse gases averaged over the twelve months of 2012 as well as changes relative to 2011 and 1750, and contributions to radiative forcing (a measure of how much a gas contributes to “global warming”), from the WMO Global Atmosphere Watch global GHG monitoring network.

Parameter	Carbon Dioxide (CO₂)	Methane (CH₄)	Nitrous Oxide (N₂O)
Pre-Industrial Levels (1750)	278 ppm	722 ppb	270 ppb
1994 Levels	358 ppm	1720 ppb	312 ppb
Global Abundance in 2012	393,1+/- 0,1 ppm	1819 +/- 1 ppb	325,1+/- 0, 1 ppb
2012 abundance relative to year 1750	141%	260%	120%
2011-2012 absolute increase	2,2 ppm	6 ppb	0,9 ppb
2011-2012 relative increase	0,56%	0,33%	0,28%
Mean annual absolute increase during last 10 years	2,02 ppm/yr	3,7 ppb/yr	0,80 ppb/yr

⁷⁰ Aerosol – suspension of fine solid particles or liquid droplets in a gas. Examples are clouds, and air pollution such as smog and smoke.

⁷¹ Changes due to Earth’s energy budget do not occur instantaneously due to the inertia (slow response) of the oceans and the cryosphere to react to the new energy budget. The net heat flux is buffered primarily in the ocean’s heat content, until a new equilibrium state is established between incoming and outgoing radiative forcing and climate response. See, M. Previdi, B.G.Liepert, D. Peteet, J. Hansen, Climate Sensitivity in the Anthropocene, Quarterly Journal of the Royal Meteorological Society, 139, 2013, pp. 1121-1131.

Contribution to radiative forcing relative to 1750	1, 846 Wm ⁻²	+0, 507 Wm ⁻²	+0, 181 Wm ⁻²
Atmospheric lifetime (years)	40-200	9-17	120-150

All data in ppm- parts per million by volume and ppb – parts per billion⁷² by volume.

Source: WMO, Greenhouse Gas Bulletin, 9, November, 2013, p. 2; IPCC, Climate Change, the IPCC Scientific Assessment, 1990, p. 7; IPCC, Climate Change 1995, the Science of Climate Change, Contribution of Working Group I to the Second Assessment Report, 1996, p. 15.

The most recent IPCC Assessment Report (AR) provides that human influence has been the dominant cause for the observed increase in GHG concentrations in the atmosphere, positive radiative forcing and the observed warming.⁷³ Experts state, about 26 percent of anthropogenic GHG emissions are derived from energy supply, about 19 percent from industry, 17 percent from land use and land-use change and forestry activities (LULUCF), 14 percent from agriculture, and 13 percent from transport.⁷⁴ The contribution of the “LULUCF” sector

⁷² These units, which hereinafter are referred to with the abbreviations “ppm” and “ppb”, designate the concentration of GHGs in the atmosphere.

⁷³ See, IPCC, Assessment Report 5, Summary for Policymakers, 2013, pp. 2-4. Non-human related phenomena also have an influence on the greenhouse effect. For instance, clouds strongly affect the current climate in a variety of ways: produce precipitation (rain and snow); strongly affect the flows of both sunlight (warming the planet) and infrared light (cooling the planet as it is radiated to space) through the atmosphere; contain powerful updrafts that can rapidly carry air from near the surface to great heights. Overall, as available scientific evidence shows, clouds amplify anthropogenic greenhouse warming. Furthermore, aerosols affect climate: directly through scattering and absorbing sunlight, which modify the Earth’s radiative balance; and indirectly, serving as condensation and ice nucleation sites, on which cloud droplets and ice particles can form. Because aerosols are distributed unevenly in the atmosphere, they can heat and cool the climate system. Determining their global impact on climate is highly uncertain, however, most studies agree, that aerosols have exerted a cooling influence on the Earth since pre-industrial times. Moreover, atmospheric concentrations of GHGs can be influenced significantly by so-called natural feedback effects. These are interactions in which a perturbation in one climate quantity causes a change in a second, and the change in the second quantity ultimately leads to an additional change in the first. For instance, deforestation and forest degradation lead to a diminished uptake of carbon. The feedback is positive if it amplifies the cooling or warming effect, it is negative when the initial perturbation is weakened by the changes it causes.

⁷⁴ IPCC, Assessment Report 4, Synthesis Report, 2007, p. 37. The most recent Fifth IPCC AR established that the earth has been warming as a result of the high increase of CO₂ concentrations in the atmosphere since the Industrial Revolution (base year 1850) and that this has been caused by human activity, particularly the combustion of oil, natural gas and coal, as well as deforestation. However the exact contribution of a particular human activity is

towards climate change is of particular significance for the current research. "LULUCF" refers to GHG emissions from human activities, which change the way land is used and affect the amount of biomass in existing forests.⁷⁵ Land use change has many effects on climate change (e.g. by altering the GHG content of the atmosphere and/ or by "biophysical processes" unrelated to the emission of GHG).⁷⁶ Among the most important land-use changes are those that result in CO₂ emissions, including such as removals and changes in forest and other woody biomass stocks; forest conversion (e.g. to pasture, cropland, or other managed uses); abandonment of managed lands that regrow into their prior forest conditions; and changes in soil carbon.⁷⁷ Over the recent years significant land-use changes have occurred as a result of promotion by climate change mitigation policies of bioenergy production.⁷⁸ Enhanced use of bioenergy from purpose-grown biomass crops can lead to land-use change, including so-called indirect land-use change, when new areas for food production are established elsewhere to compensate for the reduced food production in a given region. Currently emissions from the LULUCF sector are rising; in the coming years the

challenging to estimate. The figures with respect to the input of the LULUCF sector, depending on the methods used and definitions applied, may vary. Thus, the UNEP provides that the forestry and agriculture sector provides for 22 percent of global GHG emissions. See, IPCC, Assessment Report 5, summary for Policymakers, 2013, pp. 2-4; UNEP, The Emission Gap Report, 2012, p. 11.

⁷⁵ IPCC, World Meteorological Organization (WMO), IPCC Special Report, LULUCF, Summary for Policymakers, 2000, p. 4.

⁷⁶ Land-use change processes that affect climate, but are unrelated to the emission of GHG, are the so-called "biophysical processes". They operate by affecting radiation and evapotranspiration. In short, when sunlight hits the land surface, a proportion of this light is directly reflected back to the atmosphere, and the remainder is absorbed. The amount of reflection is called albedo, and the albedo of a dark surface is lower than that of a light surface. A forest landscape, therefore, has a lower albedo than a cropland or grassland, and this affects the forest's surface temperatures, as the absorbed sunlight is turned into heat. In ecosystems that are managed for food production, more sunlight is reflected compared to a forest, and thus their land surface temperature is relatively lower than that above a forest. The absorbed radiation, however, is only partially turned into heat; another part is used to move water vapor from ecosystems into the atmosphere. This process is known as evapotranspiration, and consists of water vapour loss from soils (evaporation) and from plants via their green leaves (transpiration). High evapotranspiration leads to cooling. For more information, see, M. Agreiter (ed.), *How Agriculture and Forestry Change Climate and how we Deal with it?*, 2015, pp. 12 -15.

⁷⁷ IPCC, Land Use, Land-Use Change and Forestry. // < http://www.ipcc.ch/ipccreports/sres/land_use/index.php?idp=44 >, last viewed 05 May 2015.

⁷⁸ The term "bioenergy" refers to the numerous forms of biomass used for generating energy in the form of fuel, electricity or heat. Biofuels like ethanol, biodiesel and biogas are produced through conversion of plant materials that are rich in starch (e.g. maize) or oils (e.g. palm oil, oilseed rape). The most traditional source of bioenergy is woody biomass. Thus, for instance, over the recent years in countries and regions like China, the EU, the US and Brazil, bioenergy production has increased up to threefold since the beginning of the 21st century. M. Agreiter (ed.), *How Agriculture and Forestry Change Climate and how we Deal with it?*, 2015, pp. 48 - 50.

trend is likely to continue to remain high as demand for food, fibers and biofuels continues to increase.⁷⁹

Among the most important GHG - contributors to the greenhouse effect are water vapor and CO₂. The most important GHG and the largest contributor to the natural greenhouse effect, is water vapor.⁸⁰ It is considered a “natural” GHG; its concentration in the atmosphere is determined mainly by the climate system itself and not affected by human activity directly.⁸¹ It is important to stress, that water vapor will increase with global warming and, thus, enhance the greenhouse effect further.⁸²

The most important human-induced GHG is CO₂.⁸³ Although carbon dioxide is actually a small part of the atmosphere,⁸⁴ the GHG has been responsible for over half of the “enhanced” greenhouse effect in the past, and is likely to remain so in the future.⁸⁵ CO₂ is released primarily by burning of fossil fuels and clearing of forests. Carbon is constantly exchanged between atmosphere, oceans and terrestrial biosphere in the global carbon cycle. The GHG might be taken up by the ocean or biosphere and never reach the atmosphere, depending on levels of saturation. Yet, because CO₂ has a lifetime of 40-200 years, past emissions continue to influence the radiative balance for centuries to come. For the purpose of this thesis, it is important to stress, that GHG emissions are discussed here generally, and often the focus will be on CO₂ or carbon, as the main GHG or GHG component. Moreover, non-CO₂ GHG emissions from forestry

⁷⁹ P. Canaveira, Options and Elements for an Accounting Framework for the Land Sector in the Post-2020 Climate Regime, Terraprima Report to the Swiss Federal Office for the Environment, 2014, p. 8.

⁸⁰ IPCC, Climate Change 2007, the Frequently Asked Questions, What is the Greenhouse Effect, p. 98. See also UNEP, Climate Change Information Sheet 3. // < <http://unfccc.int/cop3/fccc/climate/fact03.htm> >, last viewed 23 November 2015.

⁸¹ WMO, Climate, Climate Change, Causes of Climate Change.// < https://www.wmo.int/pages/themes/climate/causes_of_climate_change.php >, last viewed 23 November 2015.

⁸² IPCC, Climate Change 2007, the Frequently Asked Questions, What is the Greenhouse Effect, p. 100.

⁸³ IPCC, Climate Change 2007, the Frequently Asked Questions, What is the Greenhouse Effect, p. 98, p. 100.

⁸⁴ WMO, Climate, Climate Change, Causes of Climate Change.// < https://www.wmo.int/pages/themes/climate/causes_of_climate_change.php >, last viewed 23 November 2015.

⁸⁵ UNEP, Climate Change Information Sheet 3. // < <http://unfccc.int/cop3/fccc/climate/fact03.htm> >, last viewed 23 November 2015. See also, M. Agreiter (ed.), How Agriculture and Forestry Change Climate and how we Deal with it?, 2015.

and other land use are small in comparison, and mainly arise from peat degradation through drainage and biomass fires.⁸⁶

2.1.3. Climate Change: Impacts.

Climate change causes impacts on natural and human systems on all continents and across the oceans. The term "climate change impact" is not defined in any international legal instrument and is often used very loosely by scientific and policy community. It has been observed, that the interpretation of the term by scientists and/or policy makers can be quite different.⁸⁷ Article 1.1. of the UNFCCC defines "adverse effects of climate change" as "changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience, or productivity of natural or managed ecosystems or on the operation of socio-economic systems or on human health and welfare".⁸⁸

A range of climate change impacts that could severely affect people and ecosystems worldwide are determined in the contributions to the IPCC Assessment Reports by the Working Group II (WG II).⁸⁹ The most recent WG II contribution outlines climate change impacts based on the four Representative Concentration Pathways (RCPs).⁹⁰ These are the four GHG concentration

⁸⁶ P. Smith, et al, Agriculture, Forestry and Other Land Use (AFOLU), in O. Edenhofer et al (eds), Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014, p. 825.

⁸⁷ European Forest Institute (EFI) et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 18.

⁸⁸ UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 1.1.

⁸⁹ IPCC, Assessment Reports.// <
https://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml>, last viewed 16 April 2017.

⁹⁰ The earlier IPCC Assessment Reports relied mostly on "scenarios", that described future releases into the atmosphere of GHGs, aerosols, and other pollutants, and, along with information on land use and land cover and provided inputs to climate models. Such scenarios were based on assumptions about driving forces such as patterns of economic and population growth, technology development, and other factors. Some emission scenarios were organized into "families", which contain scenarios that are similar to each other in some respects. However, these scenarios are becoming outdated in terms of their data and projections, and their scope is too narrow to serve contemporary science. The more recent Representative Concentration Pathways (RCPs) are richer and more diverse and offer a higher level of regional detail than previous scenarios. RCPs are based on selected scenarios from four major "families", and represent projections of only the components of radiative forcing (the change in the balance between incoming and outgoing radiation to the atmosphere) and not the detailed socioeconomic narratives or scenarios. For more information see, WMO, Emission Scenarios.// <
https://www.wmo.int/pages/themes/climate/emission_scenarios.php>, last viewed 12 May

trajectories, which describe four possible climate futures, depending on how much GHGs are emitted in the years to come.⁹¹ The four RCPs, i.e. the RCP 2.6, the RCP 4.5, the RCP 6, and the RCP 8.5, are named after a possible range of radiative forcing (i.e. a difference of sunlight absorbed by the Earth and energy reradiated back to space) values in the year 2100 relative to pre-industrial values (+2, 6; +4, 5; + 6, 0; and + 8,5 W/m², respectively). RCP 2.6 assumes that global annual GHG emissions (measured in CO₂ equivalent) peak between 2010 to 2020, with emissions declining substantially thereafter. Emissions in RCP 4.5 peak around 2040, and then decline. In RCP 6 emissions peak around 2080, and then decline. In RCP 8.5 emissions continue to rise throughout the 21st century. Thus, all the RCPs expect growth for atmospheric concentrations of GHGs in the future.

Growth in the atmospheric concentrations of GHGs will cause further warming and changes in all components of the climate system.⁹² Under all the RCP scenarios global mean temperature is projected to rise: from 0,3 ° C (RCP 2.6) to 4,8 ° C (RCP 8.5) by the late 21st century (Figure 2).⁹³ Due to increased warming, glaciers and ice sheets will continue to melt, global sea level is projected to rise possibly up to 0,82 m by 2100 (Figure 2).⁹⁴ About 70 percent of the coastlines worldwide are projected to experience the sea level change.⁹⁵ Global water cycle will change,⁹⁶ the change in precipitation will vary

2015; IPCC, C.B. Field, et al (eds), *Climate Change 2014, Impacts, Adaptation, and Vulnerability, Part A, Global and Sectorial Aspects, Contribution of the Working Group II to the Fifth Assessment Report of the IPCC, 2014*, pp. 176-178; T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p. 29.

⁹¹ M. Meinshausen et al, *The RCP GHG Concentrations and their Extensions from 1765 to 2300*, *Climate Change*, 2011, 109, p. 223.

⁹² T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p.17.

⁹³T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p. 23.

⁹⁴ T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p. 23.

⁹⁵ T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p. 26.

⁹⁶ T.F. Stocker, et al (eds), *Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013*, p. 20.

substantially from season to season and across regions, the contrast in precipitation between wet and dry seasons will increase.⁹⁷ Heat waves will occur with a higher frequency and duration.⁹⁸ Climate is expected to become more variable with greater risk of extreme weather events, such as prolonged drought, storms and floods.

Figure 2: Projected change in global mean surface air temperature and global mean sea level rise for the mid- and late 21st century relative to the reference period of 1986-2005.

		2046–2065		2081–2100	
	Scenario	Mean	Likely range ^c	Mean	Likely range ^c
Global Mean Surface Temperature Change (°C) ^a	RCP2.6	1.0	0.4 to 1.6	1.0	0.3 to 1.7
	RCP4.5	1.4	0.9 to 2.0	1.8	1.1 to 2.6
	RCP6.0	1.3	0.8 to 1.8	2.2	1.4 to 3.1
	RCP8.5	2.0	1.4 to 2.6	3.7	2.6 to 4.8
	Scenario	Mean	Likely range ^d	Mean	Likely range ^d
Global Mean Sea Level Rise (m) ^b	RCP2.6	0.24	0.17 to 0.32	0.40	0.26 to 0.55
	RCP4.5	0.26	0.19 to 0.33	0.47	0.32 to 0.63
	RCP6.0	0.25	0.18 to 0.32	0.48	0.33 to 0.63
	RCP8.5	0.30	0.22 to 0.38	0.63	0.45 to 0.82

Source: T.F. Stocker, et al (eds), Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013, p. 23.

In its Fourth AR the IPCC established that a global temperature rise of 2 ° C above the pre-industrial level (up to the year 1850) creates the risk of dangerous, irreversible change of climate. In order to limit the temperature rise to 2 - 2,4 ° C the concentration of GHGs in the atmosphere will have to be stabilized at a level of 445-490 ppm CO₂ equivalent.⁹⁹

⁹⁷ T.F. Stocker, et al (eds), Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013, p. 23.

⁹⁸ T.F. Stocker, et al (eds), Climate Change 2013, The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the IPCC, Summary for Policymakers, 2013, p. 20.

⁹⁹ IPCC, Synthesis Report 2007, pp. 64-65.

The actual impacts of climate change on human and natural ecosystems depend on the vulnerabilities¹⁰⁰ of specific regions and countries and their ability to adapt to a change. For instance, whereas for the Russian Federation (RF) the observed warming effect may bring economic benefits, such as, for instance, the expansion of agricultural activities, the possibilities for advanced assimilation in Siberia uninhabited lands, the reduced energy demand for space heating, etc.,¹⁰¹ a warming effect might become catastrophic in the case of island States in the World. Thus, as climate gets warmer and glaciers are retreating, the sea level rises. This threatens to flood the low-lying islands and coastal areas, such as Tuvalu, the Pacific Island State Palau, Bangladesh and others.¹⁰² In general, developing countries and small island developing States are most vulnerable to climate change impacts from the standpoint of their (already low) GDP and the lowest capacity to adapt.¹⁰³ Developing economies rely more heavily on climate sensitive activities (in particular, agriculture), and many already operate close to environmental and climatic tolerance levels (e.g. with respect to coastal and water resources).¹⁰⁴

There are two possible responses to climate change impacts: mitigation, i.e. a human intervention to reduce the sources or enhance the sinks of GHGs;¹⁰⁵ and adaptation, i.e. adjustment in natural or human systems in response to actual or

¹⁰⁰ Vulnerability is the degree to which a system is susceptible to, or unable to cope with adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity (i.e. the degree to which a system responds to a change in climate) and adaptive capacity (the degree to which adjustments in practices, processes or structures can moderate or offset the potential for damage or take advantage of opportunities created by a given change in climate). See, UNFCCC, Glossary of Climate Change Acronyms.// <http://unfccc.int/essential_background/glossary/items/3666.php>, last viewed 25 June 2015.

¹⁰¹ Climate Doctrine of the Russian Federation, Possible Positive Effects, 17 December 2009.// <<http://archive.kremlin.ru/eng/text/docs/2009/12/223509.shtml>>, last viewed 30 June 2015.

¹⁰² See for instance, R.E. Jacobs, Treading Deep Waters: Substantive Issues in Tuvalu's Threat to Sue the United States in the International Court of Justice, Pacific Rim Law & Policy Journal Association, 2005, pp. 103-128; K. Boom, See you in Court, the Rising Tide of International Climate Litigation, 2011; A. Okamatsu, Problems and Prospects of International Legal Disputes on Climate Change.// <http://userpage.fu-berlin.de/ffu/akumwelt/bc2005/papers/okamatsu_bc2005.pdf>, last viewed 25 June 2015.

¹⁰³ UNFCCC, Impacts, Vulnerabilities and Adaptation in Developing Countries, 2007.

¹⁰⁴ Poverty and Climate Change, p. 5. // <<http://www.oecd.org/env/cc/2502872.pdf>>, last viewed 23 November 2015.

¹⁰⁵ UNFCCC, Glossary of Climate Change Acronyms.// <http://unfccc.int/essential_background/glossary/items/3666.php>, last viewed 25 June 2015.

expected climate effects, which moderates harm or exploits beneficial opportunities.¹⁰⁶

2.1.4. Climate Change: Interim Summary.

To sum up, at present there is already a strong scientific indication that the global climate is changing, that human activities contribute significantly to the trend and that the anthropogenic emissions of GHGs amplify the natural greenhouse effect. One of the largest sources of anthropogenic GHG emissions are the LULUCF activities (e.g. changes in forest cover and other woody biomass stock, forest conversion to pastures, croplands, or other managed uses, etc.). In the coming years the atmospheric concentrations of GHGs will continue to rise, leading to changes in all components of the climate system: temperature variations; changes in precipitation; frequency and duration of extreme weather events; etc. This climate variability, in turn, will lead to impacts on natural or managed ecosystems, socio-economic systems, or on human health and welfare. Two equally important responses to climate change are mitigation (i.e. human intervention to reduce the sources or enhance the sinks of GHGs) and adaptation (i.e. adjustment in natural or human systems in response to actual or expected climate effects, which moderates harm or exploits beneficial opportunities).

2.2. Global Forests, Deforestation and Forest Degradation: Scientific Background.

The present part of the chapter provides a scientific background on global forests. The first section provides a brief explanation of what constitutes “forest” (2.2.1). The second section gives an overview of forest resources and their extent world-wide (2.2.2). The section is followed by a brief description of forest types (2.2.3). Forest functions and services are reviewed in section four (2.2.4). Finally, the attention is paid to the alarming rates of the global forest decline, the major causes of the problem and its impacts are described in section five. (2.2.5). Subsection six summarizes the major findings of all the sections of the present part of the chapter (2.2.6).

¹⁰⁶ UNFCCC, Glossary of Climate Change Acronyms.// <http://unfccc.int/essential_background/glossary/items/3666.php>, last viewed 25 June 2015.

2.2.1. Forest Definition.

Defining of what constitutes a forest is not easy; it has been designated by legal scholars as “one among numerous and persistent problems inherent in forests”.¹⁰⁷ Forest types differ significantly, influenced by factors including, latitude, temperature, rainfall patterns, soil composition and human activity. Thus, for instance, people living in the EU or in the RF might identify forests differently from the definitions adopted, for instance, in Africa and Brazil. A 2015 study of the different definitions of forests found that more than 1642 different definitions for forests and wooded areas are in use around the world – with some countries officially adopting several such definitions at the same time (Figure 3).¹⁰⁸

Figure 3: Summary of Published Definitions of “forest” found as of 2 June 2015.

Definition Type	Scope				Total
	General	International	National	Local	
Administrative (definitions declared at administrative units)	20	0	104	21	145
Cover (a land cover)	241	102	526	104	973
Use (a land use)	62	51	204	111	428
Ecological/Miscellaneous	25	6	48	17	96
Total	348	159	882	253	1642

Source: adopted from H.G. Lund, Definitions of Forest, Deforestation, Afforestation, and Reforestation, 2015. // <http://home.comcast.net/~gyde/DEFpaper.htm>, last viewed 02 June 2015.

Different definitions are required for different purposes and at different scales. Definitions may highlight various vantage points of forests, i.e. forest as a source of timber products, an ecosystem composed of trees along with various forms of biological diversity, a sink and/or a reservoir for carbon storage. A

¹⁰⁷ S. Assembe-Mvondo, The Customary Law Nature of Sustainable Forest Management States Practice in Central America and European Union, *Journal of Sustainable Development*, 3, 2, 2010, p. 58.

¹⁰⁸ H.G. Lund, Definitions of Forest, Deforestation, Afforestation, and Reforestation, 2015.// <http://home.comcast.net/~gyde/DEFpaper.htm>, last viewed 02 June 2015.

definition based on physical characteristics, such as the canopy cover,¹⁰⁹ will most likely be used for an assessment of the forest extent, whilst a definition based on botanical characteristics, i.e. variety of tree species, will be used for assessing various classes or types of forests. An assessment focusing on the availability of timber for commercial or industrial purposes may exclude small wooded areas and types of forest not considered to be of commercial value. An overall assessment carried out on a global level is unlikely to satisfy more detailed national level requirements. Conversely, a definition developed to suit the needs of any given country is unlikely to be applicable at a global level.¹¹⁰

At the global level a number of common definitions of forests have been developed. As a rule such common definitions are very broad in order to encompass all types of forests; these definitions reflect the various forest management objectives (Figure 4, Forest definitions at the global level). In 1948 the FAO adopted the first forest definition in order to assess global wood harvesting potential after the World War II. It remains the most widely used forest definition up until today.¹¹¹ Over time, conservation became increasingly incorporated into forest management objectives and new forest definitions have been developed (e.g. under the CBD). The UNFCCC regime initiated a new forest management objective, i.e. forests as carbon sinks and/or reservoirs, and adopted its own definition of forests. As scholars note, “currently the multiple definitions of forests coexist, [...yet], aligning their objectives and roles in policy-making and governance remains a major challenge”.¹¹²

Figure 4: Forest Definitions at the Global Level

FAO Global Forest Resources Assessments (FRA) are based on data, provided by individual countries, using an agreed global definition of forest:

¹⁰⁹ Canopy cover (also called crown closure or crown cover) – the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of plants. Cannot exceed 100 percent. See, FAO, FRA 2015, Terms and Definitions, 2015, p. 26; IPCC, 2003, Good Practice Guidance for LULUCF, Glossary.

¹¹⁰ UNEP, Vital Forest Graphics. // < <http://www.unep.org/vitalforest/Report/VFG-01-Forest-definition-and-extent.pdf>>, last viewed 17 May 2016.

¹¹¹ R. L. Chazdon, et al., When is a forest a forest? Forest Concepts and Definitions in the Era of Forest and Landscape Restoration, The Royal Swedish Academy of Sciences. // < <http://link.springer.com/article/10.1007%2Fs13280-016-0772-y>>, last viewed 12 May 2016.

¹¹² R. L. Chazdon, et al., When is a forest a forest? Forest Concepts and Definitions in the Era of Forest and Landscape Restoration, The Royal Swedish Academy of Sciences. // < <http://link.springer.com/article/10.1007%2Fs13280-016-0772-y>>, last viewed 12 May 2016.

"land spanning more than 0,5 hectares (ha) with trees higher than 5 metres and a canopy cover of more than 10 %, or trees able to reach these thresholds *in situ*. Forest does not include land that is predominantly under agricultural or urban land use";¹¹³

CBD regime: "a forest is a land area of more than 0,5 ha, with a tree canopy cover of more than 10%, which is not primarily under agricultural or other specific non-forest land use. In the case of young forests or regions where tree growth is climatically suppressed, the trees should be capable of reaching a height of 5 m *in situ* and of meeting the canopy cover requirement";¹¹⁴

UNFCCC regime: "forest is a minimum area of land of 0,05 - 1,0 ha with tree crown over (or equivalent stocking level) of more than 10-30 % with trees with the potential to reach a minimum height of 2-5 metres at maturity *in situ*. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 % or tree height of 2-5 meters are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest".¹¹⁵

If not specified otherwise, this thesis adopts a wide definition of forest, including all areas with substantial tree cover, all types of forest composition in any

¹¹³ FAO, FRA 2015, Terms and Definitions, Forest 2015, p. 3. Please note that FAO definitions of forest evolve. Thus, for instance, the first FAO assessment of the world's forest resources in 1948 defined "forested land" as "vegetative associations dominated by trees of any size, capable of producing timber or other products or of exerting an influence on the climate or the water regime". The use of different definitions leads to vastly different estimates of national and global forest cover and observed rates of forest gain and loss. For instance, the estimate of global forest area increased by 300 million ha (approximately 10%) between 1990 and 2000 simply because the FRA changed its global definition of forest, reducing the minimum height from 7 to 5 m, reducing the minimum area from 1.0 to 0.5 ha and reducing minimum crown cover from 20% to 10%. See, FAO, Forest Resources of the World, 1948. // < [http://www.fao.org/docrep/x5345e/x5345e03.htm#some definitions](http://www.fao.org/docrep/x5345e/x5345e03.htm#some%20definitions)>, last viewed 16 July 2015; E. Matthews, Understanding the FRA 2000, p. 2. // < <http://pdf.wri.org/fra2000.pdf>>, last viewed 12 May 2016.

¹¹⁴ CBD, Definitions. // < <https://www.cbd.int/forest/definitions.shtml>>, last viewed 17 May 2016.

¹¹⁵ UNFCCC, Decision 11/CP.7.

geographical range and with any species structure. The terms “forests” and “forest ecosystem” are used in the thesis interchangeably.

2.2.2. Extent of Forests Resources.

According to FAO the current world’s total forest area is just over 4 billion hectares, or 31 percent of the total land area.¹¹⁶ Globally the area of forests is unevenly distributed. Europe accounts for 25 percent of the world’s total forest area (including the Russian Federation), followed by South America (21 percent), and North and Central America (17 percent).¹¹⁷

At the country level, the Russian Federation alone accounts for 20 percent of the total forest area in the world, i.e. 809 million ha. Nine world’s forest richest countries account for 47 percent of the world’s total forest area (Figure 5).¹¹⁸ The remaining 33 percent (i.e. 1 347 million ha) is spread among 213 countries and areas.¹¹⁹ Ten countries and areas, i.e. the Falkland Islands (Malvinas), Gibraltar, the Holy See, Monaco, Nauru, Qatar, Saint Barthelemy, San Marino, Svalbard and Jan Mayen Islands, and Tokelau, have no areas that qualify as forests at all.¹²⁰

Figure 5: Ten Countries with the Largest Forest Area, 2010 (million ha).

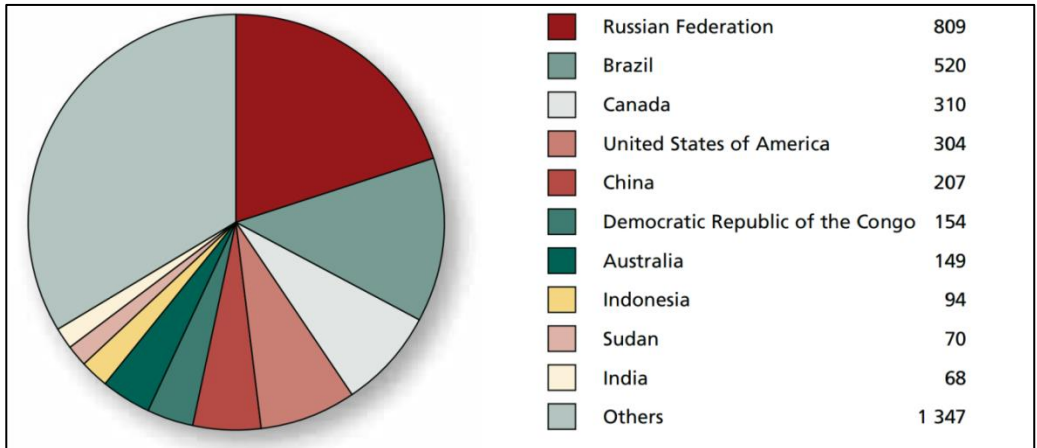
¹¹⁶ FAO, FRA 2010, 2010, p. 12.

¹¹⁷ FAO, FRA 2010, 2010, p. 12.

¹¹⁸ FAO, FRA 2010, 2010, Figure 2.2., p. 13; Brazil (520 million ha); Canada (310 million ha); United States of America (304 million ha); China (207 million ha); Democratic Republic of Congo (154 million ha); Australia (149 million ha); Indonesia (94 million ha); Sudan (70 million ha); India (68 million ha).

¹¹⁹ FAO, FRA 2010, 2010, p. 12.

¹²⁰ FAO, FRA 2010, 2010, p. 13.



Source: FAO, FRA 2010, p. 13.

Another nine percent of the total land area globally, i.e. 1,1 billion ha, are covered with “other wooded land”.¹²¹ This land is not defined as forest because trees canopy cover is lower than the one of forests.¹²²

Almost half of the agricultural land in the world, i.e. another billion ha, is covered with “trees outside forests”.¹²³ “Trees outside forests” refers to trees found on lands that are not categorised as “forest” nor as “other wooded land”. They include trees found in rural landscapes (e.g. on farms, in fields, agroforestry systems etc.) and in urban settings (e.g. on private or public lands and along streets). If “other wooded land” and “trees outside forests” could be classified as forests, this would increase the world’s total forest area to over 6 billion ha.

2.2.3. Types of Forests.

There is a great variation in the forms and types of forests throughout the world. This section first, focuses on the types of forests, determined by such factors as including latitude, temperature, rainfall patterns and soil composition (2.2.3.1.) and then the attention turns to the forest types defined by human activity

¹²¹ FAO, FRA 2010, 2010, p. 14.

¹²² Other wooded land includes land, spanning more than 0,5 ha with trees higher than 5 metres and a canopy cover of 5-10 percent or trees able to reach these thresholds or with a combined cover of shrubs, bushes and trees above 10 percent. See, FAO, FRA 2015, Terms and Definitions, 2015, p. 4; See also section “Forest Definition” of the current thesis.

¹²³ FAO, FRA 2010, 2010, p. 16.

(2.2.3.2.). Information about this variation is important to understanding the different roles of different forest types in climate regulation. A number of global forest typology systems have been proposed, however, no forest typology system has gained a universal acceptance.¹²⁴ In order to illustrate interdependence between climate change and forests this thesis adopts a very broad typology: tropical, boreal, and temperate forests;¹²⁵ primary, secondary forests, planted forest and tree plantations.

2.2.3.1. Types of Forests: Tropical, Temperate, Boreal

Tropical forests,¹²⁶ occur roughly within the latitudes 23-28 degrees north and south of the equator. These forests experience high average temperatures (mean monthly temperature is 18 ° C during all months of the year) and a significant amount of rainfall (average annual rainfall is no less than 168 cm and sometimes can even exceed 10 meters). Tropical forests can be found in Asia, Australia, South America, Central America, Mexico and on many of the Pacific, Caribbean and Indian Ocean Islands. The dominant plants in tropical forests are tall (typically, 30-45 meters in height, sometimes up to 80 meters) broad-leaved evergreen trees. Up to half of all the living animal and plant species biodiversity is found in tropical forests.

Temperate forests occur in temperate regions of the Earth's northern and southern hemisphere. These regions are characterized by mild winters and moderate rainfalls (on average from 2 to 3,5 meters of precipitation annually). Temperate forest can be found mostly in the eastern part of North America, in

¹²⁴ For instance, the United Nations Environment Program (UNEP) and the World Conservation Monitoring Centre (WCMC) developed a forest category classification system by simplification of a more complex system - UNESCO's forest and woodland "subformations". The UNEP-WCMC system divides the world's forest into 26 major types, which reflect climatic zones as well as the principal types of trees. The 26 major types in the UNEP-WCMC system are further reclassified into 6 broader categories: temperate needleleaf; temperate broadleaf and mixed; tropical moist; tropical dry; sparse trees and parkland; and forest plantations. "Non-Legally Binding Forest principles" also list six broad forest types: austral; boreal; subtemperate; temperate; subtropical; and tropical. See, UNEP-WCMC, World Atlas of Biodiversity, Earth's Living Resources in the 21st century, p. 81.; Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (Forest Principles), adopted 14 June 1992.

¹²⁵ В. В. Страхов (V.V. Strakhov) et al, Глобализация Лесного Хозяйства (*Forestry Globalization*), 2001, p. 19.

¹²⁶ Also referred to as "tropical rainforest" and "tropical wet forest". It can further subdivided into lowland equatorial evergreen rainforest; moist deciduous; semi-evergreen seasonal forests; montane rain forests; flooded forests.

Europe, in Chili, and also in some parts of Australia, New Zealand Argentina, Mexico, China, and Japan. Dominant plants in temperate forests are deciduous, which shed their leaves during the autumn. In some areas, the deciduous trees are replaced by coniferous trees. The main trees found in temperate forests are the great redwood, oak, ash, maple, birch, beech, poplar, elm and pine. Temperate forests are home to more than 50 percent of the world's conifer trees.¹²⁷

Boreal forests¹²⁸ occur throughout the high northern latitudes. Boreal forests have considerable regional variation in temperatures, the length of the growing season and tree species. Throughout the whole year the level of precipitation is relatively low (with a maximum average of 1 meter); temperatures vary from – 54 ° C to + 30 ° C. Short summers last less than four months and are generally warm and humid with an average temperature of 18 ° C, whereas winters last five to seven months with a typical winter temperature of – 20 ° C. The largest areas of boreal forests are located in Russia and Canada. Boreal forests also cover parts of the extreme northern United States, most of Sweden, Finland, much of Norway, some lowland and coastal areas of Iceland, areas of northern Kazakhstan, northern Mongolia, and northern Japan. The main trees found in boreal forests are mostly pines, spruces and larches. Most primary forests of the world are found in the boreal forests.

2.2.3.2. Types of Forests: Primary, Secondary and Planted, and Tree Plantations.

Primary forests¹²⁹ are naturally regenerated forests of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.¹³⁰ Such forests represent multi-species, mixed-age stands of native species, with a natural disturbance regime (e.g. wind, floods, insect outbreaks, etc.), i.e. excluding human interference. Natural disturbance events shape forests and “mold” their structure and species

¹²⁷В. В. Страхов (V.V. Strakhov) et al, Глобализация Лесного Хозяйства (*Forestry Globalization*), 2011, p. 29.

¹²⁸ Also referred to as “Taiga” or “Snowforest”.

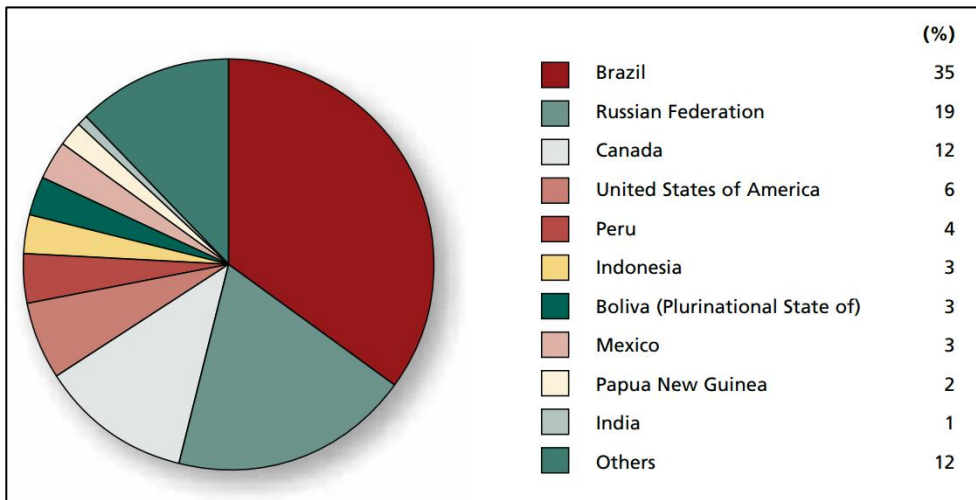
¹²⁹ Also referred to as “Old-Growth”, “Undisturbed Forests”, “Virgin Forests”, “Natural Forests”.

¹³⁰ FAO, FRA 2015, Terms and Definitions, 2015, p. 7.

composition.¹³¹ Depending on the type of forest, the development of primary characteristics may take anywhere from century to half-millennium and even longer.¹³² Primary forests are best adapted to the geographical and climatic conditions surrounding them.

Primary forests fulfill many essential forest functions: conservation of biological diversity; protection of soil and water resources; provision of aesthetic values.¹³³ It is the primary forests that perform biotic climate regulation, i.e. they maintain the environment in a stable state, optimal for life and compensate for all deviations from that optimum up to the threshold of self-destruction.¹³⁴ Globally, close to 1,4 billion ha, i.e. 36 percent of the world's total forest area, is classified as primary forests. The largest areas of primary forests are found in Brazil, the Russian Federation, Canada and some other countries (Figure 6).

Figure 6: Ten Countries with the Largest Area of Primary Forests, 2010.



Source: FAO, FRA 2010, 2010, p. 53.

¹³¹ For more information on natural disturbance regime, see, E. Stone, et al, Natural Disturbance Regime, 2011.// < <http://www.eoearth.org/view/article/154793/>>, last viewed 17 June 2015.

¹³² В.В. Страхов (V.V. Strakhov), Бореальные Леса и Лесное Хозяйство, (*Boreal Forests and Forestry*), 2012, p. 164.

¹³³ FAO, FRA 2010, 2010, p. 52.

¹³⁴ В.В. Страхов (V.V. Strakhov), Бореальные Леса и Лесное Хозяйство, (*Boreal Forests and Forestry*), 2012, p. 164.

When primary forests are cleared by natural or anthropogenic causes, forests regenerate and may be classified as “secondary” forests. Secondary forests represent successional stages of primary forests. Succession does not follow a determined “preordained” course.¹³⁵ The second-growth forest can look very different from what it replaces: it differs in structure, species composition and functions performed.¹³⁶ Secondary forests may evolve “randomly” and even never gain the primary characteristics.¹³⁷ Secondary forests may be naturally regenerated or artificially established by planting and deliberate seeding of either introduced or indigenous species. Around 76 percent of planted forests have production as their primary function (roundwood, fibre, fuelwood and non-wood forest products)¹³⁸ and, thus, they offset pressure on primary forests. The area of planted forests expands each year by around 5 million ha on average.¹³⁹

Stress should be made on the concept “planted forests”, which is broader than the concept of “forest plantations”.¹⁴⁰ Whereas planted forests are established for different purposes, forest plantations represent monoculture even-aged “arable crops”¹⁴¹ of forestry often planted with the principle objective to grow a commercial product, usually wood fiber (e.g. for fuel production, i.e. firewood and charcoal; pulpwood for paper and cardboard; sawn timber (lumber or sawnwood); sometimes for carbon sequestration; and sometimes for other purposes (e.g. to provide soil and water conservation). Plantations have simple structures and are less resistant to climate change, pests attacks and fungus

¹³⁵ E. Pennisi, When a forest is burned, what comes back may not resemble what was lost, Science AAAS, 2015.// <http://news.sciencemaq.org/environment/2015/06/when-forest-burned-what-comes-back-may-not-resemble-what-was-lost>, last viewed 21 June 2015.

¹³⁶ В.В. Страхов (V.V. Strakhov) et al, Перспективы Развития Лесных Плантаций как Основы Лесовосстановления, (*Perspectives of Planted Forests as Basic Means of Reforestation*), Лесное Хозяйство, Forestry, 2014, 5, p. 3; D. Allan, Global Deforestation, Global Change Program, 2010.// <http://www.globalchange.umich.edu/globalchange2/current/lectures/deforest/deforest.html> >, last viewed 17 June 2015.

¹³⁷ E. Pennisi, When a forest is burned, what comes back may not resemble what was lost, Science AAAS, 2015.// <http://news.sciencemaq.org/environment/2015/06/when-forest-burned-what-comes-back-may-not-resemble-what-was-lost>, last viewed 21 June 2015.

¹³⁸ FAO, FRA 2010, 2010, p 90.

¹³⁹ FAO, Planted Forests.// < <http://www.fao.org/forestry/plantedforests/en/>>, last viewed 04 June 2015.

¹⁴⁰ FAO, FRA 2010, 2010, p. 90.

¹⁴¹ J. Evans, Forest Plantations.// < <http://www.eolss.net/sample-chapters/c10/e5-03-01-05.pdf>>, last viewed 04 June 2015.

impacts.¹⁴² Because plantations are species-poor; do not perform some core forest functions (e.g. conservation of biodiversity) and often replace natural forests, degrading water and soil resources, some scientists often criticize plantations.¹⁴³ Some prominent forest policy scholars note that plantations are not ecologically representative, cannot support the same level of biodiversity as natural forests, cannot provide the same returns of non-timber forest products, and do not provide the cultural and recreational services of natural forests".¹⁴⁴ Some natural scientists even do not consider forest plantations as forests.¹⁴⁵

2.2.4. Forest Functions and Services.

Not only forest types vary, but also forest functions and services¹⁴⁶ differ on all spacial and temporal levels. The Millennium Ecosystem Assessment, for instance, indicates that "some national classifications account for as many as 100 different kinds of forest services, such as delivery of industrial and fuelwood, water protection and regulation, ecotourism, and spiritual and historical values".¹⁴⁷ These services and functions interact in many different ways, "ranging from synergistic to tolerant, conflicting and mutually exclusive". This interaction leads to the forest "multiservice paradigm", which is "quite clear in theory, but is often very difficult to implement, as it frequently requires difficult choices and trade-offs" in forest regulation.¹⁴⁸

FAO distinguishes five broad ecosystem services: biodiversity conservation; productive functions of forests; cultural or spiritual values; protective functions;

¹⁴² FAO, Forest and Climate Change Working Paper 10, Forest Management and Climate Change: A Literature Review, 2012, p. 14; FAO, State of the World's Forests 2012, p. 16; В.В. Страхов (V.V. Strakhov), А.И. Писаренко, (A.I. Pisarenko), Лесное Хозяйство России: Национальное и Глобальное Значение (*Russian Forestry: National and Global Significance*), 2011, p. 49.

¹⁴³ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 606.

¹⁴⁴ D. Humphreys, Deforestation and the Crisis of Global Governance, 2006, p. 118.

¹⁴⁵ В.В. Страхов (V.V. Strakhov) et al, Перспективы Развития Лесных Плантаций как Основы Лесовосстановления, (*Perspectives of Planted Forests as Basic Means of Reforestation*), Лесное Хозяйство, Forestry, 2014, 5, p. 3; В.В. Страхов (V.V. Strakhov), А.И. Писаренко, (A.I. Pisarenko), Лесное Хозяйство России: Национальное и Глобальное Значение (*Russian Forestry: National and Global Significance*), 2011, p. 49.

¹⁴⁶ Please note that the term "services" is used here synonymously with the term "functions". These terms are meant to comprise all performances provided for by forests.

¹⁴⁷ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 600.

¹⁴⁸ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 600.

socio-economic functions.¹⁴⁹ Some of these broad ecosystem services can be further split up:

- Biodiversity conservation: forests as the worldwide biodiversity storage; forests as a component of global biodiversity themselves;
- Productive functions of forests: production of wood; production of non-wood forest products (NWFP);
- Protective functions: local protective functions; global protective functions; water regulation; protections of soils; climate protection; etc.;
- Socio-economic functions: economic function associated with wood; economic function associated with NWFP; social function, e.g. employment in forestry;
- Cultural or spiritual functions: forest related tourism; spiritual; cultural; recreation; education; research; education; etc.¹⁵⁰

2.2.4.1. Conservation of Biodiversity.

Forest biological diversity is a broad term that refers to all forms found within forested areas and the ecological roles they perform.¹⁵¹ "Forest biological diversity results from evolutionary processes over thousands and even millions of years which, in themselves, are driven by ecological forces such as climate, fire, competition and disturbance. Furthermore, the diversity of forest ecosystems (in both physical and biological features) results in high levels of adaptation, a feature of forest ecosystems which is an integral component of their biological diversity. Within specific forest ecosystems, the maintenance of

¹⁴⁹ FAO, FRA 2010, 2010; FRA 2015, Terms and Definitions, 2015, p. 14; Please note that there are other approaches to the assessment of forest functions and services. For instance, the Millennium Ecosystem Assessment distinguishes between resource services (production of fuel-wood; industrial wood and NWFP); ecological services (water protection; soil protection and health protection); biospheric services (biodiversity conservation; and climate regulation); social services (ecotourism and recreation); amenities services (spiritual; cultural; and historical). See, A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 601; A. Eikerman, Forests in International Law, 2015, pp. 15-21.

¹⁵⁰ Please note that this list of forest functions and services is neither exclusive nor complete. The enumeration given here is simply for the purpose of the following legal research, in order to provide for an overview of the complex interrelations between the variety of forest functions and services.

¹⁵¹ CBD, What is Forest Biological Diversity?././ <<https://www.cbd.int/forest/what.shtml>>, last viewed 03 May 2016.

ecological processes is dependent upon the maintenance of their biological diversity".¹⁵²

According to some estimates, forests harbour up to 90 percent of the world's terrestrial biodiversity.¹⁵³ Often conservation of biodiversity is considered to be the cornerstone function delivered by forests; it provides the basis for a wide array of forests' goods, functions and services.¹⁵⁴ Biodiversity provides humankind with food; raw materials; employment opportunities; and (new) medicines.¹⁵⁵ Together, tropical, temperate and boreal forests offer very diverse habitats for plants, animals and micro-organisms. Biological diversity in forests allows species to evolve and dynamically adapt to changing environmental conditions, including climate change; to maintain the potential for tree breeding and improvement (to meet human needs for goods and services, and changing end-use requirements) and to support other forests' functions.¹⁵⁶

Forest biological diversity can be considered at different levels, including: "structural diversity", i.e. areas of forests, natural and protected forests, species mixture, and age structure; "compositional diversity", e. g. numbers of total flora/fauna species, numbers of endangered species; and "functional diversity", e.g. the impact of major processes and natural and human-induced disturbances.¹⁵⁷ Complex interactions occur within and amongst these levels. In biologically diverse forests, this complexity allows organisms to adapt to continually changing environmental conditions and to maintain ecosystem functions.¹⁵⁸

¹⁵² CBD, Forest and Biological Diversity, Statement on Biological Diversity and Forests from the Convention on Biological Diversity to the Intergovernmental Panel on Forests, Annex to Decision II/9, para. 6.

¹⁵³ World Bank, Biodiversity and Forests at a Glance, 2002, p. 2.

¹⁵⁴FAO, Biodiversity, Forests. // <<http://www.fao.org/biodiversity/components/forests/en/>>, last viewed 05 May 2016; A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 606; CBD, About Forest Biodiversity.//<<https://www.cbd.int/forest/about.shtml>> , last viewed 03 May 2016.

¹⁵⁵ FAO, Biodiversity, Forests. // <<http://www.fao.org/biodiversity/components/forests/en/>>, last viewed 05 May 2016.

¹⁵⁶ FAO, FRA 2010, 2010 p. 49.

¹⁵⁷ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 601.

¹⁵⁸ CBD, What is Forest Biological Diversity?// <<https://www.cbd.int/forest/about.shtml>>, last viewed 03 May 2016.

2.2.4.2. Productive Function.

Forests, other wooded land and trees outside forests provide a wide range of wood and NWFP. The most economically important forest product is wood.¹⁵⁹ Annually global wood removals from forests amount to 3,4 billion cubic metres,¹⁶⁰ about half of which are used as industrial roundwood and half are used as woodfuel.¹⁶¹

NWFP are goods derived from forests that are tangible and physical objects of biological origin other than wood.¹⁶² Examples of NWFP may include plant products/ raw material (e.g. food (nuts, mushrooms, camellia and also so-called products from "cash-crops" like coffee, tea and palms (for oils); exudates;¹⁶³ raw materials for medicine and aromatic products; etc.) and animal products/ raw material (e.g. living animals; hides, skins and trophies; wild honey and beeswax; etc.).¹⁶⁴

Productive forest function entails an outstanding economic value.¹⁶⁵ This function is important both as commodities for national and international market, and for the livelihoods of local and indigenous people.

2.2.4.3. Protective Functions of Forests.

The World's forests have many protective functions, some of them are global in scope and some are local. The protective functions of forests include the following: water regulation, protection and conservation; protection of soils from wind and water erosion, coastal protection, avalanche control; climate protection; etc.

¹⁵⁹ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 604.

¹⁶⁰ The actual amount of wood removals is undoubtedly higher when considering informally and illegally removed wood (especially woodfuel), which is not recorded. See, FAO, FRA 2010, 2010, p. 86.

¹⁶¹ FAO, FRA 2010, 2010, p. 101.

¹⁶² FAO, FRA 2015, Terms and Definitions, 2015, p. 12.

¹⁶³ Exudate - any substance that oozes out from pores of diseased or injured plant tissue. Resins, gums, oils and lacquers are examples of exudates widely extracted for industrial uses.

¹⁶⁴ FAO, FRA 2010, 2010, p. 104-105.

¹⁶⁵ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 605.

Protective function of forests related to water and soil resources are among the most important for humankind.¹⁶⁶ It is estimated that "more than three quarters of the world's accessible freshwater comes from forest catchment".¹⁶⁷ Forests conserve water by increasing infiltration; reducing runoff velocity and surface erosion; and decreasing sedimentation. Forests play a role in filtering water pollutants, regulating water yield and flow, moderating floods, enhancing precipitation (e.g. "cloud forests", which capture moisture from clouds¹⁶⁸) and mitigating salinity.¹⁶⁹ Protective functions of forests are particularly important in arid zones (e.g. Africa, Asia, Latin America, etc.), where drylands are especially vulnerable to desertification. Following deforestation and/or overexploitation of forests existing deserts advance. Levels of soil erosion on areas cleared of forests (due to construction of roads, skidder tracks, and log landing during mechanical logging, etc.) may be 10-20 times higher in comparison to undisturbed natural forests.¹⁷⁰

Forests hold the potential to regulate climate on the global level as well as on the local level.¹⁷¹ Forests are significant for the global climate through their "four major roles": forests absorb and store global carbon emissions into their biomass, soils and products; they contribute to global carbon emissions when deforestation and forest degradation take place; they provide woodfuels as a benign alternative to fossil fuels; and they react sensitively to a changing climate.¹⁷² On the local level trees reduce the amount of sunlight reaching soils;

¹⁶⁶ FAO, FRA 2010, 2010, p. 109.

¹⁶⁷ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 587

¹⁶⁸ Also called "Montane forests". Such forests increase water yields and provide year-round supply of unpolluted water in some regions. For instance, tropical cloud forests, occurring at relatively high elevations, where humidity levels can reach 100 percent, deposit large amount of water directly onto the vegetation. The excess water more or less constantly drips from the leaves to the ground below. Cloud forests of La Tigra National Park in Honduras provide more than 40 percent of the water supply for the capital city, Tegucigalpa and its 850 000 people. Other capitals, where cloud forests augment water supplies include Quito in Ecuador, a city of 1,3 million people; and Mexico City with its 20 million people. See, UNEP, FAO, UNFF, Vital Forest Graphics, 2009, p. 32.

¹⁶⁹ Salinity is the quantity of dissolved salt content of water. Salinization is a major challenge especially in Australia. See A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 588.

¹⁷⁰ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 603.

¹⁷¹ For more information on the global significance of forests for climate change see part three "Major Roles of Forests in Climate Change" of the present chapter.

¹⁷² FAO, Forestry and Climate Change.// <
<http://www.fao.org/forestry/climatechange/53459/en/>>, last viewed 23 November 2015.

reduce wind velocity; under tree canopies temperatures are lower; moisture is higher; soils are more fertile; air is more humid.¹⁷³ The microclimate associated with forest areas is often a critical factor in growing “cash crops” (e.g. tea, coffee, palms, etc.). In East Africa, for instance, tea is grown in areas adjacent to cloud forests where moisture, air temperature (i.e. between 10 °C and 30 °C) and soil temperature (between 16 °C and 25 °C) levels are optimal for tea production.¹⁷⁴ In Indonesia, areas close to the forests in the Kerinci-Seblat National Park in Sumatra are among the best places in the world to grow cinnamon due to the relatively cold climate.¹⁷⁵ Furthermore, locally forests prevent floods (e.g. deforestation are making Nicaragua, which is renowned for being the country with the most abundant freshwater resources in Central America, into an ever more arid land plagued by repeated and long-lasting spell of droughts);¹⁷⁶ transport great quantities of water to the atmosphere (e.g. in the rain forests much of the transpired water replenishes the clouds and rain that maintain the forest; if the forest is cut, much more of that rain water becomes river water, flow to distant seas and the region becomes permanently drier);¹⁷⁷ protect areas against hurricanes, tornadoes and heat waves (e.g. the unprecedented heat wave in south-western Russia in the summer of 2010 is the result of the recent elimination of natural forests over large areas of Russia).¹⁷⁸

2.2.4.4. Socio-Economic Functions.

Forests provide a wide variety of social and economic benefits, ranging from easily quantified economic functions associated with forest products, to less tangible services and contributions to society. The economic function (or benefit) can be calculated directly as quantity of products and services produced by forests, each multiplied by an appropriate value, and then added together. For many forest products market prices can be used as an estimate of value. For

¹⁷³ FAO, Influence of Trees on Microclimate.//<<http://www.fao.org/docrep/005/x3940e/X3940E05.htm>>, last viewed 16 June 2015; В.В. Страхов (V.V. Strakhov), *Бореальные Леса и Лесное Хозяйство, (Boreal Forests and Forestry)*, 2012, p. 164.

¹⁷⁴ UNEP, FAO, UNFF, Vital Forest Graphics, 2009, p. 33.

¹⁷⁵ UNEP, FAO, UNFF, Vital Forest Graphics, 2009, p. 33.

¹⁷⁶ FAO, *Infosylva*, 11, 2015, p. 2.

¹⁷⁷ D. Allan, Global Deforestation, Global Change Program, 2010.// <http://www.globalchange.umich.edu/globalchange2/current/lectures/deforest/deforest.html>, last viewed 17 June 2015.

¹⁷⁸ A.M. Markarieva, V. G. Gorshkov, The Biotic Pump: Consideration, Atmospheric Dynamics and Climate, *International Journal of Water*, 4, 5, 2010, pp. 365-385.

instance, FAO evaluates the total value of forest product removals globally at US \$ 121,9 billion annually.¹⁷⁹ About 71 percent of this is from industrial roundwood, 15 percent from NWFPs and 14 percent from woodfuel.¹⁸⁰

In comparison to economic forest functions it is more difficult to estimate values for products that are not bought and sold in markets (e.g. a market value for flood prevention services or the protection of biodiversity, etc.). A research project dedicated to identifying a market value for the Masoala Nation Park estimated the value of the national park for erosion control to be US \$ 380 000. For the market value of services provided by larger forests such estimates may even be not possible, "such environmental services would be prohibitively expensive, if not impossible to replicate with current technology".¹⁸¹

It is even more difficult to measure social benefits of forests. The amount and value of these contributions to society are both difficult to quantify. For instance, the level of employment in forestry is an indicator of both the social and economic value. On the one hand, employment provides income, on the other hand, as forestry activities occur in rural areas that are often poorer than the average, it also contributes to poverty alleviation.¹⁸²

2.2.4.5. Cultural and/or Spiritual Services.

Forests also provide cultural and spiritual services. For many indigenous and traditional societies, forests are sacred and sometimes supernatural places, linked to both religious beliefs and the very identity of some communities and peoples.¹⁸³ For instance, the semi-nomadic people of the Peruvian Amazon call the rainforest "Tita", i.e. "Mother", referring to Tita as if to a person, who can be happy, as well as sad, angry and indifferent.¹⁸⁴ In many societies the spiritual role of forests contributes significantly to forest conservation. For instance, in the Democratic Republic of the Congo, indigenous groups and other forest

¹⁷⁹ The figure is for 2005. See, FAO, FRA 2010, p. 138.

¹⁸⁰ FAO, FRA 2010, 2010, p. 138.

¹⁸¹ A. Hooker, *The International Law of Forests*, *Natural Resources Journal*, 34, 1994, p. 823 – 877.

¹⁸² FAO, FRA 2010, 2010, p. 143.

¹⁸³ A. Shvidchenko, *Forest and Woodland Systems*, in R. Hassan, *Millennium Ecosystem Assessment*, 2005, p. 607.

¹⁸⁴ UNEP, FAO, UNFF, *Vital Forest Graphics*, 2005, p. 14.

dependent communities are participating in the mapping of their traditional territories in order to gain formal recognition of their rights, to provide proof of their residence in, and use of, forest areas.¹⁸⁵ Forests provide spiritual and cultural services to millions of people through forest-related tourism. Many ecotourism destinations - from the national parks of North America to the megafauna-rich savannas of Africa - develop more rapidly than the general tourism market.¹⁸⁶

2.2.5. Deforestation and Forest Degradation.

A reduction in forest area can happen through either of two processes: deforestation and natural disasters. Deforestation, which is by far the most important, implies that forests are cleared by people and the land is converted to another (usually more economically profitable) use, such as agriculture or infrastructure.¹⁸⁷ Conversion of forests to other land uses is most destructive when it occurs in a fragmentary pattern. Breaking up forests into smaller fragments, i.e. forest fragmentation, causes decay of forests functions and services (e.g. blocks corridors that wildlife use to seek food, mates, and refuge; increases tree mortality due to greater exposure to wind, fire, pests and other threats, etc.). Deforestation may be permanent, when forests are replaced by arable land, or temporary, when forests are harvested, but regrow naturally or being replanted. Natural disasters may also destroy forests (e.g. forest fires, hurricanes, wind storms, etc.). Both deforestation and natural disasters cause forest degradation. This implies changes within forests, which negatively affect the structure of functions of the stands or site (e.g. decrease in tree cover; changes in structure of trees; reduction in the number of species that can be found there, etc.).¹⁸⁸

Deforestation and forest degradation have accompanied population growth and development throughout the world for thousands of years.¹⁸⁹ From an original forested area of more than 6,0 billion ha (i.e. 45 percent of the earth's land

¹⁸⁵ UNEP, FAO, UNFF, Vital Forest Graphics, 2005, p. 15.

¹⁸⁶ A. Shvidchenko, Forest and Woodland Systems, in R. Hassan, Millennium Ecosystem Assessment, 2005, p. 607.

¹⁸⁷ FAO, Terms and Definitions used in Forest Resources Assessment 2010, 2010, pp. 209-216.

¹⁸⁸ FAO, Terms and Definitions used in Forest Resources Assessment 2010, 2010, pp. 209-216.

¹⁸⁹ FAO, State of the World's Forests 2012, Forests and the Evolution of the Modern World, 2012, pp. 2, 9.

area) the current estimate of the world's remaining forests is about 4 billion ha (i.e. about 31 percent of the earth's land surface).¹⁹⁰ Over a period of 5000 years, the cumulative loss of forest land worldwide is estimated at 1,8 billion ha – an average net loss of 360 000 ha per year.¹⁹¹

Since then the rates of global forest decline have accelerated. In the period between 1990 to 2000 the net loss of forests was estimated to 8,3 million ha per year.¹⁹² Although at present the rate of deforestation globally shows signs of decreasing, it still remains alarmingly high: annually humankind loses about 5,2 million ha per year, equivalent to approximately 140 km² per day.¹⁹³ If global forests continue to decline at the present rate, it will take approximately 775 years to lose all forests on Earth.¹⁹⁴

The largest share of global forest decline takes part in primary forests. Their area decreased by around 4,7 million ha per year in the 1990s; and by 4,2 million ha in the period between 2000 and 2010.¹⁹⁵ This is a particularly significant indicator for climate regulation, because primary forests have evolved during decades and centuries to perform biotic climate regulation. The five countries reporting the largest decrease in primary forest over the 20 years period are: Brazil, Gabon, Mexico, Papua New Guinea and Indonesia.¹⁹⁶

Deforestation and forest degradation always take place locally and have never occurred at the same rate in all parts of the world. Whereas between 100 and 200 years ago deforestation was a significant process in Europe and North

¹⁹⁰ FAO, *State of the World's Forests 2012, Forests and the Evolution of the Modern World*, 2012, p. 9.

¹⁹¹ FAO, *State of the World's Forests 2012, Forests and the Evolution of the Modern World*, 2012, p. 9.

¹⁹² FAO, *FRA 2010, 2010*, p. XIII.

¹⁹³ Please note, that 5,2 million ha per year is a net change in the global forest area. The figure is the sum of all negative changes due to deforestation and natural disasters and all positive changes due to afforestation and natural expansion of forests. The solely negative changes comprised around 13 million ha of forests lost globally due to deforestation and natural causes each year during the period from 2000 until 2010. However afforestation and natural expansion of forests in some countries and regions have reduced the net loss of forest area significantly at the global level. FAO, *State of the World's Forests 2012, Forests and the Evolution of the Modern World*, 2012, pp. XV, XIII, 9.

¹⁹⁴ FAO, *State of the World's Forests 2012, Forests and the Evolution of the Modern World*, 2012, p. 16.

¹⁹⁵ FAO, *FRA 2010, 2010*, p. 54.

¹⁹⁶ FAO, *FRA 2010, 2010*, p. 56.

America and not in the tropics, today this pattern is reversed:¹⁹⁷ deforestation became widespread in South America, Africa and Oceania.¹⁹⁸ In the coming years, due to demographic changes, economic growth and significant increase in demand for wood products deforestation and forest degradation are predicted to continue.¹⁹⁹

2.2.5.1. Deforestation and Forest Degradation: Underlying Causes.

The underlying causes of changes in the global forest area and their condition differ in spatial and temporal scales. As a rule, such changes are the result of interactions among many factors – social, ecological, economic, climatic and biophysical. On a very broad scale causes may be distinguished as natural (e.g. climate change) or human-induced, the latter causing the most significant changes in forest area globally.²⁰⁰

During the deliberations of the United Nations Intergovernmental Forum on Forests (IFF), the global community agreed that the underlying causes of deforestation and forest degradation are interrelated and often socio-economic in nature. Both the causes and the approaches to dealing with them are often country-specific and therefore vary among countries. The underlying causes include: poverty; lack of secure land tenure patterns; inadequate recognition within national laws and jurisdiction of the rights and needs of forest-dependent indigenous and local communities; inadequate cross-sectorial policies; undervaluation of forest products and ecosystem services; lack of participation; lack of good governance; absence of a supportive economic climate that facilitates sustainable forest management; illegal trade; lack of capacity; lack of enabling environment at both international and national levels; national policies that distort markets and encourage the conversion of forest land to other

¹⁹⁷ FAO, State of the World Forests 2012, 2012, p. 16

¹⁹⁸ At a regional level South America suffered the largest net loss of forests between 2000 and 2010 – about 4 million hectares per year; followed by Africa, which lost 3,4 million hectares annually; Oceania also reported a net loss of forest at about 700 000 ha per year over the period from 2000 till 2010. See, FAO, FRA 2010, 2010, p. XVI.

¹⁹⁹ FAO, State of the World Forests 2012, 2012, p. 15; FAO, State of the World Forests 2009, 2009, p. IX; A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 614; В.В. Страхов (*V.V. Strakhov*), Бореальные Леса и Лесное Хозяйство, (*Boreal Forests and Forestry*), 2012, pp. 171 – 174.

²⁰⁰ A. Shvidenko, et al, Forest and Woodland Systems, in R. Hassan et al (eds), Millennium Ecosystem Assessment, 2005, p. 607.

uses.²⁰¹ In order to overcome the major obstacles when addressing the underlying causes of deforestation and forest degradation, the UNFF stresses the importance of policy consistency inside and outside the forest sector and the need for effective policy coordination for addressing the underlying causes of deforestation.²⁰²

2.2.5.2. Deforestation and Forest Degradation: Role of Climate Change.

Climate change contributes to deforestation and forest degradation through the variability of climate properties such as temperature, changes in precipitation, frequency and duration of weather events.²⁰³ Climate change increases the intensity and frequency of droughts and dry spells, and escalates the mean and peak temperatures. Thus, for instance, during the period from 2000 until 2010 more than 700 000 ha of forests were lost annually in Oceania due to severe droughts and forest fires.²⁰⁴ Similarly, in the Russian Federation during the period from 2005 until 2010 forest fires and weather extremes were among the underlying causes of forest loss.²⁰⁵ Increases in the temperature of forests in British Columbia, Canada, led to the outbreak of mountain pine beetle epidemic, which have led to 13 million ha of pine forests in western Canada being detrimentally affected. The beetle infestation has arisen from the unusually warm temperatures of the forests during all winter periods since 1999. Previously, the very low temperatures of British Columbia killed the beetle, thus regulating the beetle population.²⁰⁶ Climate change leads to alterations in various types of forests, e.g. tropical, temperate and boreal forests, causing forests to migrate polewards.²⁰⁷ Indeed, forests have always been vulnerable to weather and climate and have always adapted to the changes in climate

²⁰¹ FAO, *State of the World's Forests 2012, Forests and the Evolution of the Mordent World*, 2012, p. 17; also citing the IFF report. See, IFF, *Report of the Intergovernmental Forum on Forests on its Fourth Session*, E/CN.17/2000/14, para. 58.

²⁰² IFF, *Report of the Intergovernmental Forum on Forests on its Fourth Session*, E/CN.17/2000/14, para. 58.

²⁰³ For more information on climate change impact on forests see section "Climate Change Impacts on Forests" of the present chapter.

²⁰⁴ FAO, *FRA 2010, 2010*, p. XVII.

²⁰⁵ Федеральное Агентство Лесного Хозяйства Российской Федерации (Russian Federation Federal Forestry Agency), *Ежегодный Доклад о Состоянии и Использовании Лесов Российской Федерации за 2012 (Annual Report on State and Utilization of Forests in the Russian Federation, 2012)*, 2012, p. 55-56, 71.

²⁰⁶ M. Wulder, et al, *Monitoring the Impacts of Mountain Pine Beetle Mitigation, Forest Ecology and Management*, 2009, p. 258.

²⁰⁷ For more information, please see subsection 2.3.2. "Climate Change Impacts on Forests" of the present chapter.

variability. Yet, climate change poses threat to forests in all biomes both because of the pace of change and its extent globally.²⁰⁸

2.2.5.3. Deforestation and Forest Degradation: Environmental Impacts.

While the underlying causes of deforestation and forest degradation are complex environmental, social, economic and political processes, the consequences of deforestation and forest degradation are relatively easy to outline. Any impairment and/or loss of ecological functions and/or services, provided by forests finds its expression through various environmental impacts.²⁰⁹ Deforestation disrupts normal weather patterns, creating hotter and drier weather; increasing drought and desertification, crop failures, coastal flooding and displacement of major vegetation regimes. Deforestation also disrupts the global water cycle. With removal of part of a forest (i.e. forest fragmentation), the area cannot hold as much water creating a drier climate. Deforestation and forest degradation affect water resources, including drinking water, fisheries, and flood/drought control. Deforestation can also result into watersheds that are no longer able to sustain and regulate water flows from rivers and streams. Once the watersheds are gone, too much water can result into downstream floods, which have caused disasters in various parts of the world. Furthermore, deforestation and forest degradation can lead to severe impacts on soil resources. Whereas tree roots anchor the soil, without trees, the soil is free to wash or blow away, which can lead to vegetation growth problems. Scientists estimate that a third of the world's arable land has been lost due to deforestation since 1960.²¹⁰ Deforestation and other land use changes have increased the proportion of river basins subject to erosion and over the longer periods have contributed to water siltation. Furthermore, forests, especially

²⁰⁸ For more information on climate change impacts on forests, see subsection 2.3.2. "Climate Change Impacts on Forests" of the present thesis.

²⁰⁹ For more information on the impacts and effects of deforestation and forest degradation, please see, UN, News Centre, Deforestation Slows, but We Need to Do Better on SFM - UN Agriculture Chief.// < http://www.un.org/apps/news/story.asp?NewsID=51814#.WPST_mGOM8 >, last viewed 17 April 2017; S. Chakravarty, et al., Deforestation: Causes, Effects and Control Strategies, Global Perspectives on SFM.// < <https://www.worldwildlife.org/threats/deforestation> >, last viewed 17 April 2017; Livescience, Deforestation: Facts, Causes and Effects. // < <http://www.livescience.com/27692-deforestation.html> >, last viewed 17 April 2017; WWF, Deforestation, Threats. // < <https://www.worldwildlife.org/threats/deforestation> >, last viewed 17 April 2017.

²¹⁰ Livescience, Deforestation: Facts, Causes and Effects. // < <http://www.livescience.com/27692-deforestation.html> >, last viewed 17 April 2017.

those in the tropics, serve as storehouses of biodiversity and, consequently, deforestation, fragmentation and forest degradation destroy the biodiversity and habitats for migratory species including the endangered ones.

2.2.5.4. Deforestation and Forest Degradation: Impacts on Climate.

Deforestation and forest degradation contribute significantly to climate change. First of all, global forest decline creates a change in the global carbon cycle, that requires many decades to return to steady-state conditions.²¹¹

Secondly, deforestation and forest degradation affect climate through albedo effect. Albedo effect is a reflection of solar radiation by forests back to the atmosphere.²¹² For instance, in boreal forests removing trees cools local temperatures. The trees have low albedo and are relatively dark in colour and absorb sunlight, warming the surface. When the trees are removed, the bright snow reflects most of the incoming sunlight and cools the surface.²¹³ Some modelling studies have shown that afforestation in seasonally snow covered boreal regions could in fact accelerate global warming.²¹⁴ An opposite albedo effect is observed when forests replace desert shrublands. Desert is bright and has high albedo, reflecting sunlight. The forest has an albedo about half that of the desert it replaces and so absorbs more of the incoming solar radiation, resulting in surface heating.²¹⁵

Thirdly, deforestation and forest degradation are accompanied by a decline in supply of many forest services and functions and, thus, have many negative impacts on the environment: loss of forests can lead to species extinction; without protection from sun-blocking tree cover soils quickly dry out; without trees, many former forest lands can quickly become deserts, etc. This, in turn causes climate change locally and/or globally.

²¹¹ D. Schimel, *Climate and Ecosystems*, 2013, p. 121-126. For more information see section "Forests as Sinks and Reservoirs" and "Forests as Source of Emissions" of the present thesis.

²¹² Adjusted from IPCC, *Glossary*.// <
http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-d.html>, last viewed 20 June 2015.

²¹³ D. Schimel, *Climate and Ecosystems*, 2012, p. 134-135.

²¹⁴ IPCC, *Climate Change, The Physical Science Basis, Frequently Asked Questions, Could Geoengineering Counteract Climate Change and What Side Effects Might Occur?*, 2013, p. 34.

²¹⁵ D. Schimel, *Climate and Ecosystems*, 2012, p. 135.

2.2.6. Global Forests: Interim Summary.

It is possible to draw several conclusions from the brief overview of the global forest science. First, there is a great variation in forests throughout the world. This part has illustrated the variety in extent of forest resources among countries; types of land cover (forest, wooded land, trees outside forests); according to the biomes in which forests exist: tropical, temperate and boreal forests (each type being adapted to the geographical and climatic conditions surrounding them); and according to human interference: primary, secondary and planted forests (primary forests are particularly significant for climate regulation as they perform biotic climate regulation) and tree plantations.

Second, not only forest types vary, but also forest functions and services differ on all spacial and temporal scales. Due to physical location of forests within national boundaries most functions and services provided by forests are local and/or national in scope (e.g. timber production). However, as in the case of climate protection/regulation, forests exert not only local, but also transboundary or even global effect. The value assigned to functions and services of different forests may also vary, depending on stakeholders involved (private and public); perspective (e.g. ecological, economic, socio-political etc.); and the type of forests (e.g. tropical forests provide for larger amount of biological diversity; boreal forests have significant albedo effect; economically managed temperate forests might provide for more industrial wood production; etc.).

It is important to stress, that not all of the services can be provided by the same forest at the same time, i.e. "mutually exclusive" services. One of the most known examples is the case of carbon sequestration or timber plantations, which cannot provide for biodiversity conservation.²¹⁶ Similarly, forests turned into nature reserves are no longer available for wood extraction on an industrial scale. Finally, it should also be stressed that all forest services and functions are interconnected. Change in one ultimately leads to changes in others. Thus, a change in biodiversity may lead to changes in protective and productive functions and vice versa.

²¹⁶ See section 2.2.3.2. "Types of Forests: Primary and Secondary" for more detail.

And finally, as it was illustrated in this section, at present global forests decline at an alarming rate. The underlying causes for deforestation and forest degradation are human-induced. The decline in forest areas and forest degradation pose threat not only to forests, but to climate and the well-being of humankind. Experts predict that deforestation and forest degradation will continue in the coming years. Although the reduction in forest area takes place locally, it contributes to climate change globally: through changes in the global carbon cycle; albedo; and decline of forest services and functions.

2.3. Forest and Climate Change: Interdependence.

The third part “Forests and Climate Change: Interdependence” aims to answer the following questions: what role do forests have in the changing climate? and how does climate change impact forests? The first section describes four major roles that forests have in climate change (2.3.1.). The second section reviews some climate change impacts on forests (2.3.2.). The third section highlights the issues of scientific complexity and uncertainty that have implications for environmental law and policy measures in the context of forests and climate change (2.3.3.). Finally, the major findings of the part are summarized in subsection four (2.3.4.).

2.3.1. Roles of Forests in Climate Change²¹⁷

Forests continuously exchange carbon with the atmosphere due to both natural process and human activities. The natural exchange (i.e. photosynthesis, plant and soil respiration, decomposition of organic matter, etc.) has been occurring for hundreds of millions of years. On that timescale human LULUCF activities, which influence the natural rate of carbon exchange between the atmosphere and the terrestrial biosphere, occurred relatively not long ago, i.e. around 5000 - 7000 years ago and ever since have remained one of the most important anthropogenic GHG emission sources until present.²¹⁸

²¹⁷ Please note that major forest roles in the section “Major Roles of Forests in Climate Change” are investigated based on the FAO’s selection. The web page provides mere enumeration of the forests roles in climate change, and does not provide for further explanation. See, FAO, Roles of Forests in Climate Change. // < <http://www.fao.org/forestry/climatechange/en/>>, last viewed 08 July 2015.

²¹⁸ See, C. Le Quere, G. P. Peters, et al, Global Carbon Budget 2013, 2014, p 237.

The contribution of forests to GHG emissions and removals from the atmosphere has long been a subject of active scientific research, which produced an extensive body of literature.²¹⁹ Nonetheless it remains a challenging issue because of the complexity and uncertainty involved in understanding many of the associated essential environmental processes.²²⁰ On a broad scale, FAO distinguishes four major forest roles in the greenhouse effect:

1. forests absorb and store global carbon emissions into their biomass, soils and products;
2. they contribute to global carbon emissions when deforestation and forest degradation take place;
3. they provide woodfuels as a benign alternative to fossil fuels;
4. they react sensitively to a changing climate.²²¹

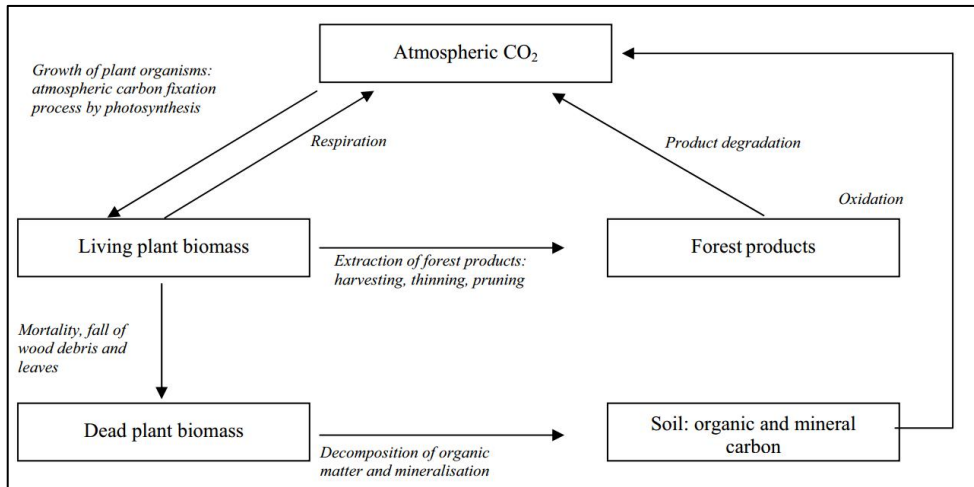
The roles of forest in the greenhouse effect may be best understood through the illustration of the carbon cycle at the forest level (Figure 7).

Figure 7: A simplified model, illustrating the Carbon Cycle in the Forest.

²¹⁹ G.J. Nabuurs, et al., *Forestry in Climate Change: Mitigation*, in B. Metz et al, *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007, p. 546, pp. 543-578; P. Smith, et al, *Agriculture, Forestry and Other Land Use (AFOLU)*, in O. Edenhofer et al (eds), *Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014, pp. 816 -888; FAO, *Global Forest Resources Assessment*, 2010, p. 44-48.

²²⁰ For more information on scientific uncertainty and complexity see section "Forests and Climate Change: Complexity and Uncertainty" of the current thesis.

²²¹ FAO, *Forestry and Climate Change, Roles of Forests in Climate Change*.// < <http://www.fao.org/forestry/climatechange/53459/en/>>, last viewed 05 May 2015.



Source: A. Karsenty, C. Blanco, Th. Dufour, Forest and Climate Change, in FAO, Instruments Related to the United Nations Framework Convention on Climate Change and their Potential for Sustainable Forest Management in Africa, 2003, p. 5. Similar model can be found in R. C. Dewar and M. G.R. Cannell, Carbon Sequestration in the Trees, Products and Soils of Forest Plantations: an Analysis using UK Examples, *Tree Physiology*, 11, 1992, p. 50.

2.3.1.1. Forests as Sinks and Reservoirs.

Forests have the capacity to remove carbon from the atmosphere, thus, they act as sinks to GHGs. Also forests accumulate and store carbon, thus, they act as reservoirs (or pools²²²) to GHGs. Through the process of photosynthesis forests remove carbon from the atmosphere and store it in:

- the vegetation: living plant biomass consisting of wood and non-wood materials (including stem, stump, branches, bark, seeds, and foliage)²²³ and below-ground biomass (including the below-ground part of the stump and biomass of the root system)²²⁴. The amount of carbon in the biomass varies from between 35 percent and 65 percent of the dry weight (50 percent is often taken as a default value);²²⁵

²²² The terms "reservoir" and "pools" are used interchangeably in the thesis.

²²³ FAO, Forest Resource Assessment, Terms and Definitions, Above-ground Biomass, 2015, p. 9.

²²⁴ FAO, Forest Resource Assessment, Terms and Definitions, Below-ground biomass, 2015, p. 9.

²²⁵ FAO, Forestry Department, Forests and Climate Change, p. 2.// <<http://www.fao.org/docrep/005/ac836e/AC836E03.htm>>, last viewed 05 May 2015.

- dead wood and litter: dead plant biomass, made up of plant debris, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps.²²⁶ Litter, i.e. shed vegetative parts such as leaves, branches, bark, etc., which exist in various stages of decomposition above the soil surface, is an important source of nutrients for plant growth;
- soil – organic matter, the humus, which originates from litter decomposition.

The process of increasing the carbon content in a reservoir other than the atmosphere is called sequestration. The rate of carbon sequestration by forests depends on various climatic conditions and the style of forest management and varies with species of trees, their age, and site quality. For instance, *Populus* trees store carbon rapidly in the short term, i.e. 26 years. Such trees achieve high carbon storage in the long term. Conifers of any species achieve high carbon storage in the medium term, i.e. 50 years. Broadleaved trees, such as oak and beech, store as much carbon as conifers, however only in the long term, i.e. 100 years.²²⁷ As for the sites, warm and moist ones with fertile soil stimulate tree growth and, thus, increase forests absorption capacity. In general, younger and faster growing forests have higher annual sequestration rates. Here stress must be made that some trees can grow one hundred, others - two hundred years, in some very extreme cases trees can grow five hundred years (e.g. oaks) or even more (e.g. many giant sequoia trees are 2,500 years old and some bristlecone pines are thought to be over 5000 years old.²²⁸ As long as a tree is alive and growing it continues to be a natural carbon sink and reservoir, accumulating and storing carbon.

Wood products, derived from harvested timber, also store carbon. Here the longevity of carbon storage depends upon the use of products: lifetimes may

²²⁶ FAO, Forest Resource Assessment, Terms and Definitions, Below-ground biomass, 2015, p. 9.

²²⁷ R.C. Dewar, M.G.R. Cannell, Carbon Sequestration in the Trees, Products and Soils of Forest Plantations: an Analysis Using UK Examples, *Tree Physiology*, 11, 1992, p. 49.

²²⁸ For more information on the maximum tree ages, see P. M. Brown, Oldlist: A Database of Maximum Tree Ages in J.S. Dean, et al, *Tree Rings Environment and Humanity, Radiocarbon*, 1996, pp. 727-731.// <http://www.rmtrr.org/oldlist.htm>, last viewed 30 May 2015.

range from less than one year for fuelwood, to several decades or centuries for lumber.²²⁹

According to FAO, the World's forests store more than 650 billion tons of carbon: 44 percent in the biomass, 11 percent in dead wood and litter, and 45 percent in the soil.²³⁰ Indeed, figures on global carbon stocks in forests vary due to differences in forest definitions and applied methods.²³¹ However, it is generally agreed upon that the total amount of carbon in forest biomass, deadwood, brushwood and soil exceeds the amount of the atmospheric carbon.²³²

2.3.1.2. Forests as Source of Emissions.

One more important role that forests have in the ongoing climate change is that forests may become sources of emissions. Forests contribute to global carbon emissions through the respiration of living biomass, decay and decomposition of organic matter. These natural processes are strongly affected by climatic conditions, particularly temperature and precipitation. Typically, a healthy forest stores carbon at a greater rate than it releases carbon, thus, healthy forests represent a net sink for carbon.

Forests have a more significant role in the greenhouse effect when they are destructed by natural processes (e.g. forest fires, hurricanes, floods, etc.) or by human actions.²³³ Among the natural processes, forest fires, in particular, make

²²⁹ A. Karsenty, C. Blanco, Th. Dufour, Forest and Climate Change, in FAO, Instruments Related to the United Nations Framework Convention on Climate Change and their Potential for Sustainable Forest Management in Africa, 2003, p. 5.

²³⁰ FAO, Global Forest Resources Assessment, 2010, p. 48. Figures on carbon stocks in forests reported under the UNFCCC, the Kyoto Protocol and to FAO are not necessarily identical. Forest definitions may vary and furthermore the UNFCCC

²³¹ For instance, figures on carbon stocks in forests reported under the UNFCCC and to FAO are not necessarily identical. Forest definitions may vary and furthermore the UNFCCC members are requested to report on "managed forests" which may comprise all or only part of the forest area of a given country. Specific methods such as calibration, reclassification, estimating and forecasting are also not always identical. See, FAO, Global Resources Assessment, 2010, p. 45. For instance, With a note, that there is considerable uncertainty in the numbers given, because of ambiguity of definitions of biomes, the IPCC reports that total global carbon stocks in vegetation and soil carbon pools down to a depth of 1 meter comprise 2477 Gig tonnes of carbon. See, Land Use, Land-Use Change and Forestry, Table 1.// <http://www.ipcc.ch/ipccreports/sres/land_use/index.php?idp=3>, last viewed 07 May 2015.

²³² FAO, Global Forest Resources Assessment, 2010, p 11.

²³³ Ya. Malhi, J. T. Roberts, R. A. Betts, Climate Change, Deforestation and the Fate of the Amazon, Science, 319, 5860, 2008, pp. 169-172; S. C. Dooney, D. Schimel, Climate Change and Biogeochemical Impacts, in eLS. John Wiley and Sons, Ltd: Chichester, 2015, p. 7; M.A. Moritz,

a big impact on environment and greatly contribute to global carbon emissions, as they release large amounts of CO₂ into the atmosphere very quickly, i.e. almost immediately. In comparison to the rapid emissions from forest fires, a fallen on the forest floor pine can take up to few hundred years to decompose and release its CO₂ back into the atmosphere.

In comparison to natural processes, human actions produce more impact on forests, which result in more carbon emissions. For instance, when forest land is converted to agriculture or development, not only trees are removed, but also soils are typically ploughed, graded, compacted or excavated. Soils accumulate carbon much more slowly than trees, however, soils store over twice as much carbon as trees. As an illustration, it is estimated that the release of just 0,1 percent of the carbon stored only in European soils would equal to the annual emissions from as much as 100 million cars.²³⁴ Thus, disturbance of soils is the biggest source of carbon. Natural disturbances, other than landslides, rarely cause deep damage to soil structure.

A particularly serious impact on global climate change has the destruction of forest areas located on peat bogs, wetlands, and permafrost. Such soils contain higher carbon densities relative to mineral soils, and together they comprise extremely large stocks of carbon globally.²³⁵ For instance, peat areas in tropical zones such as Indonesia and Malaysia only cover about 40 million hectares. Yet, in this case deforestation, i.e. the destruction of the forests, plus the draining of carbon rich peat land, result in a massive release of CO₂. In the boreal zone, for instance, there are vast expanses of forests on bogs and peat land. The loss of surface permafrost in these areas due to rising temperature increases the net carbon storage due to vegetation growth, but this increase is offset by methane emissions.²³⁶

M. A. Parisien, E. Batllori, et al, Climate Change and Disruptions to global fire activity, *Ecosphere*, Article 49, 2012.

²³⁴ European Commission, European Union (EU) Action, Forests and Agriculture.// <<https://mail.google.com/mail/u/1/#inbox>>, last viewed 01 June 2015.

²³⁵ P. Smith, et al, Agriculture, Forestry and Other Land Use (AFOLU), in O. Edenhofer et al (eds), *Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014, p. 845.

²³⁶ United Nations Environment Program (UNEP), FAO, United Nations Forum on Forest Secretariat (UNFF), *Vital Forest Graphics, Forests and the Carbon Cycle*, 2009, p. 37-38.

Both, natural processes and human actions, may lead to forest decline, deforestation and/or forest degradation and have a two-fold effect: on the one hand, the release of carbon, stored in each tree, into the atmosphere and, on the other hand, the reduction of carbon uptake by forests. Scientists continue to investigate how much carbon is emitted as a result of such forest destruction. The most vital issue is to estimate the true level of a reduction in forest area, of the negative effect and the resulting release of carbon stock from the biomass and the soil.²³⁷ In its 2014 AR the IPCC established carbon emissions as a result of land use change activities at around 4,9 Gt of carbon per year in the period from 2000 until 2010, or around 11 percent of the world's total anthropogenic emissions of greenhouse gases.²³⁸ However this figure represents only the mid-range estimate, with the IPCC using a range of between 4,3 to 5,5 Gt per year.²³⁹

2.3.1.3. Forests as a Source of Renewable Energy.

In addition to the roles of forests, on the one hand, as a carbon sink and reservoir and, on the other, as a source of emissions, forests play an important role in the greenhouse effect as a source of renewable energy. Wood biomass is one of the oldest (if not the first) sources of energy for human activities, providing for both domestic heating and cooking, and an industrial source of energy.²⁴⁰ Today it is still the most important source of renewable energy,

²³⁷ Estimating and reporting the anthropogenic component of gross and net land use change activities GHG fluxes to the atmosphere, globally, regionally, and at country level is difficult compared to other sectors. First, it is not always possible to separate anthropogenic and natural GHG fluxes from land. Second, the input data necessary to estimate GHG emissions globally and regionally, often based on country level statistics or on remote-sensing information, are very uncertain. Third, methods for estimating GHG emissions use a range of approaches, from simple default methodologies such as those specified by the IPCC, to more complex estimates based on terrestrial carbon cycle modeling and/or more remote sensing information. See, P. Smith, et al, Agriculture, Forestry and Other Land Use (AFOLU), in O. Edenhofer et al (eds), Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014, p. 819.

²³⁸ P. Smith, et al, Agriculture, Forestry and Other Land Use (AFOLU), in O. Edenhofer et al (eds), Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014, p. 869.

²³⁹ P. Smith, et al, Agriculture, Forestry and Other Land Use (AFOLU), in O. Edenhofer et al (eds), Climate Change 2014, Contribution of the Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014, p. 869.

²⁴⁰ FAO, Wood Energy.// < <http://www.fao.org/forestry/energy/en/>>, last viewed 07 May 2015; M. Agreiter, How Agriculture and Forestry Change Climate, and how we Deal with it?, 2015, p. 48.

providing about 9 percent of the global total primary energy supply,²⁴¹ and the only renewable material that can be used to produce power, heat, and liquid fuels.²⁴²

For energy purposes, wood is mostly used through straightforward combustion. It may come in various raw material forms: logs, stems, stumps, needles, and leaves from forests; bark, sawdust and redundant cuttings from sawmills; chips and slabs from the wood industry; and recycled wood from the demolition. Alternatively, the raw material can be processed into forms that allow for easy transport, storage and combustion, such as chips, pellets, briquettes and powder. The most economical way of converting wood biomass into fuel is wood pellets, made from dried sawdust, shavings or wood powder.²⁴³

The use of wood for energy purposes diversifies energy supply and reduces dependence on fossil fuels (i.e. oil, coal, peat, etc.), which are by far the most important energy source worldwide nowadays.²⁴⁴ Both, fossil fuels and wood biomass ultimately derive from the same sources: the conversion of solar energy to chemical bonds in organic carbon compounds through the process of photosynthesis. However, in contrast to fossil fuels, which take millions of years to form, wood biomass is a renewable energy resource. Being of biological origin it can replenish with a relatively short passage of time (e.g. in comparison to fossil fuels).

²⁴¹ Wood energy supply is as important as all other renewable energy sources altogether (hydro, geothermal, wastes, biogas, solar and liquid biofuels). See, FAO, Wood Energy.// <<http://www.fao.org/forestry/energy/en/>>, last viewed 07 May 2015.

²⁴² Non-food feedstock advanced liquid biofuels, also referred to as second or third generation biofuels, including those of the cellulosic origin have not yet been proven on a commercial scale, are mainly in the research and development or pilot phase, however, are envisaged for the future. See, Y. M. Gordeeva, Wood Biomass Sustainability in the Renewable Energy Directive, in L. Squintani, H. H. B. Vedder, M. Reese, B. Vanheusden (eds), Sustainable Energy United in Diversity: Challenges and Approaches in Energy Transition in the EU, European Environmental Law Book Series, Volume 1, 2014, pp. 50 - 51.

²⁴³ Eurostat, Forestry in the EU and the World, 2011, p. 94.

²⁴⁴ In 2013 fossil fuels constituted 81% of the total primary energy supply (TPES) in the world: oil fuel accounted for 35,5%, coal and peat accounted for 19,4%, natural gas accounted for 25,8%. In comparison, in 2011 fossil fuels constituted 81,6% of the TPES in the world: oil fuel accounted for 31,5%, coal and peat accounted for 28,8% and natural gas accounted for 21,3%. Globally fossil fuels have been the most important primary energy sources since 1973. However, there is a slight (0,6%) tendency for substitution of fossil fuels by other types of energy. For more information see, International Energy Agency (IEA), Key World Energy Statistics, 2014, p. 7; IEA, Key World Statistics, 2013, p. 6.

Furthermore, in comparison to fossil fuels, which are currently the dominant source of anthropogenic emissions to the atmosphere, wood is often viewed as a less emitting and/or even “carbon neutral”²⁴⁵ source of energy (this is, however, not undisputed²⁴⁶). The combustion of fossil fuels and forest biomass for energy both release comparable amounts of CO₂ to the atmosphere for the similar amounts of energy.²⁴⁷ Fossil reserves, however, were accumulated over millennia, with natural inputs to and emissions from these deeply buried reservoirs occurring only slowly on geological time scales. Human withdrawal of fossil fuel from these relatively inert reservoirs has effectively added new carbon to the active global carbon cycle at a rate that has increased dramatically over the last 100 years. In contrast, the burning of wood biomass simply returns to the atmosphere the CO₂ that was accumulated from the atmosphere in recent times, adding no new carbon to the global carbon cycle. If the cycle of growth, harvest and combustion is sustained, there is no direct global change in the atmospheric CO₂ concentration from the combusting of wood biomass. However, additional emissions occur resulting from land use changes, conversion of plant materials, the needed infrastructure, and transportation.²⁴⁸

2.3.1.4. Forests and their Sensitive Reaction to the Changing Climate.

The fourth role, that forests have in the greenhouse effect is their sensitive reaction to the changing climate. The increase of the CO₂ in the atmosphere has a “fertilizing effect” on photosynthesis and increases trees growth and plants substantially. The average response to twice-ambient CO₂ from many experiments with tree seedlings have shown a stable increase in plant dry mass from 29 percent to 57 percent.²⁴⁹ This explains present regional tendencies of

²⁴⁵ See, for instance, Eurostat, *Forestry in the EU and the World*, 2011, p. 92.

²⁴⁶ See, for instance, M. Agreiter, *How Agriculture and Forestry Change Climate, and how we Deal with it?*, 2015.

²⁴⁷ M. J. Apps, P. Bernier, and J. S. Bhatti, *Forests in the Global Carbon Cycle: Implications of Climate Change*, 2011, p. 192.

²⁴⁸ M. Agreiter, *How Agriculture and Forestry Change Climate, and How we Deal with it?*, 2015, p. 49.

²⁴⁹ D. Hemming, R. Betts, M. Collins, *Sensitivity and Uncertainty of Modeled Terrestrial net Primary Productivity to Doubled CO₂ and Associated Climate Change for a Relatively Large Perturbed Physics Ensemble*, *Agricultural and Forest Meteorology*, 170, 2013, pp. 79-88; P.S. Curtis, X. Wang, *A Meta-Analysis of Elevated CO₂ Effects on Woody Plant Mass, Form, and Physiology*, *Oecologia*, 1998, 113, pp. 299 - 313.

enhanced forest growth and higher carbon accumulation.²⁵⁰ This also influences the potential size of the forest carbon reservoir.

There are, however, questions regarding the future of the forests as a carbon pool. Several bio-climatic models indicate that the ecosystems' absorption capacity is approaching its upper limit, i.e. "tipping point", and should diminish in the future, possibly even reversing direction in 2050, with forests becoming a net source of CO₂.²⁵¹ Global warming may cause an increase in respiration of living biomass and the decomposition of organic matter, and a simultaneous decrease of carbon storage by forests, thereby transforming the forestry ecosystems into a net source of CO₂.

2.3.2. Climate Change Impact on Forests.

Climate change has direct and indirect impacts on forests. Direct impacts arise from changes in the climate properties, e.g. increase in the CO₂ concentration, temperature and precipitation changes, etc. Indirect impacts come from the interactions between changes in climatic properties and several abiotic (non-living) and biotic (living) factors. This section illustrates how forests (potentially) react to the following direct and indirect impact factors: atmospheric CO₂ increase (2.3.2.1.); changes in temperature (2.3.2.2.); changes in precipitation, flooding, drought duration and frequency (2.3.2.3.); abiotic disturbances (changes in fire occurrence, changes in wind storm frequency and intensity, 2.3.2.4.); biotic disturbances (frequency and consequences of pest and disease outbreaks, 2.3.2.5.).

2.3.2.1. Forest Reaction to Atmospheric CO₂ Increase.

Atmospheric CO₂ is a substrate for plant photosynthesis. Therefore, rising concentrations of CO₂ in the atmosphere may act as a fertilizer and increase

²⁵⁰ S. C. Dooney, D. Schimel, *Climate Change and Biogeochemical Impacts*, in L. S. John Wiley and Sons, Ltd: Chichester, 2015, p. 7; A. Karsenty, C. Blanco, Th. Dufour, *Forest and Climate Change*, in FAO, *Instruments Related to the United Nations Framework Convention on Climate Change and their Potential for Sustainable Forest Management in Africa*, 2003, p. 6.

²⁵¹ P. M. Cox, D. Pearson, et al, *Sensitivity of Tropical Carbon to Climate Change Constrained by Carbon Dioxide Variability*, *Nature*, 494, 2013, p. 341. The land and oceans decrease their capacity to act as repositories of fossil fuel CO₂ as fossil fuel emissions accelerate and greenhouse warming progresses. See, I. Y. Fung, et al, *Evolution of Carbon Sinks in a Changing Climate*, *Proceedings of the National Academy of Science*, 102, 32, 2005, 11201-11206;

photosynthesis and tree growth rate.²⁵² However, the latter might not increase proportionally with increase in photosynthesis because of other factors (such as nutrient availability) may become more important, thus limiting ability of trees to increase their growth rates.²⁵³ For instance, long - term responses of plants to enhanced CO₂ concentrations may be constrained by Nitrogen (N). Its availability will decline progressively with a tree growth, unless compensated by additional supplies.²⁵⁴ Increased allocation of carbon to root growth (e.g. increased fine roots, root surface area and volume) and osmotic adjustments²⁵⁵ in plants exposed to enriched CO₂ may enable plants to exploit soil water in a deeper and larger range of soil.²⁵⁶ The increased water use efficiency is particularly important for drier ecosystems. On the other hand, CO₂ increases become less important in northern latitudes, where precipitation normally is not limiting. It is important to stress that reactions of trees to CO₂ concentrations are largely variable and might diminish over time.²⁵⁷

2.3.2.2. Forest Reaction to Changes in Temperatures.

Globally potential impacts of climate change differ between bioclimatic zones and forest types. Therefore, the increased temperature has different effects on different types of trees and in different locations (Figure 8). These effects can be either positive or negative depending on the area and the main limiting factor for forest growth (production) in this area. For instance, forest productivity in the northern Boreal region is mainly limited by low temperature, and often by nutrient availability. Under these conditions, higher air temperature prolongs the growing season and thereby increases production. In the southern Boreal and Temperate zones, forest growth and production is more limited by water, and

²⁵² EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 40.

²⁵³ EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 41.

²⁵⁴ EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 41.

²⁵⁵Osmotic adjustments – a drought tolerance tree mechanism, whereby a tree maintains its turgor pressure (water pressure inside plant cells) under reduced soil water potential.

²⁵⁶ EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 41.

²⁵⁷ See also section "Forests and Their Sensitive Reaction to the Changing Climate".

less by temperature and nutrients. Higher temperatures increase the length of the growing season, but the increase in the production could be restricted by water availability. Water limitation increases from the southern Temperate to Tropical forests. Therefore, increases in temperature may have a detrimental effect, especially if the precipitation does not increase.²⁵⁸

Figure 8: Temperature Thresholds for Various Tree Types.

Climate Change Impact on Forests

Trees have widely differing responses to temperature. Some tropical tree species suffer chilling injury at temperatures below + 12 ° C, whereas species of colder regions can survive -5 ° C without ice formation but are sterile at lower temperatures. Classic examples for this phenomenon are Ilex and Hedera. Broad-leaved evergreen perennials can survive to a limit of about - 15 ° C by supercooling, whereas broad-leaved deciduous trees can supercool to about - 40 ° C. Evergreen needle-leaved trees can survive to about - 60 ° C, below which only deciduous species survive. Apart from these killing temperatures, many species require certain minimum numbers of degree days to complete essential life-cycle processes such as bud initiation, pollen formation, flowering, or others. Others require particular sequences of cool temperatures to become frost-hardy at the optimum time and a minimum duration of chilling temperatures to break winter dormancy. Insect pests and other biotic agents that affect forest health may have critical threshold subzero temperatures for winter survival and thermal times to complete a generation. Warming may have positive effects on the growth of many trees and their survival, but by being beneficial to insect pests it also may reduce tree survival or put cold-adapted species at a competitive disadvantage.

Source: M. Miko et al, Climate Change Impact on Forests.// <https://www.ipcc-wg2.gov/publications/SAR/SAR_Chapter%201.pdf>, last viewed 30 May 2015.

²⁵⁸ See for instance, the case for Mediterranean Forests. M. Palahi et al, Mediterranean Forests under Focus, International Forestry Review, 10(4), 2008, pp. 676-688.

2.3.2.3. Forest Reaction to Changes in Precipitation, Flooding, Drought Duration and Frequency.

Changes in the rainfall patterns are likely to have large corresponding effects on forest productivity, especially in regions where growth is water limited. Rising temperatures without increase in precipitation or with decreasing rainfall can lead to drought, especially in Tropical and southern Temperate forests. Extended droughts and hot waves have much more drastic consequences on tree growth and survival than gradual changes in average climate conditions.²⁵⁹ The dry and hot summer of 2010 caused strongly reduced productivity and large forest fires across large areas of the RF and resulted in increased tree mortality in the following years.²⁶⁰ Globally, heat and drought lead to a reduced CO₂ uptake and biomass production.²⁶¹

Along with other impact factors, heat and drought lead to a situation where natural forests may be replaced by other species,²⁶² many living organisms migrate to other areas, while new organisms arrive. Some species seek higher altitudes, others move polewards. In temperate regions, plant and tree species can migrate naturally by 25-40 kilometers (km) a century. However if, for example, there was a 3 °C increase in temperature over a hundred year period in a particular region, the conditions in that area would undergo dramatic change, equivalent in ecological terms to a shift of several hundred km.²⁶³ For instance, cloud forests have evolved to survive within certain temperature gradients. Already scientists have documented cloud forests literally migrating upslope to escape warming, however not as fast as they need to be to keep up with steadily rising temperatures.²⁶⁴ Various studies have noted that a number

²⁵⁹ J. Fuhrer et al, Climate Risks and their Impacts on Agriculture and Forests in Switzerland, Climate Change, 2006, pp. 79-102.

²⁶⁰ Из-за небывалой жары в России поыхают леса и высыхают реки (*Unprecedented heat in Russia causes forest fires and dry out of rivers*).// <http://www.newsru.com/russia/30jun2010/zhara.html>, last viewed 30 May 2015.

²⁶¹ Granier A, et al, Evidence for soil water control on carbon and water dynamics in European forests during the extremely dry year: 2003, Agricultural and Forest Meteorology 143, 2007 pp. 123-145.

²⁶² EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 44-45.

²⁶³ UNEP, FAO, UNFF, Vital Forest Graphics, Forests and the Carbon Cycle, p. 34.

²⁶⁴ J. Hance, What does the Paris Agreement mean for the World's other 8 Million Species?, The Guardian, 6 January 2016.// < <http://www.theguardian.com/environment/radical->

of tree, scrub and herb species have migrated by an average of six km during ten years, or have sought higher altitudes of between one and four meters.²⁶⁵ Botanists have also noted that many trees and plants in the northern hemisphere tend to flower increasingly early – on average advancing by two days every ten years thereby increasing the risk of buds being killed by late frost.²⁶⁶

2.3.2.4. Forest Reaction to Changes in Abiotic Disturbances.

Fires, wind storms, floods and droughts, all of which are affected by climate change, are among the abiotic factors that already cause forest disturbances globally and projected to intensify in the future. Severe fires cause significant removal of organic matter, deterioration of structure and porosity, considerable loss of nutrients through volatilization, ash entrapment in smoke columns, leaching and erosion, and marked alteration of both quantity and specific composition of microbial and soil-dwelling invertebrate communities. Wind storms cause significant reduction in the yield of recoverable timber and increase costs of thinning and clear-cutting in managed forests. Furthermore, broken and uprooted trees left in forest can lead to detrimental insect attacks on the remaining trees.²⁶⁷ Plant responses during the growing season to extreme flooding include injury, inhibition of seed germination, changes in plant anatomy and promotion of early senescence and mortality.²⁶⁸

2.3.2.5. Forest Reaction to Change in Biotic Disturbances.

The previously discussed climate change impact factors, i.e. atmospheric CO₂ increase, changes in temperature, changes in precipitation, and changes in abiotic disturbances, seriously influence biotic disturbance factors. Climate change affects herbivores and pathogens directly and indirectly through changes in plant nutritional quality and plant resistance or through community

[conservation/2016/jan/06/-paris-agreement-biodiversity-coral-reefs-forests>](#), last viewed 28 January 2016.

²⁶⁵ UNEP, FAO, UNFF, Vital Forest Graphics, Forests and the Carbon Cycle, p. 34.

²⁶⁶ UNEP, FAO, UNFF, Vital Forest Graphics, Forests and the Carbon Cycle, p. 34.

²⁶⁷ EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 46.

²⁶⁸ EFI, et al, Impacts of Climate Change on European Forests and Options for Adaptation, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 46.

interactions (e.g. natural enemies).²⁶⁹ The temporal and spatial dynamics of (potential) pest species changes, influencing the frequency and consequences of outbreaks as well as their spatial patterns, size and geographical range. Not only the range of the pest species may be affected, but also (in the long run) the distribution of its host tree species. An important fact is that individual species will respond to climate change not necessarily in the same way. Changes of species composition of communities are to be expected in future and hosts will consequently come in contact with novel pathogens and herbivores. The coevolved relationships between hosts and their pests may be disturbed. In areas, where pathogens have been contained at low levels because of unfavorable historic climate conditions, changes in climate may put the associated tree species at risk.

Thus, for instance, increases in the forest temperature in British Columbia, Canada, have led to a mountain pine beetle epidemic. This beetle infestation has arisen from the unusually warm temperatures in forests during all the winters since 1999. Previously, the low winter temperatures killed the beetle thus regulating the population. Warmer temperatures have allowed the beetle to thrive and the infestation has detrimentally affected 13 million hectares of pine forest in western Canada.²⁷⁰

2.3.3. Forests and Climate Change: Complexity and Scientific Uncertainty.

As this research is undertaken in a legal framework, two issues should be highlighted from the outset: complexity and uncertainty. Scientific understanding of interactions between climate change and forests is permeated with complexity and uncertainty at various levels. To begin with, global climate and global forests already in themselves represent complex systems, not to mention the environmental problems, such as climate change, deforestation and forest degradation, and, furthermore, their interactions. The sheer number of

²⁶⁹ EFI, et al, *Impacts of Climate Change on European Forests and Options for Adaptation*, Report to the European Commission Directorate-General for Agriculture and Rural Development, 2008, p. 46.

²⁷⁰ A number of articles document the impact of the mountain pine beetle on the forests of British Columbia, for example, see, M. A. Wulder et al, *Monitoring the Impacts of Mountain Pine Beetle Mitigation*, *Forest Ecology and Management*, 258 (7), pp. 1181 -1187, which discusses methods for mitigating the effects of the beetle.

components, their interactions within systems and geographic diversity require extensive observations in order to understand functioning, describe the systems and predict their future behavior. Monitoring involves estimating and generalizations, and involves a possibility of inaccuracy in determining the level of human impact on the systems.

Thus, for instance, when it comes to understanding of the climate system as a whole on the global level, the key findings of any of the IPCC Assessment Reports are expressed as a qualitative level of confidence (from very low to very high) and when possible, probabilistically with a quantified likelihood (from exceptionally unlikely to virtually certain).²⁷¹ Emissions monitoring involves estimating and generalizations. Future emissions are uncertain because of political, technological and economic unknowns. The level of human contribution to climate change is uncertain because of yet incomplete knowledge of land and ocean sources and sinks of GHGs. Indeed, uncertainty is being reduced while the knowledge of the climate system increases. Thus, in the most recent IPCC report there are findings, which are also formulated as statements of fact without using uncertainty qualifiers.²⁷² Yet, the accuracy of findings depends largely on the data input and the accuracy of the assumptions made. From this perspective it is unlikely that uncertainties may be eliminated completely when it comes to understanding the functioning of the climate system as a whole.

Second, uncertainties exist on the level of observations. For instance, how does deforestation contribute to climate change? The precise answer could be

²⁷¹ In the most recent IPCC report each finding is grounded in an evaluation of underlying evidence and agreement. In many cases, a synthesis of evidence and agreement supports an assignment of confidence. The summary terms for evidence are: limited, medium, or robust. For agreement they are low, medium, or high. A level of confidence is expressed using five quantifiers: very low, low, medium, high, and very high, and typeset in italics. The following terms have been used to indicate the assessed likelihood of an outcome or a result: very certain 99-100% probability, very likely 90-100%, likely 66-100%, about as likely as not 33-66%, unlikely 0-33%, very unlikely 0-10%, exceptionally unlikely 0-1%. Additional terms (extremely likely: 95-100%, more likely than not >50-100%, more unlikely than likely 0-<50%, and extremely unlikely 0-5%) may also be used when appropriate. See, IPCC, Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties, 2010.

²⁷² For instance, the most recent IPCC report concludes that the "human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system". Thus, the fact that humanity's emissions of GHGs contribute to climate change is no longer in dispute. See, IPCC, Fifth Assessment Report, the Physical Science Basis, p. 15.

provided if there is reliable data available for comparison. On a global scale data on changes in forest cover may be assessed by remote sensing. Yet, the satellite images need to be "calibrated" with field measurements. However, countries use differing definitions, frequencies, classification systems and assessment methods when monitoring their forests, making it difficult to obtain consistent data. It is also the case for the sufficient data on forests over longer periods of time and for a global perspective.

Third, a large source of considerable uncertainty are the complex models used to simulate how forest ecosystems will change under climatic conditions. First, one has to compute or imagine the climate of the future; then - the response of forests to climate at various levels: through competition and other interactions among species (and there are millions of species); through complex physiological and behavior mechanisms (many of which are understood imperfectly or cannot be explicitly resolved with today's computing resources).²⁷³ Already when modeling climate change there are several dimensions of uncertainty: future emissions are uncertain; relationship between fossil emissions and atmospheric concentrations is uncertain; for every given atmospheric concentration, there is remaining uncertainty in the response of the global climate system; etc.²⁷⁴ In addition, climate models are chaotic, i.e. a subtle difference in the initial conditions will produce different sequences of weather within the climate system.²⁷⁵ All these uncertainties contribute to the eventual computed uncertainty in forest change under climate conditions. The outcomes are highly contingent: that is, they predict a certain outcome under some conditions but potentially a quite different outcome under others. For instance, warming might increase carbon storage by trees, unless it leads to draught mortality or increased insect damage, in which case it will lead to a reduced uptake.

For the legal research the issues of scientific uncertainty and complexity associated with climate change and forests are of significance, primarily, for two reasons. On the one hand, when drafting a legal response to the environmental

²⁷³ D. Schimel, *Climate and Ecosystems*, 2013, pp. 158-200.

²⁷⁴ D. Schimel, *Climate and Ecosystems*, 2013, p. 169.

²⁷⁵ D. Schimel, *Climate and Ecosystems*, 2013, p. 169.

problems, scientific uncertainty and complexity need to be given consideration and may require flexibility in law and/or policy measures (mitigation, adaptation, management measures, etc.).²⁷⁶ If scientific understanding and/or conditions change, a legal response or a management tool may also require (preferably quick and easy) alteration to meet the new conditions. On the other hand, a lack of full scientific understanding of ecological interdependencies makes it more challenging to detect, avoid and solve the already existing legal conflicts that stem from the linked ecological factors and interactions between environmental regimes. In the climate change and forest context, forest-related solutions applied to address the climate change environmental problem, can have a ripple effect, causing new problems in the process, such as, for instance, exacerbating deforestation and forest degradation.

2.3.4. Climate Change and Forests, Interdependence: Interim Summary.

To sum up, climate change and forests are interconnected by various feedbacks and interactions: a change in the climate system causes a change in forest ecosystems, and the change in forest ecosystems ultimately leads to an additional change in the climate system.

This section illustrated that, on the one hand, forests exert significant influence on the global climate. In addition to the albedo effect, stemming from deforestation and forest degradation, and to the variety of forest functions and services (water regulation; soil protection; biodiversity conservation; etc.), which all contribute to climate regulation, forests exert significant influence on the global carbon cycle. Thus, forests can reduce and/or accelerate the greenhouse effect by affecting biophysical natural processes or/and by changing GHG fluxes to and from the atmosphere (sequestration, storage and emission). Forests also produce wood fuel as a “less emitting” alternative to fossil fuels. On the other hand, climate change impacts forests: the area covered by woods is changing; health and vitality of trees are threatened; biodiversity is pressured; etc. As the mortality of trees and their degradation increases, carbon is released

²⁷⁶ More on flexibility as a characteristic of approaches used to control climate change see, A. Carlin, *Global Climate Change Control: Is there a Better Strategy than Reducing Greenhouse Gas Emissions?*, *University of Pennsylvania Law Review*, 155, 2006-2007, p. 1407-1409; J. E. Aldy, S. Barrett, R. N. Stavins, *Thirteen Plus One: A comparison of Global Climate Policy Architectures*, *Climate Policy*, 2003, 3, pp. 373-397.

into the atmosphere, the remaining forests' capacity to absorb carbon diminishes; and climate change becomes autocatalytic.

Finally, the section discussed the issues of scientific uncertainty and complexity in the context of understanding the ecological interactions between climate change and forest. For the legal research the lack of full scientific understanding is of particular significance. On the one hand, the drafting of any future potential response to the interdependent environmental problems may require flexible approaches to regulation, so as to adapt quickly once the new scientific evidence on the environmental processes becomes available. On the other hand, scientific uncertainty and complexity in understanding the ecological interdependencies makes it more challenging to detect, avoid and solve the already existing legal conflicts that stem from the ecological factors. Thus, for instance, forest-related solutions applied to address the climate change environmental problem, can have a ripple effect, causing new problems in the process, such as, for instance, (unintentionally) contributing to deforestation and forest degradation.

2.4. Interim Conclusions: Climate Change and Forests, Scientific Background.

The main objective of the chapter was to review the scientific background on the environmental interdependencies between climate change and forests. The chapter provides answers to the following questions: What does contemporary science tell us about climate and forests? What are the causes and impacts of the environmental problems such as climate change, deforestation and forest degradation? How are climate change and forests interconnected?

The first part of the chapter, i.e. "Climate and Climate Change: General Background", focused on the scientific background for climate and its change. The part illustrated that at present there is already strong scientific evidence that the global climate is changing, that human activities contribute significantly to the trend and that the anthropogenic emissions of GHGs amplify the natural greenhouse effect. The part established that one of the largest sources of anthropogenic GHG emissions derive from the LULUCF sector, i.e. from the human activities, which change the way land is used and affect the amount of

biomass in existing forests. In the coming years the atmospheric concentrations of GHGs will continue to rise, leading to changes in all components of the climate system: temperature variations; changes in precipitation; frequency and duration of extreme weather events; etc. Climate change will lead to impacts on natural and managed ecosystems, socio-economic systems, and human health and welfare. Two equally important responses to climate change are mitigation (i.e. human intervention to reduce the sources or enhance the sinks of GHGs) and adaptation (i.e. adjustments in natural or human systems in response to actual or expected climate effects, which moderate harm or exploit beneficial opportunities).

The second part of the chapter, i.e. "Global Forests, Deforestation and Forest Degradation: Scientific Background", focused on the scientific background for forests, deforestation and forest degradation. The part illustrated that there is a great variation in forests throughout the world. Not only forest types vary, but also forest functions and services differ on all spacial and temporal scales. Due to the physical location of forests within national boundaries most functions and services provided by forests are local and/or national in scope (e.g. timber production). However, as in the case of climate regulation, forests exert not only local, but also transboundary or even global effect. The value assigned to forest functions and services may vary, depending on stakeholders involved, perspective taken, and the type of forests. Not all of the forest functions and services can be provided by the same forest at the same time, i.e. "mutually exclusive" services. One of the most known examples is the case of carbon sequestration or timber plantations, which may not simultaneously provide for biodiversity conservation. At present global forests decline at an alarming rate. The individual causes for deforestation and forest degradation are challenging to outline, as they result from the interactions among many factors – social, ecological, economic, climatic and biophysical. The environmental impacts of deforestation and forest degradation include the disruption of normal weather patterns, leading to hotter and drier weather, displacement of major vegetation regimes, disruption of the global carbon cycle, etc. In the coming years deforestation and forest degradation will continue.

The third part of the chapter, i.e. "Climate Change and Forests: Interdependence", focused on the environmental interdependences between climate change and forests. The part illustrated that, on the one hand, forests exert significant influence on the global climate. In addition to the albedo effect, stemming from deforestation and forest degradation, and to the variety of forest functions and services (water regulation; soil protection; biodiversity conservation; etc.), which all contribute to climate regulation, forests exert significant influence on the global carbon cycle. Thus, forests can reduce and/or accelerate the greenhouse effect by affecting biophysical natural processes or/and by changing GHG fluxes to and from the atmosphere (sequestration, storage and emission). Forests also produce wood fuel as a "less emitting" alternative to fossil fuels. On the other hand, climate change impacts forests: the area covered by woods is changing, health and vitality of trees are threatened, biodiversity is pressured, etc. As the mortality of trees and their degradation increases, carbon is released into the atmosphere, the remaining forests' capacity to absorb carbon diminishes, and climate change becomes autocatalytic. Finally, the third part of the chapter discussed the issues of scientific uncertainty and complexity associated with scientific understanding of the ecological interactions between climate change and forests.

As follows from the chapter, the environmental problem of climate change is not merely the problem of fossil fuel combustion, but the one that also fundamentally depends on forests and their management. In other words, in order to achieve the basic objective of the international climate change regime – "stabilization of greenhouse gas concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference with the climate system"²⁷⁷ – forests (of all types across the globe) must be part of the effort.²⁷⁸ If one compares global warming to a "fever of the planet", then forests do not only

²⁷⁷ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 2.

²⁷⁸ In this regard Ch. Streck (et. al) comments, "the agriculture, forestry, and other land use sector [...] has so far been treated as an unwelcome distraction from tackling industrial and energy-related emissions, rather than being seen as an integral part of the climate change problem for which we must develop comprehensive solutions". See, Ch. Streck, R. O' Sullivan, T. Janson-Smith, R. Tarasofsky (eds), *Climate Change and Forests, Emerging Policy and Market Opportunities*, 2008, p. 3; See also Boyd who argued that "deforestation" must be part of the effort. See, W. Boyd, *Ways of Seeing in Environmental Law: How Deforestation Became an Object of Climate Governance*, *Ecology Law Quarterly*, 37, 3, 2010.

function as a remedy, their destruction also contributes to the illness.²⁷⁹ Thus, in order to contribute to achieving the ultimate objective of the international climate change regime the international forest regulation needs (1) to protect forests against destruction, mostly human-induced deforestation (forest protection, conservation and sustainable management)²⁸⁰ and (2) against the effects of global climate change (adaptation), and (3) to utilize forest unique "climate roles"²⁸¹ for mitigating climate change and safeguarding human societies (mitigation).

Understanding the roles of forests in climate change allows to suggest climate mitigation options, which may involve one or more of the following forest-specific strategies:

1. Reduction and/or prevention of emissions to the atmosphere by conserving or sustainable management of the existing carbon pools (reducing deforestation and forest degradation);
2. Sequestration by enhancing the uptake of carbon in existing and new terrestrial reservoirs, and thereby removing CO₂ from the atmosphere (promotion of afforestation and reforestation (A/R) measures);
3. Reducing CO₂ emissions by substitution of fossil fuels or energy intensive materials and products for wood.

Sequestration measure requires particular attention as this measure may no longer be available once forests reach the upper limit of their absorption capacity and become a net source of CO₂ (according to some scientists this may happen already in the year of 2050). The mitigation options need to be implemented in tandem with adaptation measures of forest for climate change, as mitigation and adaptation, in the case of climate change and forests, are closely interlinked. On the one hand, without adaptation forests may not fulfill expectations in climate change mitigation, on the other hand, being adapted

²⁷⁹ See, Ch. Streck, S. M. Scholz, The role of forests in global climate change: whence we come and where we go, *International Affairs*, 82, 5, 2006, p. 861; D. Schoene and M. Netto, The Kyoto Protocol: What does it mean for forests and forestry?, *Unasylva*, 56, 3, 2005, p. 3.

²⁸⁰ In this regard R. O' Sullivan comments that "if the global community is serious about trying to prevent significant climate change, then emissions from deforestation need to be addressed as a priority". See, R. O'Sullivan, Reducing Emissions from Deforestation in Developing Countries: An Introduction, in Ch. Streck, (et al., eds), *Climate Change and Forests, Emerging Policy and Market Opportunities*, 2008, p. 180.

²⁸¹ See section 2.3.1. "Roles of Forests in Climate Change" of the current thesis.

forests are more resistant to climate change and, thus, can contribute more to mitigation.

Finally, a remark needs to be made that scientific understating of interactions between climate change and forests is still permeated with complexity and uncertainty. On the one hand, drafting any future potential response to the interdependent environmental problems may require flexibility in approaches to regulation, so as to provide quick and easy alteration to meet the new conditions. On the other hand, scientific uncertainty and complexity in understanding the ecological interdependencies make it more challenging to detect, avoid and solve the existing (legal) conflicts that stem from the interdependence of ecological factors.

Chapter III: Forests under the International Climate Change Regime.

In order to answer the main research question as to how the international environmental regimes interact with regards to forest regulation, it is important to, first, establish the interacting elements. Thus, the present chapter investigates the first interacting element – the international climate change regime. In particular, the chapter focuses on how forests are incorporated into the regime. This requires, first, the general understanding of the regime; its structure, and major actors.²⁸² Like most international environmental regimes, the international regime on climate change has a treaty basis. Its core components are the UNFCCC,²⁸³ its KP²⁸⁴ and the recent Paris Agreement.²⁸⁵ States are the main principle actors both in the creation of the regime and its implementation. However, the UNFCCC, its KP and the Paris Agreement represent just “the tip of the normative iceberg”.²⁸⁶ The subsequent development and the adoption of norms takes place through more flexible techniques (e.g. Conference of Parties (COP)/ Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol (CMP)/ Conference of Parties, Serving as a Meeting of Parties to the Paris Agreement (CMA),²⁸⁷ which allow the regime to evolve and respond more quickly to the emergence of new knowledge and understanding. Thus, the institutions are relevant.²⁸⁸ The central climate change regime institution - the COP - has an ever significant role, elaborating the regime and adopting the necessary guidelines and rules of procedures that

²⁸² A regime is not synonymous with a treaty (although it can be based on one), but also includes decision-making procedures and organizational arrangements that may be constituted by an intergovernmental arrangement. H. Van Asselt, *The Fragmentation of Global Climate Governance*, 2014, p. 49.

²⁸³ UNFCCC, adopted 9 May 1992, in force 21 March 1994.

²⁸⁴ Kyoto Protocol to the UNFCCC, adopted 11 December 1997, in force 16 February 2005.

²⁸⁵ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016;

²⁸⁶ D. Bodansky, *Does one need to be an international lawyer to be an international environmental lawyer*, *ASIL Proceedings*, 2006, p. 305.

²⁸⁷ This is in comparison to a state consent, which is treated as the decisive moment in the creation of legal commitments in international environmental law. The requirement of consent is seen to undercut the dynamic forces, such as the growing consensus among parties regarding the problem at hand and appropriate response actions, that may unfold within a regime and pull participants towards collective action.

²⁸⁸ Please note that the trend of international institutions playing an ever significant role in regime's evolution is a trend claimed to be specific for international environmental law in general, not solely to the international climate change regime. Thus, G. Ulfstein comments, “Although we find some similarities in the institutional set-up of treaties outside the field of international environmental law, it is difficult to find other examples of treaties establishing COPs with a comparable role in standard setting and with subsidiary organs and a permanent secretariat.”. See, G. Ulfstein, *Treaty Bodies*, in D. Bodansky, J. Brunnee, E. Hey (eds), *The Oxford Handbook of International Environmental Law*, 2007, p. 888.

are needed to “flesh out” the treaties’ key provisions. The clarification and specification of the UNFCCC, the KP and the Paris Agreement general obligations with regard to forests takes place during the COP/CMP/CMA negotiations. In the context of the UNFCCC regime, forest issues are negotiated primarily within the frameworks of Land Use Land Use Change and Forestry (LULUCF); the Kyoto flexible mechanisms, namely, the Clean Development Mechanism (CDM) and the Joint Implementation Mechanism (JI); and the “Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries” (“REDD+”) instrument. As the regime is currently under evolution, it remains an open question how forests will be integrated into the post-2020 international climate change regime.

The present chapter investigates the contemporary regime with regard to forests: how are forests regulated under the international climate change regime? In order to answer this question the chapter, first, provides a brief introduction to the regime: reviews the regime’s institutions (3.1.); looks at the international regulatory regime²⁸⁹ and, more specifically, at its forest-related provisions (3.2.). The third part of the chapter provides a close study of the forest-related instruments under the international climate change regime: the LULUCF reporting and accounting; the KP flexibility mechanisms, namely, the CDM mechanism and the JI mechanism; and the “REDD+” instrument (3.3.). Finally, part four brings the findings of the chapter together and provides some concluding remarks (3.4.).

3.1. Institutional Structure of the International Climate Change Regime.

The “change in the Earth’s climate and its adverse effects” is a problem of concern to the international community as a whole.²⁹⁰ When being addressed, the problem requires cooperative action, common rules and standards and continuous decision making among multitude of relevant actors. In the course of engaging in these activities a framework of climate change governance has

²⁸⁹ An international regulatory regime – a multilateral agreement (MEA), together with its related protocols and soft law. See, P. Birnie, A Boyle, C. Redgwell, *International Law and the Environment*, Oxford University Press, 2009, pp. 85-86.

²⁹⁰ UNFCCC, adopted 9 May 1992, in force 21 March 1994, preamble, paragraph 1.

emerged in which international institutions play an ever important role. These institutions are a heterogeneous set of actors: their legal status; competences; and tasks vary considerably. However, these institutions are linked to each other through a variety of cooperative arrangements. This part of the chapter addresses two types of institutions, namely:²⁹¹

1. Treaty-based institutions (Figure 9), namely:

- 3.1.1. the COP;
- 3.1.2. the CMP;
- 3.1.3. the CMA;
- 3.1.4. the Bodies under the Kyoto Protocol;
- 3.1.5. the Secretariat;
- 3.1.6. the two Permanent Subsidiary Bodies;
- 3.1.7. the Expert Groups; and
- 3.1.8. the Climate Finance Bodies.

2. An institution based on cooperative arrangement between other international institutions, namely:

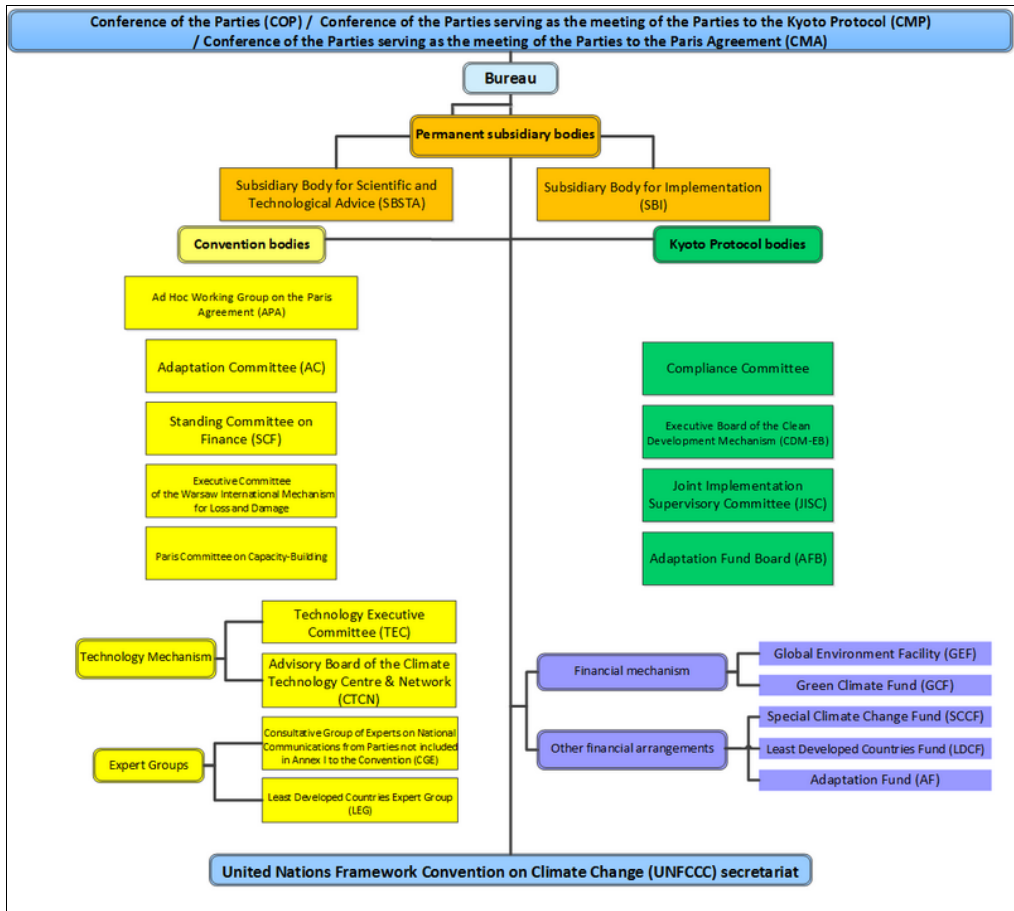
- 3.1.9. the IPCC.

The different roles of the institution in the climate change governance are discussed. Finally, the major findings of the first part of the chapter, i.e. "Institutional Structure of the International Climate Change Regime", are summarized in the tenth section of the part (3.1.10.).

Figure 9: International Climate Change Regime, Institutional Structure.²⁹²

²⁹¹ The classification is suggested by E. Hey, who distinguishes institutions according to their origin: Treaty-based; UN specialized agencies; UN General Assembly bodies; and Institutions based on cooperative arrangements between other international institutions. See, E. Hey, *International Institutions*, in D. Bodansky, et al., *International Environmental Law*, 2007, p. 752.

²⁹² As of July, 2015.



Source: UNFCCC, Bodies.// <http://unfccc.int/files/inc/graphics/image/png/unfccc_bodies_large.png>, last viewed 19 April 2017.

3.1.1. Conference of Parties (COP).

The institutional structure of the UNFCCC is hierarchic, with COP being the supreme decision-making body of the UNFCCC.²⁹³ This formation means that the secretariat, other treaty-based institutions, and the IPCC need to respect the decisions and instructions adopted by the COP.

²⁹³ UNFCCC, Conference of Parties (COP).// <<http://unfccc.int/bodies/body/6383.php>>, last viewed 27 July 2015.

The COP meets in Bonn, the seat of the Secretariat, unless a Party offers to host the session.²⁹⁴ The COP meets every year.²⁹⁵ All states that are members to the Convention are represented at the COP, at which they review the implementation of the Convention (and any other legal instruments that the COP adopts) and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.²⁹⁶ Article 7 of the Convention outlines the purpose and functions of the COP. Its mandate is wide-ranging and requires the COP, among other listed duties: “[...] to examine the obligations of the Parties and the institutional arrangements under the Convention, in the light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge”;²⁹⁷ “to seek to mobilize financial resources [...]”;²⁹⁸ to “seek and utilize [...] the services and cooperation of [...] competent international organizations and intergovernmental and non-governmental bodies”.²⁹⁹ The key task for the COP is to review the national communications and emission inventories submitted by Parties.³⁰⁰ Based on this information, the COP assesses the effects of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention.

As some legal scholars note, decision making in the COPs of the UNFCCC takes place in a “legal vacuum” with no adopted rules of procedure and complex, potentially confusing dynamics.³⁰¹ Initially, no consensus on the adoption of the rules of procedure was reached. As decided by COP 1 in 1995, the Draft Rules of Procedure are at present being applied by the COP and its subsidiary bodies with

²⁹⁴ Just as the COP Presidency rotates among the five recognized UN regions – i.e. Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and others – there is a tendency for the venue of the COP to also shift among these groups. The first COP meeting was held in Berlin, Germany in March, 1995.

²⁹⁵ Unless the Parties decide otherwise. UNFCCC, Conference of Parties, Article 7.4.

²⁹⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Conference of the Parties, Article 7.2.

²⁹⁷ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Conference of the Parties, Article 7.2. (a).

²⁹⁸ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Conference of the Parties, Article 7.2. (h).

²⁹⁹ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Conference of the Parties, Article 7.2. (l).

³⁰⁰ UNFCCC, Conference of Parties (COP).// <<http://unfccc.int/bodies/body/6383.php>>, last viewed 27 July 2015.

³⁰¹ A. Vihma, *Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations*, RECIEL, 24 (1), 2015, p. 62.

the exception of draft rule 42 (two options for voting on general matters).³⁰² *De facto*, all general decisions are taken by consensus, i.e. “by the Chair’s perception that there is no stated objection”.³⁰³ However, it has been the practice in the international climate change regime that decisions have been “gavelled” through a limited amount of opposition.³⁰⁴ This was already the case at COP 1 in Berlin, where Saudi Arabia fought hard to prevent the adoption of the Berlin Mandate to negotiate the Kyoto Protocol. Later, the concept of “consensus” came under spotlight in Doha in 2012, where Russia, Belarus and Ukraine objected to the adoption of the decisions under the Kyoto Protocol.

Over the years, the longstanding difficulty of reaching agreement on a new global climate change treaty has channeled interest and attention towards examining the possibilities and the limitations of COP decisions, as well as their legal status. The question of whether the international climate change regime COP decisions are binding under international law has been revisited by legal scholars many times.³⁰⁵ Decisions, made by treaty bodies can certainly create international obligations, but the majority view is that they lack a legally binding character. Constructivist scholars, such as Jutta Brunnee, note that “[COP] decisions do contain terms that make conduct mandatory, and make access to certain benefits contingent upon compliance with some of these mandatory

³⁰² UNFCCC, Adoption of the Rules of Procedure, Note by the Secretariat, UNFCCC, CP/1996/2, Rules of Procedure, at paragraph 2.

³⁰³ This has been the practice in most global negotiation forums and can be viewed as part of international customary law. See, A. Vihma, Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations, *RECIEL*, 24 (1), 2015, p. 62. Conceptually consensus is located somewhere between unanimity and majority voting. Like the former, it preserves the right of all parties to reject and undesired decision, but, like the latter, it does not require a positive voting by all parties. Consensus decision-making requires active intervention in the negotiation process before the final decision is adopted. What is more, decisions are not made by casting votes, but are developed through the gradual removal of objections against particular aspects of a draft treaty. Settlements that are achieved are difficult to challenge later in the process. See, Th. Gehring, Treaty-making and treaty evolution, in D. Bodansky, J. Brunne, and E. Hey (eds), the Oxford Handbook of International Environmental Law, 2007, p. 470.

³⁰⁴ See, A. Vihma, Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations, *RECIEL*, 24 (1), 2015, p. 62.

³⁰⁵ J. Brunnee, Coping with Consent: Law-Making under Multilateral Environmental Agreements, *Leiden Journal of International Law*, 15, 1, 2002; R. Churchill, G. Ulfstein, Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-noticed Phenomenon in International Law, 94, 4, *American Journal of International Law*, 2000; A. Vihma, Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations, *RECIEL*, 24 (1), 2015, p. 61; Th. Gehring, Treaty-making and treaty evolution, in D. Bodansky, J. Brunne, and E. Hey (eds), the Oxford Handbook of International Environmental Law, 2007, p. 491.

terms. Yet, they do not appear to be binding in a formal sense”.³⁰⁶ As Thomas Gehring notes, the precise legal status of COP decisions is of “comparatively little importance for the practical operation”;³⁰⁷ COP decisions are more flexible than the regular treaty law, and at the same time able to commit the member states more intensely than mere recommendations.

While their legal implications are highly contextual, “COP decisions are growing in importance”.³⁰⁸ Practically, the UNFCCC COP is responsible for adopting decisions and requesting further research and/or information, thus, guiding the direction and form of the international climate change regime.

3.1.2. Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol (CMP).

The supreme body of the UNFCCC, the COP, also serves as the meeting of the Parties to the Kyoto Protocol (Figure 9). All States that are Parties to the Kyoto Protocol are represented at the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. Parties to the Convention that are not Parties to the Protocol are able to participate in the CMP as observers, but without the right to take decisions.³⁰⁹ The permanent subsidiary bodies established under the Convention and the Bureau also serve the CMP. The CMP meets annually during the same period as the COP.

Article 13 of the Kyoto Protocol outlines the purpose and functions of the CMP. The Meeting of the Parties to the KP reviews the implementation of the Protocol and promotes its effective implementation.³¹⁰ The mandate of the CMP is wide-ranging and requires it, among other listed duties to: “examine the obligations of the Parties under [...the] Protocol [...] in the light of the objective of the Convention, the experience gained in its implementation and the evolution of

³⁰⁶ J. Brunnee, *Coping with Consent: Law-Making under Multilateral Environmental Agreements*, *Leiden Journal of International Law*, 15, 1, 2002, p. 32.

³⁰⁷ The contracting parties can afford to avoid determining the issue of legal status. They tend to do so because principled discussion in this regard might jeopardize the successful reliance on decisions as a means of governance. See, Th. Gehring, *Treaty-making and treaty evolution*, in D. Bodansky, J. Brunnee, and E. Hey (eds), *The Oxford Handbook of International Environmental Law*, 2007, pp. 492 -493.

³⁰⁸ A. Vihma, *Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations*, *RECIEL*, 24 (1), 2015, p. 58.

³⁰⁹ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 13.2.

³¹⁰ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 13.4.

scientific and technological knowledge [...]”;³¹¹ “seek to mobilize additional financial resources [...]”;³¹² “seek and utilize [...] the services and cooperation of and information provided by competent international organizations and intergovernmental and non-governmental bodies”.³¹³

The first meeting of the CMP took place in Montreal, Canada in December 2005 in conjunction with the eleventh session of the COP. The Parties to the Kyoto Protocol formally adopted the “rulebook” of the 1997 Kyoto Protocol, the so-called “Marrakesh Accords”, which sets the framework for implementation of the Protocol.

3.1.3. Conference of the Parties Serving as the Meeting of Parties to the Paris Agreement (CMA).

The COP of the UNFCCC also serves as the meeting of Parties to the Paris Agreement (Figure 9).³¹⁴ The meetings of the CMA take place in conjunction with ordinary sessions of the COP. Parties to the UNFCCC, that are not Parties to the Paris Agreement may participate as observers in the proceedings of any session of the CMA. When the COP serves as the meeting of CMA, decisions under the Paris Agreement are taken only by Parties to the Paris Agreement.³¹⁵ Article 16 of the Paris Agreement outlines the purpose, major functions and the rules of procedure of the CMA.³¹⁶ The CMA keeps under the regular review the implementation of the Paris Agreement and makes the necessary decisions in order to promote the effective implementation of the Paris Agreement.³¹⁷ The CMA can establish subsidiary bodies as necessary for the implementation of the Paris Agreement and can also exercise other functions as may be needed for the implementation of the Paris Agreement.³¹⁸ The rules of procedure of the COP and the financial procedures applied under the Convention are also applied

³¹¹ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 13.4. (a).

³¹² KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 13.4. (g).

³¹³ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 13.4. (i).

³¹⁴ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.1.

³¹⁵ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.2.

³¹⁶ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.

³¹⁷ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.4.

³¹⁸ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.4.

mutatis mutandis under the Paris Agreement.³¹⁹ The first meeting of the CMA took place in November, 2016.³²⁰

3.1.4. The Bodies under the Kyoto Protocol.

There are four specialized bodies established under the Kyoto Protocol, namely, the CDM Executive Board (CDM EB), the JI Supervisory Committee (JI SC), the Compliance Committee and the Adaptation Fund Board. This section briefly introduces three bodies, relevant for the purpose of the research, namely, the CDM Executive Board (CDM EB, 3.1.4.1.), the JI Supervisory Committee (JI SC, 3.1.4.2.), and the Compliance Committee (3.1.4.3.).

3.1.4.1. Clean Development Mechanism Executive Board.

The CDM EB (Figure 9) supervises the CDM under the Kyoto Protocol and prepares relevant decisions for the CMP. The CDM Executive Board is the ultimate point of contact for CDM project stakeholders. The body performs a variety of functions related to the operation of the CDM, including the registration of projects, accreditation of operational entities and the issuance of certified emission reductions (CER).

3.1.4.2. Joint Implementation Supervisory Committee.

The JISC, also called "article 6 supervisory committee" (Figure 9), under the authority and guidance of the CMP, supervises the verification procedure for submitted JI projects to confirm that emission reductions of emissions by sources or enhancement of anthropogenic removals by sinks meet the relevant requirements of Article 6 of the Kyoto Protocol and the JI guidelines.

3.1.4.3. Compliance Committee.

The Compliance Committee (Figure 9) is made of two branches: a facilitative branch and an enforcement branch. The functions of the Compliance Committee of the Kyoto Protocol are to provide advice and assistance to Parties in implementing the Kyoto Protocol, promote compliance by Parties with their commitments and determine cases of non-compliance and apply consequences

³¹⁹ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 16.6.

³²⁰ FCCC/PA/CMA/2016/3, Report of the COP, serving as CMA on the first part of its first session, held in Marrakech from 15 to 18 November, 2016, 31 January 2017.

in cases where Parties are not complying with their commitments under the Kyoto Protocol.

3.1.5. The Secretariat.

Article 8 of the UNFCCC established a Secretariat³²¹ (Figure 9). The Secretariat is located in Bonn, Germany. At the head of the Secretariat is the Executive Secretary. At times of its establishment, the main function of the Secretariat was to support intergovernmental negotiations. At present the Secretariat also supports the increasing number of constituted institutions that serve the process (e.g. the Convention Bodies; the Kyoto Protocol Bodies; the Paris Agreement Bodies, the Financial Mechanisms; etc.³²²; Figure 9), and, predominantly, the COP (by preparing and organizing its sessions). The entry into force of the Kyoto Protocol in 2005 led to a trend of increased technical expertise within the secretariat, for example, on reporting guidelines, and the LULUCF sector. Currently, the Secretariat has an increasingly important role as "information clearinghouse",³²³ analysing and reviewing climate change information and data reported by Parties.³²⁴ The precise duties of the Secretariat are outlined in Article 8 of the Convention:

- (a) To make arrangements for the sessions of the COP and its subsidiary bodies established under the Convention and to provide them with services as required;
- (b) To compile and transmit reports submitted to it;
- (c) To facilitate assistance to the Parties, particularly developing country Parties, on request, in the compilation and communication of information require in accordance with the provisions of the Convention;
- (d) To prepare reports on its activities and present them to the COP of the Parties;
- (e) To ensure the necessary coordination with the secretaries of other relevant international bodies;

³²¹ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 8.1.

³²² UNFCCC, Bodies.// < <http://unfccc.int/bodies/items/6241.php>>, last viewed 21 July 2015.

³²³ D. Bodansky, L. Rajamani, The Evolution and Governance Architecture of the Climate Change Regime, draft, 28 October 2012, p. 31.

³²⁴ UNFCCC, The Secretariat.// < <http://unfccc.int/secretariat/items/1629.php>>, last viewed 21 July 2015.

- (f) To enter, under the overall guidance of the COP, into such administrative and contractual arrangement as may be required for the effective discharge of its functions; and
- (g) To perform the other secretariat functions specified in the Convention and in any of its protocols and such other functions as may be determined by the COP.³²⁵

3.1.6. Permanent Subsidiary Bodies.

The UNFCCC establishes two permanent subsidiary bodies (Figure 9): the Subsidiary Body for Scientific and Technological Advice (SBSTA, 3.1.3.1.) and the Subsidiary Body for Implementation (SBI, 3.1.3.2.).³²⁶ The SBSTA and SBI traditionally meet in parallel twice a year. When they are not meeting in conjunction with the COP, the subsidiary bodies usually convene at the seat of the secretariat in Bonn, Germany. Although each subsidiary body was established to work under the guidance of the COP in its particular area of expertise, the SBSTA and SBI also work together on cross-cutting issues that touch on both their areas of expertise, for instance, coordination of support for "REDD+"; the Kyoto mechanisms; and some other matters.³²⁷

3.1.3.1. Subsidiary Body for Scientific and Technological Advice (SBSTA).

Article 9 of the Convention creates the SBSTA. The main purpose of the SBSTA is to provide the COP and other subsidiary bodies with timely information and advice on scientific and technological matters relating to the UNFCCC, its Kyoto Protocol and Paris Agreement.³²⁸ Additionally, it prepares guidelines for the national inventories³²⁹ and national communications.³³⁰ The SBSTA plays an important role as a link between the scientific information provided by expert sources such as the IPCC, on the one hand, and the policy oriented needs of the COP, on the other hand. The SBSTA is made up of government representatives

³²⁵ UNFCCC, adopted 9 May 1992, in force 21 march 1994, Article 8.

³²⁶ UNFCCC, adopted 9 May 1992, in force 21 march 1994, Article 9; 10.

³²⁷ UNFCCC, Bodies.// < <http://unfccc.int/bodies/items/6241.php>>, last viewed 29 July 2015.

³²⁸ UNFCCC, adopted 9 May 1992, in force 21 march 1994, Article 9.1.

³²⁹ UNFCCC, adopted 9 May 1992, in force 21 march 1994, Article 4 paragraph 1 lit. a; Article 12.

³³⁰ UNFCCC, adopted 9 May 1992, in force 21 march 1994, Article 12.

selected as being competent in their relevant field of expertise.³³¹ Key areas of work for the SBSTA include the following: emissions from deforestation and forest degradation in developing countries; the impacts, vulnerability and adaptation to climate change; and conducting technical work to improve the guidelines for preparing and reviewing GHG emission inventories from Annex I Parties.³³²

3.1.3.2. Subsidiary Body for Implementation (SBI).

Article 10 of the UNFCCC creates the SBI. It supports the work of the COP, the CMP and the CMA through the assessment and review of the effective implementation of the Convention and its Kyoto Protocol. The SBI is open to the participation of all parties and is comprised of government representatives who are experts on matters, related to climate change.³³³ Initially, SBI was created to ensure compliance with Article 12 of the UNFCCC.³³⁴ In 2013 the SBI shifted its focus towards Monitoring, Reviewing and Verifying (MRV) functions with the launch of the international assessment and review; international consultations and analysis in 2014; and work on NAMAs.

3.1.7. Expert Groups.

The Convention additionally draws upon the assistance of various expert groups (Figure 9). This includes the Consultative Group of Experts (CGE), which is concerned with the support of Annex I States in preparing their national inventories. Furthermore, the group of experts encompasses the Least Developed Countries Expert Group (LEG), assisting the least developed countries in the establishment of climate adaptation measures. Finally, the Technology Mechanism to support country efforts to accelerate and enhance action on climate change. It helps countries to develop and transfer climate technologies so that they can effectively reduce greenhouse gas emissions and adapt to the adverse effects of climate change. The Technology Mechanism consists of two complementary bodies: Technology Executive Committee (TEC), addressing policy issues related to climate technology development and transfer and

³³¹ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Article 9.1.

³³² UNFCCC, SBSTA. // < <http://unfccc.int/bodies/body/6399.php>>, last viewed 29 July 2015.

³³³ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Article 10.1.

³³⁴ UNFCCC, adopted 9 May 1992, in force 21 March 1994, Article 10.2. (a), (b).

Climate Technology Centre and Network (CTCN), supporting country efforts to enhance the implementation of climate technology projects and programmes.

3.1.8. Climate Finance.

The contribution of countries to climate change, and their capacity to prevent and cope with its consequences varies enormously. The Convention and the Protocol foresee financial assistance from Parties with more resources to those less endowed and more vulnerable. Developed country Parties (Annex II Parties) provide financial resources to assist developing country Parties in implementing the Convention. To facilitate this, the Convention established a Financial Mechanism to provide funds to developing country Parties.

Under its Article 11 the Convention states that the operation of the Financial Mechanism is entrusted to one or more existing international entities. The operation of the Financial Mechanism is partly entrusted to the Global Environment Facility (GEF) and partly to the Green Climate Fund (GCF). The Financial Mechanism is accountable to the COP, which decides on its climate change policies, programme priorities and eligibility criteria for funding. At COP 16 (Cancun, 2010) Parties decided to establish the Standing Committee on Finance to assist the COP in exercising its functions in relation to the Financial Mechanism of the Convention (Figure 9).

The Kyoto Protocol also recognizes under its Article 11 the need for the Financial Mechanism to fund activities by developing country Parties. In addition to providing guidance to the GEF, Parties have established four special funds: the Special Climate Change Fund; the Least Developed Countries Fund, both managed by the GEF, and the GCF under the Convention; and the Adaptation Fund under the Kyoto Protocol. The Adaptation Fund is supervised and managed by the Adaptation Fund Board.

COP 19 (Warsaw, 2013) establishes the Executive Committee of the Warsaw International Mechanism to guide the implementation of the functions of the Warsaw international mechanism for loss and damage. The Executive Committee functions under the guidance of and is accountable to the COP.

The Paris Agreement establishes the Paris Committee on Capacity-building (PCCB), the aim of which is to address gaps and needs, both current and emerging, in implementing capacity-building in developing country Parties (art. 11.).³³⁵

3.1.9. Intergovernmental Panel on Climate Change (IPCC).

The IPCC is a scientific body,³³⁶ conducting its work in support of the UNFCCC process.³³⁷ The body was established by the World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP) in 1988. According to the "Principles Governing IPCC Work", the IPCC is open to all WMO and UN Member countries.³³⁸ Currently, the IPCC has 195 parties.³³⁹

The structure of the IPCC is complex and multi-layered. As the Panel's website puts it, the IPCC is "a huge and yet very small organization"³⁴⁰ (Figure 10). The IPCC takes major decisions at Plenary Sessions of government representatives (most delegates represent national ministries of the environment, specialized national agencies on climate change, and national meteorological agencies). Plenary meetings take place twice a year. The IPCC work is organized into three working groups (WG), each addressing specific aspects of climate change.³⁴¹ In

³³⁵ For more information on the PCCB please see, UNFCCC, Capacity-Building, Paris Agreement on Capacity Building. // < http://unfccc.int/cooperation_and_support/capacity_building/items/10053.php>, last viewed 19 April 2017.

³³⁶ UNFCCC, Bodies. // < <http://unfccc.int/bodies/items/6241.php>>, last viewed 19 April 2017.

³³⁷ IPCC, Principles Governing IPCC Work, adopted 1 October 1998, principle 1.

³³⁸ IPCC, Principles Governing IPCC Work, adopted 1 October 1998, principle 7.

³³⁹ Engaging governments in the scientific assessment of climate change was the underlying idea behind the establishment of the IPCC. By that time, developed countries had accumulated significant scientific expertise on climate change but many developing nations were skeptical of the idea that an international response was needed to address the problem caused by the overconsumption of resources in industrialized countries. It was vital therefore to involve developing-country governments and scientists in the international assessment panel, as "global credibility demands global representation". Gaining trust and acceptance of the science of climate change was crucial before governments worldwide could be engaged into negotiations on an international treaty to slow down global warming. See, Y. Yamineva, Lessons for International Cooperation in Science, Technology and Innovation, German Development Institute, Discussion Paper 7/2014, pp. 3-4.

³⁴⁰ IPCC, How does IPCC work? // < http://www.ipcc.ch/organization/organization_structure.shtml >, last viewed 07 August 2015.

³⁴¹ WG I assesses the physical scientific aspects of the climate system and climate change; WG II assesses the scientific, technical, environmental, economic and social aspects of the vulnerability (sensitivity and adaptability) to climate change of, and the negative and positive consequences for, ecological systems, socio-economic sectors and human health, with an

addition to the three WGs, the Panel also has a “Task Force on National GHG Inventories” (TFI). The TFI’s main objective is to develop and refine a methodology for the calculation and reporting of national GHG emissions and removals.³⁴² The Panel is assisted in its work by the elected Bureau, whose role is to provide guidance to governments on the scientific and technical aspects of the IPCC’s work, to advise on management and strategic issues, and to take decisions on specific issues.³⁴³ In 2011, the IPCC also established the Executive Committee. It aims at making the IPCC management better in providing a coordinated response to urgent matters arising in-between the Panel’s meetings.³⁴⁴ The Panel also has a small Secretariat of twelve staff members. Each of the three WGs also has its own mini-secretariat, named Technical Support Unit (TSU). Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis as authors, contributors and reviewers.³⁴⁵

Figure 10: Structure of the IPCC.

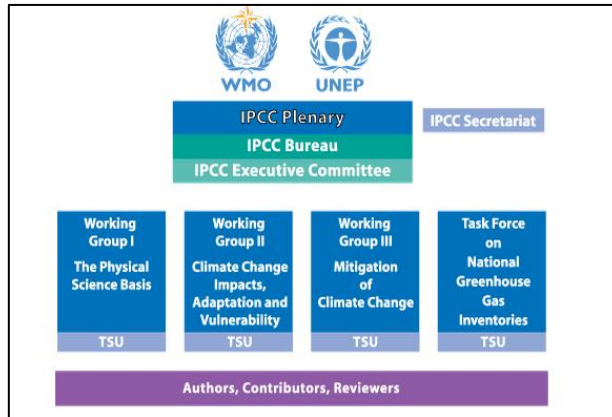
emphasis on regional sectoral and cross-sectoral issues; WG III assesses all relevant options for mitigating climate change through limiting or preventing greenhouse gas emissions and enhancing activities that remove them from the atmosphere.

³⁴² IPCC, Task Force on National Greenhouse Gas Inventories. // < <http://www.ipcc-nggip.iges.or.jp/org/aboutnggip.html>>, last viewed 07 August 2015.

³⁴³ IPCC, How does the IPCC work? // < http://www.ipcc.ch/organization/organization_structure.shtml>, last viewed 07 August 2015.

³⁴⁴ The Executive Committee addresses burning issues related to IPCC products and its programme of work; undertakes outreach and communications activities; oversees the response to possible errors in completed assessment reports and other IPCC products, in line with the IPCC Protocol for Addressing Possible Errors; strengthens coordination among WGs and Task Forces in the preparation of IPCC products; and undertakes other work.

³⁴⁵ For instance, for the Fifth Assessment Report, more than 830 Coordinating Lead Authors, Lead Authors and Review Editors from 85 countries have been selected. Around 36 percent of them represent developing countries with economies in transition.



Source: IPCC, How does the IPCC work?// < http://www.ipcc.ch/organization/organization_structure.shtml >, last viewed 07 August 2015.

Activities of the IPCC are driven by the tasks assigned by the relevant resolutions and decisions of the decision-making bodies of its parent organizations – the WMO Executive Council and the UNEP Governing Council.³⁴⁶ The main activity of the IPCC is the preparation of periodic comprehensive assessments of scientific information in all areas related to the science of climate change, its impacts, and adaptation and mitigation options: “the role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation”.³⁴⁷

³⁴⁶ IPCC, Principles Governing IPCC Work, adopted 1 October 1998, principle 1.

³⁴⁷ IPCC, Principles Governing IPCC Work, adopted 1 October 1998, principle 2. In this regard two questions that often arise and provoke discussions are: whether the IPCC and its reports are actually impartial? and whether the IPCC’s decisions and reports represent a “scientific” consensus? See, for instance, D. Laframboise, The Delinquent Teenager who was mistaken for the World’s Top Climate Expert, 2011; Ch. Booker, Amazongate: New Evidence of the IPCC’s Failures, the Telegraph, 30 January 2010; T. Skodvin, Structure and Agent in the Scientific Diplomacy of Climate Change, An Empirical Case Study of Science –Policy Interaction in the Intergovernmental Panel on Climate Change, 2003. In order to answer the two questions above, it is important to recall that the IPCC is open to all scientists and governments. Review of the existing peer reviewed literature, including the scientific studies that doubt the existence of climate change, its causes or/and its impacts, is an essential part of the IPCC process. The assessment of scientific literature differs from a literature review since it suggests a greater engagement with scientific knowledge; implies making judgments on the importance of research claims in the literature; and is a more formalized process. The double review procedure enables all relevant stakeholders to participate even if no primary science was produced by them. The IPCC reports or some their aspects may be discussed and criticized, but eventually a single text

Up until present, the Panel has produced five Assessment Reports (AR, i.e. in 1990; 1995; 2001; 2007; and the most recent one in 2014). The findings of the First AR prepared the ground for the regulation of climate change and, subsequently, the UNFCCC was signed by 160 States in Rio. After the adoption of the UNFCCC, the IPCC continued to play a significant role in the development of the international climate change regime: the Second AR (1995), which asserted that “the balance of evidence suggests a discernible human influence on global climate”, forced the political pace of the negotiations on the Kyoto Protocol to the Convention, adopted in 1997; the IPCC’s conclusions of 2001, reiterating anthropogenic climate change, played their role in preventing the UNFCCC regime from disintegrating;³⁴⁸ the Fourth AR established that a global temperature rise of 2 ° C above the pre-industrial level (up to the year 1850) creates the risk of dangerous, irreversible change of climate and provided detailed information on the necessary emission reductions, which laid the foundation for the “Cancun Agreements”.³⁴⁹ The 5th AR informs the negotiations on a new treaty on climate change, including in the context of pre - 2020 and post -2020 emission reductions.

Besides its AR, the IPCC also prepares other documents: e.g. Special Reports; Technical Papers; Methodology Reports; Supporting Materials; etc. Thus, the IPCC plays a key role in developing guidelines and guidance for the LULUCF sector accounting and reporting. Upon a request from the COP/CMP the IPCC prepares and periodically updates guidance on how to compile an inventory for

is approved. Thus, even though other scientific opinions on climate change, its impacts and/or causes exist and every now and then appear in the media, it is difficult to rebut the IPCC conclusions with a single piece of science originating from a different source.

³⁴⁸ Y. Yamineva, Lessons for International Cooperation in Science, Technology and Innovation, German Development Institute, Discussion Paper 7/2014, pp. 14-15.

³⁴⁹ The “Cancun Agreements” are a set of decisions of COP/CMP. These agreements were reached in Cancun, Mexico in 2010. In contrast to a new Protocol or an amendment to the UNFCCC or the Kyoto Protocol, the Agreements are not legally binding. The main objectives of the Agreements include: to establish clear objectives for reducing human-generated greenhouse gas emissions over time to keep the global average temperature rise below 2 ° C; encourage the participation of all countries in reducing these emissions, in accordance with each country’s different responsibilities and capabilities to do so; to protect the world’s forests, which are the major repository of carbon; etc. The significance of the Agreements reached in Cancun is that they form the basis for the World’s largest collective effort to reduce emissions, in a mutually accountable way, with national plans captured formally at the international level under the UNFCCC. For more information on the “Cancun Agreements”, see section 3.2. “International Regulatory Climate Change Regime” of the present thesis and more specifically subsection 3.2.3. “Evolution of the International Climate Change Regime: Towards a Post 2020 Agreement”.

the purposes of UNFCCC reporting and KP reporting and accounting. This includes guidance on: reporting methods; emission factors; decision trees for selecting a specific method; allocating principles; and reporting tables. The IPCC guidelines provide guidance on ensuring quality on all steps of the inventory compilation – from data collection to reporting and verification. They also provide tools to focus resources on the areas where they will most benefit the overall inventory and encourage continuous improvement. Upon a formal adoption by the UNFCCC the IPCC guidelines become mandatory.³⁵⁰

Despite the lack of the formal relationship to the UNFCCC, the IPCC serves as an “informal scientific and technological branch of the climate change negotiations”,³⁵¹ accelerating and rationalizing the development of the regime. The informal power of scientific assessment process originates from the fact that convincing information is difficult for policymakers to ignore.³⁵²

3.1.10. Interim Summary.

To sum up, this part reviewed the complex institutional structure of the international climate change regime (i.e. treaty-based institutions and the IPCC). Together these institutions provide the essential political oversight and management of the whole climate change regime (adoption of new commitments; decision-making on implementation issues; internalizing scientific and technological information; review of implementation; financing; and processing of cases of (alleged) non-compliance). The mere ground for the regulation of climate change was prepared by an institution, namely, the IPCC. Upon establishment, the international climate change regime became a “machinery” for the making of new law and for the development of the existing law in its area of expertise. The activity of the regime’s institutions, mostly COP/CMP/CMA, results in the fact that the whole package of obligations entered into by the contracting parties to the UNFCCC, its Kyoto Protocol and the Paris Agreement is no longer entirely reflected in the texts of the UNFCCC and its KP;

³⁵⁰ P. Canaveira, Options and Elements for an Accounting Framework for the Land Sector in the Post-2020 Climate Regime, Terraprima Report to the Swiss Federal Office for the Environment, 2014, p. 14.

³⁵¹ T. Gehring, Treaty-Making and Treaty Evolution, in D. Bodansky, J. Brunne and E. Hey, The Oxford Handbook of International Environmental Law, 2007, p. 483.

³⁵² Y. Yamineva, Lessons for International Cooperation in Science, Technology and Innovation, German Development Institute, Discussion Paper 7/2014, p. 14.

it includes additional decisions, guidance, and rules, that are negotiated and adopted by various regime's institutions and that add up to the system-specific bodies of secondary law.

3.2. International Regulatory Climate Change Regime.

The present part of the chapter, i.e. "International Regulatory Climate Change Regime" investigates the international regulatory climate change regime: the UNFCCC, its Kyoto Protocol, the Paris Agreement. The first section provides introduction to the UNFCCC and investigates its forest-related provisions (3.2.1.). The second section focuses on the KP and its forest-related provisions (3.2.2.). The third section investigates the Paris Agreement and its forest-related provisions (3.2.3.). Subsection four summarizes the major findings of the section (3.2.4.).

3.2.1. The UNFCCC.

The UNFCCC was negotiated in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro³⁵³ and entered into force on the 21st of March, 1994. The Convention "casts a broad net over the issue of climate change"³⁵⁴ and creates a general framework for addressing climate change at the international level. It acknowledges that "change in the Earth's climate and its adverse effects are a common concern of humankind".³⁵⁵ The Parties to the UNFCCC are "determined to protect the climate system for present and future generations".³⁵⁶ The Convention boasts almost universal membership with 196 parties having ratified the instrument.³⁵⁷ As some legal scholars note, the wide

³⁵³ Also referred to as "Rio Summit' 92" or "Earth Summit".

³⁵⁴ K.L. Rosenbaum, *Climate Change and the Forest Sector, Possible National and Subnational Legislation*, FAO Forestry Paper 144, 2004, p. 5.

³⁵⁵ Please note that the concept of the Common Concern of *Mankind* in relation to climate change was first introduced by the UN General Assembly Resolution 43/53 in 1988. The UNFCCC addresses the issue as a Common Concern of *Humankind*. Renowned legal scholars when discussing climate change issues often refer to Common Concern of *Humanity*. See, UN General Resolution, A/RES/43/53, 70th plenary meeting; United Nations Framework Convention on Climate Change, adopted 9 May 1992, in force 21 March 1994, preamble, paragraph 1; A. Kis, D. Shelton, *Guide to International Environmental Law*, 2007, p. 13; A. Boyle, *Climate Change and International Law – A Post-Kyoto Perspective*, *Environmental Policy and Law*, 42/6, 2012, pp. 333 - 343. For more information on the principle see section 2.3.4. "Forests and Climate Change, Interdependence: Interim Summary" of the present thesis.

³⁵⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994, preamble, paragraph 23.

³⁵⁷ This includes 195 States and a regional economic integration organization. Information on membership as of 13 July 2015. See, UNFCCC, *Status of Ratification of Convention*.// <

ratification of the UNFCCC “launched an ongoing international negotiation process”³⁵⁸ and this “long-term, evolutionary process [...] enunciates the regime’s ultimate objective and guiding principles; establishes an infrastructure of institutions and decision-making mechanisms; promotes the systematic collection and review of data; and encourages national action.”³⁵⁹

3.2.1.1. Scope.

According to the UNFCCC “climate change” means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable times periods” (art.1 para. 2 a). Article 1 paragraph 1 states that the “adverse effects of climate change” mean “changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare”. Thus, as it is implied by the definitions, the UNFCCC addresses anthropogenic climate change, i.e. attributable to human activities altering the atmospheric composition. According to article 4 the UNFCCC covers “all greenhouse gases not controlled by the Montreal Protocol.”³⁶⁰

https://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php>, last viewed 13 July 2015.

³⁵⁸ H. van Asselt also citing J. Depledge and F. Yamin, H. van Asselt, *The Fragmentation of Global Climate Governance*, 2014, p. 18; J. Depledge, F. Yamin, *The Global Climate Change Regime: A Defence*, in Dieter Helm and Cameron Hepburn (eds.) *The Economics and Politics of Climate Change*, 2009, p. 439; Also A. Eikermann stresses that “the convention [...] is neither a “law of the atmosphere” nor a regulatory regime. Instead, the UNFCCC established a process to work collectively on additional, improved measures for climate regulation”. See, A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 109. For a similar comment, referring generally to contemporary international environmental treaties, which “establish ongoing regulatory process” see, D. Bodansky, *Does One Need to Be an International Lawyer to be an International Environmental Lawyer?*, *American Society of International Law Proceedings*, 303, 2006, p. 305.

³⁵⁹ D. Bodansky, L. Rajamani, *The Evolution and Governance Architecture of the Climate Change Regime*, forthcoming in *International Relations and Global Climate Change*, Draft, 28 October 2012, p. 15.

³⁶⁰ The Montreal Protocol is a protocol to the Vienna Convention for the Protection of the Ozone Layer. Its purpose is to protect the ozone layer by phasing out the production of substances, listed in the treaty, believed to be responsible for ozone depletion. See, the Montreal Protocol on Substances, that Deplete the Ozone Layer, adopted 16 September 1987, in force 01 January 1989.

3.2.1.2. Objective.

The ultimate objective of the UNFCCC is “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”³⁶¹ Article 2 provides that this objective applies not only to the Convention, but also to any related legal instruments that the (COP) may adopt. This creates one focused objective for the international climate change regime, which is addressed through different legal policies, instruments and measures.

Three features of this objective are noteworthy:³⁶² first, the objective is focused on atmospheric concentrations of GHGs rather than emissions, i.e. emphasis is on the buildup of emissions, rather than the current emissions alone. Second, the objective addresses not only concentration levels, but also rates of change. Up until now, states have not been able to agree on what concentration levels and rates of change the climate change regime should aim for. Science can provide guidance, but in the final analysis these questions involve value choices and will require political answers³⁶³ (and legal assessment). Third, the reference to sustainable economic development requires that as states make the political choice of an objective, attention be paid to the impact this could have on sustainable development. States have, in the recent past, added greater specificity to the objective by agreeing in the Cancun Agreements³⁶⁴ to hold global average temperature increase (some increase being inevitable) to below 2 ° C above preindustrial levels, as well as to consider strengthening the long-term goal in relation to a global average temperature rise of 1,5 ° C on the basis of

³⁶¹ United Nations Framework Convention on Climate Change, adopted 9 May 1992, in force 21 March 1994, article 2.

³⁶² D. Bodansky, L. Rajamani, *The Evolution and Governance Architecture of the Climate Change Regime*, forthcoming in *International Relations and Global Climate Change*, Draft, 28 October 2012, p. 16.

³⁶³ D. Bodansky, L. Rajamani, *The Evolution and Governance Architecture of the Climate Change Regime*, forthcoming in *International Relations and Global Climate Change*, Draft, 28 October 2012, p. 16.

³⁶⁴ The “Cancun Agreements” are a set of decisions of COP/CMP, reached in Cancun, Mexico in 2010. For more information on the “Cancun Agreements”, see section 3.2. “International Regulatory Climate Change Regime” of the present thesis and more specifically subsection 3.2.3. “Evolution of the International Climate Change Regime: Towards a Post 2020 Agreement”.

the best available scientific knowledge. This objective is to be met “consistent with science and on the basis of equity”.³⁶⁵

3.2.1.3. Principles.

In addition to defining the regime’s ultimate objective, the Convention puts forward several guiding principles, including the following: inter- and intra – generational equity;³⁶⁶ precaution;³⁶⁷ sustainable development;³⁶⁸ the principle of cost effectiveness;³⁶⁹ common but differentiated responsibilities and respective capabilities of developed and developing countries;³⁷⁰ etc. The list of principles is non-exclusive.³⁷¹

All commitments under the UNFCCC are based on the principle of common but differentiated responsibilities, taking into account the specific national and regional development priorities, objectives and circumstances of each Party to the Convention.³⁷² In general, the principle of common but differentiated responsibilities implies that all countries bear a responsibility for dealing with global problems such as climate change. The UNFCCC adds that these responsibilities need to be differentiated on the basis of countries varying

³⁶⁵ UNFCCC, 2.CP/15, paragraph 2.

³⁶⁶ Principles of inter and intra-generational equity imply fairness or justice. Intergenerational equity means equity among the present population; intra-generational equity is concerned with fairness between current and future generations. For the principle see, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.1.

³⁶⁷ The parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures. For the principle see, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.3. For more information on the principle see section 2.3.4. “Forests and Climate Change, Interdependence: Interim Summary” of the present thesis.

³⁶⁸ “The Parties have a right to, and should, promote sustainable development.” Sustainable development refers to the balance between the environmental protection and the economic development. See, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.4.

³⁶⁹ “Policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.” See, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.3.

³⁷⁰ The principle of common but differentiated responsibilities and respective capabilities implies that all countries bear a responsibility for dealing with global problems such as climate change. The UNFCCC goes on to add that these responsibilities need to be differentiated on the basis of countries’ varying historical responsibility for the problem, as well as their capacity to deal with climate change. The principle is related to the leadership that is expected of developed countries in climate change abatement. For the principle see, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.1.

³⁷¹ Article 3 “Principles” enumerates principles including “inter alia” reference. See, the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 3.

³⁷² UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4, paragraph 1.

historical responsibility for the problem, as well as their capacity to deal with climate change. The Convention attributes the high presence of GHG in the atmosphere to industrialized nations³⁷³ and directs them to take responsibility for this,³⁷⁴ providing developing countries with financial assistance and the necessary clean technologies to meet the agreed incremental costs of implementation.³⁷⁵

3.2.1.4. Membership.

The differentiated responsibilities of Parties to the UNFCCC are also formally recognized by the three membership categories: Annex I Parties, Annex II Parties and Non-Annex I Parties. Annex I Parties include the industrialized countries that were members of the Organization for Economic Cooperation and Development (OECD)³⁷⁶ in 1992, and countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States and several Central (e.g. Belarus, Estonia, Latvia, Lithuania, Ukraine) and Eastern European States (Bulgaria, Czechoslovakia, Hungary, Poland and Romania). Annex II Parties consist of the OECD members of Annex I, but not the EIT Parties. Non-Annex I Parties are mostly developing countries. Each membership category attracts different levels of commitment. Additionally, the Convention provides special provisions for the least developed countries (LDCs) on the account of their limited capacity to respond to climate change and adapt to its adverse effects.

³⁷³ "Noting that the largest share of historical and current global emissions of greenhouse gases originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs". See, UNFCCC United Nations Framework Convention on Climate Change, adopted 9 May 1992, in force 21 March 1994, preamble, paragraph 3.

³⁷⁴ It does this in article 3 by adopting principle of "common, but differentiated responsibilities" and stating in 3.1. that "developed country parties should take the lead in combating climate change and the adverse effects thereof".

³⁷⁵ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2014, p. 18.

³⁷⁶ The OECD was established in 1961. The Organization provides a forum in which governments can work together to share experiences and seek solutions to common problems. The mission of the OECD is to promote policies that will improve the economic and social well-being of people around the world. As of July, 2015 there are 34 countries – members to the organization. The headquarters of the Organization is Paris, France. For more information see, The OECD, About the OECD.// <<http://www.oecd.org/about/>>, last viewed 24 July 2015.

3.2.1.5. Commitments.

The commitments for Parties are set out in article 4 of the Convention. It contains two sets of the commitments: the first set, primarily in paragraph 1, applies to all Parties (developed and developing); the second set, in the subsequent paragraphs, largely describes commitments of Annex I and/or Annex II nations. The commitments for all Parties include: development of national inventories of anthropogenic GHG emissions by sources and removals by sinks;³⁷⁷ the formulation and implementation of programs containing climate change mitigation measures;³⁷⁸ consideration of climate change in relevant social, economic and environmental policies and actions;³⁷⁹ scientific and technological cooperation.³⁸⁰ These commitments are general in their applicability to all countries and in their content. They do not compel particular actions; rather, they reflect a “bottom up” approach, encouraging countries to undertake a comprehensive and systematic review of existing policies, to better coordinate the activities of different national agencies, and to implement their national programs to address climate change.³⁸¹

Developed country Parties and Parties, included in Annex I only, are required to adopt policies and measures to limit their GHG emissions and enhance their sinks and reservoirs with the aim of returning individually or jointly to their 1990 emission levels by 2000.³⁸² Article 4 also states that developed countries “shall provide [...] financial resources, including for the transfer of technology [...] to meet the agreed full incremental costs of implementing measures.”³⁸³ The importance of these Annex I party obligations is underlined by the provision that implementation of the commitments by non-Annex I countries is made conditional on the “effective implementation by developed country parties of

³⁷⁷Please note, that the required contents of national reports and the timetable for their submission are different for Annex I and non-Annex I Parties. This is in accordance of “common but differentiated responsibilities” enshrined in the Convention. For the commitment, see the UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1.(a).

³⁷⁸ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (b).

³⁷⁹ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (f).

³⁸⁰ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (g).

³⁸¹ D. Bodansky, L. Rajamani, *The Evolution and Governance Architecture of the Climate Change Regime*, forthcoming in *International Relations and Global Climate Change*, Draft, 28 October 2012, p. 18.

³⁸² UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.2. (a), (b).

³⁸³ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.3.

their commitments under the Convention related to financial resources and transfer of technology".³⁸⁴

3.2.1.6. Provisions on Forests.

Forest-related provisions are "painted in broad strokes" in the UNFCCC. The preamble to the instrument states that Parties to the Convention "are aware of the role and importance of the terrestrial [...] ecosystems as sinks and reservoirs of greenhouse gases."³⁸⁵ The Convention does not directly provide for the role of sinks and reservoirs in addressing climate change, but makes reference to them within Articles 1, 2, 3, and 4. Thus, article 1 of the Convention defines "reservoir" as "a component or components of the climate system where a greenhouse gas or a precursor of a greenhouse gas is stored".³⁸⁶ Clearly, forests and wood products are reservoirs.³⁸⁷ Furthermore, article 1 defines "sink" as "any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere".³⁸⁸ The same article also defines "source" as "any process or activity which releases a greenhouse gas, an aerosol or a precursor of a greenhouse gas into the atmosphere."³⁸⁹ Forests may qualify as either or both (sink and source), depending on whether they are releasing, removing or both, releasing and removing, GHGs.³⁹⁰ The term "emissions"³⁹¹ is defined without regard to the nature of the source, i.e. a forest may be a source of emissions.

The Convention declares that "policies and measures [...] to deal with climate change [...] should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors."³⁹² Again in rather

³⁸⁴ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 4.7

³⁸⁵ UNFCCC, adopted 9 May 1992, in force 21 March 1994, preamble, paragraph 4.

³⁸⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 1.7.

³⁸⁷ For more information on forests and their role as reservoirs for carbon see subsection 2.3.1.1. "Forests as Sinks and Reservoirs" of the present thesis.

³⁸⁸ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 1.8.

³⁸⁹ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 1.9.

³⁹⁰ For more information on forests and their role as sources and sinks see subsections 2.3.1.1. "Forest as Sinks and Reservoirs" and "Forests as Source of Emissions"

³⁹¹ "Emissions means the release of GHGs and/or their precursors into the atmosphere over a specified area and period of time". See, UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 1.4.

³⁹² UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 3.3.

broad strokes, this language includes forests and forest management activities, which should be taken into account by Parties in policies and measures to deal with climate change.

Under article 4, paragraph 1 of the UNFCCC all Parties must:³⁹³

1. "Develop, periodically update, publish and make available to the Conference of the Parties [...] national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs [...]."³⁹⁴ These include emissions from deforestation and removals that occur as a result of forest management activities;
2. "Formulate, implement, publish and regularly update national and, where appropriate, regional programs containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks",³⁹⁵ which include forests and their soils;
3. "Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of GHGs [...] in all relevant sectors, including [...] forestry [...]."³⁹⁶
4. "Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases [...], including biomass, forests and [...] other terrestrial [...] ecosystems"³⁹⁷;
5. "Cooperate in preparing for adaptation to the impacts of climate change", and develop appropriate plans for areas that might be subject to flooding, drought or desertification.³⁹⁸ Although the UNFCCC does not expressly mention forests, they are of special concern – trees are sensitive to changes in climate variability, i.e. temperature, precipitation, extreme weather events; trees cannot migrate rapidly;

³⁹³ K.L. Rosenbaum, *Climate Change and the Forest Sector, Possible National and Subnational Legislation*, FAO Forestry Paper 144, 2004, p. 5.

³⁹⁴ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (a)

³⁹⁵ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (b)

³⁹⁶ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (c)

³⁹⁷ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (d)

³⁹⁸ UNFCCC, adopted 9 May 1992, in force 21 march 1994, article 4.1. (e)

their long growing periods make them vulnerable to changes in climate that occur rapidly.³⁹⁹

“Countries with arid and semi-arid areas, forested areas and areas liable to forest decay” are given special recognition under the Convention.⁴⁰⁰ The UNFCCC encourages funding, insurance and the transfer of technology to these countries in order to meet their specific needs and concerns arising from the adverse effect of climate change and/or the impact of the implementation of response measures.

3.2.2. The Kyoto Protocol.

The UNFCCC was a first significant step in global climate change abatement efforts, nevertheless it was designed as a *Framework* Convention in order to facilitate further development of the international climate change regime. The Convention “lacked teeth” in the form of legally binding quantified emission limitation and reduction commitments (QELRCs). This deficiency was recognized in Berlin in 1995 at the first COP meeting, where Parties agreed to “take appropriate action beyond 2000 [...] through the adoption of a protocol or another legal instrument.”⁴⁰¹

The Kyoto Protocol to the UNFCCC⁴⁰² was concluded at Kyoto, Japan in December 1997. The ratification of the Protocol was made double-conditional: it could not enter into force before at least 55 Parties to the Convention, incorporating Parties included in Annex I which accounted in total for at least 55 percent of the total carbon emissions for 1990 of these Annex I Parties, had deposited their instruments of ratification, acceptance, approval or accession.⁴⁰³ It was not until February 2005, after the Russian Federation had ratified the Kyoto Protocol,⁴⁰⁴ that it entered into force. Currently there are 192 parties (191 States and one regional economic integration) to the Kyoto Protocol.⁴⁰⁵

³⁹⁹ For more information on climate change impacts on forests see subsection 2.3.2. “Climate Change Impact on Forests” of the present thesis.

⁴⁰⁰ UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 4.8. (c)

⁴⁰¹ UNFCCC, The Berlin Mandate, Decision 1/CP.1., preamble.

⁴⁰² KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005.

⁴⁰³ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 25.1.

⁴⁰⁴ Sometimes Russia is referred to as a “central player in the Kyoto Protocol”, especially against the background of the USA withdrawal in March 2001. Whereas the USA alone was responsible

The Kyoto Protocol is built on the UNFCCC. The Protocol was designed to strengthen the mitigation commitments, contained in Article 4.2 (a) and (b) of the Convention,⁴⁰⁶ which were deemed “inadequate” by COP 1 in the Berlin Mandate.⁴⁰⁷ Whereas the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol displayed greater ambition and introduced emission reduction targets. Moreover, these targets are legally binding. The Protocol went further than the Convention also in recognizing the principle of common but differentiated responsibilities and respective capabilities, and established a clear separation between developing and developed countries. The commitments to reduce emissions, transfer technology and to supply financial resources were only placed on developed countries.

Article 3 paragraph 1 of the KP states that “the Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their QELRCs inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 percent below 1990 levels in the commitment period 2008 to 2012”.⁴⁰⁸ The “Assigned Amount” is the level of allowed emissions, expressed in individual binding emission reduction targets for the 38 industrialized countries and the European Community (Annex B to the Kyoto Protocol). These targets also follow the principle of “common but differentiated responsibilities” and represent differentiation within the Annex B

for almost 34% of total CO₂ emissions of Annex I countries in 1990, the Russian Federation accounted for 16, 4%. Russian ratification was necessary and sufficed for the entry into force of the Protocol. Nevertheless, it is important to note, that the entry into force of the Kyoto Protocol was secured by the EU – Russia bargain, which included trade concessions under the WTO. See, H. van Asselt, *The Fragmentation of Global Climate Governance*, 2014, p. 20.; Y.M. Gordeeva, *The Russian Federation and the International Climate Change Regime*, *Carbon and Climate Law Review*, 3, 2014, p. 167; A. Bernard, et al, *Russia’s Role in the Kyoto Protocol*, 2003, pp. 1, 2. // <http://globalchange.mit.edu/files/document/MITJPSPGC_Rpt98.pdf>, last viewed 17 July 2015.
⁴⁰⁵ As of 15 July 2015. See, UNFCCC, *Status of Ratification of the Kyoto Protocol*.// <http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php>, last viewed 15 July 2015.

⁴⁰⁶ Developed country Parties and Parties included in Annex I only, are required to adopt policies and measures to limit their GHG emissions and enhance their sinks and reservoirs with the aim of returning individually or jointly to their 1990 emission levels by 2000.

⁴⁰⁷ UNFCCC, *The Berlin Mandate*, Decision 1/CP.1., preamble.

⁴⁰⁸ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 3.1., Annex B.

group of developed countries with regard to the determination of their individual emission targets. The range varies with the European Community adopting the most stringent reduction of 8 percent;⁴⁰⁹ the Russian Federation, New Zealand, and Ukraine adopting no reduction target; while other countries, such as Australia, Iceland and Norway were allowed to increase their emissions from 1990 levels by 8 percent, 10 percent and 1 percent respectively.⁴¹⁰ The "assigned amount" is divided into "assigned amount units" (AAUs). One AAU allows the emission of 1 tonne of CO₂ (all gas emissions are converted into carbon dioxide measurements) during the commitment period.

The targets under the Kyoto Protocol can be reached either by reducing emissions or enhancing sinks at home and by using the so-called "flexible mechanisms": International Emissions Trading (Article 17); Joint Implementation (JI, Article 6) and the Clean Development Mechanism (CDM, Article 12).⁴¹¹ These mechanisms allow for the generation and earning of new AAUs that will eventually be added to the assigned amount of AAUs, thus allowing for more emissions than actually planned for. Moreover, these mechanisms allow for the sale of spare or unused AAUs. The flexible mechanisms allow parties to the Kyoto Protocol to minimize the transaction costs associated with the implementation of activities to reduce emissions and create new low-emission-technologies.

Articles 5, 7, and 8 of the Kyoto Protocol address reporting and review of information by Annex I Parties under the Protocol, as well as national systems and methodologies for the preparation of GHG inventories. The Protocol's monitoring procedures are based on existing reporting and review procedures

⁴⁰⁹ For the first Kyoto commitment period the European Community and its fifteen Member States agreed to achieve compliance with the 8 percent target jointly and have internally redistributed assigned net emissions under a Burden-Sharing Agreement. The agreement allows increases for some members, but reduces permissible emissions of others by more than 20 percent (e.g. Austria - 13%; Belgium - 7, 5%; Denmark - 21% Finland 0%; France 0%; Germany - 21%; Greece +25%; Ireland +13%; Italy - 6,5%; Luxemburg - 28%; Netherlands - 6%; Portugal +27%; Spain +15%; Sweden +4%; United Kingdom -12,5%; EU - 8%; etc.). For more information, see, EU Commission, Kyoto Emission Targets: Joint Fulfillment, "Burden Sharing" and base years.// <http://ec.europa.eu/clima/policies/q-gas/kyoto/index_en.htm>, last viewed 16 July 2015.

⁴¹⁰ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, Annex B.

⁴¹¹ For more information on forest-related Kyoto Flexible Mechanisms, namely, JI and CDM, see the following sections of the research.

under the Convention. Article 5 commits Annex I Parties to having in place, no later than 2007, national systems for the estimation of greenhouse gas emissions by sources and removals by sinks (Article 5.1.). It also states that, where agreed methodologies are not used to estimate emissions and removals, appropriate “adjustments” should be applied (Article 5.2). Article 7 requires Annex I Parties to submit annual greenhouse gas inventories, as well as national communications, at regular intervals, both including supplementary information to demonstrate compliance with the Protocol. Article 7 states that the Conference of the Parties serving as the meeting of the Parties to the Protocol (CMP) shall decide upon modalities for the accounting of the assigned amounts prior to the first commitment period. Article 8 establishes that expert review teams will review the inventories, and national communications submitted by Annex I Parties. The article states that guidelines for national systems, adjustments, the preparation of inventories and national communications, as well as for the conduct of expert reviews, should be adopted by the CMP at its first session, and regularly reviewed thereafter.

3.2.2.1. Kyoto Protocol Flexibility Mechanisms.

The Kyoto Protocol creates three flexibility mechanisms that can be used by Parties to meet their own international commitments: the JI Mechanism; the CDM Mechanism; and the International Emissions Trading Mechanism. These mechanisms are designed to assist Annex I Parties to meet their emission targets at least costs. The present section focuses the CDM (a) and the JI Mechanism (b). Both mechanisms have developed special rules for forestry projects (the LULUCF sector under the Kyoto flexibility mechanisms are considered in greater detail in the following part of the chapter⁴¹²).

a. Clean Development Mechanism.

The CDM enables Annex I parties to establish project-based activities that reduce anthropogenic emissions in non-Annex I parties. The resultant Certified

⁴¹² For the discussion on the LULUCF rules under the Kyoto Flexibility Mechanisms, please see part 3.3. “Forest Regulation under the International Climate Change Regime” of the current chapter.

Emission Reductions (CERs)⁴¹³ generated by such projects can be used by the Annex I Party to help meet its emissions targets under the Kyoto Protocol. Parties can authorize legal entities to take part in project activities. The CDM is the only flexibility mechanism available to developing states. Article 12 states its dual purpose to be: “to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3”.

Host parties benefit from projects that contribute to sustainable development facilitating the transfer of technology and capacity building by Annex I parties. For Annex I parties, the CDM enables the use for CERs generated by registered CDM project activities to meet part of their Kyoto targets, although CERs generated by CDM must be “supplemental” to domestic action to reduce emissions, and domestic action by parties must therefore constitute a “significant element” of actions by Annex I parties to reduce emissions.⁴¹⁴ Typical projects include renewable energy (wind, small scale hydro, renewable biomass), fuel switching, and the capture of the most damaging of GHG such as methane and hydrofluorocarbons.

The CDM project cycle encompasses a number of stages which are commonly divided into two phases – the developmental phase and the implementation phase. The developmental phase commences with the Designated National Authority of the host party providing the letter of approval to project participants, confirming that the project activity contributes to sustainable development in the country.⁴¹⁵ This is followed by the preparation of the Project Design Document,⁴¹⁶ which is necessary to obtain validation⁴¹⁷ from a

⁴¹³ CER – is a unit representing one tonne of carbon dioxide equivalent sequestered or abated, using global warming potentials defined by 2/CP.3. CER are issued to project participants in CDM projects pursuant to Article 12 of the KP. And the CDM modalities and procedures.

⁴¹⁴ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 12.3; UNFCCC, Decision 15/CP.7. In order to ensure complementarity, reporting obligations are imposed by Articles 5, 7, 8 of the Kyoto Protocol.

⁴¹⁵ UNFCCC, Decision 3/CMP.1, Annex, paragraphs 29, 40 (a).

⁴¹⁶ UNFCCC, Decision 3/CMP.1, Annex, Appendix B.

Designated Operational Entity (DOE)⁴¹⁸ and registration by the CDM Executive Board,⁴¹⁹ and which must itself demonstrate “additionally”. This is the requirement that the GHG emissions after project implementation are lower than would have occurred in the most plausible alternative scenario to the implementation of the CDM project activity.⁴²⁰ At this stage a project is accepted as a CDM project and thereby eligible to generate CERs. The implementation stage commences with monitoring of the project which involves the measurement and analysis of GHG emissions from a project so as to determine the volume of emission reductions that are attributable to the project.⁴²¹ This is followed by periodic independent review and ex post determination of reductions in GHG emissions by sources which have been monitored, performed by an independent DOE.⁴²² If verification is satisfactory, it is followed by certification – the formal confirmation by the designated operational entity that the emission reductions which are set out in the verification report were actually achieved.⁴²³ Having been generated, verified and certified a number of greenhouse gas emission reductions in respect of a CDM project activity, an equivalent quantity of CERs are issued and finally forwarded from the Executive Board to parties involved and project participants, as well as to the accounts in the CDM registry relating to the share of proceeds.⁴²⁴

b. Joint Implementation Mechanism.

JI is a mechanism referred to in Article 6 of the KP. Similar to CDM JI is a project-based mechanism, but some of the accounting is different because JI projects are nested within countries that have emission reduction commitments

⁴¹⁷ Validation is the process of independent evaluation of a project activity by a designated operational entity against the requirements of the CDM as set out in decision 17/CP.7... on the basis of the project design document. UNFCCC, Decision 3/CMP.1.

⁴¹⁸ DOEs are independent auditors that assess whether a project meets the eligibility requirements of the CDM (validation) and whether the project has achieved greenhouse gas emission reductions (verification and certification). DOEs are accredited by the CDM Executive Board. Although DOEs ordinarily performs either validation or verification and certification, they can be permitted to perform all three tasks for a single project. UNFCCC, Decision 3/CMP.1, Annex, paragraph 27 (e).

⁴¹⁹ Registration is the formal acceptance by the Executive Board of a validated project as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs relating to that project activity. UNFCCC, Decision 3/CMP.1.

⁴²⁰ Kyoto Protocol, Article 12 (5) and UNFCCC, Decision 3/CMP.1.

⁴²¹ UNFCCC, Decision 3/CMP.1., Annex, paragraph 44.

⁴²² UNFCCC, Decision 3/CMP.1., Annex, paragraph 61.

⁴²³ UNFCCC, Decision 3/CMP.1., Annex, paragraph 44.

⁴²⁴ Kyoto Protocol, Article 12 (8).

under the Kyoto Protocol. Under JI, one Annex I party may implement an emission-reduction project or a project that enhances removals by sinks in another Annex I party. The objective of JI is to allow Annex I countries a more flexible and potentially cost-effective means to fulfill their Kyoto commitments. JI generates Emission Reduction Units (ERUs) that count towards meeting a country's own Kyoto target.

Rules and procedures for JI are defined in decisions of COP/CMP, in particular Decision 9/CMP.1.⁴²⁵ JI projects may be conducted under either of two tracks. Track 1 is for the Parties to the Kyoto Protocol that have an assigned amount calculated and recorded, a national system for the estimation of emissions, a national registry, and have submitted annual inventories of GHG emissions and supplementary information on its assigned amount. Track 1 allows the host country more control and imposes fewer external requirements. Track 2 applies to countries that don't meet Track 1 eligibility and projects therefore require additional approvals. A Designated Focal Point serves as the responsible agency for administering JI project activities within their respective jurisdiction. If a host country qualifies for Track 1, it can define methodologies, approve projects, set its own verification requirements and decide on the issuance of ERUs. Track 2 countries must follow a procedure and project cycle similar to CDM. Project proponents must submit a project design document and are subject to validation by an Accredited Independent Entity, whose report is then submitted to the Joint Implementation Supervisory Committee for appraisal. Emissions from the project must also be verified independently.

3.2.2.2. Provisions on Forests.

The targets under the Kyoto Protocol can be reached also by calculating the effect of domestic forestry activities and direct human-induced land-use change.⁴²⁶ The Kyoto Protocol does not define neither a "forest activity", nor "direct human-induced land-use change". Yet, Article 3.3. of the Protocol specifies the particular forest activities that count towards fulfillment of treaty obligations: "the net changes in greenhouse gas emissions by sources and removals by sinks resulting from direct human-induced land use changes and

⁴²⁵ Currently being revised.

⁴²⁶ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 3.3.

forestry activities, *limited to afforestation, reforestation, and deforestation* since 1990, measured as verifiable changes in carbon stocks in each commitment period, shall be used to meet the commitments under this Article of each Party included in Annex I".⁴²⁷ These three forestry activities (i.e. afforestation, reforestation, and deforestation) must be reported in a manner that is transparent and verifiable.⁴²⁸

There is an "entire palette" of additional forest activities, which affect net GHG emissions (e.g. forest management, i.e. specific silvicultural systems,⁴²⁹ forest harvesting, exclusion of fire and diseases; etc.) and which were not included into the text of the Kyoto Protocol. This fact was recognized in Article 3.4. of the Protocol: "[...] the conference of the Parties [...shall decide] how, and which *additional* human-induced activities related to changes in greenhouse gas emissions by sources and removals by sinks in the agricultural soils and the land-use change and forestry categories shall be added to, or subtracted from, the assigned amounts for Parties included in Annex I". Further text of the article is "convoluted and ambiguous".⁴³⁰ On the one hand, the penultimate sentence states that "such a decision [on additional human-induced activities] shall apply in the second and subsequent commitment periods"; on the other hand, the next sentence "brings forward the timing of the use of additional LULUCF activities from the second and subsequent commitment periods to the first commitment period".⁴³¹ This ambiguity required further clarification by the COP/CMP.

⁴²⁷ Emphasis added, see KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 3.3.

⁴²⁸ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 3.3. Please note that there is an "entire palette" of other forest activities (e.g. forest management, i.e. specific silvicultural systems, selective harvesting, exclusion of fire and diseases; etc.), which were not included in the Kyoto Protocol.

⁴²⁹ Silvicultural system – is a planned program of treatments during the whole life of a stand designed to achieve specific stand structural objectives. This program of treatments integrates specific harvesting regeneration and stand tending methods to achieve a predictable yields of benefits from the stand over time. Examples of silvicultural systems are clearcutting; seed-tree; shelterwood; etc.

⁴³⁰ I. Fry, *Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land Use Change and Forestry Decisions within the Kyoto Protocol*, RECIEL, 11 (2), 2002, p. 160.

⁴³¹ The last sentence of the Protocol states "a Party may choose to apply such a decision on these additional human-induced activities for its first commitment period, provided that these activities have taken place since 1990". See, KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 3.4.; For the quote see, I. Fry, *Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land Use Change and Forestry Decisions within the Kyoto Protocol*, RECIEL, 11 (2), 2002, p. 160.

In achieving the targets under the Kyoto Protocol Annex I Parties “in accordance with the national circumstances” are committed to implement and/or further elaborate policies and measures, such as, *inter alia*:⁴³² “protection and enhancement of sinks and reservoirs of greenhouse gases”;⁴³³ “promotion of sustainable forest management practices, afforestation and reforestation”;⁴³⁴ “research on, and promotion, development and increased use of, new and renewable forms of energy”;⁴³⁵ “encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures which limit or reduce emissions of GHGs”.⁴³⁶

For the purpose of calculating the “assigned amount” (i.e. the level of allowed emissions) article 3.7. of the Kyoto Protocol allowed Annex I parties, for which land-use change and forestry constituted a net source of GHG emissions in 1990, to add these emissions to their base year emissions.⁴³⁷ “Net” means that sustainable forest practices (e.g. afforestation and reforestation) were outweighed by unsustainable practices (e.g. deforestation). Thus, this article benefited those parties that in 1990 had net emissions from land use change and forestry practices. In other words, their actual “assigned amount” quota increased. In comparison, Annex I Parties that, in 1990, had net emissions from other sectors, did not receive the benefit offered by the operation of Article 3.7. The ex-post evaluation of the Kyoto Protocol implementation revealed, that only five countries took advantage of the article: Australia, Ireland, the Netherlands, Portugal and the United Kingdom. Australia, the country, which was responsible for inserting this article, benefited the most from it, being able to increase its base-year emissions by 31percent.⁴³⁸

⁴³² For the full list see, KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2.1.

⁴³³ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2.1. (a) I.

⁴³⁴ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2.1. (a) I.

⁴³⁵ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2.1 (a) IV.

⁴³⁶ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2.1. (a) VI.

⁴³⁷ I. Fry, Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land Use Change and Forestry Decisions within the Kyoto Protocol, *RECIEL*, 11 (2), 2002, p. 161.

⁴³⁸ R. Morel, I. Shishlov, Ex-post Evaluation of the Kyoto Protocol: Four Key Lessons for the 2015 Paris Agreement, 2014, p. 9.// < http://www.cdclimat.com/IMG/pdf/14-05_climate_report_no44_-_analysis_of_the_kp-2.pdf>, last viewed 18 May 2016. Portugal benefited from the article by increasing its base-year emissions by 1,6%, for the other three countries this increase was negligible (less than 0,1 %).

3.2.3. The Paris Agreement.

On 12 December 2015 (during COP 21), 196 Parties to the UNFCCC adopted the Paris Agreement,⁴³⁹ a new legally binding framework for an internationally coordinated effort to address climate change. The adoption of the Agreement marks a culmination of years of “near deadlock” in international climate change negotiations under the auspices of the UNFCCC.⁴⁴⁰ In November, 2016 the Paris Agreement entered into force. Currently there are 143 Parties to the Agreement.⁴⁴¹ In pursuit of the objectives of the UNFCCC, and being guided by its principles,⁴⁴² the parties to the Agreement, *inter alia*, recognize that “climate change is a common concern of humankind”;⁴⁴³ and that there is a “need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge”;⁴⁴⁴ and that “parties may be affected not only by climate change, but also by the impacts of the measures taken in response to it”.⁴⁴⁵ As some legal scholars note, “the Agreement creates a global process of engagement, follow-up, regular stock-take exercises and cooperative action” on climate change.⁴⁴⁶ Although, the Agreement contains much substance, details on many of its provisions remain to be worked out at the future meetings of CMA.⁴⁴⁷

⁴³⁹ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016.

⁴⁴⁰ For more information on the evolution of the international climate change regime please see, D. Bodansky, L. Dajamani, The Evolution and Governance Architecture of the Climate Change Regime, Forthcoming in *International Relations and Global Climate Change*, Draft 28 October 2012. For the framing of the Paris Agreement within the context of international climate change negotiations, see Ch. Streck, et al, *The Paris Agreement: A New Beginning*, *Journal for European Environmental and Planning Law*, 13 (2016), pp. 23-26. For the historical context and issues relating to legal form and character of the Agreement, please see, L. Rajamani, *The 2015 Paris Agreement: Interplay Between Hard, Soft and Non-Obligations*, *Journal of Environmental Law*, 2016, 28, pp. 337-358.

⁴⁴¹ UNFCCC, *The Paris Agreement*.// < http://unfccc.int/paris_agreement/items/9485.php>, last viewed 20 April 2017.

⁴⁴² Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 3.

⁴⁴³ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 11.

⁴⁴⁴ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 4.

⁴⁴⁵ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 7.

⁴⁴⁶ Ch. Streck, et al, *The Paris Agreement: A New Beginning*, *Journal for European Environmental and Planning Law*, 13 (2016), p. 3.

⁴⁴⁷ E.g. A common time frame for Nationally Determined Contributions (NDCs, art. 4.10.); rules for the sustainable development mechanism (SDM, art. 6.7.); procedures and guidelines for developed countries to report on their financial contributions (art. 9.7.); institutional

3.2.3.1. Objective and the Overall Approach.

In comparison to the Kyoto Protocol, the Paris Agreement does not establish binding emission reduction targets for individual Parties. Instead, the Agreement formulates an overall climate change goal (art. 2): "The [Paris] Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty, including by:

- (a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1,5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
- (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production; and
- (c) Making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development."⁴⁴⁸

The Agreement leaves it up to the countries to decide how and how much they can contribute to meeting the goal in accordance with the principle of "common, but differentiated responsibilities and respective capabilities, in the light of the different national circumstances".⁴⁴⁹ Parties have to communicate their mitigation contributions every five years (art. 4.9.), and each successive contribution has "to represent a progression" and reflect the "highest possible ambition" of a contributing Party (art. 4.3.). In order to ensure that the overall goal is being met, the CMA, every five years, starting with 2023, takes stock of the progress of Parties "towards achieving the purpose of this Agreement and its long-term goals" (art. 14). Each Party, in turn, must be informed of the outcomes of the global stocktake (art. 4.9.).

arrangements for capacity building (art. 11.5); and modalities and procedures for compliance committee, established by art. 15 (art. 15.3).

⁴⁴⁸ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 2.

⁴⁴⁹ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 2.2.

3.2.3.2. Core Legal Principles.

The Paris Agreement recognizes and builds on the principles, established by the UNFCCC, notably on the principle of “common, but differentiated responsibilities and respective capabilities” (CBDRC).⁴⁵⁰ Since the adoption of the UNFCCC, the CBDRC principle has been the cornerstone principle of the international climate change regime. However, in comparison to the UNFCCC, the Paris Agreement, specifies, that the CBDRC is to be implemented “in the light of different national circumstances” (art. 2.2.). Such further qualification of the CBDRC principle “needs to be seen as a response to the synonymous use for the binary differentiation in developed and developing countries”.⁴⁵¹ In other words, although the principle’s “responsibility-sharing formula” remains essential to the legitimacy of the climate change regime, the further qualification expands the principle to go beyond the simple distinction between developed and developing countries. Thus, in the Agreement, on the one hand, the differentiation persists with “developed countries [...] continue taking the lead by undertaking economy-wide absolute emission reduction targets” (art. 4.4.) and being obliged to “provide financial resources to provide financial resources to assist developing country Parties” (art. 9.1.). However, on the other hand, there is also a wide range of provisions that entail obligations (e.g. art. 3 on overall efforts) or contributions (e.g. art. 4.2. on NDCs) for each Party to the Agreement, regardless of their status (i.e. developed or developing).

Other legal principles and concepts that are relevant for the interpretation of the goal of the Paris Agreement include “sustainable development”, “equity”, “poverty eradication” and “food production” (art. 2.). There is a number of principles in the Paris Agreement that guide the accounting of emissions and emission reductions, including: e.g. “environmental integrity”, “transparency”, “accuracy”, “completeness”, “comparability and consistency”, and “the avoidance of double counting” (art. 4.13.).

⁴⁵⁰ For more information on the principle, please see, C. Stone, Common, but Differentiated Responsibilities in International Law, *The American Journal of International Law*, 98, 2004; for more information on the principle in the context of the Paris Agreement, see, Ch. Voigt, Differentiation in the Paris Agreement, *Climate Law*, 6, 2016.

⁴⁵¹ Ch. Streck, et al, The Paris Agreement: A New Beginning, *Journal for European Environmental and Planning Law*, 13 (2016), p. 7; J. Brunnee, Ch. Streck, The UNFCCC as a Negotiation Forum: Towards Common, but More Differentiated Responsibilities, *Climate Policy*, 13, 5, pp. 589-607.

3.2.3.3. Mitigation under the Paris Agreement.

The Paris Agreement aims to “hold the increase in the global average temperature to well below 2 ° C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 ° C above pre-industrial levels” (art. 2.1.a.). Under the Agreement Parties aim to reach the global peaking of GHG emissions “as soon as possible” and to undertake rapid emission reductions thereafter “so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century” (art. 4.1.).

The core of the mitigation provisions of the Paris Agreement are the NDCs (art. 4-6). The initial NDCs have been formally filed in combination with parties’ ratification or acceptance of the Paris Agreement. The Intended Nationally Determined Contributions (INDC), which have been filed by most countries in advance of Paris, serve as the default NDCs, unless they are strengthened as a result of domestic processes following the Paris negotiations,⁴⁵² the initial stocktaking process scheduled for 2018, or on a party’s own initiative at any time in between.⁴⁵³ As of April, 2017, 160 NDC, representing 190 Parties have been submitted.⁴⁵⁴ Thus, the acceptance rate to work on the basis of NDC process is virtually universal. Although the Paris bottom-up process is strong in terms of the number of parties participating, the results in terms of aggregate ambition and substance have been “worrying” and “not sufficient to reach the goal”.⁴⁵⁵ This shortfall in the overall ambition of mitigation efforts is addressed by the Paris Agreement in two ways: firstly, the Agreement envisages a dynamic mechanism to assess and improve a country’s mitigation ambition over time

⁴⁵² FCCC/CP/2015/10/Add.1, 29 January 2016, Intended Nationally Determined Contributions.

⁴⁵³ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 4.11.

⁴⁵⁴ Art. 4 of the Paris Agreement foresees the option for countries to formulate joint NDCs (art. 4.16. – 4.18.) UNFCCC, INDC. // < http://unfccc.int/focus/indc_portal/items/8766.php>, last viewed 21 April 2017.

⁴⁵⁵ Potsdam Institute for Climate Impact Research, Climate Analytics, New Climate Institute, and Ecofys, Climate Action Tracker, Briefing of 8 December 2015.// < http://climateactiontracker.org/assets/publications/briefing_papers/CAT_Temp_Update_COP21.pdf>, last viewed 21 April 2017. The pre-Paris consideration by the a team of independent experts, revealed that if all INDCs are fully implemented, the outcome would still fall short of the 2 ° C scenario by a wide margin. In 2100 the projected warming would be around 2,7 ° C (in comparison to a 3,6 ° C scenario, in the absence of the future measures envisaged under the INDCs).

(e.g. art. 14.2, art. 4.9., art. 4.3.). A remark needs to be made, that while the countries determine their NDC individually, without assuming a legal obligation or liability *vis-à-vis* the result, they do have an obligation to pursue mitigation actions with the “aim of achieving the objectives” of their NDCs (art. 4.2.). Secondly, the Paris Agreement lays down the foundation for installing a robust accounting and communication framework (art. 4.8., art. 4.13). Further details of the accounting framework will be elaborated during the future CMAs. As some legal scholars anticipate it, further elaboration of the accounting framework may lead to “an accounting commitment common to all countries”.⁴⁵⁶

3.2.3.4. Adaptation under the Paris Agreement.

In comparison to the previous UNFCCC agreements, the Paris Agreement creates a global goal on adaptation, i.e. “to enhance adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal” (art. 7.1.). According to the Agreement “adaptation is a global challenge, faced by all with local, subnational, national, regional and international dimensions” and “it is a key component of and makes a contribution to the long-term global response to climate change to protect people, livelihoods and ecosystems” (art. 7.2.). Parties to the Agreement recognize that “the current need for adaptation is significant” and that “greater levels of mitigation can reduce the need for additional adaptation efforts, and that greater adaptation needs can involve greater adaptation costs” (art. 7.4.). The Agreement determines that countries should “engage in adaptation planning process, and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions” (art. 7.9.) and based on this planning Parties should strengthen their cooperation (art. 7. paras 6, 7, and 9). The Agreement establishes an obligation for each Party to “submit and update periodically an adaptation communication” (art. 7.10.), which will be recorded in a public registry, maintained by the Secretariat (art. 7.12.). The adequacy of adaptation action and support will be reviewed as a part of the global stocktake (art. 7.14.).

⁴⁵⁶ Ch. Streck, et al, The Paris Agreement: A New Beginning, Journal for European Environmental and Planning Law, 13 (2016), p. 13.

3.2.3.5. Cooperation and Markets.

Article 6 of the Paris Agreement introduces three voluntary cooperation formats in order to allow for “higher ambition in mitigation and adaptation actions” and “to promote sustainable development and environmental integrity” in the implementation of NDCs (art. 6.1.). The three cooperation formats include (a) Cooperative Approaches, (b) Sustainable Development Mechanism (SDM), and (c) the Framework for non-Market Approaches.

a. Cooperative Approaches.

Parties may engage in “voluntary cooperation” (art. 6.1.) and “cooperative approaches”, that involve the use of internationally transferred mitigation outcomes to achieve NDCs (art. 6.2.). The UNFCCC SBSTA is mandated to develop guidance, and the CMA is to adopt such guidance under its delegated powers,⁴⁵⁷ ensuring, *inter alia*, transparent governance and “robust accounting” in order to avoid double counting (art. 6.2.). Cooperative approaches can cover all sectors including sequestration (i.e. removals by sinks).⁴⁵⁸ A remark needs to be made that the flexibility under the art. 6.2. is different from the concept of joint NDCs (art. 4.16 – 4.18.). Under art. 6.2. Parties link their (separate) NDCs through the use of internationally transferred outcomes, whereas joint NDCs fall under a common accounting framework.

b. Sustainable Development Mechanism (SDM).

The Paris Agreement establishes a new mechanism in order to contribute to the mitigation of GHG emissions and to support sustainable development, namely, the Sustainable Development Mechanism (SDM, art. 6.4.). The new mechanism can generate “emission reductions”, which may be used by a Party to fulfill its NDC. The SDM is implemented under the “authority and guidance” of the CMA (art. 6.4.), which is to develop relevant “modalities and procedures”.⁴⁵⁹ The provisions on SDM link back to the flexible mechanisms in the Kyoto Protocol, namely, CDM and JI (e.g. “the new mechanism to be built on the experience of already existing mechanisms”).⁴⁶⁰ Thus, similar to the CDM, the SDM addresses

⁴⁵⁷ UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, paras 37-39.

⁴⁵⁸ UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, para 36.

⁴⁵⁹ UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, paras 36-38.

⁴⁶⁰ UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, para 37 (f).

subnational public and private entities, and it foresees a “share of proceeds” to cover both administrative costs and adaptation needs for nations, most vulnerable to climate change (art. 6.6.). However, unlike the CDM, the new mechanism must “deliver an overall mitigation in global emissions” (art. 6.4. (d), i.e. the mechanism must go beyond offsetting and must have a net positive mitigation effect. Emission reductions, achieved under the SDM may be accounted only once in the context of NDCs, i.e. “not used to demonstrate achievement of the host Party’s NDC, if used by another Party to demonstrate achievement of its NDC” (art. 6.5.).

c. Framework for non-Market Approaches.

The Paris Agreement recognizes “the importance of integrated, holistic and balanced non-market approaches” in order to assist Parties with implementing their NDCs, in the context of sustainable development and poverty eradication (art. 6.8.). The framework for non-Market approaches aims at both mitigation and adaptation (art. 6.8. para (a); “enhances public and private sector participation in the implementation of nationally determined contributions (art. 6.8. para (b); and “enables opportunities for coordination across instrument and relevant institutional arrangements” (art. 6.8. para (c). The conceptual scope and meaning of non-market approaches – in contrast to the kind of instruments, which are seen as “market mechanisms” (e.g. Kyoto mechanisms) – is challenging to gauge. In a technical paper of 2014, the UNFCCC Secretariat summarized non-market approaches as “any actions that drive cost-effective mitigation without relying on market-based approaches or mechanisms (i.e. without resulting in transferable or tradable units)”.⁴⁶¹ The technical paper listed as examples from country experience fiscal instruments (e.g. carbon taxes) and regulation, and also voluntary agreements on mitigation action, and results-based payments for REDD+. In this interpretation the concept remains broad, and this implies there will be much work ahead for the SBSTA, which is charged to prepare a draft work programme for the coming years.⁴⁶²

⁴⁶¹ UNFCCC Secretariat, Non-market Based Approaches: Technical Paper, FCCC/TP/2014/10, 24 November 2014.

⁴⁶² UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, paras 39-40.

3.2.3.6. Provisions on Forests.

Parties to the Paris Agreement recognize “the importance of the conservation and enhancement of sinks and reservoirs of GHG”, which includes forests (preamble, recital 12). Article 5 of the Paris Agreement, although in principle concerns all sinks, i.e. both forest and non-forest, is mainly dedicated to forests. The main purpose of the article is to “fix” the already existing forest-related provisions, frameworks and decisions within the new climate Agreement. Thus, under para. 1 of the article “Parties should take action to conserve and enhance sinks and reservoirs of GHG [...] including forests” (art. 5.1.). The paragraph makes reference to the UNFCCC and the mandate “to sustainably manage, conserve and enhance carbon sinks and reservoirs of GHG, including biomass, forests [...] as well as other terrestrial, coastal and marine ecosystems” in developed and developing countries (UNFCCC, art. 4.1.(d)). Para. 2 article 5 of the Paris Agreement complements the first paragraph by encouraging Parties “to implement and support” the “existing framework” already agreed under the Convention for REDD + (art. 5.2.). Thus, through cross-referencing the “related decisions and guidance” become part of the Agreement. Alternative policy approaches, such as “joint mitigation and adaptation approaches for the integral and sustainable management of forests” are also acknowledged “while reaffirming the importance of incentivizing non-carbon benefits associated with such approaches” (art. 5.2.).

3.2.3.7. The Paris Decision.

The Paris Agreement was adopted as an annex to a decision of the COP to the UNFCCC.⁴⁶³ Together with the Paris Agreement the COP also adopted a decision, i.e. the so-called Paris Decision, that set out implementation details for the Paris Agreement before its entry into force guides the pre-2020 international climate action and.⁴⁶⁴ The Paris Decision has a number of complementary functions, including: it provided a timeline for the Paris Agreement before its entry into force; it regulated and organized action for the implementation of the Paris Agreement, including institutional arrangements concerning the establishment of a new Ad Hoc Working Group (APA), it addresses a number of other substantial commitments that may evolve during the implementation of the Paris

⁴⁶³ UNFCCC, FCCC/CP/2015/10/Add.1, Annex.

⁴⁶⁴ UNFCCC, FCCC/CP/2015/10/Add.1.

Agreement, e.g. the developed country's financial commitment of 100 billion USD "in the context of meaningful mitigation actions and transparency on implementation";⁴⁶⁵ it provides guidance on the necessary pre-2020 arrangements.

3.2.4. Interim Summary.

The present part of the chapter "International Regulatory Climate Change Regime" investigated the international regulatory climate change regime, including the UNFCCC, its Kyoto Protocol, the new Paris Agreement, and the relevant COP/CMP/CMA decisions. The international climate change regime was not created to regulate forests. The UNFCCC and its KP, provide only general commitments with regard to forests, primarily given their carbon sequestration functions. However, both treaties are "dynamic arrangements", establishing an "ongoing evolutionary process". Further clarification of the general UNFCCC and KP forest-related provisions takes place through the adoption of COP/CMP decisions. As for the 2015 Paris Agreement, although it includes the forest-specific article, i.e. an article, which is mainly dedicated to forests, the provisions under the article do not go beyond the integration by reference of the already agreed upon forest-related legal framework under the international climate change regime (i.e. previously defined by the UNFCCC, its Kyoto Protocol and the forest-related COP/CMP decisions). Further forest-related guidance under the Paris Agreement is to be adopted by its CMA.

3.3. Forest Regulation under the International Climate Change Regime.

The objective of the present part of the chapter, i.e. "Forest Regulation under the International Climate Change Regime" is to investigate forest regulation under the international climate change regime. The part aims to answer the following question: What are the challenges associated with forest regulation under the international climate change regime? This part, first, studies the LULUCF reporting and accounting under the regime (3.3.1.). Secondly, the attention turns to the forest-related Kyoto Protocol flexibility mechanisms, namely the CDM and the JI mechanism (3.3.2.); and, thirdly, the REDD+

⁴⁶⁵ UNFCCC, FCCC/CP/2015/10/Add.1, para. 53.

instrument is studied (3.3.3.). Finally, the major findings are summarized (3.3.4.).

3.3.1. Land Use, Land Use Change and Forestry Sector Reporting and Accounting.

The Land Use Land Use Change and Forestry (LULUCF) sector is one of the five main GHG inventory sectors, identified by the IPCC for the purpose of the UNFCCC reporting and the KP reporting and accounting.⁴⁶⁶ The IPCC refers to a “sector” as “a grouping of related processes, sources and sinks”, which constitute GHG emission and removal estimates.⁴⁶⁷ The LULUCF sector covers emissions and removals of GHGs, resulting from changes in the terrestrial carbon stocks.⁴⁶⁸ The role of the LULUCF in the global carbon cycle is significant. Thus, whereas since the industrial revolution approximately 270 gigatonnes of carbon (GtC) have been emitted into the atmosphere through fossil fuel burning and cement production, the land-use change activities, predominantly in forest ecosystems, during the same time period resulted in about 136 GtC.⁴⁶⁹

Each part of the title “LULUCF” refers to an activity that influences GHG emissions: “land use” refers to land practices that affect emission levels; “land use change” refers to practices where the purpose of land use is changed (e.g. conversion from forest to cropland, or vice versa); and “forestry” refers to activities, which affect the amount of biomass in existing biomass stocks (e.g. forests, village trees, woody savannas, etc.). Among the most important land-

⁴⁶⁶ The five main sectors are: Energy; Industrial Processes and Product Use (IPPU); Agriculture, Forestry and Other Land Use (AFOLU, which includes LULUCF); Waste; and Other (e.g. indirect emissions from nitrogen deposition from non-agriculture sources). Each sector comprises individual categories (e.g. transport) and sub-categories (e.g. cars). Countries construct their inventories from the sub-category level, and total emissions calculated by summation. National inventories contain estimates for the calendar year during which the emissions to the atmosphere occur. See, IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, General Guidance and Reporting, 2006, p. 1.4. – 1.5.

⁴⁶⁷ See, IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, General Guidance and Reporting, 2006, p. 1.4. – 1.5.

⁴⁶⁸ Namely: living biomass (above and below ground), dead organic matter (dead wood and litter) and organic soil carbon for six land categories (Forest Land, Cropland, Grassland, Wetlands, Settlements, and Other Land (e.g. bare soil, rocks, ice, etc.)) See, IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Agriculture, Forestry and Other Land Use, 2006, p. 1.4.

⁴⁶⁹ R. Watson, et al, Land Use, Land Use Change and Forestry, Special Report of the Intergovernmental Panel on Climate Change (IPCC), 2000.

use changes that result in CO₂ emissions and removals are the changes in forest and other woody biomass stocks, forest conversion, and plantation forests.⁴⁷⁰

There are some peculiarities that distinguish the LULUCF sector in comparison to other GHG inventory sectors. Thus, one of the specificities is that the sector includes activities that not only cause emissions, but also lead to carbon being removed from the atmosphere, and stored in vegetation and soil; even more than that - this removal is not permanent. One more specificity is that not all of the emissions and removals in the LULUCF sector are directly caused by humans. It is a key physical characteristic of the sector that soils and vegetation in their natural states exchange GHG with the atmosphere, and that non-anthropogenic factors can influence this process. For instance, whereas in the absence of a power plant or a herd of cows, there would be no emissions, an unmanaged forest might still emit and remove carbon from the atmosphere. The natural emissions need to be factored out when accounting and reporting for the LULUCF emissions and reductions.

The reporting and accounting rules for the LULUCF sector have been a matter of contentious debates during the international climate negotiations. Thus, at the COP-1 (Berlin, 1995), which commenced the negotiations for the creation of the Kyoto Protocol, State and non-state actors "struggled over" the meaning of forests in climate change mitigation.⁴⁷¹ The subsequent process of including the LULUCF sector within the international climate change regime is viewed as "one of the less inspiring examples of the development of international environmental law [...] typified by confusion, manipulated science, obfuscation and poor decision making".⁴⁷² Some critics even suggest that the Kyoto Protocol regime's

⁴⁷⁰ IPCC, Revised IPCC Guidelines for National GHG Inventories, 1996, Reference Manual (Volume 2), p. 5.6.

⁴⁷¹ S. Holmgren, *Governing Forests in a Changing Climate, Exploring Patterns of Thought in the Climate Change-Forest Policy Intersection*, Doctoral Thesis No. 2015:61, Acta Universitatis Agriculturae Sueciae, 2015, p. 23; See also, E. Lovbrand, *Revisiting the Politics of Expertise in Light of the Kyoto Negotiations on Land Use Change and Forestry*, *Forest Policy and Economics*, 11, 2009, pp. 404 -412; I. Fry, *Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol*, *RECIEL*, 11, 2, 2002, pp. 159-168.

⁴⁷² I. Fry, *Twists and Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol*, *RECIEL*, 11, 2, 2002, p. 159.

language on LULUCF is “complex, disjoint, and inaccessible”,⁴⁷³ where many important issues with regards to forests are left for further clarification, including:⁴⁷⁴

1. Accounting: How should Parties quantify the amount of carbon removed through forest sink activities? How can the Parties measure the effect of these activities reliably? Once the removal is measured, how should Parties keep track of it and report it?;
2. Activities: What activities qualify as “direct human-induced land-use change and forestry activities” under the KP article 3? More specifically, what do the terms “afforestation”, “reforestation” and “deforestation” mean as used in Article 3, paragraph 3, and what other forestry activities can offset emissions under Article 3 paragraph 4?;
3. Limits: Should there be a limit on how much credit a Party can claim for its LULUCF activities? For example, could a party rely entirely on forest sinks to achieve its emission goals?
4. Cooperation: What rules apply to forestry projects under the flexible mechanisms, including Article 6 on Joint Implementation, Article 12 on CDM and Article 17 on emission trading? Are there any limits on the amount of credit that a Party may claim for projects in other countries?

Currently reporting of emissions and removals from the LULUCF sector is formally guided by the 1996 revised version of the IPCC guidelines,⁴⁷⁵ supplemented by the 2006 version.⁴⁷⁶ The LULUCF accounting for the first commitment period is set out in the LULUCF decision under the Marrakesh Accords.⁴⁷⁷ For the second commitment period additional and new rules follow from the Cancun and Durban decisions.⁴⁷⁸ As a consequence of the new set of

⁴⁷³ F. Yamin, *The Kyoto Protocol: Origins, Assessment and Future Challenges*, 7, 2, RECIEL, 1998, p. 119.

⁴⁷⁴ K.L. Rosenbaum, *Climate Change and the Forest Sector, Possible National and Subnational Legislation*, FAO Forestry Paper 144, 2004, pp. 8-9.

⁴⁷⁵ IPCC, *the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, 1996.

⁴⁷⁶ IPCC, *2006 IPCC Guidelines of National Greenhouse Gas Inventories*, 2006. Up until 2015 LULUCF has been addressed as a sector in its own. In the 2006 IPCC Guidelines, LULUCF is merged together with Agriculture into a two-part volume referred to as AFOLU (Agriculture, Forestry and Other Land Use). The integration of the two sectors recognizes that the processes, underlying GHG emissions and removals, as well as different forms of terrestrial carbon stocks, can occur across all types of land, and that land-use changes can involve all types of land.

⁴⁷⁷ UNFCCC, *Decision 11/CP.7, Land Use, Land Use Change and Forestry*, FCCC/CP/2001/13/Add.1, pp. 54-55.

⁴⁷⁸ UNFCCC, *FCCC/CP/2010/7/Add.1; FCCC/CP/2011/9/Add.1.*

rules, the IPCC was invited in 2011 “to review and, if necessary, update supplementary methodologies for estimating anthropogenic greenhouse gas emissions by sources and removals by sinks resulting from land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, related to the annex to this decision, on the basis of, inter alia, chapter 4 of its Good Practice Guidance for Land Use, Land-Use Change and Forestry”.⁴⁷⁹ This resulted in the 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol (KP Supplement).⁴⁸⁰ For the purpose of reporting and accounting under the 2015 Paris Agreement the Paris Decision requests the subsidiary bodies to elaborate, drawing from approaches established under the UNFCCC and its related legal instruments, guidance for accounting for Parties’ NDCs for consideration and adoption by the CMA.⁴⁸¹

The format of reporting LULUCF for the purposes of reporting under the UNFCCC and the reporting LULUCF for accounting under the KP is different. Reporting under the UNFCCC provides information on anthropogenic GHG emissions and CO₂ removals in the year in which they occur. Accounting uses the reported data to assess whether countries have met their commitments; it needs to compare GHG inventory data with the assigned amount (i.e. a country’s allowed emissions), adjusted for participation in the flexible mechanisms and for LULUCF.

3.3.1.1. Reporting under the UNFCCC.

Under the UNFCCC all Parties have commitments to promote mitigation actions and to report anthropogenic emissions by sources and removals by sinks, including from the LULUCF sector.⁴⁸² Currently reporting is accomplished through the submission of national reports to the COP (National Communications and National GHG Inventories, biennial reports or biennial update reports). In accordance to the principle of “common, but differentiated responsibilities” the required contents and timetable for submission of such reports differ for Annex I

⁴⁷⁹ UNFCCC, Decision 2/CMP.7, Paragraph 8.

⁴⁸⁰ IPCC, 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol, 2013.

⁴⁸¹ UNFCCC, FCCC/CP/2015/10/Add.1, 29 January 2016, para 31.

⁴⁸² UNFCCC, adopted 9 May 1992, in force 21 March 1994, article 4 paragraph 1 (a), (b); art. 12.

and non-Annex I countries (Figure 11, Summary of Reporting and Requirements under the UNFCCC). For example, developing country Parties are entitled to receive technical and financial support to assist in inventory preparation. Further, developed country Parties are entitled to submit a detailed national emissions inventory each year, which is subject to an in-depth review by expert panels. Developing country Parties, by contrast, have until recently only been required to include inventory reports as part of national communications and in accordance with less stringent guidelines. Land-use emissions (mainly CO₂ emissions and removals from LULUCF activities), and agricultural emissions (mainly CH₄ and NO₂ emissions from human-induced biological processes) are reported separately in national inventory reports.

Figure 11: Summary of Reporting Requirements under the UNFCCC.

	Annex I	Non-Annex I
National Communications	Periodic (every 4 years); almost all Annex I Parties have submitted their 6 th national communication.	Periodic (every 4 years); the first was due within 3 years of ratification; a second and, where appropriate, 3 rd has been encouraged by the COP. Most non-Annex I Parties have submitted their 2 nd National Communication.
National GHG Inventories	Annual submission including: <ul style="list-style-type: none"> • CRF tables • National Inventory Report³⁷ 	Should be included as part of the National Communications (every 4 years)
IPCC Guidance	Starting in 2015, Annex I shall use the <i>2006 Guidelines</i> and updated CRF tables; plus the 2003 <i>LULUCF-GPG</i> and 2013 <i>Wetlands Supplement</i>	<i>1996 Guidelines</i> may be used along with the 2003 <i>LULUCF-GPG</i> ; <i>2006 Guidelines</i> (and 2013 <i>Wetlands Supplement</i>) are encouraged.
Additional reporting (including national GHG inventories)	Biennial reports; first submission by January 2014	Biennial update reports, first submission by December 2014 (Least Developed Countries may submit at their discretion)

Source: P. Iversen, D. Lee, M. Rocha, Understanding the Land Use in the UNFCCC, 2014, p. 14.

Guidance on how to estimate anthropogenic emissions and removals in the land-use sector is contained in the 1996 Revised IPCC Guidelines;⁴⁸³ 2003 GPG-LULUCF⁴⁸⁴ and the 2006 IPCC Guidelines.⁴⁸⁵ In 2013 the IPCC has also

⁴⁸³ IPCC, Task Force on National Greenhouse Gas Inventories, Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. // < <http://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>>, last viewed 12 August 2015.

⁴⁸⁴ IPCC, Task Force on National Greenhouse Gas Inventories, GPG-LULUCF.// < <http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf.html>>, last viewed 12 August 2015.

developed the Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Supplement).⁴⁸⁶ Annex I Parties are encouraged to use the Wetlands Supplement in preparing their annual inventories under the Convention from 2015.⁴⁸⁷

In their reports countries consistently apply national definitions of forests.⁴⁸⁸ National definitions cover only “managed” forests, i.e. subject to human intervention, including the full range of management practices from protecting forests, raising plantations, promoting natural regeneration, commercial timber production, non- commercial fuel extraction, and abandonment of managed land.⁴⁸⁹ Managed forests may comprise all or only part of the forest area of a given country. For instance, the Russian Federation designated only 73,7 percent (i.e. 661, 4 million ha) of its forests as managed.⁴⁹⁰ Unmanaged forests under the UNFCCC are not reported.

3.3.1.2. Reporting and Accounting under the Kyoto Protocol.

The Kyoto Protocol calls for each Annex I Party to the Kyoto Protocol “in achieving its quantified emission limitation and reduction commitments [...] in order to promote sustainable development [...] to implement [...] policies and measures [...] such as: protection and enhancement of sinks and reservoirs of greenhouse gases... [and] promotion of sustainable forest management

⁴⁸⁵ IPCC, Task Force on National Greenhouse Gas Inventories, 2006 IPCC Guidelines for National Greenhouse Gas Inventories. // < <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>>, last viewed 12 August 2015.

⁴⁸⁶ IPCC, 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands, 2013.

⁴⁸⁷ UNFCCC, Decision 24/CP.19, paragraph 4.

⁴⁸⁸In 2003 the IPCC reported that the scientific community cannot currently provide a practicable methodology that would factor out direct human-induced effects from indirect human-induced and natural effects for any broad range of LULUCF activities and circumstances.⁴⁸⁸ For this reason the 2003 GPG-LULUCF and 2006 Guidelines adopted the use of estimates of GHG emissions and removals on managed land as a proxy for the estimation of anthropogenic emissions and removals. Countries designate areas of land as “managed” and “unmanaged”. “Managed” land is a land where human interventions and practices have been applied to perform production, ecological or societal functions.⁴⁸⁸ In effect, this means that all emissions (or removals) that occur on land designated as “managed” is included in the reporting under the UNFCCC and counted as anthropogenic (emissions and removals from unmanaged land do not need to be reported). All land definitions are specified at the national level, described in a transparent manner, and applied consistently over time.

IPCC, 2006 IPCC Guidelines, 2006, p. 4.7.

⁴⁸⁹ IPCC, 2006 IPCC Guidelines, 2006, p. 4.7.

⁴⁹⁰ Ministry of Natural Resources and Environment of the Russian Federation, 6th National Report of the Russian Federation, 2013, p. 59.

practices, afforestation and reforestation [...]”.⁴⁹¹ Consistent with this it has provisions for the treatment of LULUCF in the context of Annex I Parties meeting their commitments under the Protocol. Guidance on reporting and accounting of LULUCF activities under the KP applicable in the first commitment period differs from the one applicable for the second commitment period.

a. Reporting.

The information, reported under the KP (articles 3.3. and 3.4.) during a commitment period is supplementary to the information reported under the UNFCCC (article 4.1.(a)). In particular, all Kyoto Protocol Annex I Parties do not submit two separate inventories but provide information required under the Kyoto Protocol as supplementary, within the inventory report, to demonstrate compliance with its commitments under the Protocol (parallel to the one used for Convention reporting).⁴⁹²

For the first commitment period of the Kyoto Protocol (2008-2012) emissions and removals by LULUCF activities have been reported using guidance provided by the COP/CMP in accordance with several decisions (Figure 12). In addition, to help Parties with reporting, Chapter 4 of the GPG-LULUCF provided “Supplementary Methods and Good Practice Guidance arising from the Kyoto Protocol”.⁴⁹³ For the second commitment period the 2013 Revised Supplementary Methods and GPG Arising from the Kyoto Protocol (Kyoto Protocol Supplement) were prepared by the IPCC.⁴⁹⁴

Figure 12: LULUCF requirements for reporting (up to 2015) and accounting (1st KP commitment period).

⁴⁹¹ KP to the UNFCCC, adopted 11 December 1997, in force 16 February 2005, article 2 (a).

⁴⁹² UNFCCC, Reporting and Accounting of LULUCF activities under the KP, Background. // < [https://unfccc.int/land use and climate change/lulucf/items/4127.php](https://unfccc.int/land-use-and-climate-change/lulucf/items/4127.php)>, last viewed 13 August 2015.

⁴⁹³ IPCC, Task Force on National Greenhouse Gas Inventories, GPG-LULUCF.// < <http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf.html>>, last viewed 19 August 2015.

⁴⁹⁴ IPCC, 2013 Revised Supplementary Methods and GPG Arising from the Kyoto Protocol, 2013.

Requirement/Guidance	Revised 1996 IPCC Guidelines	GPG LULUCF 2003	Decision 14/CP.11	Decisions 15/CMP.1 16/CMP.1 17/CMP.1	CRF tables
Reporting under UNFCCC	✓	✓	✓		LULUCF CRF Tables
Supplementary data for under the Kyoto Protocol	✓	✓	✓	✓	KP-LULUCF CRF Tables

Notes: ✓ Mandatory for Annex I Party

Source: P. Iversen, D. Lee, M. Rocha, Understanding the Land Use in the UNFCCC, 2014, p. 20.

b. Accounting.

Industrialized Parties to the Kyoto Protocol measure progress toward meeting their emission reduction targets by preparing national inventories, which are required to account for LULUCF-related activities within the respective country. In general, parties account for emissions and removals from LULUCF on the basis of different activities, not specific land areas. Articles 3.3. and 3.4. of the KP define those activities. According to Article 3.3., parties are obliged to account for:

- Afforestation;
- Reforestation; and
- Deforestation that started on or after January 1, 1990.

Article 3.4. introduces additional LULUCF-related activities that parties can account for on a voluntary basis in the first Kyoto commitment period (2008 to 2012), namely:

- Forest Management;
- Cropland Management;
- Grazing Land Management;
- Revegetation that started on or after January 1, 1990.⁴⁹⁵

⁴⁹⁵ Whereas a gross-net approach is applied for afforestation, reforestation, deforestation, and forest management (1st commitment period), the activities under article 3.4. are accounted on a net-net basis. For the second commitment period forest management is accounted compared to a reference level. Gross-net 1990 approach requires that all emissions and removals during the commitment period that occur on lands subject to the activity since 1990 are accounted, though some of this is not due to direct human activities. This accounting rule is the simplest of all rules applied in the KP and reflects "what the atmosphere sees" during the commitment period on those lands (without further comparing emissions with a base year or reference level). Net-net base year approach requires that only the difference between the emissions and removals that occur on lands subject to the activity in each year of the commitment period and the emissions and removals that occurred on lands subject to the activity during the base year (1990 for most

At COP 17/CMP 7 in Durban in 2012, Parties agreed on a revised set of rules to be applied to accounting for LULUCF emissions under the Kyoto Protocol's second commitment period.⁴⁹⁶ In contrast with the first Commitment Period, the new rules were agreed in parallel with Parties' mitigation commitments for the second period, hence enabling an integrated discussion of the level of targets and the rules influencing the effort required for their achievement.⁴⁹⁷ At CMP 9 in Warsaw in 2013 Parties agreed that the Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol (Kyoto Protocol Supplement), prepared by the IPCC,⁴⁹⁸ shall be applied in the 2nd commitment period of the Kyoto Protocol (Figure 13).

Figure 13: LULUCF requirements for reporting (after 2015) and accounting (2nd Kyoto Protocol commitment period).

Requirements/ Guidance	2006 IPCC Guidelines	2013 KP Supplement	2013 Wetland Supplement	Decision 24/CP.19	Decisions 2/CMP.6 2/CMP.7 6/CMP.9	CRF tables
Reporting under UNFCCC	✓		Encouraged	✓		AFOLU CRF Tables
Supplementary data for accounting under the Kyoto Protocol	✓	✓	✓	✓	✓	KPLULUCF CRF Tables

Notes: ✓ Mandatory for Annex I Party

Source: Source: P. Iversen, D. Lee, M. Rocha, Understanding the Land Use in the UNFCCC, 2014, p. 20.

Parties) are accounted for. This accounting rule tries to capture the emissions and removals that are "additional" to those observed in the base year. Only the difference between the emissions and removals that occur on lands subject to the activity in each year of the commitment period and an agreed reference level are accounted for. This accounting rule tries to capture the emissions and removals that are "additional" to those considered in their reference level. See, P. Canaveira, Options and Elements for an Accounting Framework for the Land Sector in the Post – 2020 Climate Regime, 2013, p. 22.

⁴⁹⁶ UNFCCC, Land Use Change, Land Use Change and Forestry, Decision 2/CMP.7, 15 March 2012.

⁴⁹⁷ Ch. Streck, D. Conway, Forestry and Agriculture under the UNFCCC, A Jigsaw Waiting to be Assembled?, in C. Carlarne, K. R. Gray, R. G. Tarasofsky (eds), The Oxford Handbook of International Climate Change Law, 2016, p. 569.

⁴⁹⁸ IPCC, 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol, 2013.

The most significant changes for the second commitment period relate to forest management. First, accounting for forest management has become mandatory (during the first commitment period twenty-four Parties accounted for Forest Management voluntarily, Figure 14).⁴⁹⁹ Accounting now includes accounting for harvested wood products. This has put an end to the ongoing since 1999 debates on accounting for carbon, stored in wood products.⁵⁰⁰ Second, accounting for forest management has moved from the gross-net approach to the use of Forest Management Reference Levels (FMRLs). FMRLs represent counterfactual scenarios, based on a combination of historical figures and projected trends. The COP/CMP has approved individual FMRLs for each Party following Party proposals reviewed by expert review teams.⁵⁰¹ Application of the FMRLs approach provides for a flexible approach, adaptable to the circumstances in each particular country. Such approach also removes the risk that the country is credited for a “business-as usual” removals. At the same time the difficulties inherent in projecting future emissions scenarios make FMRLs prone to significant variations, depending on the data and assumptions used.⁵⁰²

Figure 14: Mandatory and Voluntary KP LULUCF Activities in the 1st and 2nd Commitment Periods.

KP LULUCF Activities	KP	1 st Commitment Period Status	2 nd Commitment Period Status
Afforestation	Art. 3.3	Mandatory	Mandatory
Reforestation	Art. 3.3		
Deforestation	Art. 3.3		
Forest Management	Art. 3.4	Voluntary	Voluntary (Mandatory if elected in CP1)
Cropland Management	Art. 3.4		
Grazing land Management	Art. 3.4		
Revegetation	Art. 3.4		
Wetland Drainage & Rewetting	Art. 3.4		
		<i>[non-existent]</i>	

Source: P. Canaveira, Options and Elements for an Accounting Framework for the Land Sector in the Post -2020 Climate Regime, 2014, p. 20.

⁴⁹⁹ See, P. Iversen, D. Lee, M. Rocha, Understanding Land Use in the UNFCCC, 2014, p. 17.

⁵⁰⁰ UNFCCC, Report of the Subsidiary Body for Scientific and Technological Advice on its Eleventh Session, FCC/SBSTA/1999/14, 31 January 2000.

⁵⁰¹ UNFCCC, The Cancun Agreements, Land Use, Land Use Change and Forestry, Dec.2/CMP.6, 15 March, 2011, Appendix II.

⁵⁰² Ch. Streck, D. Conway, Forestry and Agriculture under the UNFCCC, A Jigsaw Waiting to be Assembled?, in C. Carlarne, K. R. Gray, R. G. Tarasofsky (eds), The Oxford Handbook of International Climate Change Law, 2016, p. 570.

An additional change with regards to forest management for the second commitment period concerns the replacement of the country-specific limits on the level of forest management units that can be generated in each year of the commitment period. Whereas in the first commitment period the use of credits from forest management to offset a country's emissions were capped at 3 per cent of base year emissions, a uniform limit of 3,5 percent of base year emissions per year has been set for the second commitment period. Other changes for the Kyoto Protocol's second commitment period with regards to forests include the adoption of provisions for the optional exclusion of emissions in the forest management, afforestation or reforestation categories caused by natural disturbances that are not "materially influenced" by the Party.

3.3.1.3. Land-based and Activity-based Approaches.

Reporting on land use under the UNFCCC is comprehensive; it means that all developed country Parties and a growing number of developing countries, report GHG emissions and removals on all areas of land under the Convention according to a land-based approach. This approach requires the reporting of all land-use changes, forestry emissions and removals. At the same time, developed countries report and account for emissions and removals from land-use activities under the Kyoto Protocol according to an activity-based approach.

The land based approach to emissions estimation proceeds from the classification of all the managed territory of a country into the six IPCC land categories (forest land; cropland; grassland; wetlands; settlements; and other lands (e.g. bare soil, rock, ice, etc.) and five different carbon pools (aboveground biomass, belowground biomass, dead wood, litter, soil, and organic carbon).⁵⁰³ For each type of land and for each land conversion (change from one category to another) default methodologies and protocols for emission estimates are provided by the IPCC. Emissions and removals are calculated on the basis of this classification. Since the IPCC land categories cover all the land, the land-based approach is associated with comprehensive coverage.⁵⁰⁴

⁵⁰³ IPCC, *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, 2003.

⁵⁰⁴ See, P. Iversen, D. Lee, M. Rocha, *Understanding Land Use in the UNFCCC*, 2014, pp. 18-19.

In comparison to the UNFCCC, under the KP an elective activity based approach is used. It proceeds from identifying specific activities that influence GHG fluxes (i.e. afforestation, reforestation, deforestation, etc.) occurring on a particular land unit. Because multiple activities may occur on a single area of land (sequentially and possible simultaneously) a hierarchy amongst the different land use activities is established in order to avoid double counting or omission. Under the Kyoto Protocol, Parties must account for emissions and removals from deforestation, afforestation, and reforestation, while also accounting for forest management, cropland management, and grazing land management; accounting for revegetation is optional. For each activity, default emission/removal factors are calculated and multiplied by the area. To ensure that any subsequent changes in emissions or removals are accounted for, any optional activities once chosen must continue to be included in subsequent commitment periods (i.e. so-called rule "once in, always in" - the land, which has previously been accounted for, cannot leave accounting, even if an elected activity no longer takes place on this land).

Whereas the land-based approach is considered to be comprehensive, i.e. an inventory of all carbon over the chosen land units, this approach is substantively and procedurally demanding as it requires gathering, accessing, and processing vast amounts of data. This is a rather costly and time-consuming process.⁵⁰⁵ However, the land-based approach has a clear advantage over the activity-based approach, as it includes all land-use activities allowing to avoid accounting gaps and double counting. The disadvantage of the land-based approach is that it depicts as well a large amount of emissions that are not the product of human activity (e.g. as in the case with emissions, arising from natural disturbances) and, thus, these emissions cannot be easily controlled.⁵⁰⁶

⁵⁰⁵ Ch. Streck, D. Conway, *Forestry and Agriculture under the UNFCCC, A Jigsaw Waiting to be Assembled?*, in C. P. Carlame, K. R. Gray, R. G. Tarasofsky, *The Oxford Handbook of International Climate Change Law*, 2016, p. 569.

⁵⁰⁶ See, P. Iversen, D. Lee, M. Rocha, *Understanding Land Use in the UNFCCC*, 2014, pp. 18-19.

3.3.1.4. Forest-related Challenges associated with LULUCF.

LULUCF was, in particular, under the Kyoto Protocol,⁵⁰⁷ and still is a significant issue under the international climate change regime. For many Parties removal of carbon dioxide by vegetation can significantly offset emissions from other sectors. Other Parties may have potentially high emission liabilities from LULUCF.⁵⁰⁸ The rules for reporting and accounting of the LULUCF sector under the international climate change regime have remained complex due to their very nature; they are temporary and hard to measure.⁵⁰⁹ At the time of the negotiations of the Kyoto Protocol, the scientific knowledge about the role of LULUCF was limited and negotiators were poorly informed about the estimation of emissions and removals in the land – use sector.⁵¹⁰ As a result, Parties agreed on the emission reduction targets of the Kyoto Protocol before they decided whether and how LULUCF could be used to fulfill those targets. The subsequent process of the development of the LULUCF framework is compared to the “walking through a jungle full of legal pitfalls, blind passages and tangled vines ready to trip the unwary venture at every step”.⁵¹¹

In the first Kyoto Protocol commitment period the concerns about land-based emission practices among negotiating parties included: leakage; disagreement over the definitions of the key concepts; concerns about scale; concerns about non-permanence; concerns about uncertainty; concerns about credibility; reporting requirements; harvested wood products; biodiversity; flexibility and harmonization.⁵¹² During the negotiation process associated with developing new

⁵⁰⁷ I. Fry, *If a Tree Falls in a Kyoto Forest and Nobody is There to Hear it, will it be Accounted for? An Insider's View of the Negotiations Surrounding Land Use, Land-use Change and Forestry for the Second Commitment Period of the Kyoto Protocol*, RECIEL, 20, 2, 2011, p. 124.

⁵⁰⁸ Depending on the rules, some countries (e.g. Australia, Canada, the Russian Federation, etc.) may have high emissions from forest fires.

⁵⁰⁹ I. Fry, *If a Tree Falls in a Kyoto Forest and Nobody is There to Hear it, will it be Accounted for? An Insider's View of the Negotiations Surrounding Land Use, Land-use Change and Forestry for the Second Commitment Period of the Kyoto Protocol*, RECIEL, 20, 2, 2011, p. 123.

⁵¹⁰ S. M. Scholz, M. Jung, *Forestry Projects under the Clean Development Mechanism and Joint Implementation: Rules and Regulations*, in Ch. Streck, R. O' Sullivan, T. Janson – Smith, and R. Tarasofsky, (eds), *Climate Change and Forests, Emerging Policy and Market Opportunities*, 2008, p. 72.

⁵¹¹ I. Fry, *Twists and Turns in the Jungle: Exploring the Evolution of Land-Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol*, RECIEL, 11 (2), 2002, p. 159.

⁵¹² The challenges or “concerns” associated with LULUCF in the first commitment period were elaborated upon by P. Graichen; and more recently by I. Fry and R. Maguire. See, P. Graichen, *Can Forestry Gain from Emissions Trading? Rules Governing Sinks Projects under the UNFCCC and the UE Emission Trading System*, RECIEL, 14 (1), 2005, pp. 11-12; R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, pp. 147-156; I. Fry, *Twists and*

rules on the LULUCF sector for the second commitment period of the Kyoto Protocol most of the concerns remained.⁵¹³ These issues are analyzed below.

a. Definitions.

The first challenge that arose in the first commitment period was the attribution of legal definitions to key concepts within Article 3.3. of the KP (forests; afforestation; reforestation and deforestation). The choice of definitions is crucial, as it determines how much and which land is included into LULUCF under article 3.3. of the KP. The IPCC issued a special report exploring the issues surrounding the adoption of the key definitions.⁵¹⁴ At the seventh session of the COP (Marrakesh, 2001) the following key definitions were agreed upon:

1. Forest – is a minimum area of land of 0,005 – 1,0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 percent with trees with the potential to reach a minimum height of 2-5 metres in maturity *in situ*. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high portion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 percent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.⁵¹⁵
2. Afforestation – the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.⁵¹⁶

Turns in the Jungle: Exploring the Evolution of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol, RECIEL, 11 (2), 2002; I. Fry, More Twists, Turns and Stumbles in the Jungle: A Further Exploration of Land Use, Land-Use Change and Forestry Decisions within the Kyoto Protocol, RECIEL, 16 (3), 2007.

⁵¹³ For more information on the challenges associated with new accounting rules for LULUCF for the second commitment period of the Kyoto Protocol see, I. Fry, If a Tree Falls in a Kyoto Forest and Nobody is There to Hear it, will it be Accounted for? An Insider's View of the Negotiations Surrounding Land Use, Land-use Change and Forestry for the Second Commitment Period of the Kyoto Protocol, RECIEL, 20 (2), 2011, p. 123.

⁵¹⁴ IPCC, IPCC Special Report Land Use, Land-Use Change and Forestry: Summary for Policymakers, 2000.

⁵¹⁵ UNFCCC, 16/CMP.1, Annex.

⁵¹⁶ UNFCCC, 16/CMP.1, Annex.

3. Reforestation – direct human induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities were limited to reforestation occurring on lands that did not contain forest on 31 December 1989.⁵¹⁷
4. Deforestation – is the direct conversion of forested land to non-forested land.⁵¹⁸

Additionally at the Marrakesh COP negotiations, the voluntary Article 3.4. activities were clarified: revegetation; forest management; cropland management; and grazing land management.

For the second commitment period it was negotiated whether or not to use the existing definitions of activities as in the first commitment period. One of the primary concerns was related to the definition of forests. Some Parties and NGOs (e.g. Tuvalu, Paraguay and the World Rainforest Movement) expressed concern that the definition provided a perverse incentive (or unintended consequences, depending on one's perspective) of allowing the conversion of natural forests to plantations without any consideration of the potential GHG emissions resulting from this activity.⁵¹⁹ This was due to the interpretation that the conversion of the forests from natural to plantation would not trigger the definition of deforestation and hence the resultant emissions would not be accounted for.⁵²⁰ Apart from the climate change implications, NGOs were concerned about the biodiversity, water management and human rights of converting natural forests to plantations. Finding remedy to these concerns was complex, particularly as some Parties had already applied the existing definition in the first commitment period and, thus, changing the definition would create accounting inconsistencies.

⁵¹⁷ UNFCCC, 16/CMP.1, Annex.

⁵¹⁸ UNFCCC, 16/CMP.1, Annex.

⁵¹⁹ I. Fry, *If a Tree Falls in a Kyoto Forest and Nobody is There to Hear it, will it be Accounted for? An Insider's View of the Negotiations Surrounding Land Use, Land-use Change and Forestry for the Second Commitment Period of the Kyoto Protocol*, RECIEL, 20 (2), 2011, p. 128.

⁵²⁰ This is due to the fact that the definition of forests does not discriminate between natural forest and plantation and hence a conversion of natural forest to plantation would remain "Forest".

b. Scale Concerns.

There was a concern about the considerable amount of carbon that is stored in the biosphere. The total value of carbon stored in living biomass, wood and litter, and soil is thought to be substantial and, consequently, it was feared that forest management and land enhancement activities would dominate emission reduction activities and that other sectorial mitigation approaches (i.e. the energy sector) would suffer as a result. The international climate change regime is tailored to apply to stationary sources of emissions, such as the industrial or energy sector and it was argued, that the development of low-carbon energy sources and industry practices must remain the central focus of the regime. Planting forests is seen as a cheaper mitigation alternative compared with transforming energy sectors and, as such, some proponents did not want to create any incentives that would detract from the development of cleaner technologies. In order to overcome these concerns, it was decided "to cap" or limit the amount of credit that can be generated from forest management.⁵²¹

A "cap" is a term used under the Kyoto Protocol meaning that the net emissions or removals accounted for are limited to a specified amount.⁵²² In the first commitment period of the Kyoto Protocol, a cap was negotiated individually for each Party.⁵²³ For all Parties, the removals from forest management exceeded the cap established (some by a significant amount).⁵²⁴ During the first commitment period Annex I Parties could use removals beyond the cap up to a limit of 9 mega tonnes of carbon annually to offset net emissions from Article 3.3. However, this rule has been removed for the second commitment period. In

⁵²¹ For sink activities other than forestry, Annex I parties could also account for the carbon uptake due to their revegetation activities, cropland management, and/or grazing land management between 1990 and 2012 without any limit, given the fact that the scale of possible removals in these categories is not as large. See, P. Graichen, Can Forestry Gain from Emissions Trading? Rules Governing Sinks Projects under the UNFCCC and the EU Emissions Trading System, 14 (1) 2005, pp. 11-12.

⁵²² Example: If forest removes 10 million tonnes of CO₂ in the commitment period (2008 - 2012) the country books a credit of 10 million tonnes CO₂ for the commitment period. However, if a cap was set at e.g. 1 million tonnes CO₂ per year, then only 5 million tonnes can be booked, i.e. the annual cap times the number of years in the commitment period.

⁵²³ The cap was set guided by the application of a 85% discount factor applied to the removals from forest management in 1990 and a 3% cap for forest management as well as other considerations. UNFCCC, Decision 16/CMP.1.

⁵²⁴ UNFCCC, Data Interface.// < http://unfccc.int/ghg_data/items/3800.php >, last viewed 20 August 2015.

the second commitment period of the Kyoto Protocol a “reference level” approach was adopted for forest management.⁵²⁵ It allowed countries to propose a quantified amount against which to compare their performance during the commitment period.⁵²⁶

c. Non – Permanence.

Non-permanence concerns the variance of carbon stored in forests, soils, and other vegetation. This variance depends on the amount of carbon sequestered and the duration for which it is stored. Because carbon is stored in these products as a result of natural cycles, the amount and duration of carbon storage is never stable and continually changes. This pattern of carbon sequestration presents difficulties when seeking to include these quantities within carbon accounting regimes.

The relatively limited scope of the LULUCF activities means that the non-permanence risk associated with these activities is generally small for the first commitment period. If, however, the global community is to adopt a full carbon accounting framework (that is, one that includes all emissions and removals on all managed land in all pools and of all relevant GHGs, without temporal interruption), then the risk associated with non-permanence can significantly impact a country’s ability to meet its international climate commitments. On the other hand, the integrity of the atmosphere would be better preserved.⁵²⁷

d. Uncertainty Concern.

There is a large degree of scientific uncertainty surrounding the capacity of forests, soils and other vegetation to sequester carbon. Without clear scientific consensus on the carbon storage capacity of soils and vegetation, inclusion of these activities within accounting frameworks is problematic.

⁵²⁵ UNFCCC, Forest Management Reference Levels. // < <http://unfccc.int/bodies/awg-kp/items/5896.php>>, last viewed 20 August 2015.

⁵²⁶ P. Iversen, D. Lee, M. Rocha, Understanding Land Use in the UNFCCC, 2014, p. 25.

⁵²⁷ B. Schlamadinger, N. Bird, J. Johns, (et al.), A Synopsis of Land Use, Land-Use Change and Forestry (LULUCF) under the Kyoto Protocol and Marrakesh Accords, Environmental Science and Policy, 2007, p. 271-281.

It was decided that treatment of these issues that were linked to lack of scientific consensus and uncertainty should be based on sound science.⁵²⁸ This requires the introduction of a thorough monitoring system, which can monitor all GHG emissions and removals in identifiable areas of land⁵²⁹ and that an independent review team must then review this system. It has been suggested that the best available knowledge at the time be used and that the development of technologies to monitor these practices be encouraged.⁵³⁰

e. Creditability Concern (Additionality).

Creditability concerns relate to the concept of "additionality". This concept requires that an activity must be additional for it to be included in accounting frameworks. In relation to forest and land management activities, there was concern that these land and forest management activities were already taking place (the business as usual scenario). Rewarding these practices means that no additional new activity has taken place, which effectively undermines the operation of a carbon accounting regime (because there has been no real change). It has been suggested that allowing land and forest management activities to be included within accounting frameworks opens up the possibility for corruption of the system through "mere storytelling".⁵³¹ For example, claims might arise stating that a certain forest area was planned to be cleared, but that, in light of the accounting benefit, this was no longer to take place. This types of claims would introduce a new layer of complexity to the regime.

In relation to the creditability concerns, it was decided that the "mere presence of carbon stock should be excluded from accounting practices".⁵³² This has the effect of limiting the type of land and forest management activities that can be taken into account. This means that only specified activities - such as afforestation, reforestation, revegetation, forest management, cropland management, grazing land management - for the first KP commitment period; and wetland drainage and rewetting - for the (possible) second commitment

⁵²⁸ UNFCCC, Decision 11/CP.7.

⁵²⁹ UNFCCC, Decision 11/CP.7.

⁵³⁰ UNFCCC, Decision 11/CP. 7; P. Graichen, Can Forestry Gain from Emission Trading? Rules Governing Sinks Projects Under the UNFCCC and the EU Emissions Trading System, *RECIEL*, 14, 1, pp. 11-18.

⁵³¹ R. Maguire, *Global Forest Governance Legal Concepts and Policy Trends*, 2013, p. 152.

⁵³² UNFCCC, Decision 11/CP.7.

period of the KP can be used for accounting. It also means that not all existing carbon sinks are automatically incorporated into accounting practices. This requires that some "additional activity" be carried out to account for these practices.

f. Biodiversity Concerns.

The inclusion of forest activities within the international climate change framework means that forest law and policy challenges are now being faced by the climate change regime.⁵³³ One of these issues is the compatibility of Kyoto forest practices and biodiversity. Forests contribute to climate change mitigation as terrestrial sinks and assist conservation efforts by acting as pools of biological diversity. Therefore, a potential conflict could arise in the implementation of Kyoto forestry rules. By way of example in relation to afforestation and reforestation rules, a landowner will receive an economic incentive to plant species of trees that are high absorbers of carbon dioxide. These high carbon absorption tree species may, however, not lead to the highest level of biological diversity possible on the relevant parcel of land.

These concerns were addressed through the decisions of COP/CMP, where it was decided that the implementation of LULUCF activities must contribute to conservation and biodiversity and to the sustainable use of natural resources.⁵³⁴ Parties must report on the administrative and legislative procedures that ensure this. It has been suggested that the reporting requirements do not go far enough, because they only require that parties provide information on national laws, and do not require information on tangible results for the conservation of biodiversity.⁵³⁵

g. Harvested Wood Products.

Harvested Wood Products (HWP) are products entirely or partly made of wood. According to the 2006 IPCC Guidelines, HWP includes all wood material

⁵³³ For more information on forest law and policy challenges see chapter 4 "International Forest Law" of the present thesis.

⁵³⁴ UNFCCC, Decision 11/CP.7.

⁵³⁵ I. Sagemuller, *Forest Sinks under the UNFCCC and the KP: Opportunity or Risk for Biodiversity?*, *Columbia Journal of Environmental Law*, 31, 2, 2006, pp. 189-242; F. Jacquemont, A. Caparros, *The Convention on Biological Diversity and Climate Change Convention 10 Years after Rio: Towards a Synergy of the Two Regimes?*, *RECIEL*, 11 (2), p. 169-180.

(including bark) that leaves harvest sites.⁵³⁶ Different wood products have the ability to store carbon for shorter or longer periods of time. The production of a HWP and its storage life therefore has an effect on the total emissions and removals of greenhouse gases.⁵³⁷

HWPs were not included in the reporting or accounting for the first commitment period of the Kyoto Protocol. Harvesting was considered an “instant emission”, i.e. it was reported as if all carbon contained in wood was emitted immediately after harvesting took place.⁵³⁸ However, these accounting practices did not equate with scientific understanding that carbon can be stored for varying periods in HWPs. For the second commitment period (2013 - 2020) Parties include the carbon contained in products as a new carbon pool⁵³⁹ and report emissions only when the products are no longer in use and decay or enter a solid waste disposal site.

h. Leakage.

Leakage occurs when a reduction of emissions occurs within one area, while simultaneously in another area, the activity generating emissions is instead carried out. In the forest context leakage is a valid concern and can easily occur when deforestation is avoided in one location only to be displaced to a second location. This risk associated with leakage has the ability to undermine all the rules concerning land and forestry management, especially when one considers leakage on an international scale. For example, developed countries may comply with Kyoto reporting requirements making them more reliant on importing products from developing countries not regulated by Kyoto requirements.

i. Harmonization and Flexibility.

The mere existence of common accounting rules for countries with diverse national situations is considered as a major achievement and, perhaps, the

⁵³⁶ IPCC, 2006 IPCC Guidelines, Chapter 12, Section 12.1. (Introduction), page 12.5.

⁵³⁷ See section 2.3.1.1. “Forests as Sinks and Reservoirs”.

⁵³⁸ P. Canaveira, Options and Elements for an Accounting Framework for the Land Sector in the Post-2020 Climate Regime, 2013, p. 24.

⁵³⁹ To be added to living biomass, soil C, etc.

biggest success in the LULUCF accounting rules.⁵⁴⁰ Amongst Annex I countries there are countries with management responsibilities over ecosystems as different as Boreal and Mediterranean forests; countries dominated by organic soils and requiring drainage for agriculture and countries where lack of organic matter and water stress are major limitations; countries with residual forest areas and countries mostly covered by forests; countries with economies dependent on forestry and agriculture and countries where these activities are marginal to the economy; countries with landscapes largely transformed by human activity and countries with large portions of their territories covered in natural ecosystems, much of which sometimes remains unmanaged. These national circumstances are a fundamental challenge, which is likely to remain so in the future. On the one hand, accommodating these national circumstances into the LULUCF accounting system requires flexibility. On the other hand, ensuring comparability and transparency of the future accounting systems harmonization is an important feature.

3.3.1.5. Reporting and Accounting under the Paris Agreement.

The Paris Agreement continues the practice of both reporting and accounting under the international climate change regime. Art. 13.7. stipulates two types of information that “shall” “regularly” be provided by the Parties to the Agreement, namely: (1) national inventory report (NIR) and (2) the “information necessary to track progress made in implementing and achieving NDC” (Paris Agreement, art. 13.7. (a) and (b) respectively). As art. 4.13. of the Paris Agreement reads “Parties shall account for their NDCs” it is possible to suggest that art. 4.13. refers to information that allows for accounting. Whereas there is a clear indication that the NIR will follow to a large extent the way the GHG inventories are reported under the UNFCCC,⁵⁴¹ the rules for accounting are not defined neither in the Paris Agreement, nor in the Paris Decision. The Ad Hoc Working

⁵⁴⁰ Personal observation. EFI, Science-policy in action: the role of European forests, Towards Paris 2015: How can the forest sector contribute?, 13 October 2015.

⁵⁴¹ See, for instance, in the Paris Agreement art. 13.3., which reads “The transparency framework shall build on and enhance the transparency arrangements under the Convention”. Furthermore, paragraph 92 (e) of the Paris Decision stipulates “the need to ensure that Parties maintain at least the frequency and quality of reporting in accordance with their respective obligations under the Convention” and in paragraph 93 “Further requests the Ad Hoc Working Group on the Paris Agreement, when developing the modalities, procedures and guidelines referred to in paragraph 91 above to draw on the experiences from and take into account other on-going relevant processes under the Convention’.

Group on the Paris Agreement is requested to “elaborate, drawing from approaches established under the Convention and its related legal instruments, as appropriate, guidance for accounting for Parties’ NDC [...]for consideration and adoption by COP, serving as CMA [...]” (para. 31 Paris Decision). As for the LULUCF sector, there is no direct reference to the sector neither in the Paris Agreement, nor in the Paris Decision (i.e. the words “Land Use Change Land Use Change and Forestry” do not appear in the texts). However, several indirect and implicit references are included into the Paris Decision (preamble) and the Paris Agreement (preamble and articles).

The LULUCF sector is mostly referred to through the mention of “anthropogenic GHG removals”. Thus, the preamble to the Paris Decision reads that the COP, among others, “agrees that the information to be provided by Parties communicating their NDCs, in order to facilitate clarity, transparency and understanding, may include, as appropriate, *inter alia*, [...], assumptions and methodological approaches including those for estimating and accounting for anthropogenic GHG emissions and, as appropriate, removals [...]” (Paris Decision, para. 27). Besides, the COP requests the APA “to elaborate, drawing from approaches, established under the Convention and its related legal instruments as appropriate, guidance for accounting for Parties’ NDCs [...] for consideration and adoption by the COP, serving as CMA, which ensures that:

- (a) Parties account for anthropogenic emissions and removals in accordance with methodologies and common metrics assessed by IPCC and adopted by COP, serving as CMA;
- (b) Parties ensure that methodological consistency, including on baselines, between the communication and implementation of nationally determined contributions;
- (c) Parties strive to include all categories of anthropogenic emissions or removals in their nationally determined contributions and, once a source, sink or activity is included, continue to include it;
- (d) Parties shall provide an explanation of why any categories of anthropogenic emissions or removals are excluded.” (Paris Decision, para. 31).

As Parties to the Paris Agreement may engage in “cooperative approaches” that involve the use of internationally transferred mitigation outcomes to achieve NDCs (Paris Agreement art. 6.2.), the SBSTA is requested by the COP to “develop and recommend guidance [...] including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks, covered by their NDCs under the Agreement” (Paris Decision, para. 36.).

In the Paris Agreement “removals” are mostly mentioned in the article 4 (i.e. paras. 1, 13, and 14). Thus, article 4.1. refers to the aim to reach a global peak in GHG and the need to achieve a balance in emissions and removals of GHG, including that the net emissions of the LULUCF sector is to contribute to the climate goal of net zero emissions i.e. “[...] Parties aim to reach global peaking of GHG emissions as soon as possible [...] and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century [...]” (Paris Agreement, art. 4.1.). Article 4.13. explains that Parties shall account of NDCs, including removals (i.e. account for the LULUCF sector contribution): “Parties shall account for their NDCs. In accounting for anthropogenic emissions and removals corresponding to their NDCs [...]” (Paris Agreement, art 4.13.). Furthermore, art. 4. 14. notes that existing methods and guidance under the UNFCCC should be taken into account when accounting for these removals: “In the context of their NDCs, when recognizing and implementing mitigation actions with respect to anthropogenic emissions and removals, Parties should take into account, as appropriate, existing methods and guidance under the Convention” (Paris Agreement, art. 4.14.). Art. 13.7. (a) concerns the need to provide a NIR of anthropogenic emissions and removals, meaning that the LULUCF sector should be accounted for the NIR: “Each Party shall regularly provide, [...*inter alia*], a NIR of anthropogenic emissions by sources and removals by sinks of GHG, prepared using GPG methodologies accepted by the IPCC and agreed upon by the COP, serving as CMA” (Paris Agreement, art. 13.7. (a)).

Finally, when the Paris Decision (preamble paras. 31, 36) and the Paris Agreement (preamble and art. 5.1.) mention “sinks” and “reservoirs”, and recognize the importance of conservation and enhancement of these, this implicitly refers to, *inter alia*, the LULUCF sector.

3.3.2. LULUCF and the Kyoto Flexible Mechanisms (JI and CDM).

The Kyoto Protocol provides developed country Parties the possibility to invest in GHG abatement projects in developing countries through the CDM or in other developed countries through the JI mechanism. The resulting emission reductions are estimated and then transferred to the investor country as “Emission Reduction Units” (ERUs), which are generated and issued under JI, or as “Certified Emissions Reductions” (CERs), which are generated and issued under the CDM.

3.3.2.1. LULUCF and the JI Mechanism.

From the start the LULUCF JI projects have been said to have significant potential, in particular, taking into account large areas of degraded land in some Eastern European countries and the Russian Federation.⁵⁴² Since JI operates within the countries with emission reduction commitments, the inclusion of LULUCF under the flexible mechanism did not raise significant controversy among negotiating Parties. As a result, all LULUCF-related activities are eligible for inclusion in JI projects (i.e. any LULUCF activity under Articles 3.3. and 3.4. of the Kyoto Protocol, namely: afforestation, reforestation, deforestation, revegetation, forest management, cropland management, and grazing land management⁵⁴³) and the general accounting rules apply to these projects.

However, a number of technical problems have emerged that deterred JI LULUCF activities in the years, following the entry into force of the Kyoto Protocol. The most important challenge turned out to be the fact that initially the ERUs could not be issued for carbon sequestration activities in developed countries. Thus, ERUs, generated by forestry projects have been created

⁵⁴² Ch. Streck, B. Schlamadinger, R. O’Sullivan, Will Joint Implementation LULUCF projects be impossible in practice? // http://www.climatefocus.com/sites/default/files/will_joint_implementation_lulucf_projects_be_impossible_in_practice_.pdf, last viewed 16 October 2015.

⁵⁴³ As defined in paragraph 1 of the annex to decision 16/CMP.1, FCCC/KP/CMP/2005/8/Add.3.

through a conversion of RMUs generated by the host country as a result of national level net sequestration.⁵⁴⁴ Furthermore, since most countries have elected to account for RMUs only at the end of the Kyoto Protocol commitment period, ERUs from JI projects implemented in those countries, could only be issued in 2014 – 2015. The deferred issuance of credits increased the risks to project investors and severely reduced the financial incentive that came with generating emission reductions under the JI forestry projects.⁵⁴⁵

In the first commitment period under the Kyoto Protocol, the developed Parties' interest in JI LULUCF projects has been very limited: as of October 2015 there are only 3 JI LULUCF project activities out of a total number of 597 currently registered JI projects under the international climate change regime.⁵⁴⁶ Only two countries, Russia (82 percent of the ERU) and Romania (18 percent of the ERU) have hosted the JI forestry projects. Two registered LULUCF JI projects involve afforestation and reforestation: "Afforestation of Degraded Agricultural Land" in Romania and "Carbon Sequestration via afforestation in Siberian Settlements" in the Russian Federation.⁵⁴⁷ The third registered LULUCF JI project, namely, the "Bikin Tiger Carbon" Project, focuses on the protection of an otherwise logged forest in Russia, or an avoided forest degradation project (Figure 15).

Figure 15: Bikin Tiger Carbon Project, host party – the Russian Federation, summary.

Bikin Tiger Carbon Project – is a permanent protection of otherwise logged Bikin Forest, in Primorye, Russia. The project is located in two concessions,⁵⁴⁸ the Bikin nut harvesting zone (88% of the total area) and the riparian zone (12% of the total area). Out of the total area of the two concessions, 456 035 ha are classified as forest ("project area"). The project allows for protection of pristine forest, which has not been commercially logged so far, from any logging

⁵⁴⁴ In comparison, ERUs generated by non-land-use JI activities are created through a conversion of AAUs.

⁵⁴⁵ Ch. Streck, D. Conway, Forestry and Agriculture under the UNFCCC, in C. P. Carlarne et al (eds), International Climate Change Law, 2016, p. 571.

⁵⁴⁶ UNFCCC, Joint Implementation, Project Overview. // <http://ji.unfccc.int/JI_Projects/ProjectInfo.html>, last viewed 12 October 2015.

⁵⁴⁷ UNFCCC, Joint Implementation, Project Overview. // <http://ji.unfccc.int/JI_Projects/ProjectInfo.html>, last viewed 12 October 2015.

⁵⁴⁸ The concession lease period is 49 years.

operations until 2058, as well as for the conservation of the existing forest carbon stocks. According to the project, the area is a unique ecosystem on a regional and global scale, being home to at least 12 endangered species (i.e. listed as vulnerable, endangered or critically endangered in the IUCN Red List book, eg. the Amur Tiger). The Bikin is also home for species which are endemic for the Russian Far East, Amur Branch (at least 14 endemic species). Besides its ecosystem functions, the Bikin is also home to the indigenous tribe of the Udege.⁵⁴⁹ The biggest Udege population lives in the Bikin and very depends from the wilds. The project area has a high religious and cultural value to the Udege.

Source: UNFCCC, Joint Implementation, Project Overview, Bikin Tiger Carbon Project.// <http://ji.unfccc.int/JI_Projects/ProjectInfo.html>, last viewed 12 October 2015.

3.3.2.2. LULUCF and the CDM.

The CDM allows for the implementation of afforestation and reforestation (A/R)⁵⁵⁰ projects in non-Annex I countries that generate Certified Emission Reductions (CERs) that can be bought by Annex I Parties. In contrast to JI, the inclusion of LULUCF activities under the CDM mechanism was very controversial from the very start – legal scholars describe that “the inclusion of forest sinks within the operational modalities of the CDM proved to be the most controversial of all forest negotiations within the international climate change regime”.⁵⁵¹ The controversy arose largely from the nature of the CDM as an offset mechanism.⁵⁵² In order to address the controversy, Parties agreed to, firstly,

⁵⁴⁹ The Udege spiritual beliefs classified as “animism”. The Udege believe that they are surrounded by an almost infinite number of nature spirits. So they believe that e.g. each animal and each tree has its own soul. There is also a vertical hierarch among these spirits – there are so called spirits-masters (e.g. rivers, streams, forests, hills, etc.) The important spirits are considered as the ancestors’ souls.

⁵⁵⁰ UNFCCC, Decision 16/CMP.1, Annex, paragraph 13. These activities are defined in 16/CMP.1, Annex, paragraph 1 as follows: Afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. Reforestation is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forest land. For the first commitment period reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31st December 1989.

⁵⁵¹ E. Boye, E. Corbera, M. Guterrez (et al.), UNFCCC Negotiations (pre Kyoto to COP 9): What the Process Says about the Politics of CDM-Sinks, International Environmental Agreements, 8 (2), p. 106.

⁵⁵² Ch. Streck, D. Conway, Forestry and Agriculture under the UNFCCC, in C. P. Carlarne et al (eds), International Climate Change Law, 2016, p. 571.

permit only A/R under the mechanism. These forestry activities involve the conversion of land that is not forested to land that is forested.⁵⁵³ Afforestation is the conversion of land that has not contained a forest for at least 50 years to forested land. Reforestation, on the other hand, is the conversion of land that was not forested on 31 December 1989 to forested land.⁵⁵⁴ Secondly, the A/R activities under the CDM mechanism have been limited by developed country Parties to one per cent of the baseline emissions of the respective Party, times five.⁵⁵⁵ This way the risk of flooding the market in carbon credits from forestry projects was averted, albeit at the cost of failing to define any substantive incentives for reducing deforestation.

Additional measures were required to manage the risk of the “permanence” and “leakage” challenges associated with forestry CDM projects. Thus, the permanence considerations relate to the risk that emission reductions or removals achieved by the project will later be reversed, resulting in the existence of emission units (CERs) that do not represent lasting environmental benefits; i.e. the risk of creating “paper tonnes”.⁵⁵⁶ The CDM addresses this risk through two means, the choice of which is left to the project partners. The first is through the creation of temporary credits (tCERs), which are valid for five years and may be replaced upon the certification that carbon stocks equivalent to all issued credits remain on the land. The second approach involves the issuance of “long-term” credits (ICERs), which remain valid for the lifetime of the

⁵⁵³ For this purpose forest is defined in 16/CMP.1., Annex, paragraph 1 (a). Forest – is a minimum area of land of 0,05-1.0 hectare with crown cover (or equivalent stocking level) of more than 10-30 percent with trees with the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 percent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting., or natural causes but which are expected to revert to forest. S

⁵⁵⁴ A/R activities are defined in 16/CMP.1, Annex, paragraph 1 as follows: Afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. Reforestation is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forest land. For the first commitment period reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31st December 1989.

⁵⁵⁵ UNFCCC, Modalities and Procedures for A/R project activities under the CDM in the first commitment period of the Kyoto Protocol, Decision 19/CP.9, 30 March 2004.

⁵⁵⁶ Ch. Streck, D. Conway, Forestry and Agriculture under the UNFCCC, in C. P. Carlarne et al (eds), International Climate Change Law, 2016, p. 571.

project but must be immediately (within one month) replaced where periodic certification finds that the carbon stocks they represent no longer exist. The effect of both types of credits is similar; in each case parties must ultimately replace the credits once the project is completed. The temporary nature of credits affects the value of these credits, making them less desirable than credits from other project types (e.g. credits generated from energy activities do not suffer from the issues about impermanence).

The second challenge under the forestry CDM projects is the question of how the project influences emissions beyond the project area. Leakage is a concern across a variety of emission reduction measures, but takes on a particular significance under the LULUCF sector activities where displacement of activities often happens easier and quicker. Project proponents must address leakage in the design of CDM projects, for example through undertaking activities that reduce demand, create alternative income sources for local people, or adjust emission estimates to account for potential leakage problems. Any residual leakage has to be monitored and accounted for.

Critics point to a range of other issues related to the implementation of forest projects within the CDM:⁵⁵⁷ creating unique certified emission reduction credits for forest practices; creating operational modalities for CDM forest practices; and developing capacity to implement forest practices in developing countries (e.g. the success of any CDM project depends upon the host country's regulatory capacity. In order to ensure the integrity of a project a strong regulatory capacity is essential).

As of October, 2015, there are 66 CDM A/R projects,⁵⁵⁸ out of a total of 8115 CDM registered projects.⁵⁵⁹ The largest A/R CDM project with 23 585 estimated amount of annual average GHG removals by sinks is "Niassa Reforestation

⁵⁵⁷ J. Martin, *The Role of Forestry Projects in the CDM*, *Environmental Science and Policy*, 8 (2), 2005, p. 87-104; M. S. Z. Manguiat, R. Verheyen, J. Mackensen, (et. al, eds.), *Legal Aspects in the Implementation of CDM Forestry Projects*, IUCN Environmental Policy and Law Paper, 59, 2005; R. Maguire, *Global Forest Governance Legal Concepts and Policy Trends*, 2013, pp. 157 – 162.

⁵⁵⁸ UNFCCC, *Project Search, Afforestation and Reforestation, Registered*.// < <https://cdm.unfccc.int/Projects/projsearch.html>>, last viewed 22 February 2017.

⁵⁵⁹ UNFCCC, *Number of CDM Project Activities, Registered*.// < <http://cdm.unfccc.int/Statistics/Public/CDMinsights/index.html>>, last viewed 22 February 2017.

Project”, host party – the Republic of Mozambique (Figure 16). Among the 66 CDM A/R projects currently registered under the UNFCCC regime, 31 projects are carried out with the participation of one or more EU MS (e.g. Belgium, Finland, France, Italy, Iceland, Luxemburg, Netherlands, Spain, Sweden, United Kingdom).⁵⁶⁰

Figure 16: “Niassa Reforestation Project”, host party – the Republic of Mozambique, summary.

The A/R project, “Niassa Reforestation Project” (NRP), is a 5 242 ha reforestation being implemented on three discrete parcels of degraded land in the Niassa Province in the north of Mozambique. The overall objective of the A/R CDM activity is to contribute to mitigating climate change while meeting the growing demand for quality wood products from well managed plantation forests and contributing to sustainable environmental management, community development and poverty alleviation in Mozambique. The species to be planted are mainly pine and eucalyptus species, which have been screened against the global database of invasive species and are not invasive in Mozambique. However, in neighboring countries eucalyptus has been described as potentially invasive depending on how it is managed. The NRP will manage planted eucalyptus in recommended ways. The available forest management plan for the NRP lays out the procedures to avoid the spread of the Eucalyptus into other areas. The project is also being designed to meet the criteria of the Forest Stewardship Council™ (FSC™) and the Climate, Community and Biodiversity Standard (CCBS) ,which will confirm these practices as well as other social and environmental aspects of the project.

Source: UNFCCC, Project Search, A/R, Registered, Sort by Amount of Reductions, Project Design Document “Niassa Reforestation Project”.// <<https://cdm.unfccc.int/Projects/projsearch.html>>, last viewed 14 October 2015.

⁵⁶⁰ See, UNFCCC, Project Search, Afforestation and Reforestation Projects.// <<https://cdm.unfccc.int/Projects/projsearch.html>> last viewed 22 February 2017.

3.3.3. Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD+).

“REDD+” is an acronym for “Reducing Emissions from Deforestation and Forest Degradation in Developing Countries; and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries”.⁵⁶¹ The main goal of REDD + is to enhance action and support to slow, halt and reverse forest cover and carbon loss in developing countries, as part of the global effort against climate change. In its essence the instrument is a set of guidelines for developing countries interested in contributing to mitigation through forest-related activities, and a framework for undertaking such activities. The framework for the REDD+ instrument is entitled the “REDD+ Rulebook” and represents a “Decision booklet REDD +” of “Key decisions relevant for reducing emissions from deforestation and forest degradation in developing countries”.⁵⁶² The framework includes requirements for reference levels,⁵⁶³ social and environmental safeguards,⁵⁶⁴ and measurement, reporting and verification (MRV). The core idea of the instrument is to implement an international compensation mechanism for developing countries that succeed in reducing their forest sector emissions and enhancing removals of GHGs. The details of REDD+ mechanism continue to be debated under the UNFCCC regime.

⁵⁶¹ Please note that the acronym is not used by the UNFCCC COP in its decisions, except for the footnotes in the “Warsaw Framework for REDD +”.

⁵⁶² UNFCCC Secretariat, Key Decisions Relevant for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), Decision Booklet REDD+, 2014.

⁵⁶³ Reference Level – is expressed as amount (derived by differencing a sequence of amounts over a period of time), expressed in CO₂ equivalents of emissions or removals. For more information on the reporting and technical assessment of reference levels see, Decision 13/CP.19.

⁵⁶⁴ There is no standard definition of safeguard in international law. The term is widely used in the practice of States and international organizations, such as the World Bank, to refer to measures making financial aid conditional to the prevention and mitigation of “undue harm to people and their environment” that may result from funded activities. These safeguards are typically part of conditions imposed upon countries receiving aid, and their fulfillment is a prerequisite for the provision of funding. Safeguards are often coupled with arrangements to monitor and verify their implementation. The consequences attached to lack of compliance with safeguards depend on whether conditionality is based on policy dialogue, agreement and support, or, rather on recourse to sanctions or aid withdrawal. See, A. Savaresi, The Legal Status and Role of Safeguards, Research Paper Series 2015/24, forthcoming in C. Voigt, Research Handbook on REDD + and International Law, 2015, p. 3.

3.3.3.1. From RED to REDD and REDD+: the Evolution of a Forest-based Mitigation Approach for Developing Countries.

Approaches for avoiding deforestation has long been one of the major international political issues. In 1992 at the United Nations Conference on Environment and Development (UNCED) some countries proposed a binding forest treaty as the most effective tool in combating global deforestation, but it was not possible to agree on a comprehensive convention for forest issues.⁵⁶⁵ The lack of one authoritative document on forests combined with the increased rates of deforestation and forest degradation urged States to use alternative legal paths with a view to reducing global forest decline. One path was undertaken by the member states to the UNFCCC, which framed avoiding deforestation as a climate mitigation issue.

The idea of an agreement on "RED"⁵⁶⁶ was first introduced to parties at the Seminar of Government Experts in Bonn, May 2005, by the Ambassador to Papua New Guinea, Robert Aisi.⁵⁶⁷ Papua New Guinea and Costa Rica suggested two possible pathways for reducing emissions from deforestation. The first was to develop a protocol on RED and the second was to revise the Marrakesh Accords and to allow "avoided deforestation" as a project activity under the CDM in the first commitment period.⁵⁶⁸ It was suggested that the methodological issues preventing the development of the RED policy be referred to the SBSTA for further investigation. This proposal received broad support and created the impetus for the development of an international policy within the climate change regime to reduce emissions from deforestation.

⁵⁶⁵ The proposals ranged from a protocol to the UNFCCC, an idea from a working group of the IPCC, to a convention exclusively devoted to forests, proposed by the G 7 summit in Houston and the European Parliament. One of the most notable drafts came from the FAO UN entitled "Possible Main Elements of an Instrument (Convention, Agreement, Protocol, Charter, etc.) for the Conservation and Development of the World's Forests".

⁵⁶⁶ At this stage forest degradation was not under discussion.

⁵⁶⁷ I. Fry, Reducing Emissions from Deforestation and Forest Degradation: Opportunities and Pitfalls in Developing a New Legal Regime, *RECIEL* 17 (2), 2008, p. 167. Please note, that some scholars note that the debate on REDD began in 2003 when Brazilian scientists presented at a side event of COP 9 their concept of compensated reduction. According to T. Pistorius, this proposal "marked the birth of today's REDD +". See, T. Pistorius, From RED to REDD+: the evolution of a forest-based mitigation approach for developing countries, *Current Opinion in Environmental Sustainability*, 4, 6, p. 587-732, 2012, p. 640; also citing M. Santili, P. Moutinho, S. Schwarzmann, et al., Tropical deforestation and the Kyoto -Protocol: an editorial essay, *Climatic Change*, 71, 2005, p. 267 -276.

⁵⁶⁸ See submission by the Governments of Papua New Guinea and Costa Rica, Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action, UNFCCC, CP/2005/Misc. 1, 11 November 2005.

a. COP 13 Bali 2007.

The SBSTA provided reports on the methodological issues associated with recognizing deforestation activities at a number of SBSTA sessions: the SBSTA 25th session (Nairobi, 2006); 26th session (Bonn, 2007); and at the 27th session (Bali, 2007). These SBSTA reports led to a decision at COP 13 in Bali in 2007 to formally include RED on the policy agenda.⁵⁶⁹ The COP decision acknowledged both deforestation and forest degradation as significant sources of emissions (“REDD”) and encouraged parties to undertake demonstration activities, leading to formal approval for the pilot projects.⁵⁷⁰ The COP decision also provided some guidance on how such activities were to occur:⁵⁷¹

1. Demonstration activities to occur with the approval of the host party;
2. Estimates of reductions or increases in emissions should be founded on results-based, demonstrable, transparent and verifiable data, and estimated consistently over time;
3. Parties are encouraged to use the LULUCF guidelines as the basis for estimating and monitoring emissions;
4. Emission reduction from national demonstration activities should be assessed on the basis of national emissions from deforestation and forest degradation;
5. Sub-national demonstration activities should be assessed within the boundary used for demonstration and for associated displacement of emissions;
6. Reductions in emissions or increases resulting from the demonstration activity should be based on historical emissions, taking into account national circumstances;

⁵⁶⁹ I. Fry, *Reducing Emissions from Deforestation and Forest Degradation: Opportunities and Pitfalls in Developing a New Legal Regime*, *RECIEL*, 17 (2), 2008, p. 167. According to R. Lyster, “the incorporation of REDD+ in the Bali Action Plan is highly significant, as prior to this there had been no mention of it in international agreements”. See, R. Lyster, *International Legal Framework for REDD +: Ensuring Legitimacy*, in R. Lyster, C. MacKenzie, C. McDermott (eds), *Law, Tropical Forests and Carbon, The Case of REDD+*, 2013, p. 4.

⁵⁷⁰ UNFCCC, *Decision 2/CP.13 Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action*, UNFCCC/CP/2007/6/Add.1. Several months later the multilateral institutions of the World Bank’s Forest Carbon Partnership Facility and the UN-REDD program were established to help make beneficiary countries “ready for REDD”. See subsection 3.3.3.2. “Redd + Implementation” of the current thesis.

⁵⁷¹ UNFCCC, *Decision 2/CP.13 Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action*, UNFCCC/CP/2007/6/Add.1.

7. Sub-national approaches, where applied, should constitute a step towards the development of national approaches, reference levels and estimates;
8. Demonstration activities should be consistent with SFM, noting *inter alia*, the relevant provisions of the United Nations Forum on Forests (UNFF), the United Nations Convention to Combat Desertification (UNCCD); and the Convention on Biological Diversity (CBD);
9. Experiences in implementing activities should be reported and made available through the Web platform;
10. Reporting on demonstration activities should include a description of the activities and their effectiveness, and may include other information;
11. Independent expert review is encouraged.

Guidance eight, in particular, could be seen as implying that REDD activities are not to be undertaken on the basis of managing the forest carbon value alone and that all other values and services associated with forest area must also be recognized. Such an interpretation is made on the basis of the inclusion of the term "SFM" and reference to other international instruments concerned with the regulation and protection of ecological and social forest values.

b. COP 14 Poznan 2008.

At COP – 14 in Poznan the SBSTA reported on the outcomes of its program of work on methodological issues associated with REDD. In the report the role of sustainable management of forests and enhancement of forest carbon stocks received equal emphasis as deforestation and forest degradation.⁵⁷² This was an early expansion of the "REDD" scope to "REDD+".

c. COP 15 Copenhagen 2009.

The Copenhagen Accord explicitly recognized the crucial role of both REDD and the emissions removals provided by forests and agreed on the need to incentivize related activities through the establishment of a REDD+ mechanism.⁵⁷³ Furthermore, Decision 4/CP.15, entitled "Methodological Guidance for Activities Relating to Reducing Emissions from Deforestation and

⁵⁷² UNFCCC, SBSTA/2008/11.

⁵⁷³ UNFCCC, 2/CP.15.

Forest Degradation and the role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries”, requested developing country parties to:

- identify the drivers of deforestation and forest degradation resulting in emissions and also the means to address these drivers;
- identify the activities within the country that result in reduced emissions and increased removals and stabilization of forest carbon stocks;
- use the most recent IPCC guidelines to estimate and monitor forest-related GHG emissions and removals and changes in forest cover.

The decision text identified a number of safeguards as a means of preventing negative social or environmental outcomes of REDD+ (e.g. the decision encourages the effective engagement of indigenous people and local communities in monitoring and reporting).⁵⁷⁴ Despite considerable progress, no formal agreement on REDD+ was reached.

d. COP 16 Cancun 2010.

The Cancun negotiations provided clarification on the nature and processes required for REDD+ activities.⁵⁷⁵ The activities encouraged in developing countries under REDD+ are:

- a) reducing emissions from deforestation;
- b) reducing emissions from forest degradation;
- c) conservation of carbon stocks;
- d) sustainable management of forests;
- e) and the enhancement of forest carbon stocks.⁵⁷⁶

In order to implement these activities paragraph 71 of the decision requests developing countries (in accordance with national circumstances) to develop the following elements: a national strategy or action plan; a national forest emission level and/or forest reference level; a robust and transparent national forest monitoring system; and a system for providing information on how the safeguards are being addressed and respected.⁵⁷⁷ A number of safeguards for the REDD+ activities are set out in the Annex I of the decision.⁵⁷⁸ These

⁵⁷⁴ This marked only the beginning of the negotiations on safeguards that continue until today.

⁵⁷⁵ UNFCCC, Report of the COP in its sixteenth session, 1/CP.16.

⁵⁷⁶ UNFCCC, Report of the COP in its sixteenth session, 1/CP.16., C., para. 70.

⁵⁷⁷ UNFCCC, Report of the COP in its sixteenth session, 1/CP.16., C., para. 71.

⁵⁷⁸ UNFCCC, Report of the COP in its sixteenth session, 1/CP.16., Appendix I.

safeguards were introduced to ensure that the implementation of REDD+ at the national level would not lead to detrimental effects for the environment or the local population. The activities under REDD+, inter alia, "should:

1. a) Contribute to the achievement of the objective set out in Article 2 of the UNFCCC; [...]
 - d) Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems; [...]
 - k) Promote sustainable management of forests; [...]
2. When undertaking the REDD+ activities the following safeguards should be promoted and supported:
- a) That actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements; [...]
 - e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 [...] are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits";
 - f) Actions to address the risks of reversals;
 - g) Actions to reduce displacement of emissions.⁵⁷⁹

e. COP 17 Durban 2011.

Outcomes for REDD+ from COP 17 at Durban related to financing options, safeguards and reference levels.⁵⁸⁰ With regards to financing, it was agreed that results-based financing for developing country Parties may come from a variety of sources, including public, private, bilateral and multilateral. It was considered that market-based approach could be developed as a means to support results-based actions. Relating to safeguards, discussions focused on the reporting of how they are being respected and addressed, i.e. the kind of information to be submitted, when and to whom. The same decision included guidance on reference levels and/or reference emission levels. These form the benchmark against which to measure forest – related emissions per year and are thus essential to environmental integrity when assessing future performance.

⁵⁷⁹ UNFCCC, Report of the COP in its sixteenth session, 1/CP.16., Appendix I.

⁵⁸⁰ UNFCCC, Report of the COP in its seventeenth session, UNFCCC/2/CP.17; 12/CP.17.

f. COP 18 Doha 2012.

The main areas of debate on REDD+ at COP 18 in Doha were measurement, reporting and verification (MRV) and REDD+ financing.⁵⁸¹ The work on these issues was carried out to the 19th COP in 2013. A number of important steps were taken for REDD+ at the inter-sessional meetings of the UNFCCC in Bonn. The conference included the 38th sessions of both subsidiary bodies: the SBI and the SBSTA.

g. COP 19 Warsaw 2013.

The 19th COP in Warsaw in 2013 adopted seven decisions on REDD+.⁵⁸² This produced the "Warsaw Framework for REDD+": a package of decisions, which along with those adopted at previous relevant COPs⁵⁸³ completes the "REDD+ Rulebook" and gives guidance for the full implementation of the "REDD+" mechanism.⁵⁸⁴ Discussions on REDD+ took place under several different negotiating bodies. Methodological issues were debated under the SBSTA (a); institutional arrangements within a joint work program of SBSTA and the SBI (b); and results-based finance under the COP (c).

- a) SBSTA concluded five decisions, which provide technical guidance for the implementation of "REDD+" activities. These decisions were on modalities for national forest monitoring systems (NFMS);⁵⁸⁵ modalities for MRV;⁵⁸⁶ the technical assessment of proposed forest reference emission levels/forest reference levels (RELS);⁵⁸⁷ safeguards information systems;⁵⁸⁸ and addressing the drivers of deforestation and forest degradation.⁵⁸⁹

⁵⁸¹ UNFCCC, Decision 1/CP.18.

⁵⁸² For an overview on the Framework see, UNFCCC, Warsaw Framework for REDD +.// <[http://unfccc.int/land use and climate change/redd/items/8180.php](http://unfccc.int/land_use_and_climate_change/redd/items/8180.php)>, last viewed 28 April 2017.

⁵⁸³ COP 13; COP 15; COP 16; COP 17; COP 18.

⁵⁸⁴ UNFCCC, Warsaw Framework for REDD. // <[http://unfccc.int/land use and climate change/redd/items/8180.php](http://unfccc.int/land_use_and_climate_change/redd/items/8180.php)>, last viewed 06 August 2015.

⁵⁸⁵ UNFCCC, Decision 11/CP. 19.

⁵⁸⁶ UNFCCC, Decision 14/CP. 19.

⁵⁸⁷ UNFCCC, Decision 13/CP. 19.

⁵⁸⁸ UNFCCC, Decision 12/CP. 19.

⁵⁸⁹ UNFCCC, Decision 15/CP. 19.

- b) A joint work program between SBSTA and SBI established at COP – 18 (Doha, 2012) for the coordination of support, including institutional arrangements, concluded in Warsaw. Throughout the negotiations there were disagreements over the need for new institutions, with Papua New Guinea strongly pushing for a new body to be established under the COP.⁵⁹⁰ Decision 10/CP.19 (paragraph 1) encourages Parties to establish a national “REDD+” entity or focal point to liaise with the UNFCCC regarding “REDD+”. There was no decision on international institutional arrangements, such as the establishment of a new “body, board, or committee” as had been proposed at COP-18, and it was merely decided that SBI will review the outcomes of the meetings of the national entities with a view of proposing a decision at COP-23 in 2017.⁵⁹¹
- c) The work program on results-based finance, held under the COP, reached completion in Warsaw with only few concrete outcomes.⁵⁹² The only decisions offered are on the establishment of an information hub on the UNFCCC website, which contain information on results and payments.⁵⁹³

With the “Warsaw Framework for REDD+” the overall framework for REDD+ appeared to be complete, although many details still required further negotiation.⁵⁹⁴

h. COP 20 Lima 2014.

Lima hosted the 20th COP where a number of issues in relation to REDD+ were to be clarified: further guidance on safeguard information system; decisions on non-carbon benefits’ approaches under the REDD +; and non-market

⁵⁹⁰ Third World Network, “Framework for REDD Plus Action” adopted in Warsaw, TWN Warsaw News Update, 2013.

⁵⁹¹ UNFCCC, Decision 10/CP.19. para 9.

⁵⁹² UNFCCC, Decision 9/CP.19.

⁵⁹³ UNFCCC, Decision 9/CP. 19., para 9-13.

⁵⁹⁴ C. Voigt, Presentation on REDD+ at the 13th IUCN Academy of Environmental Law “Forest Regulation under the International Climate Change Law”, September 7-12, 2015. For more in-depth analysis of the Warsaw Framework for REDD + see, Ch. Voigt, F. Ferreira, The Warsaw Framework for REDD +: Implications for National Implementation and Results-Based Finance, in Ch. Voigt (ed.), Research Handbook on REDD + and International Law, 2016.

mechanisms.⁵⁹⁵ The progress on these issues in Lima was hampered by the limited amount of time allocated for REDD + discussions (in order to give way to sessions of the Ad Hoc Working Group on the Durban Platform for Enhanced Action under which the new climate change agreement was negotiated). Furthermore, the developed and developing countries had widely differing views on the need for further clarification of the issues. For instance, whereas developed countries viewed further guidance on safeguards as helpful to clarify understanding of what the reporting requirement on safeguards entailed, many developing countries considered additional guidance unnecessary to begin implementation and a potential burden. No COP decision or SBSTA conclusion on REDD+ came out of Lima and the three issue items remained unresolved.⁵⁹⁶ The issues were addressed during the REDD + specific negotiations in Bonn (June, 2015), where the Parties were able to conclude negotiations on all the three issues and a draft decisions was recommended for the adoption by the COP.⁵⁹⁷

i. COP 21 Paris 2015: REDD + under the Paris Agreement.

The Paris Decision and the Paris Agreement include both direct and implicit references to REDD + and the drivers of deforestation and forest degradation. Thus, the preamble of the Paris Decision acknowledges “the need to promote universal access to sustainable energy in developing countries, in particular in Africa, through the enhanced deployment of renewable energy” (Paris Decision, preamble, para 14). Given that wood is currently the leading renewable energy resource worldwide and also one of the main energy sources in large parts of Africa, this paragraph suggests an important forest-related mitigation action to be taken in developing countries. Yet, it is important to remark that stimulating further the growing demand for wood biomass as a RES, in particular, in large parts of Africa (which suffers one of the most severe forest loss among various parts of the world) and other developing countries (where deforestation and forest degradation is already a significant process), without further providing for

⁵⁹⁵ UNFCCC, Report of the COP in its 20th session, UNFCCC, CP/2014/10.

⁵⁹⁶ UNFCCC, Report of the COP in its 20th session, UNFCCC, CP/2014/10.

⁵⁹⁷ UNFCCC, FCCC/SBSTA/2015/L.5, FCCC/SBSTA/2015/L.5/Add.1, FCCC/SBSTA/2015/L.5/Add.2, FCCC/SBSTA/2015/L.5/Add.3. See also, UNFCCC, Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (SBSTA).// <
http://unfccc.int/land_use_and_climate_change/redd/methodological_guidance/items/4123.php
>, last viewed 28 April 2017.

the sufficient coverage by regulation of other sustainability concerns, may contribute to the alarming rates of deforestation and forest degradation.⁵⁹⁸

While art. 5.1. of the Paris Agreement in principle concerns all “sinks”, i.e. both forest-related and non-forest-related, paragraph 2 of the article is specific to forests in developing countries. Under paragraph 2 “Parties are encouraged to take action to implement and support [...] policy and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests [...]”. (Paris Agreement, art. 5.2.). Although, paragraph 2 sets the frame for policy approaches and positive incentives, it does not include any “hard” obligations to create such incentives. The wording “Parties are encouraged to take action [...]”, suggests that it essentially leaves any action voluntary. Nevertheless, the overall text of the paragraph supports and recognizes the previous advances made in the REDD + mechanism, including financial arrangements and results based payments, as indicated in the paragraph 54 of the Paris Decision, i.e.: “The COP [...] recognizes the importance of adequate and predictable financial resources, including for result-based payments, as appropriate, for the implementation of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks; as well as alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests; while reaffirming the importance of non-carbon benefits associated with such approaches [...]” (Paris Decision, para. 54.). Article 5.2. explicitly brings attention to “the existing framework as set out in related guidance and decisions already agreed under the Convention”, thus, referring, *inter alia*, to the Warsaw

⁵⁹⁸ On the current rates of deforestation and forest degradation see section 2.2.5. “Deforestation and Forest Degradation”, chapter II “Climate Change and Forest: Scientific Background” of the present research.

Framework on REDD + and other relevant decisions and guidance.⁵⁹⁹ Including a specific reference on the REDD + approach indicates a continuation of the forest-related mechanism in developing countries. Yet, by referring to both “result-based payments” and “non-carbon benefits” the paragraph merely reflects the ongoing debate on the issues under the REDD + framework without providing any further guidance on these discussions.

3.3.3.3. REDD + Implementation.

The call for demonstration of the REDD + activities was agreed upon by the COP in 2007.⁶⁰⁰ Since then a large number of REDD + programs and projects was implemented globally. The national capacity for implementing REDD + is built up in three phases:

1. Development of national strategies or action plans, policies and measures and capacity-building;
2. Implementation of national policies and measures and national strategies or action plans that could involve further capacity building, technology development and transfer and results-based demonstration activities;
3. Results-based actions that should be fully measured, reported and verified.⁶⁰¹

The initial phase of the development of national strategies and action plans and capacity building is typically referred to as the “Readiness phase”.

A number of institutions, referred to also as REDD + demonstration bodies, were involved into implementation of REDD + activities at local level and reporting on the challenges and lessons learnt from these experiences, including: the UN – REDD Program; the Forest Carbon Partnership Facility (FCPF); and a variety of smaller projects, for example: the Norwegian International Climate and Forest

⁵⁹⁹ For an overview on the Warsaw Framework on REDD +, see, UNFCCC, Warsaw Framework on REDD +.// < http://unfccc.int/land_use_and_climate_change/redd/items/8180.php>, last viewed 28 April 2017.

⁶⁰⁰ UNFCCC, Decision 2/CP. 13., para. 1-3. See also, subsection 3.3.3.1. “From RED to REDD and REDD+: the Evolution of a Forest-Based Mitigation Approach for Developing Countries”, COP 13 Bali.

⁶⁰¹ UNFCCC, Decision 1/CP. 16, C, para. 73.

Initiative; International Tropical Timber Organization (ITTO); Interim REDD+ Partnership.⁶⁰²

The UN-REDD Program was jointly established by the UNDP, the UNEP and the FAO in 2007. As of October, 2015 the Program supports 64 countries across Africa, Asia Pacific, Latin America and the Caribbean in development and implementation of REDD+ strategies. The program provides financial, technical and knowledge assistance to its partner countries. To date around US \$ 215,2 million has been allocated to support the UN-REDD Program in the partner countries (2015).⁶⁰³

The FCPF is a global partnership focused on REDD +.⁶⁰⁴ The World Bank assumes the functions of trustee and secretariat. Initially the FCPF was presented to the international community at COP-11 in Bali, December 2007. It became operational in 2008. The FCPF complements the UNFCCC negotiations on REDD + by demonstrating how REDD + can be applied at the country level and by learning lessons from this early implementation phase. Currently the FCPF has 47 REDD country participants (18 in Africa, 18 in Latin America and the Caribbean, and 11 in Asia Pacific).⁶⁰⁵ Support by the FCPF is delivered through two mechanisms: the Readiness Fund and the Carbon Fund. About US \$ 360 million is committed or pledged for FCPF Readiness Fund. Those countries that successfully achieve a state of readiness can apply to the Carbon Fund, for support towards national implementation of REDD+. The Carbon Fund became operational in May 2011. Currently, about US \$ 465 million is committed or pledged for the FCPF Carbon Fund (2015).

⁶⁰² For more information on the growing number of international climate finance initiatives designed to help developing countries to address the challenges of climate change, see, Climate Funds Update, official webpage.// < <http://www.climatefundsupdate.org/>>, last viewed 19 October 2015; UNFCCC, REDD+ Web Platform.// < <http://redd.unfccc.int/>>, last viewed 18 October 2015.

⁶⁰³ UN REDD Programme, How is the UN Programme Funded.// < <http://www.un-redd.org/Home/tabid/565/Default.aspx>>, last viewed 18 October 2015.

⁶⁰⁴ The website of the Forest Carbon Partnership Facility.// < <https://www.forestcarbonpartnership.org/about-fcpf-0>>, last viewed 18 October 2015.

⁶⁰⁵ The website of the Forest Carbon Partnership Facility.// < <https://www.forestcarbonpartnership.org/about-fcpf-0>>, last viewed 18 October 2015.

3.3.3.4. Challenges Associated with REDD +.

REDD+ is not an established international mechanism, but rather a work in progress. Although with the adoption in 2013 of the “Warsaw Framework for REDD+” the overall framework for REDD+ appeared to be complete, many important details still needed further negotiation.⁶⁰⁶ In 2015 the Paris Agreement has not significantly altered the state of affairs and merely recognized *ex post* the rules, which had previously been adopted by the UNFCCC COPs.⁶⁰⁷ Among the most challenging issues under the REDD + mechanism are, those, associated with the REDD’s strongest argument, i.e. its financial incentive approach (it has proved challenging to fix the source of the required financial resources),⁶⁰⁸ with providing a framework for the “results based payments”⁶⁰⁹ (it has been challenging to establish a framework that is flexible enough to accommodate a large variety of circumstances and capacities of developing countries, while establishing a robust and clear framework fulfilling the criteria for a result-based approach for financing mitigation actions in the forest sector,

⁶⁰⁶ On the discussion of the Framework for REDD + see, Ch. Voigt, F. Ferreira, The Warsaw Framework for REDD +: Implications for National Implementation and Results-based Finance, in Ch. Voigt (ed.), Research Handbook on REDD + and International Law, 2016; An. Savaresi, A Glimpse into the Future of the Climate Regime: Lessons from the REDD + Architecture, RECIEL, 25, 2, 2016, pp. 186 – 196; F. Lesniewska, UNFCCC REDD + COP Decisions: The Cumulative Effect on Forest Related Law Process, International Community Law Review, 15, 2013, pp. 103-121.

⁶⁰⁷ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 5.2.

⁶⁰⁸ Finance for REDD + results can come from a variety of different sources and corresponding entities, including entities outside of the UNFCCC regime, such as multilateral funds or public or private donors. This raises additional question of application by entities financing REDD + of the methodological guidance multilaterally agreed under the relevant UNFCCC decisions and under the Warsaw Framework for REDD +. Thus, while the Green Climate Fund and other financing entities under the UNFCCC are explicitly requested to apply the UNFCCC methodological guidance on REDD + when providing results-based finance for REDD + actions, other entities outside the UNFCCC are only encouraged to do so, “in order to improve the effectiveness and coordination of results based finance”. See, UNFCCC, FCCC Decision 9/CP.19, paras. 6, 7.

⁶⁰⁹ A results-based finance is a financing approach where payments are made only after a quantified outcome has verifiably been achieved. In the case of the REDD + mechanism results are the mitigation outcomes, i.e. GHG emission reductions and/or enhancement in forest cover and carbon stocks (sinks) measured against a benchmark (forest reference emission levels and/or forest reference level), expressed in tonnes of carbon dioxide equivalent per year. As such, results based approaches have long been of increasing interest in development assistance including in the environmental sector. Yet, in the context of the REDD + it has been challenging to establish a framework that is flexible enough to accommodate a large variety of circumstances and capacities of developing countries, while establishing a robust and clear framework fulfilling the criteria for a result-based approach for financing mitigation actions in the forest sector, including independent verification. See, for instance, C. Hanson, S. Ozment and C. Van der Lugt, Nature in Performance Integrating – Ecosystem Services into Business Performance Systems, World Resources Institute, 2012, J. Milder, S. Scherr and C. Bracer, Trends and Future Potential of Payment for Ecosystem Services to Alleviate Rural Poverty in Developing Countries, Ecology and Society, 15, 2, 4, 2010.

including independent verification),⁶¹⁰ and those issues, associated with establishing a set of safeguards that can be implemented, monitored and enforced. In the light of the research, the challenges associated with establishing safeguards under the REDD + mechanism are of particular significance. These challenges raise important questions on the interaction between the forest-related international law instruments and are considered in the following sub-subsections of the current subsection: REDD + and Non Carbon Benefits (a) and REDD + Environmental Safeguards (b).

a. REDD + and Non Carbon Benefits.

The implementation of REDD + activities and policies may have significant social and environmental impacts.⁶¹¹ In particular, activities carried out to enhance forest carbon stocks, such as afforestation, may have negative environmental impacts on biodiversity by replacing biodiversity-rich non-forested landscapes with biodiversity-poor forest plantations as, for instance, in the case of Acacia, Eucalyptus and Teak plantations in Indonesia.⁶¹² Awareness of the potential environmental and social trade-offs and risks under the REDD + forest activities resulted in the IPCC warning that forest-based climate mitigation activities need to proceed in a way as to avoid negative impacts associated with competition between various land uses.⁶¹³

As for the UNFCCC Parties, their understanding on how to avoid perverse outcomes and combine REDD + activities and policies with the pursuit of social and environmental co-benefits, such as, for instance, biodiversity conservation and improved forest governance, has evolved over time and is still evolving. Thus, the early negotiations of REDD + merely recognized that REDD + could promote co-benefits and complement the aims and objectives of other relevant

⁶¹⁰ For the discussion on the implications of the Warsaw Framework for REDD + for result-based finance see, Ch. Voigt and F. Ferreira, *The Warsaw Framework for REDD +: Implications for National Implementation and Result-based Finance*, in Ch. Voigt, *Research Handbook on REDD + and International Law*, 2016, pp. 30 - 59.

⁶¹¹ Please note, that the research focuses on the environmental impacts associated with REDD +.

⁶¹² E. Romijn, et. al, *Exploring different forest definitions and their impact on developing REDD+ reference emission levels, A case study for Indonesia*, *Environmental Science and Policy*, 33, 2013, p. 246 -259.

⁶¹³ G. J. Nabuurs, et al, "Forestry" in B. Metz, et al (eds), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the IPCC*, 2007, p. 543.

international agreements and conventions.⁶¹⁴ Subsequently, the importance of promoting co-benefits,⁶¹⁵ and later of incentivizing so-called “non-carbon benefits” for the long-term sustainability of REDD + activities was recognized.⁶¹⁶ The term “non-carbon benefits” has been broadly used to refer to social, governance and environmental benefits provided by REDD + activities that go beyond the mere carbon sequestration and storage, but include, for instance, biodiversity conservation, social benefits for forest dependent communities, or secure land and resource tenure. In 2010 the UNFCCC COP adopted a list of broadly worded safeguards that Parties should promote and respect in the implementation of REDD + activities:⁶¹⁷ “When undertaking the activities referred to in paragraph 70 of this decision [i.e. (a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forests; (e) Enhancement of forest carbon stocks;] the following safeguards should be promoted and supported:

(a) that actions complement or are consistent with the objectives of national forest programs and relevant international Conventions and agreements;

(b) transparent and effective national forest governance structures, taking into account national legislation and sovereignty;

(c) respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws and noting that the UN GA has adopted the UN Declaration on the Rights of Indigenous Peoples;

(d) the full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities, in the action referred to in paragraphs 70 and 72 of this decision;

(e) that actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of

⁶¹⁴ UNFCCC, Decision 2/CP.13, Reducing emissions from deforestation in developing countries: approaches to stimulate action, FCCC/CP/2007/6/Add.1, Preamble.

⁶¹⁵ Decision 4/CP.14, Methodological Guidance for Activities Relating to Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Forest Management and Forests and Enhancement of Forest Carbon Stocks in Developing Countries, FCCC/CP/2009/11/Add.1, Preamble.

⁶¹⁶ Decision 9/CP.19, Work Program on Results Based Finance to Progress Full Implementation of the Activities Referred to in Decision 1/CP.16, para. 70, FCCC/CP/2013/10/Add.1, para. 22.

⁶¹⁷ Decision 1/CP.16, Cancun Agreements, FCCC/CP/2010/7/Add.1, Appendix I, para.2.

this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits [1. Taking into account the need for sustainable livelihoods of indigenous peoples and local communities and their interdependence on forests in most countries, reflected in the UN Declaration of Indigenous Peoples, as well as the International Mother Earth Day];

(f) Actions to address the risks of reversals;

(g) Actions to reduce displacement of emissions”.

These safeguards ensure, *inter alia*, that REDD + actions “are consistent with the conservation of natural forests and biological diversity [...] are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits”.⁶¹⁸ Therefore, the REDD + safeguards aim to ensure that REDD + activities avoid negative impacts and provide benefits to host countries and affected communities beyond the mere carbon sequestration and storage.

b. REDD + Environmental Safeguards.

The REDD + safeguards specify that the REDD + actions should “complement” or be “consistent with relevant international conventions and agreements”.⁶¹⁹ In the light of the research this is an important piece of interpretative guidance concerning, *inter alia*, the interactions between the forest - related international obligations arising from various international environmental agreements and those concerning REDD +. In other words, when faced with “implementation conflicts”, i.e. the conflicts which arise at the implementation phase of compatible environmental treaty obligations,⁶²⁰ the REDD + activities and policies should be carried out in such a way as to support, rather than conflict with, the objectives of relevant international forest-related conventions and agreements.

⁶¹⁸ Decision 1/CP.16, Cancun Agreements, FCCC/CP/2010/7/Add.1, Appendix I, para.2.e.

⁶¹⁹ Decision 1/CP.16, Appendix I, para. 2, (a).

⁶²⁰ R. Wolfrum and N. Matz, *Conflicts in International Environmental Law*, 2003, p. 24, p. 96.

In the light of the research of particular significance are the forest - biodiversity trade-offs associated with REDD + activities (e.g. afforestation activities under REDD +, may have negative environmental impacts on biodiversity by replacing biodiversity-rich non-forested landscapes with biodiversity-poor forest plantations).⁶²¹ This issue has only been partially addressed by the UNFCCC COP. Thus, initially, when adopting the indicative guidance for demonstration activities under REDD + the COP provided that the activities "should be consistent with SFM, noting, inter alia, the relevant provisions of the United Nations Forum on Forests, the United Nations Convention to Combat Desertification and the Convention on Biological Diversity."⁶²² However, in the subsequent UNFCCC decisions related to the REDD + mechanism this recognition of the relevance of international forest and biodiversity instruments does not appear. Thus, the current REDD + safeguards, rather than building on the synergy between REDD +, the CBD and international forest instruments, merely generically indicate that REDD + activities should be "consistent with the conservation of natural forests and biological diversity" and should not be used for the conversion of natural forests, but "are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits".⁶²³ Thus, the overlaps with the CBD and the international forest law are only partially addressed under the REDD + safeguards. Each of these two international environmental bodies of law (i.e. concerning biodiversity and forests) has its own specific characteristics.

On the one hand, there is the international forest law, as a vague aggregate of rules and processes included in a desperate array of treaties and non-binding instruments, aiming at reversing the loss of forest cover worldwide, forest protection and sustainable forest management.⁶²⁴ There is neither a single

⁶²¹ A. Savaresi, *Reducing Emissions from Deforestation in Developing Countries under the UNFCCC, Caveats and Opportunities for Biodiversity*, *Yearbook of International Environmental Law*, 21, 2010, p. 81; A. Savaresi, *Reducing Emissions from Deforestation in Developing Countries under the UNFCCC. A New Opportunity for Promoting Forest Conservation?*, in F. Maes et al (eds), *Biodiversity and Climate Change: Linkages at International, National and Local Levels*, 2013; T. Pistorius et al., *Greening REDD +, Challenges and Opportunities for Forest Biodiversity Conservation*, 2010; Secretariat of the Convention on Biological Diversity, *REDD-plus and Biodiversity*, CBD, Technical Series, 59, 2011.

⁶²² Decision 2/CP.13, Annex, para. 8.

⁶²³ UNFCCC, Decision 1/CP. 16, Appendix I, para 2, (e).

⁶²⁴ For more information on the international forest law, see chapter IV "Forests and Climate Change under the International Forest Regulation" of the present thesis.

internationally agreed definition of what constitutes a “forest” is (the understanding of the term is rather contextual);⁶²⁵ nor there is a common understanding of the crucial concept of SFM, which up until now has remained rather vague and “largely lies in the eye of a beholder”.⁶²⁶ The obligations of States with regard to SFM remain context-specific and depend on the interpretation of the multiple international instruments of various legal nature.

On the other hand, there is the CBD as the major international environmental treaty charged with the protection of biodiversity.⁶²⁷ The institutional arrangements, established under the Convention, allow for further development of the Convention through its COP meetings, work programs, reviews and negotiations. Similar to the UNFCCC, the body of law under the CBD has grown as a result of the relevant work under its COP. Much like the guidance under the UNFCCC COP, the legal significance of CBD COP decisions is a matter of interpretation. A distinguishing feature of the CBD COP is, however, that its provisions are “broad”, “soft” and “open ended”.⁶²⁸ And, yet, the CBD COP decisions provide an important sources of inter-governmentally agreed guidance on the interpretation of the CBD and on the means to achieve its overall environmental objective.

Parties to the CBD and the UNFCCC are almost identical (with the exception of the USA). Both the CBD and the UNFCCC deal with global environmental problems and establish regimes of almost universal application, which prohibit Parties from making specific reservations to their provisions.⁶²⁹ At the international level the objectives of the international regimes are not directly

⁶²⁵ For more information on the concept of SFM, please see section “Clarification and the Common Understanding of SCM” in chapter V “International Climate Change Regime and International Forest Regulation: Evaluation of Forest-Related Interactions at the International Level” of the current thesis.

⁶²⁶ D. Davenport, *Forest and Sustainability*, in J. Rayner, et al (eds), *Embracing Complexity: Meeting the Challenges of International Forest Governance*, IUFRO, 2011, p. 87.

⁶²⁷ For more information, please see subsection 4.3.4. “Forests and Climate Change under the CBD”, chapter IV “Forests and Climate Change under the International Forest Regulation”.

⁶²⁸ A. Johannsdottir, I. Cresswell and P. Bridgewater, *The Current Framework for International Governance of Biodiversity: Is it doing more Harm than Good*, *RECIEL*, 19, 2, 2010, p. 142.

⁶²⁹ CBD, adopted 5 June 1992, in force 29 December 1993, art. 34; the UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 24.

conflicting, and instead feature several areas for mutually supportive action.⁶³⁰ In particular, the synergies between the CBD and the climate change regime have been addressed through the Joint Liaison Group, an informal forum for exchanging information and increasing coordination between the so-called "Rio Conventions".⁶³¹

The CBD and the UNFCCC, however, view forests from different perspectives. While the CBD is concerned with forests as a part of biodiversity and a home for biodiversity,⁶³² the UNFCCC views forests, primarily, as carbon sinks, reservoirs and sources of GHG emissions. Despite these different views towards forest regulation, both, the UNFCCC and the CBD, address issues of forest management to a certain degree, and when implementing REDD + forest-related activities, Parties to both conventions are faced with implementation conflicts, as the focus on maximizing carbon sequestration may have negative impacts on biodiversity conservation. When faced with such implementation conflicts, Parties to both the UNFCCC and the CBD should consider the obligations and guidance adopted under both, interpreting them in a mutually supportive way. This is explicitly stated in the REDD + safeguards and has been further elaborated upon by the various CBD COP decisions.⁶³³

In addition to the interpretative work of the CBD COP, the CBD treaty bodies have been involved into the negotiations on the REDD + safeguards under the UNFCCC by submitting specific views on methodological guidance for the REDD + mechanism.⁶³⁴ The submitted materials include a review of the REDD +

⁶³⁰ H. Van Asselt, *Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes*, 44, 2012, *New York University Journal of International Law and Politics*, pp. 1228 -1242.

⁶³¹ For more information please see subsection 4.3.4.3. "Climate Change under the CBD", chapter IV "Forests and Climate Change under the International Forest Regime" of the current thesis.

⁶³² For more information please see subsection 4.3.4.2. "Forests under the CBD", chapter IV "Forests and Climate Change under the International Forest Regime".

⁶³³ See, Decision IX/16, *Biodiversity and Climate Change*, UNEP/CBD/COP/9/29; CBD Decision X/33, *Biodiversity and Climate Change* UNEP/CBD/COP/10/27; CBD Decision X/36, *Forest Biodiversity* UNEP/CBD/COP/DEC/X/36; CBD Decision XI/19, *Biodiversity and Climate Change Related Issues* UNEP/CBD/COP/11/35.

⁶³⁴ CBD Secretariat, *Submission by the Secretariat of the Convention on Biological Diversity to the Secretariat of the United Nations Framework Convention on Climate Change On methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), specifically related to*

safeguards and of the relevant UN-REDD and the FCPF standards. The materials suggest that “at this stage, the biggest risk to biodiversity [...] from REDD-plus is that a well-designed REDD-plus mechanism is not agreed upon and successfully implemented.”⁶³⁵ It was established that although the existing framework for safeguards under the REDD + (i.e. the REDD + safeguards and the relevant UN-REDD and the FCPF standards) provide “a good basis for covering all main risks to biodiversity [...] in principle”, yet “not all risks are covered equally or in sufficient detail”.⁶³⁶ The identified key gaps include that “(i) there are no specific safeguards that address the risk of afforestation in areas of high biodiversity value; (ii) the risks of the displacement of deforestation and forest degradation to areas of lower carbon value and high biodiversity value are not adequately covered; (iii) the potential loss of traditional ecological knowledge is not adequately covered under the frameworks”.⁶³⁷ The materials, submitted by the CBD Secretariat to the UNFCCC Secretariat suggest that the guidance, provided in the framework of the CBD could partially fill these gaps, but further “collaborative” work on the relevant issues is needed.⁶³⁸

systems for providing information on how safeguards referred to in appendix I to UNFCCC decision 1/CP.16 are addressed and respected, 26 September 2011.// < <http://unfccc.int/resource/docs/2011/smsn/igo/137.pdf> >, last viewed 01 May 2017.

⁶³⁵ CBD Secretariat, Submission by the Secretariat of the Convention on Biological Diversity to the Secretariat of the United Nations Framework Convention on Climate Change On methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), specifically related to systems for providing information on how safeguards referred to in appendix I to UNFCCC decision 1/CP.16 are addressed and respected, 26 September 2011, I. Co-Chairs Summary, para. 5.// < <http://unfccc.int/resource/docs/2011/smsn/igo/137.pdf> >, last viewed 01 May 2017.

⁶³⁶ CBD Secretariat, Submission by the Secretariat of the Convention on Biological Diversity to the Secretariat of the United Nations Framework Convention on Climate Change On methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), specifically related to systems for providing information on how safeguards referred to in appendix I to UNFCCC decision 1/CP.16 are addressed and respected, 26 September 2011, p. 6.// < <http://unfccc.int/resource/docs/2011/smsn/igo/137.pdf> >, last viewed 01 May 2017.

⁶³⁷ CBD Secretariat, Submission by the Secretariat of the Convention on Biological Diversity to the Secretariat of the United Nations Framework Convention on Climate Change On methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), specifically related to systems for providing information on how safeguards referred to in appendix I to UNFCCC decision 1/CP.16 are addressed and respected, 26 September 2011, p. 7.// < <http://unfccc.int/resource/docs/2011/smsn/igo/137.pdf> >, last viewed 01 May 2017.

⁶³⁸ CBD Secretariat, Submission by the Secretariat of the Convention on Biological Diversity to the Secretariat of the United Nations Framework Convention on Climate Change On

3.3.4. Forest Regulation under the International Climate Change Regime.

This part of the chapter, i.e. "Forest Regulation under the International Climate Change Regime" has investigated how forests are regulated under the international climate change regime. The part aimed to answer the following question: What are the challenges, gaps and conflicts associated with forest regulation under the international climate change regime?

The first section of the part, i.e. "Land Use Land Use Change and Forestry Sector Reporting and Accounting" focused on the LULUCF reporting and accounting provisions under the UNFCCC, its Kyoto Protocol, the recent Paris Agreement and the relevant COP/CMP/CMA decisions. Based on the findings of the part, it is possible to conclude that in their current form the reporting and accounting policies and methodologies for the LULUCF sector under the regime are rather fragmented and complex in nature, also reflecting the complexity of the issues they attempt to measure. Different methodologies for reporting and accounting are applied under the UNFCCC ("land based" approach) and its Kyoto Protocol ("activity-based" approach). The frameworks for the LULUCF emissions reporting and accounting for developed and developing countries are largely distinct. Whereas the developed countries have been subject to the binding emission mitigation targets under the Kyoto Protocol, the developing countries can participate in the LULUCF mitigation through voluntary emission reduction projects under the CDM and/or the REDD + projects and activities. Both, the developed and developing countries are subject to the broad reporting framework under the UNFCCC, yet, the reporting requirements for developed and developing countries differ in terms of frequency and detail. The distinction under the international climate change regime is based on the principle of CBDRC – developed countries with stringent reporting and accounting

methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), specifically related to systems for providing information on how safeguards referred to in appendix I to UNFCCC decision 1/CP.16 are addressed and respected, 26 September 2011, p. 7.// < <http://unfccc.int/resource/docs/2011/smsn/igo/137.pdf> >, last viewed 01 May 2017.

requirements, the developing countries with more flexible reporting requirements.

Under the 2015 Paris Agreement the principle of CBDRC has evolved and goes beyond the simple distinction between developed and developing countries. A range of provisions under the Agreement entail obligations for each Party to the Agreement. Thus, the reporting (NIR) and accounting (NDC) obligations under the Paris Agreement are addressed to each Party of the Agreement, i.e. irrespective of their status (i.e. developing or developed). Whereas the Paris Agreement provides a clear indication that the NIR will follow to a large extent the way GHG inventories are reported under the UNFCCC, the rules for accounting are not yet defined neither in the Paris Agreement, nor in the Paris Decision. Further guidance for accounting for the NDCs will be developed by the Ad-hoc Working Group on Paris Agreement. As for the LULUCF sector, there is no direct reference to the sector neither in the Paris Agreement, nor in the Paris Decision (i.e. the words "Land Use Change Land Use Change and Forestry" do not appear in the texts). It is possible to suggest that some further guidance on the LULUCF accounting will be further elaborated by the Ad-hoc Working Group on Paris Agreement. Yet, as the guidance is to be applied by a large number of parties with diverse national circumstances and perceptions for LULUCF accounting, the detailed and stringent guidance on the LULUCF accounting rules will be challenging to agree upon at the international level. This gap leaves a window of opportunity open for Parties to design their LULUCF accounting rules individually, best tailored to their (sub) national needs as long as their system is compatible with their NDC and consistent with relevant IPCC guidance. In the light of the research, it is possible to suggest that Parties may use this opportunity and design the accounting rules for their LULUCF sector that provide for additional (to climate mitigation) benefits, such as, for instance, forest and/or forest biodiversity protection and conservation.⁶³⁹

⁶³⁹ In the light of the main research question (i.e. How do the international climate change regime and the international forest regime interact?) the value of the national LULUCF accounting rules for forest regulation (e.g. EU and the RF) is further discussed in the sixth chapter of the research "International Climate Change Regime and Forest Regulation, Evaluation of Interactions at the Implementation Level (Perspectives from the EU and the RF)".

The second section of the part, i.e. "LULUCF and the Kyoto Protocol Flexible Mechanisms" investigated the two flexible mechanisms under the Kyoto Protocol, which incorporate LULUCF activities as a method for the committed industrialized countries to perform GHG emission reduction commitments, namely the CDM and the JI mechanism. The CDM allows industrialized countries to invest in forestry projects, hosted in developing countries, and to purchase cheaper (in comparison to emission reductions, generated by other sectors⁶⁴⁰) CERs. Meanwhile, the developing countries can benefit by receiving finance and/or advanced technologies from the investing countries, which fulfils the overall goal of the CDM flexible mechanism – to assist sustainable development in developing countries. Among the most active participants in the CDM A/R projects are the EU MS, who have actively taken part in the projects acting as investors or buyers of the CER units. Among the 66 CDM forestry projects currently registered under the UNFCCC regime, 31 projects are carried out with the participation of one or more EU MS (e.g. Belgium, Finland, France, Italy, Iceland, Luxemburg, Netherlands, Spain, Sweden, United Kingdom, 2015). Under the umbrella of JI mechanism, an Annex I Party can implement projects that increase removals by sinks in another Annex I country.

Similar to the CDM flexible mechanism, the JI forestry projects generate ERUs, which could be used by Annex I party to meet its commitments. In the first commitment period under the Kyoto Protocol, the developed Parties' interest in JI LULUCF projects has been very limited. There are only 3 JI LULUCF project activities out of a total number of 597 currently registered JI projects under the international climate change regime (2015). As the general LULUCF accounting rules apply to the CDM and JI forestry projects, the persistent challenges associated with developing rules on the LULUCF sector under the international climate change regime are also relevant for the forest-related flexible mechanisms under the Kyoto Protocol and include, *inter alia*: "scale concerns";

⁶⁴⁰ E.g. planting forests is seen as a cheaper mitigation alternative compared with transforming energy sectors and the usage of cleaner technologies. See sub-subsection "b" "Scale Concerns" section "3.3.1.4." "Forest-related Challenges Associated with LULUCF", chapter III "Forests under the International Climate Change Regime" of the present thesis.

“non-permanence” concerns; “uncertainty concerns”; “credibility and/or additionality concerns”; “biodiversity concerns”; and “leakage concerns”.⁶⁴¹

The Paris Agreement established a new mechanism in order to contribute to the mitigation of GHG emissions and to support sustainable development, namely, the SDM. The new mechanism can generate emission reductions, which may be used by a Party to fulfil its NDC. The SDM is implemented under the authority and guidance of the CMA, which is to develop relevant modalities and procedures. The provisions on the SDM link back to the flexible mechanisms in the Kyoto Protocol, i.e. CDM and JI (e.g. “the new mechanism to be built on the experience of already existing mechanisms”). In the light of the research, a remark needs to be made that article 6, which establishes the SDM under the Paris Agreement, includes neither a reference to the LULUCF sector nor the “anthropogenic GHG removals”, nor any other particular practice or methodology specific to forests.⁶⁴² In comparison, the fact that the Kyoto Protocol (article 3 paragraphs 3 and 4) elaborates on the specific forest related emissions and removals and how these emissions and removals “shall be” included, illustrates by comparison, the level of specificity that an overall legal agreement can include. In other words, the lack of such detail in art. 6 of the Paris Agreement introduces uncertainty on the role of the LULUCF sector and/or “removals” in the context of the SDM mechanism under the regime.

Finally, the third section of the part, i.e. “Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD +)”, investigated the REDD + instrument. The “Framework for the REDD +”, representing the key relevant COP decisions, was adopted in 2013 in Warsaw. More recently a specific reference on the “REDD +” mechanism was included into the 2015 Paris Agreement. Indeed, including a specific reference

⁶⁴¹ In the light of the main research question (i.e. How do the international climate change regime and the international forest regime interact?) the value of forest climate law and policy governing JI and CDM forestry projects for forest regulation is further considered in the sixth chapter of the research “International Climate Change Regime and Forest Regulation, Evaluation of Interactions at the Implementation Level (Perspectives from the EU and the RF)”.

⁶⁴² Please note that the omission is repeated in the Paris Decision in paragraph 38, which requests the SBSTA to develop and recommend rules, modalities and procedures for the SDM for consideration and adoption by the CMA.

on the REDD + mechanism indicates a continuation of the forest-related mechanism in developing countries. Yet, by referring to both “result-based payments” and “non-carbon benefits” the relevant provisions in the Paris Agreement merely reflect the ongoing debate on the challenges associated with the REDD + without providing any further guidance on the issues.

For the research the challenges associated with so-called “non-carbon benefits” under the REDD + are of particular significance as they raise important questions on the interactions between the forest-related international law instruments. In particular, the section investigated the REDD + safeguards and the challenge of interpreting the safeguards in the light of States’ obligations concerning biodiversity and forests. As of now, forest – biodiversity trade-offs associated with REDD + activities (e.g. afforestation activities under REDD + may have negative environmental impact on biodiversity by replacing biodiversity-rich non-forested landscapes with biodiversity poor forest plantations) have only been partially addressed by the UNFCCC COP. The CBD Parties have engaged into the debate on the REDD + safeguards, *inter alia*, by submitting specific views on methodological guidance for REDD + on the issues that are closely related both to the mandate of the CBD and the UNFCCC. However, as of now the integrated guidance on how to ensure that the UNFCCC Parties’ obligations concerning REDD + are implemented in a mutually supportive way with those under the relevant forest-related international instruments has not yet emerged and requires further consideration.⁶⁴³

3.3.5. Interim Conclusions: Forests under the International Climate Change Regime.

As follows from the chapter, the general forest-related commitments of the UNFCCC and the KP have considerably developed over time and evolved into a complex set of forest-related instruments: the LULUCF reporting and accounting; the Kyoto flexible forest-related mechanisms, namely, JI and CDM;

⁶⁴³ In the light of the main research question (i.e. How do the international climate change regime and the international forest regime interact?) interactions between the international climate change regime and the international forest regime and the means how to manage the interactions are considered in the V chapter of the research “International Climate Change Regime and International Forest Regime: Evaluation of Forest-related Interactions at the International Level”.

and the REDD+ mechanism. By means of article 5 of the Paris Agreement the forest - related provisions, frameworks and decisions, which had previously been agreed upon under the relevant COPs and CMPs, are now incorporated into the new climate treaty. Further forest-related guidance under the Paris Agreement (e.g. on the LULUCF reporting and accounting rules, the role of the LULUCF sector in the SDM mechanism, and the elaboration of the REDD + mechanism) is subject for consideration and adoption under the relevant CMAs.

Based on the findings of the chapter it is possible to suggest that the forest-related instruments under the international climate change regime capture forests through the prism of the ultimate objective of the regime, i.e. "stabilization of the GHG concentrations in the atmosphere", putting at the forefront the "carbon sequestration" forest function (LULUCF, JI, CDM) and/or prioritizing "forest emissions" (avoiding deforestation in REDD+). This focus on carbon sequestration, storage and/or emissions "turns forests into trees rather than ecosystems, habitats, or places to live or work in".⁶⁴⁴ Even though the Parties to the Convention and its Protocol might be aware of the negative impacts that forest-related instruments under the Convention, its Protocol and the Paris Agreement might have for other forest functions, the protection of these forest functions is not the primary intention under the international climate change regime and, thus, remains subordinated to its ultimate objective.

⁶⁴⁴ S. Holmgren, *Governing Forests in a Changing Climate, Exploring Patterns of Thought in the Climate Change – Forest Policy Intersection*, Doctoral Thesis no. 2015: 61, Faculty of Forest Science, p. 65.

Chapter IV: Forests and Climate Change under the International Forest Regime.

In order to answer the main research question as to how the international environmental regimes interact with regards to forest regulation this chapter investigates the second interacting element, i.e. the international forest regime. The chapter focuses on the international forest regulation and aims to answer the following questions: How are forests regulated under the international environmental law? What are the major actors (besides states, the principle actors of international law) involved in the creation and implementation of the forest-related instruments? Does the international forest regulation respond to the issues of climate change and if yes, then how?⁶⁴⁵ Answering these questions is a more challenging task in comparison to answering similar questions when investigating the international climate change regime with regard to forest regulation. Whereas UNFCCC regime is a comprehensive regime based on a single legally binding instrument, namely, the UNFCCC, "the international forest regime is disconnected and multi-centric; it has developed at different speeds and in different directions, rather than strategically and holistically along a common front".⁶⁴⁶ Instead of a basis in a single convention or a protocol,

⁶⁴⁵ In general, legal scholars have already noticed that increasingly there is significant activity outside the international climate change regime to address the impacts of climate change, and of climate change mitigation and adaptation responses on the global environment (see, for instance, R. Rayfuse, Sh. V. Scott, *International Law in the Era of Climate Change*, 2012, p. 119; H. Van Asselt, *The Fragmentation of Global Climate Governance*, 2015). However up until now no comprehensive research has addressed the issue from the international forest regulation perspective. How does the international forest regulation respond to the issues of climate change?

⁶⁴⁶ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2006, p. 213. There is an ongoing controversy among legal scholars as to whether a global forest regime currently exists in the absence of a legally binding comprehensive agreement covering this issue area. Some legal scholars (e.g. E. Abanina) argue that at present it is "[...] yet too early to assign international forestry law as a separate branch of law". Others (e.g. F. Lesniewska) refer specifically to "international forest law", which "is constituted by a diversity of treaties and agreements that are evolving relatively independent to each other". N. Srivastava comments that "a single binding forest regime has not yet emerged [...] there are several instruments that govern forest laws internationally". According to Desai, "the current international regime, which guides the utilization and management of forests, is composed of numerous instruments, some of which are legally binding, such as CBD, the UNFCCC, the 1994 Convention to Combat Desertification and the [...]ITTA. The most important – soft law instruments relating to forests include Forest Principles and Chapter 11 of Agenda 21 [...]". Some legal scholars (e.g. R. Tarasofsky) refer to the "international *legal* regime on forests" (emphasis added). The scholar defines such regime as "the sum total of international instruments and institutions that create the framework for international action". Other legal scholars (e.g. H. Van Asselt) refer to the forest regime as a "regime complex", i.e. "an array of partially overlapping and non-hierarchical institutions, governing a particular area". A regime complex exists somewhere towards the middle of a spectrum between a comprehensive regime based on a single legally binding instrument at the one end and a very loose and barely coordinated set of governance

"provisions related to forests are scattered through the pieces of hard, soft and private international law".⁶⁴⁷ Different treaties and agreements of the international forest regime focus on different aspects of forests, their specific functions and services.⁶⁴⁸ In comparison to the international climate change regime, there is no "singular" international forest law,⁶⁴⁹ to which COP decisions further add. As of now, the attempts to consolidate all forest-related issues within one individual treaty have remained unsuccessful.⁶⁵⁰ Thus, the challenge for answering the research questions in this chapter lies in the fragmentation of what is called the "international forest regime" and in the need to grasp the overall scope of the international forest related instruments, their evolution and responses to climate change. Yet, for the purpose of the research the investigation is a necessary premise. In a further step of the research (i.e. in the next chapter) the findings of the present chapter make it possible to analyse the

arrangements at the other. According to H. van Asselt "regime complex" for forests includes various initiatives within and outside of the UN context and there is a "need to study how the "regime complex" for forests functions as a whole, and how its various elements interact with each other". There are also legal scholars (e.g. R. Macquire) who investigate the "governance" of the global forests. R. Macquire for "the concept of governance within forest resources", suggests that "environmental governance includes the various institutions and structures of the authority engaged in the protection of the natural environment". For more information see, Е.Н. Абанина (*E.N. Abanina*), Охрана Лесов в Международном Экологическом Праве (Protection of forests in International Environmental Law), Новая Правовая Мысль (*New Legal Thought*), 2, 2013, pp. 24-31; N. Srivastava, Changing Dynamics of Forest Regulation: Coming the Full Circle?, *RECIEL*, 20 (2), 2011, p.119; B. H. Desai, Forests, International Protection, Max-Planck Encyclopedia of Public International Law, 2011. // <<http://www.sai.uni-heidelberg.de/sapol/pdf/Forests.pdf>>, last viewed 02 February 2016; R. G. Tarasofsky, Assessing the International Forest Regime, IUCN Environmental Law Center, Policy and Law Paper 37, 1999; R. Dimitrov, International Nonregimes, *International Studies Review*, 2007, pp. 230-258; H. van Asselt, Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes, *International Law and Politics*, 44, 2012, p. 1276; H. van Asselt, The Fragmentation of Global Climate Governance, 2015, p. 44.; R. Maguire, Global Forest Governance, Legal Concepts and Policy Trends, 2013, p. 71. See also, J. Rayner et al, Embracing Complexity: Meeting the Challenges of International Forest Governance, 2010; L. Giessen, Reviewing the main Characteristics of the International Forest Regime Complex and Partial Explanation for its Fragmentation, *International Forestry Review*, 15, 1, 2013, pp. 60-70; F. Lesniewska, UNFCCC Conference of the Parties: The Key International Forest Law-Makers for Better or for Worse, in M. Fitzmaurice, D. French (eds), *International Environmental Law and Governance*, 2015, p. 121.

⁶⁴⁷ P. Gluck, Core Components of the International Forest Regime Complex, in IUFRO, J. Rayner, A. Buck, P. Katila (eds.), *Embracing Complexity: Meeting Challenges of International Forest Governance*, 2010, p. 37.

⁶⁴⁸ F. Lesniewska, UNFCCC Conference of the Parties: The Key International Forest Law-Makers for Better or for Worse, in M. Fitzmaurice, D. French (eds), *International Environmental Law and Governance*, 2015, p. 121; N. Srivastava, Changing Dynamics of Forest Regulation: Coming Full Circle?, *RECIEL*, 20 (2), 2011, p. 114; J. Brunnee, A. Nollkaemper, Between the Forests and the Trees: An Emerging International Forest Law, *Environmental Conservation*, 23, 4, 1996, p. 307.

⁶⁴⁹ A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 58.

⁶⁵⁰ C. P. MacKenzie, Future Prospects for International Forest Law, *International Forestry Review*, 14, 2, 2012, p. 251.

consequences of the fragmentation: How do the forest-related provisions interact?⁶⁵¹ Are there conflicts, gaps, or are there synergies? In the nexus of climate change and forests, is fragmentation a benign or a malign phenomenon?⁶⁵² Thus, this chapter prepares the ground for the subsequent analysis.

The objective of the present chapter is to investigate the contemporary “international forest regime”, its constituent instruments and their responses to climate change. The first part sets the general point of reference (4.1.). In a chronological order the part investigates the evolution of the international forest regulation and reveals its current highly fragmented state. Part two specifically focuses on the international political processes that have been initiated in the spirit to provide for a comprehensive regulation on forests, i.e. the international environmental law instruments created to apply *a priori* to forests (4.2.). Again, the chronological approach is applied. The focus of the section is on the forest soft law instruments (Chapter 11 of Agenda 21 “Combatting Deforestation”,⁶⁵³ Forest Principles,⁶⁵⁴ and the UN Forest Instrument⁶⁵⁵) and the United Nations Forum on Forests (UNFF) process.⁶⁵⁶ All these lay down the foundations for the subsequent development of the international forest regulation. They provide limited attention to climate change. The third part of the chapter analyses international environmental treaties, which have not been created to apply directly to forests, but may be interpreted *ex post* to capture forests within their scope (i.e. the “Ramsar” Convention; the WHC; the CITES; and the CBD). The characteristic feature of the treaties is that they lack explicit references to forests and climate change in their substantive provisions. Most references to

⁶⁵¹ Please note that referring to the connections between overlapping treaties, treaty regimes and other legal sources, there is a “Babylonian Confusion”: “interactions”, “interlinkages”, “interplay”, “linkages” and “overlap”. There is also a dearth of classifications and typologies in the literature on interactions, which facilitates the analysis of interactions, but at the same time complicates the identification of a first-best approach for such an analysis. To avoid misunderstandings this research adopts the term “interaction.” For further explanation, see subsection “The Traditional Tools of International Law to Manage Treaty Interactions” of the current thesis. See, H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 46.

⁶⁵² See chapter five of the present thesis.

⁶⁵³ Agenda 21, adopted 13 June 1992.

⁶⁵⁴ Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted 14 June 1992.

⁶⁵⁵ Non-Legally Binding Instrument on All Types of Forests, adopted 17 December 2007.

⁶⁵⁶ UNFF.// < <http://www.un.org/esa/forests/>>.

forests and climate change can be found in the secondary law or the soft law of the treaties, i.e. their COP decisions, resolutions, guidelines and work programs (4.3.). Finally, part four brings the findings of the chapter together (4.4.).

4.1. Evolution of the International Forest Regulation.⁶⁵⁷

This part looks at the evolution of the topic of forests on the international agenda from their first appearance up until today.

4.1.1. Setting the Scene: Evolution of the International Forest Regulation.

For the purpose of the current research three developmental stages in the evolution of the forest regulation at the international level are distinguished:

1. The Foundational Period: before 1990 - during which scientific consensus about global deforestation and forest degradation developed and transformed from a scientific into policy issue; governments became involved in the international negotiations; first forest-related international agreements were adopted;
2. The Fragmentation Period: from 1990 until 2011 – forest entered the UN environmental agenda; gained recognition as a stand-alone topic; forest-specific soft law was adopted; the UNFF was established; isolated international processes highlighting individual forest functions and services were elaborated;
3. The pre – “Constitutional”⁶⁵⁸ Period: from 2011 until present – further fragmentation of the “international forest regime”; negotiations on the Legally Binding Agreement (LBA) on Forests in Europe.⁶⁵⁹

⁶⁵⁷ Please note, this overview is not intended to be exhaustive and serves the objectives of the thesis. Other studies have as well provided a historical summary at different stages in the development of a global forest-related regime. For instance, see C. L. McDermott, et al, *International Forest Policy – the Instruments, Agreements and Processes, that shape it, A brief historical summary of the global instruments*, 2007, pp. 22 -24; A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, pp. 32-39.

⁶⁵⁸ Please note that the term “Constitutional” here is used figuratively in order to indicate a period in the evolution of the “international forest regime” during which a single agreement on forests, i.e. “Forest Convention” is being negotiated. The parties to the (draft) Convention recognize “ [...] the need to establish a legally binding agreement to ensure or reinforce sustainable forest management, ensure multifunctionality of forests, avoid fragmentation of forest related policies and to complement and promote existing international, regional and subregional agreements, cooperation and initiatives to this end”. If the Agreement is adopted, the document may establish a fundamental set of principles according to which forests are

4.1.1.1. The Foundational Period: International Forest Regulation up until 1990.

In comparison to climate change regime's involvement with forests, the international forest law has a longer history - a history, which has been termed by some legal scholars as "highly complex".⁶⁶⁰ For the first time forests and their management became an international issue in 1892 when, following a proposal for an international forest science research organ at the 1890 Congress of Agriculture and Forestry in Vienna, the International Union of Forest Research Organizations (IUFRO) was established.⁶⁶¹ Its mission - to promote global cooperation in forest-related research and to enhance the understanding of the ecological, economic and social aspects of forests and trees; as well as to disseminate scientific knowledge to stakeholders and decision-makers and to contribute to forest policy and on-the-ground forest management⁶⁶² - brought forests to increased international monitoring and assessment. However, as with international environmental law in general, a lot of momentum for forest issues was lost due to the World Wars.⁶⁶³

In 1945 the Food and Agriculture Organization (FAO) was created with responsibility within the United Nations system for forests.⁶⁶⁴ Its Constitution

governed. See, Forest Europe, INC 4, Draft Negotiating Text as at 8 November 2013, 23:00, Forest Convention, preamble, para. 11.

⁶⁵⁹ Please note, that although the LBA is negotiated in the European context, the "Forest Europe" process registers 46 member countries, including the RF, and the EU. Furthermore 14 observer states (including top four countries with the largest forest area namely, Brazil, Canada, the USA and China) and 45 observer organizations (including FAO, ITTO, IUCN, IUFRO, UNDP, UNEP and UNFF). See subsection 4.1.1.4. The Pre-Constitutional Period: International Forest Regulation from 2011 until Present of the present part of the chapter.

⁶⁶⁰ B. Cashore, G. Auld, S. Bernstein, C. McDermott, Can Non-State Governance "Ratchet Up" Global Environmental Standards? Lessons from the Forest Sector, *RECIEL*, 16, 2, 2007, p. 159. According to B. Cashore, G. Auld, St. Bernstein and C. McDermott, the history of forestry law and policy developed to address the environmental deterioration of the world's forests is highly complex. Partly this is explained by the "regulatory differences, [which] exist within and across developed and developing countries".

⁶⁶¹ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2006, p. 23. Please note, that earlier the regulation of forests was done not on an international level, but rather through the means of national law.

⁶⁶² IUFRO, The Global Network for Forest Science, The Organization.// < <http://www.iufro.org/discover/organization/>>, last viewed 25 January 2016.

⁶⁶³ The period between the two World Wars was not marked by great concern for the environment. See, A. Ogbuigwe, *International Environmental Law and Law Making*, p. 74.// < <http://www.unep.org/delc/Portals/119/publications/UEF-2005-IELaw.pdf> >, last viewed 26 January 2015.

⁶⁶⁴ FAO UN, Constitution, adopted 16 October 1945, in force 16 October 1945.

pronounced the FAO as the organization, which collects analyses and disseminates information relating, *inter alia*, to forestry and primary forest products.⁶⁶⁵ In 1948 the FAO carried out its first Assessment of the World's forest resources. Since then the Organization has been assessing the World's forest resources at a regular intervals of every five years. Although, some critics argue that forest matters under the FAO were largely driven by foresters, and that the political significance of the FAO in forest issues remained minimal, the mere fact of the Organization's establishment laid the foundation to incorporate forest issues into the United Nations agenda.⁶⁶⁶

During the early stages of the "present ecological era", i.e. late 1950s onwards, with the recognition of emerging international environmental concerns (e.g. specific environmental threats caused by technological change and expanded economic activities: marine pollution from oil; nuclear damage from civilian use; and later - deterioration of wild animals and their habitats)⁶⁶⁷ the issue of forests remained a "rather untouched issue", scarcely regulated by some international multilateral intergovernmental treaties and agreements indirectly.

In the 1960s with the increasing loss of wetland areas, their degrading, draining and conversion to other "more obvious [land] uses" (e.g. such as agriculture), wetlands became an international concern.⁶⁶⁸ In 1971 the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)⁶⁶⁹ was adopted. It was among the first instruments

⁶⁶⁵ FAO UN, Constitution, adopted 16 October 1945, in force 16 October 1945, art. 1.1. In the FAO UN Constitution, forestry and primary forestry products are referred to under the term "agriculture". According to the Constitution the term is collective, it includes also fisheries and marine products. The core functions of FAO with regards to forests are further specified in the "FAO UN Strategy for Forests and Forestry" and, among others, include: monitoring and assessing trends in forest resources; generating, disseminating and applying information and knowledge; and supporting the development of national legal instruments. The Organization has been assessing the World's forest resources at a regular intervals of every five years since 1948. The most recent forest assessment took place in 2015. See, FAO UN Strategy for Forests and Forestry, FAO UN, Rome, 2010; FAO UN, Global Forest Resources Assessment, 2015.

⁶⁶⁶ D. Humphreys, Deforestation and the Crisis of Global Governance, 2006, p. 46; A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 33.

⁶⁶⁷ A. Kiss and D. Shleton under the "present ecological era" refer to the late 1950s onwards. See, A. Kis, D. Shelton, The Beginnings to the Stockholm Conference, Guide to International Environmental Law, 2007, p. 33.

⁶⁶⁸ G.V.T. Matthews, The Ramsar Convention on Wetlands: its History and Development, 2013, p.4.

⁶⁶⁹ Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, adopted 2 February 1971, in force 21 December 1975.

seeking to conserve natural resources on a global scale.⁶⁷⁰ The instrument has also captured some forests within its scope (i.e. forested wetlands).

In June, 1972 the United Nations Conference on the Human Environment (UNCHE) took place. Then the international environmental issues in general received an upturn.⁶⁷¹ The outcome of the Conference was the Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration).⁶⁷² Yet, the forest issues remained without a formal acknowledgement.

In November 1972, in the light of the fact that the "protection of [natural and cultural] heritage at the national level often remains incomplete",⁶⁷³ the General Conference of the UN Educational, Scientific and Cultural Organization (UNESCO) adopted the "Convention Concerning the Protection of the World Cultural and Natural Heritage" (WHC).⁶⁷⁴ The WHC was created with the aim to conserve and protect sites – natural as well as cultural – from natural and anthropogenic destruction. Viewing forest as cultural sites, as sites for the enjoyment of natural beauty, sites of aesthetic impressions and scientific significance, has brought some forests under the scope of the WHC.

In 1973 the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)⁶⁷⁵ was adopted. It is an international environmental treaty concluded in the recognition "that wild fauna and flora in their beautiful and varied forms are an irreplaceable part of the natural systems of the earth which must be protected for this and the generations to come [...and] in addition, that international co-operation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international

⁶⁷⁰ G.V.T.Matthews, *The Ramsar Convention on Wetlands: its History and Development*, 2013, p.4.

⁶⁷¹ The Stockholm Conference had immense value in drawing attention to the problem of environmental deterioration and methods to prevent or remedy it. From 1972 onwards the number and scope of international environmental agreements started growing at a rapid pace giving rise to the creation of a body of rules governing a wide variety of environmental issues. For more information, see, A. Kiss, D. Shelton, *Guide to International Environmental Law*, 2007, pp. 35-36; E. B. Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, the *Georgetown Law Journal*, 1993, 81, p. 678.

⁶⁷² UNCHE, Declaration of the United Nations Conference on the Human Environment, Stockholm, 16 June 1972.

⁶⁷³ World Heritage Convention, Preamble para. 3.

⁶⁷⁴ Convention for the Protection of the World Cultural and Natural Heritage, 16 November 1972, in force 17 December 1975.

⁶⁷⁵ CITES, adopted 3 March 1973, in force 1 July 1975.

trade".⁶⁷⁶ Forests species, including tree species (and also forest dwelling plants and forest dwelling animals) are included into the CITES Appendices and, thus, have been subjected to the CITES regulation.

In the 1980s the main focus of international forest policy has become the promotion of sustainable forest management.⁶⁷⁷ According to some legal scholars,⁶⁷⁸ among the first explicit references to forests and their roles in the context of sustainable development are those made, first, by the World Conservation Strategy (WCS) of the International Union for Conservation of Nature (IUCN) in 1980⁶⁷⁹ and later by the World Charter for Nature of the United Nations General Assembly in 1982.⁶⁸⁰ Along with the Stockholm Declaration, the World Conservation Strategy and the World Charter for Nature all play a role in the elaboration of the principle of sustainable development and confirming the issue of forests on the international political agenda.⁶⁸¹ Yet, these documents are pieces of soft law and, despite the fact that even non-legally binding instruments are significant for steering the actions of states, these documents remain at large without legal consequences for forests.⁶⁸²

In 1985 with the establishment of the International Tropical Timber Organization (ITTO)⁶⁸³ under the first International Tropical Timber Agreement (ITTA,

⁶⁷⁶ CITES, preamble, paras 1 and 4.

⁶⁷⁷ S. F. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 295.

⁶⁷⁸ E. Kasimbazi, *An International Legal Framework for Forest Management and Sustainable Development*, *Annual Survey of International and Comparative Law*, Volume 2, 1995, pp. 76-87; A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, p. 34.

⁶⁷⁹ IUCN, *World Conservation Strategy, Living Resource Conservation for Sustainable Development*, 1980.

⁶⁸⁰ UNGA, *World Charter for Nature*, Resolution A/RES/37/7, 1982.

⁶⁸¹ E. Kasimbazi, *An International Legal Framework for Forest Management and Sustainable Development*, *Annual Survey of International and Comparative Law*, Volume 2, 1995, pp. 76-87; A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, p. 34.

⁶⁸² A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, p. 34.

⁶⁸³ ITTO's origins can be traced back to 1976 when the long series of negotiations that led to the first ITTA began at the fourth session of the United Nations Conference on Trade and Development (UNCTAD) as part of that organization's Program for Commodities. The eventual outcome of these negotiations was the ITTA, 1983, which governed the Organization's work until 31 December, 1996, when it was superseded by the ITTA, 1994. Negotiations for a successor to this agreement were concluded in 2006, again under the auspices of UNCTAD. The ITTA, 2006 entered into force on December 7, 2011. See, ITTA, adopted 18 November 1983; entered into force 1 April 1985; ITTA, adopted 26 January 1994, provisionally entered into force 01 January 1997; ITTA, adopted 27 January 2006, entered into force 7 December 2011; ITTO. // < <http://www.itto.int/>>, last viewed 24 January 2016.

1983),⁶⁸⁴ “ [...] the importance of, and the need for, proper and effective conservation and development of tropical timber forest with a view to ensuring their optimum utilization while maintaining the ecological balance of the regions concerned and of the biosphere [...]” was recognized.⁶⁸⁵ Yet, under the ITTA the need to conserve forests has originated from the idea of conservation for their optimum utilization.⁶⁸⁶ Moreover, the idea of tropical forests as providers of timber is emphasized by the fact of the ITTA’s establishment under the UN Integrated Program for Commodities.

Thus, the early stages of the “international forest regime” development reflect several fragmented types of negotiations on the international agenda. Each fragment represents its own perception of forests: First, forests in the context of science and research (1); second, forests in the context of agriculture (2); third, conservation of forested wetlands (3); fourth, forests within the overall discussion on sustainable development (4); fifth, forests as protected sites under the WHC (5); sixth, forest species protection against overexploitation through international trade; and, finally, forests (yet, with a tropical only focus) as a valuable tradable timber resource (7).

4.1.1.2. The Fragmentation Period: International Forest Regulation from 1990 until 2011.

In 1991 the World Wide Fund for Nature (WWF) along with some other NGOs, including Greenpeace and the Rainforest Alliance, formed a working group in order to develop a new approach towards achieving sustainable forest management. The working group agreed to develop an independent forest certification scheme, i.e. a process by which an independent third party certifies that a forest management process of forest product conforms to agreed

⁶⁸⁴ ITTA, adopted 18 November 1983, in force 1 April 1985.

⁶⁸⁵ ITTA, adopted 18 November 1983, in force 1 April 1985, preamble.

⁶⁸⁶ In comparison, other international environmental agreements of this time, negotiated parallel to the ITTA, simply recognize the need for protection (of the environment) against adverse effects, resulting from, or likely to result from human activities. See, for instance, the 1985 Vienna Convention for the Protection of the Ozone Layer, adopted 22 March 1985, entered into force 22 September 1988. Also see, G. Nagtzaam, *The International Tropical Timber Organization and Conservationist Forestry Norms: A Bridge too Far.*// < http://works.bepress.com/gerry_nagtzaam/4/>, last viewed 18 April 2016; G. Nagtzaam, *Into the Woods: Analyzing Normative Evolution and the International Tropical Timber Organization*, *Arts Social Science Journal*, 5, 2, 2014.// < <http://www.omicsonline.com/open-access/into-the-woods-2151-6200.100084.pdf>>, last viewed 20 April 2016.

standards and requirements.⁶⁸⁷ In 1993 the Forest Stewardship Council (FSC) was created. As the FSC standards are voluntary and the parties involved are private, non-governmental actors - a private perspective (or fragment) on forests has been introduced to the "international forest regime".⁶⁸⁸

During the preparations for and at the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992 a global convention for the conservation and sustainable development of the world's forests was negotiated.⁶⁸⁹ Widely these negotiations are regarded as a failure⁶⁹⁰ for the reason of not reaching its objective.⁶⁹¹ Whereas the developed countries of the North (including the EU and the RF) along with FAO called for a global forest convention, the Group of 77 Developing Countries (G77),⁶⁹² led by Malaysia and India, resisted. One of the main points of contention was the proprietorial status of forests. While some developed countries intimated that forests should be seen

⁶⁸⁷ Adopted from the WWF's definition. See, WWF, Forest Certification.// < http://wwf.panda.org/about_our_earth/deforestation/forest_sector_transformation/forest_certification/>, last viewed 26 January 2015.

⁶⁸⁸ For further details on the issue of certification, please see: B. Cashore, G. Auld, S. Bernstein, C. McDermott, Can Non-state Governance "Ratchet Up" Global Environmental Standards? Lessons from the Forest Sector, *RECIEL*, 16, 2, 2007; D. Humphreys, The Certification Wars, in D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2006, pp. 117-141; L. Gulbrandsen, Overlapping Public and Private Governance: Can Forest Certification fill the gaps in the global forest regime?, *Global Environmental Politics*, 4, 2, 2004.

⁶⁸⁹ UNFF, Report of the Ad Hoc Expert Group on Consideration with a View to Recommending the Parameters of a Mandate for Developing a Legal Framework on All Types of Forest, E/CN.18/2005/2, 7-10 September 2004; UNFF, Memorandum to the UNFF Working Group on the Proposal to Create a Legally Binding Instrument on the Sustainable Management and Conservation of Forests, UNFF Secretariat; D. Davenport, An Alternative Explanation for the Failure of the UNCED Forest Negotiations, *Global Environmental Politics*, 5, 1, 2005, p. 105; R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, p. 116.

⁶⁹⁰ D. S. Davenport, P. Wood, Finding the Way Forward for the International Arrangement on Forests: UNFF - 5, -6, and -7, *RECIEL*, 15 (3), 2006, p. 316; D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2006, p. 23; C.P. Mackenzie, *Future Prospects for International Forest Law*, p. 250; A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 35; D. S. Davenport, An Alternative Explanation for the Failure of the UNCED Forest Negotiations, *Global Environmental Politics*, 5, 1, 2005.

⁶⁹¹ For analysis of the reasons for the failure of a forest convention in 1992, see, R.D. Lipschutz, Why is There no International Forestry Law?: An Examination of International Forestry Regulation, *University of California Los Angeles (UCLA) Journal of Environmental Law and Policy*, 19, 1, 2001; D. Davenport, An Alternative Explanation for the Failure of the UNCED Forest Negotiations, *Global Environmental Politics*, 5, 1, 2005.

⁶⁹² The Group of 77 is an intergovernmental organization of developing countries in the UN, which provides the means for the countries of the South to articulate and promote their collective economic interests and enhance their joint negotiating capacity on all major international economic issues within the United Nations system, and promote South-South cooperation for development. The G-77 was established on 15 June 1964 by seventy-seven developing countries signatories of the "Joint Declaration of the Seventy-Seven Developing Countries" issued at the end of the first session of the United Nations Conference on Trade and Development (UNCTAD). For more information, see, The Group of 77 at the United Nations. // < <http://www.g77.org/doc/> >, last viewed 04 May 2017.

as a “global common” as all humanity derives benefits from them, the G77 insisted that the UNCED recognized forests as a sovereign national resource of the state. The opposition to the international forest convention feared internationalization of the resources under their sovereignty by the application of concepts such as “common good”, “common heritage of humankind”, or a “common concern of humanity”. One more point of contention among negotiators centered around finance, with the G77 making it clear that if tropical countries were to agree to conserve their forests, then the developed North would have to pay compensation for the opportunity cost foregone from forest development.⁶⁹³ The negotiations resulted in the two forest-specific documents, namely: “Chapter 11 on “Combating Deforestation” of Agenda 21 and the “Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests” – the, so called, “Forest Principles”.

In addition, during the UNCED two legally binding Conventions, one aimed at preventing of global climate change,⁶⁹⁴ and another at preventing the eradication of the diversity of biological species⁶⁹⁵ were opened for signature. Although these instruments have not been initiated to apply *a priori* to forests, the lack of one authoritative document on forests, combined with the increased rates of deforestation and forest degradation commended States to use these alternative legal paths, *inter alia*, in order to reduce global forest decline. The path undertaken by the parties to the UNFCCC, includes a number of broad obligations related to mitigating the adverse risks of climate change associated with forests.⁶⁹⁶ Another path, undertaken by the parties to the Convention on Biological Diversity, focused on the obligations related to the ecological values of forests.

⁶⁹³ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2006, p. 23.

⁶⁹⁴ United Nations Framework Convention on Climate Change, adopted 9 May 1992, in force 21 March 1994;

⁶⁹⁵ Convention on Biological Diversity, adopted 5 June 1992, in force 29 December 1993;

⁶⁹⁶ For more information on the forest regulation under the International Climate Change Regime see chapter III “Forests under the International Climate Change Regime” of the current thesis.

Parallel to the negotiations at the UNCED in Rio, the ITTO convened to reassess and review its Timber Agreement. The result of the negotiations was the revised ITTA of 1994.⁶⁹⁷

In 1994 the UN Convention on Combating Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) was adopted.⁶⁹⁸ It was the first “sustainable development” treaty negotiated after the 1992 UNCED. The declared aim of the Convention was to “combat desertification and mitigate the effects of drought”.⁶⁹⁹ As, on the one hand, deforestation and forest degradation are among the main causes of desertification and drought; and, on the other hand, forests can help to stabilize soils, mitigating against desertification and drought, the Convention has consequently recognized a connection between desertification, deforestation and forest degradation.⁷⁰⁰

In 1995, as aftermath to the high expectations and failures of the UNCED negotiations on forests, the CSD attempted to engage with forest issues and created the Intergovernmental Panel on Forests (IPF). It was functioning during the period of two years and deserves credit for negotiating more than one hundred proposals for action (and thereby adding to the body of instruments on forest issues) and for establishing the concept of national forest programs in international forest discourse, creating the link between forest issues and indigenous peoples’ concerns and traditional knowledge.⁷⁰¹ Unfortunately, the IPF did not manage to overcome the shortcomings inherent to the UNCED forest negotiations, including the amplifying north-south divide in forest issues, financial matters and finding the right trigger to overcome the

⁶⁹⁷ ITTA, in force 1st January 1997.

⁶⁹⁸ UN Convention to Combat Desertification, adopted 17 June 1994, in force December 1996.

⁶⁹⁹ UNCCD, art. 2 para. 1. Please note that the Convention covers not only an environmental threat, but also socio-economic aspects of such a threat. The objective of the Convention is not only to combat desertification and mitigate the effects of drought, but also to do so “[...] in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas”. Furthermore, it is shown that “achieving this objective will involve long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level”.

⁷⁰⁰ For more information see, R. Tarasofsky, *Assessing the International Forest Regime*, IUCN Environmental Policy and Law Paper No. 37, 1999, p. 91; N. Srivastava, *Changing Dynamics of Forest Regulation: Coming Full Circle?*, *RECIEL*, 20 (2), 2011, p. 116.

⁷⁰¹ A. Eikermann, *Forests in International Law, Is there really a Need for an International Forest Convention?*, 2015, p. 40.

dominant economic interest in forests. Between 1997 and 2000 the Intergovernmental Forum on Forests (IFF) continued the work of the IPF. Similar to IPF, the IFF was charged with the mandate to engage in identifying options for a legally binding forest convention. Again, participants were unable to come to terms with the debate and, again, opted for a new forest forum instead: the United Nations Forum on Forests.⁷⁰² It was established as a subsidiary body to the ECOSOC in 2000.⁷⁰³ Facing the shortcomings of its predecessors, up until now the UNFF has not created an international legally-binding instrument on forests. In 2007 the work of the UNFF led to the UN General Assembly adopting the Non-legally Binding Instrument on all Types of Forests.⁷⁰⁴ In 2015, remaining its voluntary, non-binding character, the instrument was renamed the "United Nations Forest Instrument".⁷⁰⁵ "The instrument is voluntary and non-legally binding".⁷⁰⁶ As such the instrument provides an overarching policy framework for national and international action in order to achieve SFM.⁷⁰⁷

The forest governance beginning with early 1990s onwards is characterised by its increasing fragmentation, namely: the emergence of new forms of forest regulation through instruments such as forest certification, the failure to negotiate a global forest convention and the adoption of the forest soft law such as the Chapter 11 on "Combating Deforestation of Agenda 21" and the "Forest Principles"; the adoption of the UNFCCC, the CBD and the UNCCD, which include a number of broad obligations related to forests; and, finally, the adoption of the "UN Forest Instrument". Forest-related processes developed in different fora, all deeply rooted into the fundamental principle of state sovereignty over natural resources. The development processes took place in parallel to each other,

⁷⁰² ECOSOC, Commission on Sustainable Development, Intergovernmental Forum on Forests, New York, 31st January – 11 February 2000, Item 5 of the provisional agenda, International Arrangements and Mechanisms to Promote the Management, Conservation and Sustainable Development of All Types of Forests (program element III), Report of the Secretary General, UN Doc. E/CN. 17/ IFF/2000/1., 23 November 1999; Economic and Social Council, 10th plenary meeting, 1 June 1995, Decision 1995/226. Establishment of an open-ended ad hoc intergovernmental panel on forests.

⁷⁰³ Please note, that in comparison, the IPF and the IFF have solely been negotiation and discussion fora, incorporated within the CSD.

⁷⁰⁴ UNGA, 62nd session, Agenda item 54, Resolution 62/98 Non-legally binding instrument on all types of Forests, 31st January 2008, UN Doc. A/RES/62/98.

⁷⁰⁵ UN GA Resolution, A/RES/70/199, United Nations Forest Instrument; ECOSOC, E/2015/42-E/CN.18/2015/14, Non-legally binding instrument on all types of forests beyond 2015.

⁷⁰⁶ Forest Instrument, II Principles, (a).

⁷⁰⁷ Forest Instrument, I Purpose.

competing to occupy the forest issue area largely independently from one another.

4.1.1.3. The Pre – “Constitutional” Period: International Forest Regulation from 2011 until Present.

As some legal scholars notice, it seems that currently the divergence of the “international forest regime” reached its peak; it is hard to envisage the involvement of ever new actors.⁷⁰⁸ The contemporary “global forest governance is patched together with different international institutions regulating individual forest values”⁷⁰⁹ largely in isolation from each other (e.g. the international climate change regime regulates forest carbon; the CBD is concerned primarily with ecological forest values; etc.). Yet, there is one more on-going forest-related process that deserves a further attention. In 2011 under the so-called Oslo Mandate the “Forest Europe”⁷¹⁰ established “an Intergovernmental Negotiating Committee with the mandate to develop a Legally Binding Agreement on Forests in Europe” (LBA Negotiating Committee).⁷¹¹ It was decided “that the Intergovernmental Negotiating Committee will [... complete] its work not later than 30 June 2013”.⁷¹²

As such the “Forest Europe” was created in Strasbourg in 1990, when Ministers from around 30 European countries and representatives from the European Community came together to discuss the need for a greater protection and conservation of forest areas. The meeting became known as the First Ministerial Conference on the Protection of Forests in Europe (MCPFE). The General Declaration,⁷¹³ adopted at the meeting, laid the foundation for the MCPFE

⁷⁰⁸ A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 37.

⁷⁰⁹ R. Macguire, *Global Forest Governance, Legal Concepts and Policy Trends*, p. 71.

⁷¹⁰ Forest Europe is the brand name of the Ministerial Conference on Protection of Forests in Europe. It is a voluntary regionally limited political process for dialogue and cooperation on forest policies in Europe. Up until now the Conference predominantly produced criteria and indicators for sustainable forest management, guidelines and resolutions. See, Forest Europe, *What is Forest Europe?/* < http://www.foresteuropa.org/about_us/foresteuropa>, last viewed 28 January 2016.

⁷¹¹ Forest Europe, *Ministerial Mandate for Negotiating a Legally Binding Agreement on Forests in Europe*, Oslo 14-16 June 2011, preamble, para. 18.

⁷¹² Forest Europe, *Ministerial Mandate for Negotiating a Legally Binding Agreement on Forests in Europe*, Oslo 14-16 June 2011, preamble, para. 29.

⁷¹³ Forest Europe, *Ministerial Conference for the Protection of Forests in Europe, General Declaration*, Strasbourg, France, adopted 18 December 1990.

ongoing political process for dialogue and cooperation on forest policies in Europe. According to the 1990 Declaration the MCPFE is intending to:

1. "[...] promote and reinforce cooperation between European states in the field of forest protection and sustainable management, by developing exchanges of information and experience, and by supporting the efforts of the international organizations concerned;
2. improve exchanges of information between forestry research workers, managers and policy makers, both within and between the signatory countries, in order that the most recent advances can be integrated into the implementation of forests policies;
3. encourage operations for restoring damaged forests;
4. demonstrate, by way of an agreement on common objectives and principles, their will to implement, progressively, the conditions and the means necessary for the long-term management and conservation of the European forest heritage;
5. examine the follow-up of decisions taken during the present conference and pursue the actions that will have been initiated, in the course of any subsequent meetings of government ministers or officials, and of international institutions, responsible for seeing that forests fully assume their ecological, economic and social functions".⁷¹⁴

In 2011 with the Oslo Ministerial Decision on European Forests 2020 Forest Europe's signatories defined a shared vision: "To shape a future where all European forests are vital, productive and multifunctional. Where forests contribute effectively to sustainable development, through ensuring human well-being, a healthy environment and economic development in Europe and across the globe. Where the forests' unique potential to support a green economy, livelihoods, climate change mitigation, biodiversity conservation, enhancing water quality and combating desertification is realized to the benefit of society".⁷¹⁵

⁷¹⁴ Forest Europe, Ministerial Conference for the Protection of Forests in Europe, General Declaration, Strasbourg, France, adopted 18 December 1990, para. 1-5.

⁷¹⁵ Forest Europe, Oslo Ministerial Decision: European Forests 2020, Oslo 14-16 June 2011, para. 17; Also reiterated in a more recent Madrid Ministerial Declaration. See, Madrid Ministerial Declaration, 25 years together promoting SFM in Europe, Madrid, 20-21 October 20015, preamble, para. 2.

At present “Forest Europe” registers 46 member countries, including the Russian Federation and the European Union.⁷¹⁶ Furthermore, 14 observer states (including the top four countries with the largest forest area, namely: Brazil, Canada, the USA, and China)⁷¹⁷ and 45 observer organizations (including, FAO, ITTO, IUCN, IUFRO, UNDP, UNEP, and UNFF) are involved.⁷¹⁸ The participation of various stakeholders in the process “contributes to enrich the dialogue within the process and to enhance cooperation on forests and forestry”.⁷¹⁹

The ambitious Oslo Mandate of the “Forest Europe” to create a legally binding agreement on forests in Europe delivered a clear conviction “[...] that a legally binding agreement on forests in Europe is necessary to reinforce and strengthen implementation of sustainable forest management with the view to achieving balanced and stable continuity of all economic, environmental, cultural and social forest functions in Europe, and will contribute to achieving the vision, goals and targets for forests in Europe”.⁷²⁰

As it had been prescribed by the Oslo Mandate, the Committee concluded its work in June, 2013 (it had carried out four sessions in the period from February, 2012 until June, 2013).⁷²¹ Close to forty member countries participated in the negotiations (including the EU and the RF). On the scale of multilateral intergovernmental negotiations in a relatively short time frame “an enormous

⁷¹⁶ Forest Europe, Signatory Countries.// < http://www.foresteuropa.org/about_us/signatories>, last viewed 29 January 2016.

⁷¹⁷ Forest Europe, Observer Countries.// < http://www.foresteuropa.org/about_us/observers_countries>, last viewed 29 January 2016.

⁷¹⁸ Forest Europe, Observer Organizations.// <http://www.foresteuropa.org/about_us/observers_organizations>, last viewed 29 January 2016.

⁷¹⁹ Forest Europe.// < <http://foresteuropa.org/forest-europe-welcomes-5-new-observers-process/> >, last viewed 05 May 2017. The activities under the “Forest Europe” process for the period from 2016 until 2020 are to be carried out in cooperation with signatories, observers and other relevant organizations and stakeholders. See, Forest Europe, adopted 11 – 12 May 2016, 2. Objectives and the Main Principles of the Work Program. // < <http://foresteuropa.org/wp-content/uploads/2016/08/FE-Work-Programme-2016-2020-1.pdf> >, last viewed 05 May 2017.

⁷²⁰ Forest Europe, Oslo Ministerial Mandate for Negotiating a Legally Binding Agreement on Forests in Europe, Oslo, 14-16 June 2011, para. 17.

⁷²¹ 1st Session: 22 February – 2 March, 2012; 2nd Session: 3-7 September 2012; 3^d Session: 28 January to 1st February 2013 and 3-5 April 2013; 4th Session 10-14 June 2013. See, Intergovernmental Negotiating Committee for a Legally Binding Agreement on Forests in Europe, INC-Forests.// < <http://www.forestnegotiations.org/>>, last viewed 29 January 2016.

progress⁷²² was made and the draft text of the legally binding agreement (Appendix 1) was transmitted to the Extraordinary Forest Europe Ministerial Conference “for consideration and appropriate actions”.⁷²³ The draft consists of the preamble, which gives a holistic introduction to the rest of the text; the normative part, divided into twenty-four articles and the two annexes to the draft agreement. The draft agreement is designed as a framework convention, so that “the Parties may at any session of the Conference of the Parties adopt protocols to the convention” in order to allow for further development of its provisions (art. 19).

Notwithstanding the overall enormous progress, some unresolved issues remained. Such issues as the design of the compliance mechanism (art. 15. Compliance); provisions on the participation of observers (art. 12. Conference of the Parties); voting rights (art. 13. Right to Vote) proved to be too complex for a solution to be provided within the timeframe given to the Negotiating Committee.⁷²⁴ Perhaps, the most “polarized” issue is the question on the institutional arrangement of the future Legally Binding Agreement on Forests in Europe:⁷²⁵ whether such an agreement should be incorporated within the United Nations framework? And if yes, then how? Several options were negotiated, four of them are included into the final draft text of the Agreement: with the Russian Federation calling for the UN Economic Commission for Europe (UNECE) to host the LBA; the EU being a proponent of the joint secretariat for the Agreement, performed by FAO, UNECE, UNEP and European Forest Institute (EFI); Switzerland also being in favour of a joint secretariat, yet, composed of UNECE, FAO and UNEP; and the Norway’s preference for adopting the LBA under FAO, having a joint secretariat of FAO (a leading role with administrative

⁷²² J. Heino, The Results of the Work of the INC for a Legally Binding Agreement on Forests in Europe, 21 October 2015. // < <http://www.sifi.se/wp-content/uploads/2015/11/INC-Chair-report-19-Oct-final-FINAL-JH.pdf>>, last viewed 29 January 2016.

⁷²³ Intergovernmental Negotiating Committee for a Legally Binding Agreement on Forests in Europe, Report, Warsaw, Poland, 10-14 June 2013, Geneva, Switzerland, 7-8 November 2013, INC4/2013/REP, Consideration of the INC results and their presentation to the extraordinary ministerial conference (Item 5), para. 18.

⁷²⁴ The final Draft Negotiating Text of the Forest Convention in the corresponding articles includes several options suggested by various negotiating parties for adoption.

⁷²⁵ J. Heino, The Results of the Work of the INC for a Legally Binding Agreement on Forests in Europe, 21 October 2015. // < <http://www.sifi.se/wp-content/uploads/2015/11/INC-Chair-report-19-Oct-final-FINAL-JH.pdf>>, last viewed 29 January 2016.

responsibility) in cooperation with UNECE and UNEP (art. 14. Secretariat).⁷²⁶ In the light of the research, the general agreement to bring the LBA on Forests in Europe under the “UN umbrella” is of particular significance, as it leaves a possibility to expand the LBA on Forests in Europe beyond the pan-European region in the future. Significant in this regard is also the fact that the negotiators have omitted regional references in the text of the LBA draft, thus, leaving open the window of opportunity to include states beyond European borders into the process.

At the recent Ministerial Conference in 2015, held in Madrid, the “Forest Europe” signatories recognized that the Draft Negotiating Text for a LBA on forests in Europe “should serve as a basis for potential further consideration of a Legally Binding Agreement” and agreed to further “explore possible ways to find common ground on the Legally Binding Agreement at an appropriate time and at latest by 2020”.⁷²⁷

4.1.2. Evolution of the International Forest Regulation: Interim Conclusions.

Consideration of the evolution of the international forest regulation reveals its fragmented nature. Negotiations on forest issues take place in various fora. On the one hand, there are the forest-specific international political process that have been initiated in the spirit to provide for a comprehensive regulation on forests, i.e. Chapter 11 of Agenda 21 on “Combating Deforestation”, Forest Principles, the UN Forest Instrument and the UNFF process. On the other hand, there are the international environmental treaties, which have not been created to apply to forests directly, but may be interpreted “ex post to capture forests within their scope” (i.e. the Ramsar Convention, the WHC, the CITES, the UNFCCC, the UNCCD, the ITTA, the CBD). The fragmented nature of the international forest law has been countered by the emergence of new forms of forest regulation through instruments such as forest certification (e.g. FSC).

⁷²⁶ Forest Europe, INC4, Draft Negotiating Text as at 8 November 2013, 23:00, [Forest Convention], art. 14. 2. Secretariat

⁷²⁷ Forest Europe, Extraordinary Ministerial Conference, Madrid 21 October 2015, Madrid Ministerial Decision, para. 2 and 3.// < http://www.foresteuropemadrid2015.org/wp-content/uploads/2015/07/EMC_MadridMinisterialDecision.pdf>, last viewed 30 January 2016.

4.2. International Forest Regulation: Forest Soft Law and the UNFF.

This part investigates the international political processes that have been initiated in the spirit to provide for a comprehensive international regulation on forests. The part takes the chronological approach. First, the focus of the part is on the textual instruments that resulted from the forest negotiations at the UNCED in 1992: the Chapter 11 on "Combating Deforestation" of Agenda 21 (4.2.1.)⁷²⁸ and the Forest Principles (4.2.2.).⁷²⁹ Both instruments lay down the foundations for subsequent development of the international forest regulation. One institutional result of such continuous development is the UNFF. The institution is derived from the creation of the CSD and the IPF/IFF processes. The UNFF is investigated in section three (4.2.3.). Then the attention turns to the most recent international soft-law agreement on forests, as it has been entitled by some researchers "number one among the core components of the international forest regime"⁷³⁰ – the 2007 United Nations Forest Instrument⁷³¹ (4.2.4.). Finally, the major findings of the section are brought together (4.2.5.).

4.2.1. Chapter 11 of Agenda 21 on "Combating Deforestation".

Agenda 21⁷³² is a comprehensive non-binding programme of action adopted by the 1992 Rio Conference in order to promote sustainable development.⁷³³ The adoption of Agenda 21 led to the establishment of the CSD, a functional commission of the ECOSOC "in order to ensure effective follow-up to the Conference, as well as [...] to examine the progress of the implementation of Agenda 21 at the national, regional and international levels".⁷³⁴ Forests are "featured prominently" in several chapters of Agenda 21.⁷³⁵ Chapter 11 on

⁷²⁸ Agenda 21, adopted 13 June 1992.

⁷²⁹ Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted 14 June 1992.

⁷³⁰ P. Gluck, Core components of the International Forest Regime Complex, in J. Rayner, *Embracing Complexity: Meeting the Challenges of International Forest Governance*, 2010, p. 38.

⁷³¹ Non-Legally Binding Instrument on All Types of Forests, adopted 17 December 2007.

⁷³² Report of the UN Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, Annex II: Agenda 21, UN Doc. A/CONF. 151/26 (Vol. II), 13 August 1992.

⁷³³ Various studies have assessed the relevance of the concept to international law. See, for instance, P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, pp. 115-128.

⁷³⁴ UN GA, A/RES/47/191, agenda item 79, Commission on Sustainable Development, 2.

⁷³⁵ Forest is mentioned in 15 other chapters of Agenda 21. See, Agenda 21; E. B. Kasimbazi, *An International Legal Framework for Forest Management and Sustainable Development*, Annual Survey of International and Comparative Law, volume 2, issue 1, 1995, p. 90; S. Wang, *Towards*

“Combating Deforestation” specifically focuses on forests and deserves particular attention in the research.

The scope of Chapter 11 is broad, including not only “forests”, but also “forest lands” and “woodlands” (without further definition provided for the terms). The chapter refers to the four forest-related programme areas, namely:

- A. Sustaining the multiple roles and functions of all types of forests, forests lands and woodlands;
- B. Enhancing the protection, sustainable management and conservation of all forests, and the greening of degraded areas, through forest rehabilitation afforestation, reforestation and other rehabilitative means;
- C. Promoting efficient utilization and assessment to recover the full valuation of the goods and services provided by forests, forest lands and woodlands;
- D. Establishing and/or strengthening capacities for the planning, assessment and systematic observations of forests and related programmes, projects and activities, including commercial trade and processes.

Each programme area is described in terms of the basis for action, objectives, activities and means of implementation.⁷³⁶

The Chapter recognizes the “need for securing the multiple roles of forests and forest lands”.⁷³⁷ The document focuses on the “world wide [rather than just tropical] uncontrolled degradation and [forest] conversion to other types of land uses”.⁷³⁸ Furthermore, the document acknowledges the various causes of deforestation and forest degradation: “increasing human needs; agricultural expansion; and environmentally harmful mismanagement, including, for example, lack of adequate forest-fire control and anti-poaching measures, unsustainable commercial logging, overgrazing and unregulated browsing, harmful effects of airborne pollutants, economic incentives and other measures taken by other sectors of the economy”.⁷³⁹ Significantly Chapter 11 establishes

an International Convention on Forests: Building Blocks versus Stumbling Blocks, *International Forestry Review*, 3, 4, 2001, p. 251.

⁷³⁶ Agenda 21, preamble, 1.6.

⁷³⁷ Agenda 21, Chapter 11, para. 11. 2.

⁷³⁸ Agenda 21, Chapter 11, para. 11. 11.

⁷³⁹ Agenda 21, Chapter 11, para. 11. 11.

the causal link between deforestation and forest degradation, on the one hand, and the impacts of the global forest decline, which result in the deterioration of particular forest functions and services, on the other hand. Thus, "the impacts of loss and degradation of forests are in the form of soil erosion; loss of biological diversity, damage to wildlife habitats and degradation of watershed areas, deterioration of the quality of life and reduction of the options for development".⁷⁴⁰

One more important aspect is that Chapter 11 promotes the "full valuation of the goods and services, provided by forests, forest lands and woodlands".⁷⁴¹ According to the document, "improved management of forests can increase the production of goods and services and, in particular, the yield of wood and non-wood forest products, thus helping to generate additional employment and income, additional value through processing and trade of forest products, increased contribution to foreign exchange earnings and increased return on investment".⁷⁴²

Finally, Chapter 11 acknowledges the importance of the "assessment and systematic observations" with regard to forests as "essential components of long-term planning".⁷⁴³ This mechanism is one of the often neglected aspects of forest resources management, conservation and development. According to Chapter 11, in order to realistically plan for the effective conservation, management and sustainable development there is a need for a better understanding of the role and importance of forests.⁷⁴⁴

To sum up, Chapter 11 provides for a comprehensive non-binding action plan for combatting deforestation. Legal scholars discussed both the achievements and the weak points of Chapter 11. As an achievement, it has been recognized that the Chapter advances a novelty for the international forest agenda: it merges the approaches taken to international environmental governance in general, and

⁷⁴⁰ Agenda 21, Chapter 11, para. 11. 11.

⁷⁴¹ Agenda 21, Chapter 11, para. 11. 21.

⁷⁴² Agenda 21, Chapter 11, para. 11. 21.

⁷⁴³ Agenda 21, Chapter 11, para. 11. 30.

⁷⁴⁴ Agenda 21, Chapter 11, para. 11. 30.

to international forest governance in particular.⁷⁴⁵ Thus, Chapter 11 pursues not only the conservation, but also the utilization of forests, takes notice of their overall interrelation to the aspects of socio-economic development, as well as the need for financial resources and capacity building by technology transfer and provides for a useful international action plan.⁷⁴⁶ As a weak point, it has been commented that "in spite of the obvious importance of forests to the global community, the Chapter 11 in Agenda 21 on "Combating Deforestation" is a disappointing consensus on the politically acceptable principles of forest management".⁷⁴⁷ The suggested by the document forest-related activities are too broad in scope, drafted in vague terms and it is not clear who is supposed to carry them out.⁷⁴⁸

For the purpose of the current research it is important to highlight, that the issue of interdependence between climate change and forests (and their further interrelation to the aspects of socio-economic development) is completely neglected by the text of the document. There is not a single reference to climate change in Chapter 11. In this context, although, overall Chapter 11 is a useful international action plan in order to combat worldwide deforestation and forest degradation and in order to promote sustainable development of forests, it is, yet, possible to detect a gap: no reference to climate change in the document; no recognition of the interdependence of climate change with forests; and no specific activities for protecting of worldwide forests against the impacts of climate change (adaptation).

4.2.2. The Forest Principles.

One more outcome of the UNCED with regard to forests is the "Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation, and Sustainable Development of all Types of

⁷⁴⁵ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 51.

⁷⁴⁶ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 51.

⁷⁴⁷ E. B. Kasimbazi, *An International Legal Framework for Forest Management and Sustainable Development*, *Annual Survey of International and Comparative Law*, volume 2, issue 1, 1995, p. 92.

⁷⁴⁸ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 51.

Forests" (Forest Principles).⁷⁴⁹ Forest Principles" was signed at the UNCED and was supported by 108 Parties. It is a soft law instrument - the result of the lack of mutuality between the states concerning the use and management of the world's forests at the UNCED. The purpose of the instrument is to identify some common ground in relation to forest use and management and to agree to work together in the future on forest related issues at an international level:⁷⁵⁰ "in committing themselves to the prompt implementation of the Principles, countries also decide to keep them under assessment for their adequacy with regard to further international cooperation on forest issues".⁷⁵¹

The scope of the document is rather broad and applies to "all types of forests, both natural and planted, in all geographical regions and climatic zones, including austral, boreal, subtemperate, temperate, subtropical and tropical"⁷⁵² (with no further definition of what constitutes "forests"). The guiding objective of the Principles is "to contribute to the management, conservation, and sustainable development of forests and to provide for their multiple and complementary functions and uses".⁷⁵³

In its essence the Forest Principles represent a set of elements to guide states when creating domestic forest law and policy. The elements of the Principles include, *inter alia*:

1. Principle 1.(b): the need for an increased international cooperation and equitable share of the full incremental cost of achieving the benefits associated with forest conservation and sustainable development by the international community;
2. Principle 2.(b): the need to manage forests sustainably to meet the social, economic, ecological, cultural and spiritual needs of present and future generations;

⁷⁴⁹ Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development on All Types of Forests, adopted 14 June 1992. "Forest Principles" were signed at the UNCED and were supported by 108 Parties. For more information, see, Earth Summit.// < <http://www.un.org/geninfo/bp/envirp2.html> >, last viewed 05 May 2016.

⁷⁵⁰ R. Macguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, p. 105.

⁷⁵¹ Forest Principles, Preamble, para (d).

⁷⁵² Forest Principles, Preamble, para (e).

⁷⁵³ Forest Principles, Preamble, para (b).

3. Principle 2.(c): the need for reliable and accurate information on forests and forest ecosystems;
4. Principle 2.(d): the need for equitable participation of all stakeholders, including local communities, indigenous people, industries, labour, non-governmental organizations and individuals, forest dwellers and women;
5. Principle 4: recognition of the multifunctionality of forests, i.e. "the vital role of forests in maintaining the ecological processes and balance at the local, national, regional and global levels through, inter alia, their role in protecting fragile ecosystems, watersheds, and freshwater resources and as rich storehouses of biodiversity and biological resources and sources of genetic material for biotechnology products as well as photosynthesis";
6. Principle 6. (a): recognition of "an important role that forests play in meeting energy requirements through the provision of a renewable source of bio-energy, particularly in the developing countries", and the need that the demands for fuelwood for household and industrial needs be met through sustainable forest management, afforestation and reforestation;
7. Principle 6. (d): recognition of the role of planted forests as sustainable and environmentally sound sources of renewable energy and industrial and as means of offsetting pressure on primary/old-growth forest;
8. Principle 10: the need for additional financial resources for developing countries to enable them to sustainably manage, conserve and develop their forest resources;
9. Principle 12: the need for capacity building;
10. Principle 15: the need to control pollutants, particularly air-borne, including those responsible for acidic deposition, that are harmful to the health of forest ecosystems at the local, national, regional and global levels.

The Forest Principles pay attention to the underlying causes of deforestation and forest degradation: "harmful effects of pollution, including air-borne pollution, fires, pests, and diseases, in order to maintain their full multiple value".⁷⁵⁴

There is a general recognition that the Principles "reflect a first global consensus on forests",⁷⁵⁵ that there is a need to examine "forestry issues [...] in a holistic and balanced manner",⁷⁵⁶ and that "forests embody complex and unique ecological processes which are the basis for their present and potential capacity to provide resources to satisfy human needs as well as environmental values".⁷⁵⁷ However, the wording of the instrument is much stronger when it comes to the recognition of the sovereign right of states to exploit their own resources pursuant to their own environmental policies⁷⁵⁸ and to the acknowledgement that "the sound management and conservation is of concern to the Governments of the countries to which [forests] belong and are of value to local communities."⁷⁵⁹

To sum up, although the Forest Principles is a soft law instrument, it is yet an important international instrument with regard to forests. The document lays down the common ground in relation to forest use and management at the international level. In particular, the Instrument lays down the foundations for two principles that have since dominated negotiations on forests: the sovereign right of nation states to exploit their forest resources according to their own environmental policies, linked to the responsibility to avoid transboundary harm; and the sustainable management of forests to meet the social, economic, ecological, cultural and spiritual needs of present and future generations. As Edith Brown Weiss suggests "nonbinding legal instruments set forth norms that states and other actors may observe even though they are not strictly required to do so. They create expectations that may shape behaviour of states".⁷⁶⁰ In a similar line, the Forest Principles require "each State to pursue the Principles at

⁷⁵⁴ Forest Principles, Principle 2 (b).

⁷⁵⁵ Forest Principles, Preamble, para (d).

⁷⁵⁶ Forest Principles, Preamble, para (c).

⁷⁵⁷ Forest Principles, Preamble, para (f).

⁷⁵⁸ Forest Principles, Principles 1 (a); 2 (a).

⁷⁵⁹ Forest Principles, Preamble, para (f).

⁷⁶⁰ E.B. Weiss, *Understanding Compliance with International Environmental Agreements: The Bakers Dozen Myth*, *University of Richmond Law Review*, 32, 5, 1999, pp. 1555 – 1589.

the appropriate level of government⁷⁶¹ in drafting domestic forest law and policy.

For the purpose of the current research it is important to underline that Forest Principles, although being an “authoritative” international forest law instrument, neither establish a clear (measurable) global forest objective, nor a common concern principle with regard to forest issues (recognition that forests perform more than local in scope functions). Besides, although in general the SFM principle is reaffirmed in the document, there are no specific guidelines or criteria towards reaching or achieving this aim.

Similar to Chapter 11 of Agenda 21, the Forest Principles neglect any reference to climate change in the text of the document. Indirectly, in the context of the interdependence of climate change and forests Principle 6 (recognizing the role of forests in the provision of a renewable source of bio-energy) can be viewed as relevant. On the one hand, the principle underlines the contribution of planted forests as sustainable and environmentally sound sources of renewable energy and industrial raw material, acknowledges the role of planted forests to offsetting pressure on primary/old-growth forests and calls that this role of planted forests be further promoted.⁷⁶² On the other hand, the principle also recognizes the need to conserve, sustainably manage and use of natural (primary/old-growth) forests.⁷⁶³ It has previously been established by the research that primary forests are particularly important in the context of climate change, as mostly primary forests fulfil the full variety of essential forest functions and services.

Potential synergy between the international climate change regime and the Forest Principles can be established on the basis of the Principle 15: “pollutants, particularly air-borne pollutants, including those responsible for acidic deposition, that are harmful to the health of forest ecosystems at the local, national and global levels should be controlled”.⁷⁶⁴ Potentially, if to assume that the GHG specified under the international climate change regime are equivalent

⁷⁶¹ Forest Principles, Preamble (h).

⁷⁶² Forest Principles, Principle 6 (d).

⁷⁶³ Forest Principles, Principle 6 (e).

⁷⁶⁴ Forest Principles, principle 15.

to the pollutants that are harmful to the health of forest ecosystems, then while providing (economic) incentives in order to “stabilize GHG concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference with the climate system” the international climate change regime could contribute to the guiding objective of the Forest Principles.

4.2.3. The United Nations Forum on Forests (the UNFF).

The UNFF deserves attention in the research as the “only universal, intergovernmental policy forum on forests”.⁷⁶⁵ The Forum was established as a subsidiary body to the ECOSOC in 2000. It carries out its principle functions based, *inter alia*, on Chapter 11 of Agenda 21, Forest Principles, the outcomes of the IPF/IFF processes and other key milestone documents of international forest policy. Among the achievements of the Forum is the fact that the process led to the adoption by the UN General Assembly of the UN Forest Instrument in 2007. This subsection investigates the objectives and the purposes of the UNFF (4.2.3.1.); its institutional structure and membership (4.2.3.2.); its functions (4.2.3.3.) and themes (with a focus on the 2009 theme “Forests in a Changing Environment”, 4.2.3.4.). Finally, the interim conclusions bring the findings of the subsection together (4.2.3.5.).

4.2.3.1. UNFF: Objectives and Purpose.

The IPF had the mandate to pursue a consensus and to formulate coordinated proposals for action towards the management, conservation, and sustainable development of all types of forests.⁷⁶⁶ The IFF was established to continue the intergovernmental policy dialogue on forests and to promote and facilitate the proposals for action of the IPF.⁷⁶⁷ In the same line, the UNFF is set up with the main objective to “promote the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end [...]”.⁷⁶⁸

The purpose of the UNFF is “to promote the implementation of internationally agreed actions on forests at national, regional, and global levels, to provide a

⁷⁶⁵ ECOSOC, E/CN.18/2015/11, 9 February 2015, Annex, II, (h).

⁷⁶⁶ ECOSOC, Decision 1995/226.

⁷⁶⁷ ECOSOC, Resolution 1997/65.

⁷⁶⁸ Economic and Social Council of the United Nations (ECOSOC), Resolution 2000/35.// <http://www.un.org/esa/forests/wp-content/uploads/2013/09/2000_35_E.pdf>, last viewed 22 January 2016.

coherent, transparent and participatory global framework for policy implementation, coordination and development and to carry out principal functions based on the Rio Declaration on Environment and Development, the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All types of Forests (Forest Principles), Chapter 11 of Agenda 21 and the outcomes of the IPF-IFF process, in a manner consistent and complementary to existing international legally binding instruments relevant to forests".⁷⁶⁹

Similar to its predecessors, the UNFF was charged with the task to " [...] consider [...] the parameters of a mandate for developing a legal framework on all types of forests".⁷⁷⁰

In 2006 the main objective of the UNFF was extended by the four Global Objectives:

1. "Global Objective 1: Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation;
2. Global Objective 2: Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people;
3. Global Objective 3: Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests;
4. Global Objective 4: Reverse the decline in official development assistance for sustainable forest management and mobilize significantly increased new and additional financial resources from all sources for the implementation of sustainable forest management".⁷⁷¹

Additionally, the objectives for the UNFF beyond 2015 have been extended to:

⁷⁶⁹ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 1.

⁷⁷⁰ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 3 (c), (i).

⁷⁷¹ UNFF, Report of the Sixth Session, 27 May 2005 and 13-24 February 2006, ECOSOC Official Records, 2006, Supplement No. 22, UN Doc. E/CN.18/2006/18, Decision No. E/2006/42, para. 3 Global Objectives on Forests.

1. "Promote the implementation of sustainable forest management of all types of forests in particular the implementation of the non-legally binding instrument on all types of forests;
2. Enhance the contribution of all types of forests and trees outside forests to the post-2015 development agenda;
3. Enhance cooperation, coordination, coherence and synergies on forest-related issues at all levels;
4. Support efforts to strengthen forest governance frameworks and means of implementation, in accordance with the non-legally binding instrument on all types of forests, in order to achieve sustainable forest management".⁷⁷²

The UNFF was created as a dynamic arrangement, adapting to the evolving conditions.⁷⁷³ The UNFF works on the basis of multi-year programs of work, drawing on the elements reflected in the Rio Declaration on Environment and Development, the Forest Principles, chapter 11 of Agenda 21 and the IPF/IFF proposals for action.⁷⁷⁴ ECOSOC resolved that every five years the UNFF is subjected to a review of its own effectiveness.⁷⁷⁵ The first review took place in 2005, after the completion of the first multi-year program for the period from 2001 until 2005. Then, the Fifth Session did not make any explicit reference to extending the duration of the UNFF, but implicitly extended its mandate by scheduling its Sixth Session in 2006.⁷⁷⁶ In 2007 a multi-year program of work was set up for the period of 8 years, leading up to one more review in 2015.⁷⁷⁷

Recently, at the UNFF -11, the mandate of the Forum on Forests has been extended up until 2030.⁷⁷⁸ The UNFF is currently developing a Strategic Plan for

⁷⁷² ECOSOC, E/2015/42-E/CN.18/2015/14, International Arrangement on Forests beyond 2015.

⁷⁷³ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 17.

⁷⁷⁴ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 4 (g).

⁷⁷⁵ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 17.

⁷⁷⁶ ECOSOC, Decision E/2005/42.

⁷⁷⁷ ECOSOC, Resolution 2006/49, para. 32. "[T]he effectiveness of the international arrangement on forests will be reviewed in 2015 and that on this basis a full range of options will be considered, including a legally binding instrument on all types of forests, strengthening the current arrangement, continuation of the current arrangement and other options".

⁷⁷⁸ ECOSOC, E/2015/42-E/CN.18/2015/14, UNFF, Report on the Eleventh Session, 19 April 2013 and 4 to 5 May 2015, E/2015/42-E/CN.18/2015/14, International Arrangement on Forests

the period between 2017 until 2030, which is operationalized through a quadrennial program of work.⁷⁷⁹ It is envisaged that the Strategic Plan is aligned with the objectives of the UNFF, the forest-related aspects of the post-2015 development agenda, taking into account significant forest-related developments in other forums, as well as identifies the roles of different actors.⁷⁸⁰

4.2.3.2. Institutional Structure and Membership: the UNFF and its Collaborative Partnership on Forests.

The UNFF is established as a subsidiary body to the ECOSOC.⁷⁸¹ Along with the establishment of the UNFF, the same ECOSOC resolution established the Collaborative Partnership on Forests (CPF).⁷⁸²

a. UNFF.

The Forum operates through a Bureau and a Secretariat. The Bureau consists of one chairperson and four vice chairpersons in accordance with the principle of equitable geographical distribution. This principle aims to ensure that power is jointly held and exercised. The bureau has several responsibilities, which include: following up decisions made at Forum sessions; preparing for subsequent sessions; and managing and organizing during sessions.⁷⁸³ The

beyond 2015. // < <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N15/164/47/PDF/N1516447.pdf?OpenElement>>, last viewed 22 January 2015.

⁷⁷⁹ The 12th session is expected to be held in mid-2017. By then, a concise strategic plan will be developed for the period between 2017 until 2030. The plan will be operationalized through quadrennial programs of work.

⁷⁸⁰ ECOSOC, E/2015/42 – E/CN.18/2015/14, XI Strategic Plan, para. 39.

⁷⁸¹ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 4. In the UN Charter the ECOSOC is the principal UN organ responsible for the promotion of international cooperation on economic and social matters. The UNFF is the only subsidiary body of the ECOSOC with universal membership (it is composed of all Member States of the United Nations and specialized agencies). The UNFF actions are reported to ECOSOC as opposed to an independent secretariat.

⁷⁸² ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 3 (b). The CPF is modelled after the informal, high-level Inter-Agency Task Force on Forests (ITTF), which was set up in 1995 to support the Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF). Members to the Inter-Agency task Force comprised: CBD (Secretariat); CIFOR; the Department of Economic and Social Affairs of the UN Secretariat; FAO; ITTO; UNEP; UNDP; and the World Bank. In its current status, the relationship of the UNFF and the CPF requires further clarification. See, ECOSOC, Report of the first meeting of the Open-Ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, 24-28 February 2014, Weaknesses, p. 7.

⁷⁸³ UNFF, Bureau.// <<http://www.un.org/esa/forests/forum/bureau/index.html>>, last viewed 24 February 2016.

secretariat consists of 7 full-time staff members.⁷⁸⁴ The Secretariat is responsible for organizing the logistical preparation for meetings, the timely preparation of documents and information, and servicing the meetings of the Forum and the Bureau. The secretariat also supports and facilitates inter-session activities (such as meetings of experts or government-led initiatives). The role of the secretariat is, thus, mainly administration and support.

The UNFF has a universal membership and “is open” to all States Members of the United Nations and States members of its specialized agencies.⁷⁸⁵ In addition, the Forum is open to relevant international and regional organizations, including regional economic integration organization (i.e. the European Union), institutions and instruments, as well as major groups as identified in Agenda 21 (i.e. farmers, women, the scientific and technological community, children and youth, indigenous peoples and their communities, workers and trade unions, business and industry, non-governmental organizations, and local authorities).⁷⁸⁶

Since its first meeting in February of 2001 members to the UNFF have met 11 times. With its current mandate the Forum meets biannually.⁷⁸⁷ According to the multi-year program of work for the period from 2007 until 2015, each session of the Forum focuses on “progress towards (1) the achievement of sustainable forest management; (2) implementation of the UN Instrument on Forests; (3) achievement of the four global objectives on forests; (4) implementation of the proposals for action of the IPF/IFF; (5) implementation of the previous resolutions adopted by the Forum”.⁷⁸⁸

b. Collaborative Partnership on Forests (CPF).

The CPF was established by ECOSOC in order to support the work of the UNFF; to enhance cooperation and coordination among participants; and to call upon

⁷⁸⁴ UNFF, Secretariat, Staff.// <<http://www.un.org/esa/forests/forum/unffs/staff/index.html>>, last viewed 24 February 2016.

⁷⁸⁵ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 4.

⁷⁸⁶ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 4. (a, b); Agenda 21, UN Doc. A/CONF. 151/26 (Vol II), 13 August 1992.

⁷⁸⁷ Prior to the 7th meeting of the Forum all Members met annually.

⁷⁸⁸ ECOSOC, E/2007/42, Multi-year Program of Work of the United Nations Forum on Forests for the Period 2007-2015, A. Forum Sessions, 1 (a), (b), (c).

their governing bodies and their heads to support the activities of the CPF to achieve the goals of the Forum: "The ECOSOC [...] invites the executive heads of relevant organizations of the UN system and heads of other relevant international and regional organizations, institutions and instruments, to form a collaborative partnership on forests to support the work of the Forum and to enhance cooperation and coordination among participants and to call upon their governing bodies and their heads to support the activities of the CPF in order to achieve the goals of the Forum".⁷⁸⁹ The CPF is chaired by the FAO and is serviced by the UNFF Secretariat. The Partnership unites international organizations, institutions, and secretaries that have substantial programs on forests: There are in total 14 members to the CPF: the Centre for International Forestry Research (the CIFOR);⁷⁹⁰ the CBD (Secretariat); the FAO; the Global Environment Facility (GEF Secretariat);⁷⁹¹ the ITTO; the IUCN;⁷⁹² the IUFRO; the UNCCD (Secretariat); the UNDP; the UNEP; the UNFF (Secretariat); the World Agroforestry Centre (ICRAF);⁷⁹³ the World Bank;⁷⁹⁴ and, importantly, the

⁷⁸⁹ ECOSOC, Resumed Substantive Session of 2000, Resolution 2000/35, 18 October 2000, para. 3 (b); also reaffirmed in ECOSOC, E/2015/42 – E/CN.18/2015/14. See also, ECOSOC, E/2015/42 – E/CN.18/2015/14, Collaborative Partnership on Forests, para. 20.

⁷⁹⁰ Center for International Forestry Research (CIFOR)- is a non-profit, scientific facility that conducts research on the most pressing challenges of forest and landscapes management around the world. Member of the Global Consortium of International Agricultural Research (CGIAR) and lead the CGIAR Research Program on Forests, Trees and Agroforestry. The headquarters are in Bogor, Indonesia. CIFOR has offices in 8 countries across Asia, Latin America and Africa; works with more than 30 other countries. See, CIFOR.// <<http://www.cifor.org/about-cifor/>>, last viewed 23 February 2016.

⁷⁹¹ Global Environment Facility (GEF) is formally an inter-agency body. It was established in 1991 by the World Bank, UNEP and UNDP. The GEF's general function is to provide funds to enable developing countries to meet "agreed incremental costs" of measures taken pursuant to UNCED Agenda 21 and intended to achieve "agreed global environmental benefits" with regard to climate change, biological diversity, international waters, ozone-layer depletion, deforestation, desertification, and persistent organic pollutants. It has also been designated to act as the financial mechanism established by the Climate Change Convention, the Biological Diversity Convention, and the Persistent Organic Pollutants (POPS) Convention. GEF Secretariat is based in Washington D.C., the USA. See, Global Environment Facility.// <<https://www.thegef.org/gef/whatisgef/>>, last viewed 23 February 2016.

⁷⁹² International Union for Conservation of Nature (IUCN) – found in 1948 as the world's first global environmental organization. IUCN's mission is to "influence, encourage and assist societies throughout the world to conserve nature and to ensure that any use of natural resources is equitable and ecologically sustainable". IUCN's headquarters are in Gland, near Geneva, Switzerland. See, IUCN.// <<http://iucn.org/>>, last viewed 23 February 2016.

⁷⁹³ The World Agroforestry Centre, also known as international center for research in agroforestry (ICRAF) is a research center associated with the Global Consortium of International Agricultural Research. ICRAF 's headquarters are in Nairobi, Kenya, with six regional offices located in Cameroon, China, India, Indonesia, Kenya and Peru. The Centre's mission is to generate science-based knowledge about the diverse roles that trees play in agricultural landscapes and to use its research to advance policies and practices and their implementation, that benefit the poor and the environment. See, ICRAF.// <<http://www.worldagroforestry.org/>>, last viewed 23 February 2016.

UNFCCC (Secretariat).⁷⁹⁵ This has been pronounced by some legal scholars as a “matryoshka doll-syndrome” – a cooperation institution nested in a cooperation institution nested in a cooperation institution and so forth.⁷⁹⁶

The core functions of the CPF are:

1. To support the work of the Forum and its member countries;
2. To provide scientific and technical advice to the Forum, including on emerging issues;
3. To enhance coherence as well as policy and programme cooperation and coordination at all levels among its member organizations, including through joint programming and the submission of coordinated proposals to their respective governing bodies, consistent with their mandate;
4. To promote implementation of the non-legally binding instrument on all types of forests, including the achievement of its global objectives on forests and the contribution of forests to the post-2015 agenda.⁷⁹⁷

The CPF receives guidance from the Forum and submits coordinated work plans and annual progress reports to Sessions of the Forum.⁷⁹⁸ The CPF convenes in conjunction to the major events of the UNFF and the CPF members.

As of April 2014, the CPF has delivered more than 30 joint initiatives and activities,⁷⁹⁹ including the ongoing ones: “Forests and Climate Change”; “Harmonizing Forest Related Definitions”, “Streamlining Forest Related

⁷⁹⁴ The World Bank is composed of the International Bank for Reconstruction and Development and the International Development Association. Together with other three organizations, i.e. the International Finance Cooperation, the Multilateral Investment Guarantee Agency and the International Center for Settlement of Investment Disputes, the World Bank comprise the World Bank Group. It is an independent specialized agency of the United Nations. The bank first became involved in the forestry sector in 1949 when it financed forest operations in Finland and the former Yugoslavia. Gradually, the Bank’s role in financing forest projects evolved from one that focused on timber extraction to trial operations in social forest programs and agro-forestry – and, later, towards an approach that favored the conservation of remaining forest areas. The Bank is now finalizing a new 5 year Forest Action Plan (2016-2020) that lays out how its work on forests and trees will contribute to resilient and sustainable landscapes. See, World Bank. // < <http://www.worldbank.org/en/topic/forests/overview#2>>, last viewed 23 February 2016; World Bank, *Sustaining Forests: A development Strategy*, 2004, p. 19.

⁷⁹⁵ CPF, Members.// < <http://www.cpfweb.org/73039/en/>>, last viewed 21 February 2016.

⁷⁹⁶ A. Eikermann, *Forests in International Law, Is there really a Need for an International Forest Convention?*, 2015, p. 44.

⁷⁹⁷ ECOSOC, E/2015/42 – E/CN.18/2015/14. See also, ECOSOC, E/2015/42 – E/CN.18/2015/14, *Collaborative Partnership on Forests*, para. 20.

⁷⁹⁸ ECOSOC, E/2015/42 – E/CN.18/2015/14. See also, ECOSOC, E/2015/42 – E/CN.18/2015/14, *Collaborative Partnership on Forests*, para. 21.

⁷⁹⁹ CPF, *Promoting Sustainable Forest Management, An Innovative Interagency Partnership on Forests, Comprising 14 International Organizations, Institutions and Secretariats with Substantial Programs on Forests, Highlights 2013-2014*, p.3.

Reporting”, “Common Message on SFM” and other initiatives.⁸⁰⁰ The “Forests and Climate Change” initiative is of particular interest for the current research. Undertaking this initiative the CPF members produced a “Strategic Framework for Forests and Climate Change”.⁸⁰¹ The document is put together in order to support the UNFCCC process, the UN Instrument on Forests and other international agreements and in response to the need for concerted action on forests and climate change.⁸⁰² The document shows how forests, when sustainably managed, can play a positive role in climate change mitigation and adaptation. The CPF conveys the following key messages: (1) SFM provides an effective framework for forest-based climate change mitigation and adaptation; (2) forest-based climate change mitigation and adaptation measures should proceed concurrently; (3) Inter-sectoral collaboration, economic incentives, and the provision of alternative livelihoods are essential for reducing deforestation and forest degradation; (4) Capacity building and governance reforms are urgently required; (5) Accurate monitoring and assessment helps informed decision-making but requires greater coordination at all levels; (6) CPF members are committed to a collaborative and comprehensive approach to forest-based climate change mitigation and adaptation.⁸⁰³ Thus, the Strategic Framework lays the groundwork for a coordinated response from the forest sector to climate change, notably, through the widespread adoption of sustainable forest management.

Recognizing that there has been significant progress in implementing the SFM concept and yet that “many challenges remain”,⁸⁰⁴ in 2010 the CPF established a Working Group on Advancing a Common Message on Sustainable Forest Management. The Group pursues the following objectives: (1) Clarification of the concepts to achieve a common understanding; (2) Development of common messages; (3) Provision of a CPF response through joint activities on

⁸⁰⁰ For a full list of ongoing initiatives, please see, CPF, Initiatives.// < <http://www.cpfweb.org/en/>>, last viewed 24 February 2016.

⁸⁰¹ CPF, Strategic Framework for Forests and Climate Change, A proposal by the CPF for a coordinated Forest-Sector Response to Climate Change, 2008.

⁸⁰² CPF, Strategic Framework for Forests and Climate Change, Executive Summary, 2008, p. 2.

⁸⁰³ CPF, Strategic Framework for Forests and Climate Change, A proposal by the CPF for a coordinated Forest-Sector Response to Climate Change, 2008.

⁸⁰⁴ CPF, Eight new Fact Sheets Highlight the Key Role of Sustainable Forest Management in Sustainable Development, 2012, p. 2.

information and guidance for implementation of SFM in practice.⁸⁰⁵ As a baseline the CPF adopts the UN GA SFM definition as a “dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”.⁸⁰⁶

From a governance perspective, a highly important initiative of the CPF is the one on the streamlining forest-related reporting. The initiative has been carried out since 2002 by a CPF Task Force for streamlining forest-related reporting. The mandate of the CPF Task Force is provided in a number of resolutions of the UNFF, as follows: the UNFF “further requests the CPF and its member organizations to [...] reduce duplication in the reports required from countries by its member organizations”;⁸⁰⁷ the UNFF “invites CPF members to streamline reporting requests and, to the extent possible, to synchronize their reporting cycles so as to reduce reporting burden on countries”.⁸⁰⁸ The objective of the CPF Task Force is to propose ways to reduce the forest-related reporting burden, for example, through reducing and streamlining reporting requests, synchronizing reporting cycles, harmonizing data collection methods and increasing data comparability and compatibility, and facilitating the accessibility and flows of existing information. The purpose of this work is to guide ongoing international processes by sharing experiences and lessons learnt on different reporting frameworks and by seeking possibilities for common approaches for data and information collection, storage and reporting by international organizations.⁸⁰⁹ The Task Force works in close collaboration with the members of the CPF. Thus, for instance, the CBD COP requested that the CBD Secretariat collaborates with the UNFF, FAO and other CPF members on “streamlining forest-related reporting, based on the CPF Task Force on Streamlining Forest-

⁸⁰⁵ CPF, Initiatives, Working Group on Sustainable Forest Management.// < <http://www.cpfweb.org/76228/en/>>, last viewed 24 February 2016. The information is limited however as to the progress achieved by the Working Group.

⁸⁰⁶ CPF, Initiatives, Working Group on Sustainable Forest Management, What is the definition of SFM.// < <http://www.cpfweb.org/76228/en/>>, last viewed 24 February 2016. The information is limited however as to the progress achieved by the Working Group.

⁸⁰⁷ UNFF, Report of the first session of the UNFF E/2001/42 (Part II)-E/CN.18/2001/3 (Part II), Paragraph 9c of UNFF resolution 1/3.

⁸⁰⁸ UNFF, Report of the second session of the UNFF (E/2002/42 and E/CN.18/2002/14), section E of UNFF resolution 2/2.

⁸⁰⁹ CPF, Initiatives, Streamlining forest-related reporting.//< <http://www.cpfweb.org/73035/en/>>, last viewed 24 February 2016.

related Reporting, including by organizing, in collaboration with the FAO, a meeting of the Task Force, to investigate whether there are inadequacies in forest biodiversity reporting and monitoring [...]”.⁸¹⁰

In 2003 the CPF Task Force issued a Report “Towards a Common Information Framework for Forest-related National Reporting to International Processes”.⁸¹¹ The Report distinguishes between the reporting requirements of actions (implementation of international commitments), situations, and trends (reporting of forest statistics; ecological, social and economic aspects of forests).⁸¹² The CPF Task Force recommends that all international forest reporting guidelines be based on seven thematic elements of SFM: (1) extent of forest resources; (2) biological diversity; (3) forest health and vitality; (4) productive functions of forest resources; (5) protective function of forest resources; (6) socio-economic functions; (7) legal, policy and institutional frameworks.⁸¹³ In order to contribute to reducing reporting requirements, the CPF started a process, which aims to achieve more consistency in the use of forest-related definitions.⁸¹⁴ Thus, the work of the CPF contributes to a greater integration of international forest regulatory processes.

4.2.3.3. UNFF: Functions.

The ECOSOC resolution, establishing the UNFF, foresaw the following functions:

- (a) Facilitate and promote the implementation of the IPF/IFF proposals for action as well as other actions which may be agreed upon, including through national forest programmes and other integrated programmes relevant to forests, catalyse, mobilize and generate financial resources, and mobilize and channel technical and scientific resources to this end, including by taking steps towards the broadening and development of mechanisms and/or further initiatives to enhance international cooperation;

⁸¹⁰ CBD, COP Decision X/ 36, 5 (iii). CBD, COP Decision IX/5, Forest Biodiversity, 3 (g).

⁸¹¹ CPF, Towards a Common Information Framework for Forest-Related National Reporting to International Processes, 6 December 2003.

⁸¹² CPF, Towards a Common Information Framework for Forest-Related National Reporting to International Processes, 6 December 2003, p. 4.

⁸¹³ CPF, Towards a Common Information Framework for Forest-Related National Reporting to International Processes, 6 December 2003, p. 5.

⁸¹⁴ CPF, Initiatives, Harmonizing Forest Related Definitions. // <
<http://www.cpfweb.org/73036/en/>>, last viewed 24 February 2016.

- (b) Provide a forum for continued policy development and dialogue among Governments, which would involve international organizations and other interested parties, including major groups, as identified in Agenda 21, to foster a common understanding on sustainable forest management and to address forest-related issues and emerging areas of priority concern in a holistic, comprehensive and integrated manner;
- (c) Enhance cooperation as well as policy and programme coordination on forest-related issues among relevant international and regional organizations, institutions and instruments, as well as contribute to synergies among them, including coordination among donors;
- (d) Foster international cooperation, including North-South, and public-private partnerships, as well as cross-sectoral cooperation at the national, regional and global levels;
- (e) Monitor and assess progress at the national, regional, and global levels through reporting by Governments, as well as by international and regional organizations, institutions and instruments, and on this basis consider future actions needed;
- (f) Strengthen political commitment to the management, conservation and sustainable development of all types of forests through ministerial engagement, the development of ways to liaise with the governing bodies of international and regional organizations, institutions and instruments, and the promotion of action-oriented dialogues and policy formulation related to forests.⁸¹⁵

In 2006 the ECOSOC agreed that the UNFF will perform the following additional principal functions:

- (a) Enhance the contribution of forests to the achievement of the internationally agreed development goals, including the Millennium Development Goals, and to the implementation of the Johannesburg Declaration on Sustainable Development and the Plan of Implementation of the World Summit on Sustainable Development and the Plan of Implementation of the World Summit on Sustainable Development,

⁸¹⁵ ECOSOC, Resolution 2000/35, para. 2

bearing in mind the Monterrey Consensus of the International Conference on Financing for Development;

- (b) Encourage and assist countries, including those with low forest cover, to develop and implement forest conservation and rehabilitation strategies, increase the area of forests under sustainable management and reduce forest degradation and the loss of forest cover in order to maintain and improve their forest resources with a view to enhancing the benefits of forests to meet present and future needs, in particular the needs of indigenous peoples and local communities whose livelihoods depend on forests;
- (c) Strengthen interaction between the UNFF and relevant regional and subregional forest-related mechanisms, institutions, and instruments, organizations and processes, with participation of major groups, as identified in Agenda 21 and relevant stakeholders to facilitate enhanced cooperation and effective implementation of sustainable forest management, as well as to contribute to the work of the Forum.⁸¹⁶

For the UNFF beyond 2015 the ECOSOC decided that the core functions of the Forum are to:

- (a) Provide a coherent, open, transparent and participatory global platform for policy development, dialogue, cooperation and coordination on issues related to all types of forests, including emerging issues, in an integrated and holistic manner, including through cross-sectoral approaches;
- (b) Promote, monitor and assess the implementation of sustainable forest management, in particular the non-legally binding instrument on all types of forests and the achievement of its global objectives on forests, and mobilize, catalyse and facilitate access to financial, technical and scientific resources to this end;
- (c) Promote governance frameworks and enabling conditions at all levels to achieve sustainable forest management;
- (d) Promote coherent and collaborative international policy development on issues related to all types of forests;

⁸¹⁶ ECOSOC, E/CN.18/2006/18, Decision No. E/2006/42, para. 2 (a), (b), (c).

- (e) Strengthen high-level political engagement, with the participation of major groups and other stakeholders, in support of sustainable forest management.⁸¹⁷

It has been recently suggested that there is a need to clarify the objectives, functions and principles of the UNFF for the future.⁸¹⁸

4.2.3.4. UNFF: Themes (focus on the theme “Forests in a Changing Environment”).

The course of events for the UNFF sessions is largely pre-set by the resolutions on the multi-year programs of work adopted by ECOSOC.⁸¹⁹ Each session of the UNFF considers an overall theme relevant to the achievement of sustainable forest management. This subsection, i.e. “Themes (focus on the theme “Forests in a Changing Environment”)” reviews the themes and discusses the theme “Forests in a Changing Environment” in greater detail.

The themes for the second multi-year programme of work (2007-2015) included:

- (a) Eighth Session (2009): Forest in a Changing Environment (and the related themes: Forests and climate change; Reversing the loss of forest cover, preventing forest degradation in all types of forests and combating desertification, including low forest cover countries; Forests and biodiversity conservation, including protected areas); and Means of Implementation for Sustainable Forest Management (Decision on a voluntary global financial mechanism, portfolio approach, forest financing framework);⁸²⁰
- (b) Ninth Session (2011): Forests for people, livelihoods and poverty eradication (and the related themes: Community-based forest management; Social development and indigenous and other local and

⁸¹⁷ ECOSOC, E/CN.18/2015/14, Decision No. E/2015/42, II. United Nations Forum on Forests Beyond 2015, para. 3. (a)-(e).

⁸¹⁸ ECOSOC, E/CN.18/2015/11, Report of the Second Meeting of the Open-Ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, 9 February 2015, IV Views and Proposals on the International Arrangement on Forests, para. 4 (c); para. 5 (b). E. g. “A few tweaks and updates may be needed”.

⁸¹⁹ ECOSOC, E/2001/42/Rev.1, E/CN.18/2001/3/Rev.1, Resolution 1/1, para. 4; E/2007/42, E/CN.18/2007/8, Resolution 7/1.

⁸²⁰ Please see below for more information on the Eighth Session “Forests in a Changing Environment”.

- forest dependent communities including forest land tenure; Social and cultural aspects);
- (c) Tenth Session (2013): Forests and Economic Development (and the related themes: Forest products and services; National forest programmes and other sectoral policies and strategies; Reducing risks and Impacts of Disasters; Benefits of forests and trees to urban communities);
- (d) Eleventh Session (2015): Forests: Progress, Challenges and the Way Forward for the International Arrangement on Forests (and the related themes: Reviewing the effectiveness of the international arrangement on forests and consideration of all future options; Reviewing progress towards the achievement of the global objectives on forests and the implementation of the non-legally binding instrument on all types of forests; Reviewing the contribution of forests and the international arrangement on forests, including the non-legally binding instrument on all types of forests, to the internationally agreed development goals).⁸²¹

In addition to this, the UNFF sessions address the “cross-cutting issues”, including: Means of Implementation (finance, transfer of environmentally sound technologies, capacity-building, awareness-raising, education and information-sharing); Forest Law Enforcement and Governance at all Levels.⁸²² Moreover, the UNFF sessions have “common agenda items”: Achieving the four global objectives on forests and implementing the non-legally binding instrument on all types of forests; regional and sub regional inputs; multi-stakeholder dialogues and participation; enhanced cooperation and cross-sectoral policy and programme coordination, including activities and inputs of the CPF.⁸²³ From the second multi-year program of work onwards each session of the UNFF may include in its agenda emerging issues of global significance that are related to and/or have an impact on forests and sustainable forest management, which are urgent, unexpected and not already addressed in the agenda of the respective sessions.⁸²⁴ The themes have been rather comprehensive in nature and legal

⁸²¹ ECOSOC, E/2007/42, E/CN.18/2007/8, Appendix.

⁸²² ECOSOC, E/2007/42, E/CN.18/2007/8, Appendix, Cross-cutting Issues

⁸²³ ECOSOC, E/2007/42, E/CN.18/2007/8, Appendix, Common Agenda Items.

⁸²⁴ ECOSOC, E/2007/42, E/CN.18/2007/8, Annex, D, Emerging Issues.

scholars criticised that “this comprehensiveness has been a portent of the rigor of the system and the difficulty of actually achieving all its tasks”.⁸²⁵

The overall theme of the Eighth Session of the UNFF in 2009 embraced “Forests in a Changing Environment”. During the Session, on the one hand, the UNFF expressed its concern about the interrelated impacts of climate change on forests in many regions of the world: loss of forest cover, forest degradation, desertification and biodiversity loss, and the associated impacts on over 1,6 billion people who depend on forests for subsistence, livelihood, income and employment.⁸²⁶ On the other hand, the UNFF also recognized the contribution of forests in addressing climate change, biodiversity conservation and combating desertification.

The UNFF emphasized the potential significant contribution of the SFM, as a dynamic and evolving concept, aiming to maintain and enhance the economic, social and environmental benefits of all types of forests; and the contribution of the UN Forest Instrument, which “offers an integrated framework to implement SFM and in turn contribute to addressing the interrelated challenges of climate change, forest loss and degradation, and desertification, as well as contribute to the conservation and sustainable use of forest biodiversity, in a coherent, coordinated and cross-sectoral manner at local, national, regional and global levels”.⁸²⁷

The UNFF encouraged Member States to strengthen the implementation of SFM in addressing the challenges of forests in a changing environment.⁸²⁸ The Member States were invited to consider the proposals contained in the CPF “Strategic Framework for Forests and Climate Change”.⁸²⁹ Furthermore the UNFF encouraged Member States to strengthen coordination, in particular, among

⁸²⁵ A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 47.

⁸²⁶ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, preamble, para. 4.

⁸²⁷ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, preamble, paras. 6, 7.

⁸²⁸ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, 1 (a).

⁸²⁹ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, 1 (h). The “Strategic Work for Forests and Climate Change” is discussed in a greater detail in the subsection 4.1.2.2. (b) “CPF: Initiatives” of the current thesis.

their national focal points for the UNFF, the CBD, the UNCCD, the UNFCCC, as well as, for other members of the CPF, the CITES, and the Ramsar Convention to facilitate implementation of SFM at national and other applicable levels.⁸³⁰

Member Organizations of the CPF, consistent with their mandates, were invited to promote the "Strategic Framework for Forests and Climate Change".⁸³¹ Governing bodies of Member Organizations of the CPF, in particular the COPs of the UNFCCC, the UNCCD, and the CBD were invited to continue to integrate the SFM concept into their strategies by: (i) considering the UN Forest Instrument as a means to help ensure coherence and avoid duplication; (ii) building on existing and well-established forest-related tools, processes, programmes and activities available at the national, regional and international levels to implement SFM (eg. National Forest Programs; Criteria and Indicators for SFM; and other related monitoring methodologies and assessment tools).⁸³²

4.2.3.5. UNFF: Interim Conclusions.

The UNFF is a subsidiary body to ECOSOC. The Forum boasts universal membership and is a unique setting as the only global platform within the UN system for discussing the multifunctional role of forests in an integrated and holistic manner.⁸³³ The main objective of the Forum is to promote "the management, conservation and sustainable development of all types of forests, and to strengthen long-term political commitment to this end".⁸³⁴ In order to implement this objective a number of ECOSOC resolutions foresees various functions of the UNFF.⁸³⁵ Yet, these functions are broadly worded and no accountable or goal-bound function is prescribed within the list of functions.

⁸³⁰ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, 1 (c).

⁸³¹ ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, 1 (h). The "Strategic Work for Forests and Climate Change" is discussed in a greater detail in the subsection "CPF: Initiatives" of the current chapter.

⁸³² ECOSOC, E/2009/42, E/CN.18/2009/20, B. Resolution brought to the attention of the Council, 2 (b).

⁸³³ ECOSOC, E/CN.18/2015/10, Report of the First Meeting of the Open-Ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, 24-28 February, 2014, A. Assessment of the Current International Arrangement on Forests (achievements, strengths and weaknesses), Achievements; see also, UNGA, The Future we want, A/RES, 66/288, 27 July 2012, para 195.

⁸³⁴ ECOSOC, Resolution 2000/35, Report on the Fourth Session of the Intergovernmental Forum on Forests.

⁸³⁵ Please see subsection 4.2.3.3. "Functions of the UNFF" of the current chapter.

In line with its main objective, the UNFF largely promotes the universal approach to SFM on the international political agenda. It also works to emphasize the contribution of the SFM (as a dynamic and evolving concept) and the contribution of the UN Forest Instrument (as an integrated framework to implement SFM) towards addressing the interrelated challenges of climate change, forest loss and degradation, and desertification.

The Forum covers a broad range of themes directly and indirectly concerning forests, including the climate change and forests. For the purpose of the thesis the outcomes of the Eighth Session of the UNFF in 2009 "Forests in a Changing Environment" are particularly significant. The Session, *inter alia*, stressed the key messages of the CPF's "Strategic Framework for Forests and Climate Change", including: (1) SFM provides an effective framework for forest-based climate change mitigation and adaptation; (2) forest-based climate change mitigation and adaptation measures should proceed concurrently; (3) Inter-sectoral collaboration, economic incentives, and the provision of alternative livelihoods are essential for reducing deforestation and forest degradation; (4) Capacity building and governance reforms are urgently required; (5) accurate monitoring and assessment helps informed decision-making but requires greater coordination at all levels; (6) CPF members are committed to a collaborative and comprehensive approach to forest-based climate change mitigation and adaptation.⁸³⁶

Overall, legal scholars have widely criticized the UNFF for the limited effectiveness (e.g. for international law to be effective, there must be domestic implementation of international commitments. It is generally accepted that there has been weak implementation and compliance with the major forest instruments under the UNFF and its predecessor bodies),⁸³⁷ shortcomings, and

⁸³⁶ CPF, Strategic Framework for Forests and Climate Change, A proposal by the CPF for a coordinated Forest-Sector Response to Climate Change, 2008.

⁸³⁷ C.P. Mackenzie, Future Prospects for International Forest Law, *International Forestry Review*, 14 (2), 2012, p. 251; See also, A. Iza, L. Slobodian, International Forest Governance Regimes, IUCN Academy of Environmental Law, 7-12 September 2015, available at request; R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, p. 120.

the lack of authority conferred upon the Forum.⁸³⁸ Such evaluation seems hard to dismiss especially if to consider the constant struggle with regard to an international forest convention; the repeated failure of the UNFF (and its predecessors – the IPF/IPF) to produce anything other than “grandiose statements of intent”;⁸³⁹ and the lack of the tangible progress with regard to “a real consensus on elements constituting SFM”.⁸⁴⁰

However, an entire rejection of the UNFF process can unfairly disregard its achievements. If to consider the effectiveness of the institution, it is important to mention that while falling short of the aim to create a legally-binding instrument, the UNFF process, lead to the adoption by the UN General Assembly of the UN Forest Instrument in 2007 and, thus, further promoted a universal approach towards SFM. The Forum also raised the profile of forests in the global development agenda by influencing international policy agreements on forests in other forums (e.g. outcome documents of the World Summit on Sustainable Development and the UN Conference on Sustainable Development⁸⁴¹).

If to compare the UNFF to its predecessors, the IFF and the IPF, it is possible to detect a strengthening trend in the evolution of the institutional setting. According to Humphreys, three main institutional “hardening” are: first, the UNFF has universal membership;⁸⁴² second, whereas its predecessors reported to the CSD, the UNFF reports directly to the UN ECOSOC; third, unlike the IPF and IFF, the work of the UNFF involves, for some sessions, a ministerial

⁸³⁸ R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, p. 95; p. 121.

⁸³⁹ C.P. Mackenzie, *Future Prospects for International Forest Law*, *International Forestry Review*, 14 (2), 2012, p. 251.

⁸⁴⁰ A. Eikermann, *Forests in International Law, Is there really a Need for an International Forest Convention?*, 2015, p. 48.

⁸⁴¹ For instance, participation in the “Rio + 20” is listed among the initiatives of the CPF. Its members actively supported the work of the Open Working Group on Sustainable Development Goals. As a result of thorough negotiations, forests are addressed under two of the Sustainable Development Goals (SDG 6, Ensure availability and sustainable management of water and sanitation for all; and SDG 15, Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss). See, UN GA, *Transforming our World: the 2030 Agenda for Sustainable Development, Sustainable Development Goals and Targets, Goal 6, Goal 15, A/RES/70/1*, 25 September 2015;

⁸⁴² Strictly speaking the Member States of the IPF and IFF were the 53 members of the CSD. However, as the IPF and IFF were designated “open ended” fora, any UN Member State could attend with the status and privileges of the CSD Member States.

segment.⁸⁴³ Therefore, the UNFF already occupies a higher status and has a greater political visibility within the UN system, compared to the IPF and IFF.

Furthermore, the reporting rates under the UNFF have been steadily increasing. Currently, countries on a voluntary basis, submit national reports to the UNFF periodically, to account publicly for progress in implementing national measures, policies, actions or specific objectives towards achieving the Global Objectives on forests.⁸⁴⁴ The UNFF as a universal membership body comprises 193 members of the United Nations itself. Although, of these, only 82 countries (little less than 50 percent submitted national reports for consideration at the UNFF - 11 in 2015,⁸⁴⁵ this result can still be considered as a significant improvement over the situation in 2004. Then only 38 countries (less than 20 percent of its members) submitted national reports for consideration at the UNFF - 4.⁸⁴⁶ In a decade the figures more than doubled – and this, taking into account that the UNFF is essentially a voluntary forum, without any ability to invoke sanctions or incentives for non-provision of the reports.

It is possible that in the coming years the UNFF will continue to “strengthen”,⁸⁴⁷ overcoming its shortcomings; and will continue to evolve beyond the present status of a mere political and/or agenda-setting institution. This is to be achieved, *inter alia*, through clarifying the functions and the mandate that the Forum and its components (e.g. the CPF) carry out (i.e. where is the Forum going? and what does the Forum need to achieve?); clarification of the

⁸⁴³ D. Humphreys, The Elusive Quest for a Global Forest Convention, RECIEL, 14 (1), 2005, p. 3.

⁸⁴⁴ The UNFF seventh session report provides that “countries should, on a voluntary basis, submit national reports to the Forum, in accordance with a timetable established by the Forum”. The UNFF 9 negotiations provided clarity on the purpose and requirements of submissions made to UNFF and directed that: the secretariat and the CPF develop a simple template for states to communicate their progress towards the introduction of policies and measures to implement the four global objectives of forests; extended a formal invitation to the FAO to include in its State of the World Forests Reports data regarding the implementation of the Forest Principles 2007 and the four global objectives on forests in the future UNFF reports. ECOSOC, UNFF, Report of the Seventh Session, 24 February 2006 – 16-27 April 2007, 16; ECOSOC, UNFF, Report of the Ninth Session, 24 January – 4 February 2011, UN ESCOR, 9th session, Supp. No 22, UN Doc E/2011/42, e/cn. 18/2011/20, 1 May 2009 – 24 January to 4 February 2011, at para 3, para 6 of “The Assessment of Progress on All Types of Forests and Towards the Achievement of the Four Global Objectives on Forests”.

⁸⁴⁵ UNFF, National Reports. // < <http://www.un.org/esa/forests/documents/national-reports/unff11/index.html>>, last viewed 26 February 2016.

⁸⁴⁶ D. Davenport, P. Wood, Finding the Way Forward for the International Arrangement on Forests: UNFF-5, -6 and -7, RECIEL 15 (3), 2006, p. 323.

⁸⁴⁷ ECOSOC, E/2015/42-E/CN.18/2015/14, Report of the Eleventh Session, 19 April 2013 and 4 to 15 May 2015, B. Draft resolution for adoption by the Council, International Arrangement on Forests beyond 2015, 1.1. (a).

relationship between the Forum and its CPF; increasing coordination with both the UN and non – UN agencies and entities with regard to the implementation of sustainable forest management.⁸⁴⁸

4.2.4. UN Forest Instrument.

In 2004, in accordance with the mandate provided for in ECOSOC Resolution 2000/35 establishing the UNFF,⁸⁴⁹ an Ad Hoc Expert Group assessed a mandate for developing a legal framework on all types of forests.⁸⁵⁰ Later, during the negotiations at the UNFF-5 (2005) and the UNFF-6 (2006) an agreement on a legally binding instrument could not be reached,⁸⁵¹ and “the last step of the many in the attempt to create a coherent international law regime regarding forests and their uses”⁸⁵² became the adoption of “The Non-legally Binding Instrument on Sustainable Management of All Types of Forests” (NLBI).⁸⁵³ As set out expressly in its title, the Instrument is non-legally binding, a soft law document. In 2015, remaining its voluntary, non-binding character, the instrument was renamed the “UN Forest Instrument”.⁸⁵⁴

In its essence the Instrument is a set of principles, which are put forth in the eight parts of the document.⁸⁵⁵ The scope of the Instrument is rather broad and

⁸⁴⁸ ECOSOC, E/CN.18/2015/11, Report on the Second Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, IV Views and Proposals on the International Arrangement on Forests, 4, a-c.

⁸⁴⁹ ECOSOC, Resolution 2000/35, 18 October 2000, para 3 (c)(i).

⁸⁵⁰ UNFF, Fifth session, 16-27 May 2005, item 6 of the provisional agenda, Report of the Ad Hoc Expert Group on Consideration with a View to Recommending the Parameters of a Mandate for Developing a Legal Framework on All Types of Forests, 7-10 September 2004, UN Doc., E/CN.18/2005/2, 29 September 2004.

⁸⁵¹ Earth Negotiations Bulletin, Vol. 13, Issue No. 133; Earth Negotiations Bulletin. Vol. 13, Issue No. 144, especially p. 10.

⁸⁵² K. Kunzmann, The Non-legally Binding Instrument on Sustainable Management of All Types of Forests – Towards a Legal Regime for Sustainable Forest Management?, German Law Journal, Vol. 09, No. 08, 2008, p. 982.

⁸⁵³ UNFF, Non-legally Binding Instrument on All Types of Forests, 2nd Comm, 62nd sess, Agenda Item 54, UN Doc A/C.2/62/L.5, 22 October 2007. Please note that the Title “Non-legally binding instrument on sustainable management of all types of forests” is not mentioned in the document itself, but appears in the resolutions of the ECOSOC and the General Assembly. The title is rather long and prior and during negotiations, the abbreviation “NLBI” was often used.

⁸⁵⁴ UN GA Resolution, A/RES/70/199, UN Forest Instrument. The current title is viewed as a more dynamic one, which sends a more positive message and facilitates wider understanding of the instrument. See, ECOSOC, E/CN.18/2015/11, Report on the Second Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, V. Non-legally binding instrument on all types of forests after 2015: proposed actions and options, para. 7 (a).

⁸⁵⁵ The eight parts are: I - Purpose; II – Principles; III – Scope; IV – Global Objectives on Forests; V – National Policies and Measures; VI – International Cooperation and Means of Implementation; VII – Monitoring, Assessment and Reporting; VIII – Working Modalities.

includes “all types of forests”.⁸⁵⁶ The Instrument covers all forests on a global level (and even in some cases trees outside forests) without limitation, for instance, to tropical forests or those forests that are declared protected or conservation areas. The purpose of the instrument according to part one para. 1 is threefold:

- (a) To strengthen political commitment and action at all levels to effectively implement sustainable management of all types of forests and to achieve the shared global objective on forests;
- (b) To enhance the contribution of forests in achieving internationally agreed development goals, including the Millennium Development Goals – in particular, with respect to poverty eradication and environmental sustainability;
- (c) To provide a framework for national action and international cooperation.⁸⁵⁷

The principles of the UN Forest Instrument are built on the 1992 Forest Principles. However, whereas the Forest Principles are mostly oriented towards utilization and state’s economic interests in forests, the UN Forest Instrument represents a more “conservationist approach”.⁸⁵⁸ It emphasizes sustainable forest management, which “contributes significantly to sustainable development and poverty eradication”.⁸⁵⁹ The SFM is defined as “a dynamic and evolving concept, [that] aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”.⁸⁶⁰ The Instrument stresses the need for a more effective implementation of sustainable forest management at all levels to address the critical challenges of deforestation and forest degradation.⁸⁶¹ Moreover, the implementation of SFM is one of the prime purposes of the Instrument.⁸⁶² As a reference framework for sustainable forest management the Instrument puts forth the seven thematic elements:

⁸⁵⁶ UN Forest Instrument, part III, Scope.

⁸⁵⁷ UNFF, Non-legally Binding Instrument on All Types of Forests, 2nd Comm, 62nd sess, Agenda Item 54, UN Doc A/C.2/62/L.5, 22 October 2007, principles, 1 (a), (b), (c).

⁸⁵⁸ A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 55.

⁸⁵⁹ UN Forest Instrument, Preamble, para. 1.

⁸⁶⁰ UN Forest Instrument, Preamble, para. 5; also, Principle 4.

⁸⁶¹ UN Forest Instrument, Preamble, para. 6.

⁸⁶² UN Forest Instrument, Para 1 (a).

- (i) Extent of forest resources;
- (ii) Forest biological diversity;
- (iii) Forest health and vitality;
- (iv) Productive functions of forest resources;
- (v) Protective function of forest resources;
- (vi) Socio-economic functions of forests; and
- (vii) Legal, policy and institutional framework.⁸⁶³

These thematic elements are “drawn from the criteria identified by existing criteria and indicators (C&I) processes”.⁸⁶⁴ States are to consider the seven thematic elements for SFM when identifying C&I. The Instrument, itself, however, provides no further specification of the criteria and indicators for SFM within these thematic elements.

The core component of the UN Forest Instrument is the reference in its principle five, to the four Global Objectives on Forests, which have been already decided upon at the UNFF-6 as core objectives of the UNFF as an institution.⁸⁶⁵

Part five of the UN Forest Instrument “National Policies and Measures” suggests an extensive list of 25 national policies and measures that states should adopt in order to achieve the purpose of the Instrument, including, *inter alia*:

⁸⁶³ UN Forest Instrument, para. 6 (b), fn. h.

⁸⁶⁴ UN Forest Instrument, part V National Policies and Measures, 6 (b). According to the UNFF provisional agenda for its Fourth Session, “criteria may be defined as the essential elements of sustainable forest management. Criteria contain the major components of sustainable forest management and reflect the present-day objectives and expectations of society towards sustainable forest management. Indicators are qualitative or quantitative parameters of a criterion, which provide a basis for assessing the status of, and trends in, forests and forest management”. The seven thematic areas of sustainable forest management have been identified based on the similarities in the criteria sets of the nine regional and international criteria and indicator processes. See, ECOSOC, UNFF, Criteria and Indicators of Sustainable Forest Management, Report of the Secretary-General, 3-14 May 2004, Item 4 (a) (v) of the provisional agenda, E/CN.18/2004/11, 2 Background, 4; 3.1.1.2., 17.

⁸⁶⁵ UN Forest Instrument, part IV, Global Objectives on Forests: “Member States reaffirm the following shared global objectives on forests and their commitment to work globally, regionally and nationally to achieve progress towards their achievement by [2030]: Global Objective 1, Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation; Global Objective 2, Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people; Global Objective 3, Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests; Global Objective 4, Reverse the decline in official development assistance for sustainable forest management and mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management.”

- (a) National forest programs or other strategies for sustainable forest management that identify actions needed and contain measures, policies or specific goals;
- (b) Identification of criteria and indicators for sustainable forest management;
- (c) Environmental impact assessment of projects that may significantly affect forests;
- (d) Develop and implement policies that encourage the sustainable management of forests to provide a wide range of goods and services; [...]
- (j) Encouraging recognition of the range of values derived from goods and services provided by all types of forests and trees outside forests;
- (k) Identification and implementation of measures to enhance cooperation and cross-sectoral policy and program coordination among sectors affecting and affected by forest policies and management; [...]
- (n) Strengthen forest law enforcement;
- (o) Analysis of the causes of and address threats to forest health and vitality from natural disasters and human activities, including threats from fire, pollution, pests, disease and invasive alien species;
- (p) Creation, development or expansion and maintenance of networks of protected forest areas;
- (q) Provide for assessment strategies;
- (r) Strengthen scientific research in forest matters; [...]
- (t) Raise public awareness and education; [...]
- (y) Enhancement of forest and forest resources access by forest dependent people.⁸⁶⁶

While part five focuses on national policies and measures, part six "International Cooperation and Means of Implementation" suggests 19 international cooperation and implementation measures in order to achieve the purpose of the Instrument: creating incentives, including in financial terms; capacity building; enhancement of bilateral, regional, and international cooperation, including, to address trade issues.⁸⁶⁷

⁸⁶⁶ UN Forest Instrument, part V, National Policies and Measures.

⁸⁶⁷ UN Forest Instrument, part VI, International Cooperation and Means of Implementation.

Part seven of the Instrument “Monitoring, Assessment and Reporting” contains monitoring, assessment and reporting requirements in order to achieve the purpose of the UN Forest Instrument. Principle 9 of the Instrument states: “Member States should submit, on a voluntary basis, taking into account availability of resources and the requirements and conditions for the preparation of reports for other bodies or instruments, national progress reports as part of their regular reporting to the Forum”.⁸⁶⁸

The final principle ten in the eighth part of the UN Forest Instrument states that the implementation of the Instrument is to be addressed by the UNFF within the context of its multi-year program of work.⁸⁶⁹

In summary, the UN Forest Instrument is the outcome of one more international process initially intended to form a legally-binding forest instrument.⁸⁷⁰ Notwithstanding its soft law nature, the Instrument is an “important milestone that brought global forest policy to a new stage”.⁸⁷¹ The instrument is the first globally agreed framework on sustainable management of all types of forests.⁸⁷² It provides not only the first explanation of the concept of sustainable forest management at the global level, but also delivers a basic plan for national, regional and global actions on sustainable forest management.⁸⁷³ Furthermore,

⁸⁶⁸ UN Forest Instrument, part VII, Principle 9.

⁸⁶⁹ UN Forest Instrument, part VIII, Principle 10.

⁸⁷⁰ While Agenda 21 and the Forest Principles emanated directly from the UNCED in Rio, the UN Forest Instrument adopted by the UN GA in 2007 only indirectly derived from the UNCED process, via the creation of the CSD and the consecutive IPF/IFF/UNFF process. According to A. Eikermann, notwithstanding its temporal and institutional distance to the UNCED, the UN Forest Instrument- like the UNFF on the organizational level – carries on its legacy. See, A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention?*, 2015, p. 53.

⁸⁷¹ ECOSOC, UNFF, Eleventh Session, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, Item 3 of the Provisional Agenda, *Forests: Progress, Challenges, and the Way Forward for the International Arrangement on Forests, Non-legally Binding Instrument on All Types of Forests/Global Objectives on Forests, Achievements*, para.2.

⁸⁷² ECOSOC, UNFF, Eleventh Session, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, Item 3 of the Provisional Agenda, *Forests: Progress, Challenges, and the Way Forward for the International Arrangement on Forests, Non-legally Binding Instrument on All Types of Forests/Global Objectives on Forests, Achievements*, para. 1.

⁸⁷³ ECOSOC, UNFF, Eleventh Session, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, Item 3 of the Provisional Agenda, *Forests: Progress, Challenges, and the Way Forward for the International Arrangement on Forests, Non-legally Binding Instrument on All Types of Forests/Global Objectives on Forests, Achievements*, para. 1; 4.

the Instrument re-establishes the principle of national sovereignty and the four Global Objectives on forests and thereby strengthens the political commitments to this end.

In comparison to the ample Chapter 11 of Agenda 21, and the vaguely drafted Forest Principles, the UN Forest Instrument represents a progress in respect to clarity, coordination and structure; it allows for the identification of concrete tasks⁸⁷⁴ (e.g. the National Forest Programs (NFP) to be adopted by states). To the two principles laid down by the 1992 Forest Principles (i.e. SFM, and the principle of sovereignty), the UN Forest Instrument adds the principle of "common but differentiated responsibilities of States, as set out in Principle 7 of the Rio Declaration".⁸⁷⁵ Ever since the three principles have dominated international negotiations on forests.⁸⁷⁶

The UN Forest Instrument has been criticized, *inter alia*, for its "inadequate monitoring, assessment and reporting mechanism".⁸⁷⁷ The Instrument neither specifies what information is required to be included into the voluntary reports; nor suggest any recommended periods for making these voluntary reports. Moreover, the wording of the Principle 9 of the Instrument gives other international reporting requirements [whose priorities are unaligned with that of the Instrument] precedence over its own.⁸⁷⁸

For the purpose of the research it is particularly significant that the UN Forest Instrument is also the first international forest law instrument that directly recognizes "the impact of climate change on forests and sustainable forest

⁸⁷⁴ P. Gluck, Core Components of the International Forest Regime Complex, in J. Rayner, et al, Embracing Complexity, Meeting the Challenges of International Forest Governance, 2010, p. 41; A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 55.

⁸⁷⁵ UN Forest Instrument, Preamble, para. 4.

⁸⁷⁶ P. Gluck, Core Components of the International Forest Regime Complex, in J. Rayner, et al, Embracing Complexity, Meeting the Challenges of International Forest Governance, 2010, p. 41; A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 40.

⁸⁷⁷ ECOSOC, UNFF, Eleventh Session, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, Item 3 of the Provisional Agenda, Forests: Progress, Challenges, and the Way Forward for the International Arrangement on Forests, Non-legally Binding Instrument on All Types of Forests/Global Objectives on Forests, Weaknesses, para. 8.

⁸⁷⁸ R. Macquire, Global Forest Governance, Legal Concepts and Policy Trends, 2013, p. 112.

management, as well as the contribution of forests to addressing climate change".⁸⁷⁹ However, this is the only reference to climate change in the text of the document. And, thus, during the recent assessment of the effectiveness of the Instrument, the fact that the Instrument "does not take sufficient account of climate change" is recognized as a weakness of the instrument.⁸⁸⁰

4.2.5. Forest Soft Law and the UNFF: Interim Conclusions.

The political processes analyzed in the present section, namely, the Chapter 11 of Agenda 21; the 1992 Forest Principles; the UNFF; and the UN Forest Instrument, are of particular significance for the current research. Despite the fact of the non-binding character of the textual documents and the "agenda-setting" character of the UNFF, for all these processes forests are the core area of concern and activity. The chapter 11 of Agenda 21 addresses the issue of deforestation and establishes it on the international political agenda. The 1992 Forest Principles initiate and support a holistic approach to the international forest regulation. Together these two international political processes brought about the UNFF, an intergovernmental forest policy forum (with a vaguely defined, yet a "clear forest" mandate). The UNFF, in its turn, lead to the adoption by the UN General Assembly of the UN Forest Instrument as a Resolution, summarizing and establishing a general consensus with regard to common objectives and principles on forests. Thus, the reviewed international processes together provide for the "fundamental cornerstone for the international forest regulation".⁸⁸¹ They set forth a set of extensive and fundamental objectives with regard to forests; recognize the multi-functionality of forests and balance the multiple interests with regard to forests. Together, the Chapter 11 of Agenda 21; the 1992 Forest Principles; the UNFF; and the UN Forest Instrument, reflect the status of (multi-functional) forests within international law and policy.

⁸⁷⁹ UN Forest Instrument, preamble, para. 7.

⁸⁸⁰ ECOSOC, UNFF, Eleventh Session, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, Item 3 of the Provisional Agenda, Forests: Progress, Challenges, and the Way Forward for the International Arrangement on Forests, Non-legally Binding Instrument on All Types of Forests/Global Objectives on Forests, Weaknesses, para. 6.

⁸⁸¹ A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 57.

As for the development of the reviewed in the current section international forest processes on the international political agenda, it may be interpreted as "reflecting a general awareness for the need for an international forest regulation that [...] gives an indication for the public recognition [...] of a common interest of all states in forests".⁸⁸² Although, based on the findings of the part, it is possible to conclude that none of the revised international forest processes formally stipulates "the principle of common global concern" or a similar expression for the shared interests in forests, the "general awareness of the need for an international forest regulation" and the mere introduction of the common concern interest element into the international negotiations on forests can be viewed as an important achievement (in particular, in the context of climate change and forests). In the future an explicit overall recognition of a common interest with regard to forests could provide an access for forest regulation by the international environmental law.

For the purpose of the research, it is of particular significance that the textual instruments, i.e. the Chapter 11 of Agenda 21, the 1992 Forest Principles, and the UN Forest Instrument make little (or almost no) reference to climate change. Thus, there is hardly any actual interaction between the international climate change regime and the international soft law on forests with regard to the climate change issue. However, it has been previously established, that forests are significantly threatened by the rapid climate change and need to be protected against/adapted to its impacts. Moreover, it has been established that in order to combat global climate change forest mitigation and adaptation measures are equally important and need to be implemented in tandem: on the one hand, without adaptation forests may not fulfill expectations in climate change mitigation; on the other hand, being adapted forests are more resistant to climate change and, thus, can contribute more to mitigation.⁸⁸³ Whereas the contemporary climate change regime in order to achieve its ultimate objective (i.e. "stabilization of the GHG in the atmosphere") focuses on the forest-related mitigation measures, i.e. reduction/prevention of emissions to the atmosphere through reducing deforestation and forest degradation, and enhancement of

⁸⁸² A. Eikermann, *Forests in International Law, Is there Really a Need for an International Forest Convention*, 2015, p. 57.

⁸⁸³ See "Climate Change and Forests: Scientific Background for International Regulation".

sinks; the adaptation of forests to the effects of climate change is not the primary concern of the international climate change regime. The investigation in the current section of the research revealed that the same is true for the international forest soft law instruments: adaptation of forests to climate change is largely left unregulated. Although the UN Instrument on Forests recognizes “the impact of climate change on forests and sustainable forest management”,⁸⁸⁴ this is not sufficient to prepare forests worldwide to the threat of the rapid climate change. Thus, it is possible to identify a gap in the contemporary international forest regulation: no specific requirements and/or activities for protecting the world wide forests against the impacts of climate change (adaptation).

4.3. International Forest Regulation: Forests in International Environmental Law.

The following analysis focuses on international environmental treaties, which have not been created to apply to forests directly, but may be interpreted *ex post* to capture certain aspects of forests, their functions, and services within a treaty’s scope. According to the previous scientific and legal research with the overarching general objective to “assess the international forest regime”,⁸⁸⁵ the most important global environmental conventions related to forests include (in a chronological order): the Ramsar Convention (1971), the WHC (1972), the CITES (1973), the ITTA (1983), the UNFCCC (1992), the CBD (1992), and the UNCCD (1994). This list is not exclusive with regard to forest related

⁸⁸⁴ UN Forest Instrument, preamble, para. 7.

⁸⁸⁵ The selection of the treaties is based on the review of the previous comparative studies on global legally binding forest-related instruments (major environmental agreements). The selected treaties have been reoccurring in the literature. See, for instance, R. Tarasofsky, *Assessing the International Forest Regime*, IUCN Environmental Law Centre, Policy and Law Paper, 37, 1999; A. Skala- Kuhmann, *Legal Instruments to Enhance the Conservation and Sustainable Management of Forests Resources at the International Level*, 1998; B.M.G.S. Ruis, *No Forest Convention but Ten Tree Treaties*.// <<http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 16 April 2016; C. McDermott, A. O’Carroll, P. Wood, *International Forest Policy – the instruments, agreements and processes that shape it*, 2007; P. Gluck, *Core Components of the International Forest Regime Complex*, in IUFRO, J. Rayner, A. Buck, P. Katila (eds.), *Embracing Complexity: Meeting Challenges of International Forest Governance*, 2010, p. 37; Y.M. Gordeeva (*Гордеева Е.М.*), *Sources of International Forest Regulation (Источники Международного Права Лесов)*, Proceedings of the International Scientific Forum “Society, Politics, Economics, Law” (*Материалы Международного Научного Форума: Общество, Политика, Экономика, Право*), 2013, pp. 136-139; R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013; F. Lesniewska, *Laws for Forests, An Introductory Guide to International Forest and Forest Related Legal Materials that Shape Forest Ethics and Practice*, 2005; A. Eikermann, *Forests in International Law, Is there Really a Need for International Forest Convention?*, 2015;

international law⁸⁸⁶ and yet, already this selection of treaties encompasses a wide temporal and thematic scope for an analysis.

The regulation of forests under the contemporary international climate change regime has been analyzed in chapter 3 "Forests under the International Climate Change Regime". Bearing in mind that global climate can benefit from the measures aimed at forest protection, conservation and sustainable forest management, four treaties have been selected for the following examination in the current section: the Ramsar Convention, the WHC, the CITES and the CBD.⁸⁸⁷ All of the selected conventions focus on nature conservation and wildlife protection. The investigation follows a chronological order.

4.3.1. The International Tropical Timber Agreement (ITTA).

As for the ITTA, it may seem relevant for the research, but only at a first glance. Indeed, it is an international agreement, which has been negotiated and adopted to apply specifically to forests. Yet, the Agreement remains outside the scope of the following analysis due to its specificity.

As such, the ITTA has developed in three major negotiation processes from the ITTA 1983,⁸⁸⁸ to the ITTA 1994,⁸⁸⁹ and the most recent ITTA 2006.⁸⁹⁰ Currently, the ITTA encompasses 61 signatories, covering 34 so-called "producing members"⁸⁹¹ from Africa (12), Asia and Pacific (10), and Latin America (12); as

⁸⁸⁶ Due to the environmental focus, treaties specific to the rights of indigenous peoples and local communities, the World Trade Organization Law, and regional treaties are not taken into account.

⁸⁸⁷ Please note, that the following examination of the international treaties is not intended to provide comprehensive interpretations and analysis of the treaties. With regard to the overall aim to study interactions with regard to forests, the following examination represents an extract that entails relevance for the overall analysis.

⁸⁸⁸ International Tropical Timber Agreement, 1983, adopted 18 November 1983, entered into force provisionally on 1 April 1985, in accordance with article 37 (2). The Agreement was extended until 31 March 1992 [by Decision 3 (VI) confirmed by the International Tropical Timber Council at its session held in Abidjan, Cote d'Ivoire on 24 May 1989], and further until 31 March 1994 [by decision 4 (X) taken at its session held in Quito, Ecuador from 29 May to 6 June 1991], respectively, and was terminated in accordance with its provisions on 31 March 1994), 1393 UNTS 671 (ITTA, 1983). Signatories: 35. Parties: 54.

⁸⁸⁹ International Tropical Timber Agreement, 1994, adopted 26 January 1994, entered into force provisionally on 1 January 1997, in accordance with article 41 (3), 1955 UNTS 81, ITTA, 1994. Signatories: 49. Parties: 61.

⁸⁹⁰ International Tropical Timber Agreement, 2006, adopted 27 January 2006, entered into force 7 December 2011, UN Doc. TD/TIMBER. 3/12, ITTA, 2006. Signatories: 61. Parties: 63.

⁸⁹¹ According to art. 2 para 4 ITTA, 2006 "Producer member" means any member situated between the Tropic of Cancer and the Tropic of Capricorn with tropical forest resources and/or a net exporter of tropical timber in volume terms which is listed in annex A and which becomes a

well as 38 co-called “consuming members”,⁸⁹² including the EU (and its 28 member states), Albania, Australia, China, Japan, New Zealand, Norway, Republic of Korea, Switzerland and the USA.⁸⁹³ The focus of the ITTA is on international tropical timber trade. It is designed primarily in order to achieve its overall objective to “[...] promote the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests and to promote the sustainable management of tropical timber producing forests”.⁸⁹⁴ Legal scholars have investigated the ITTA and found that, although the need for conservation and SFM of tropical forests is generally recognized under the Agreement,⁸⁹⁵ such recognition is “ambiguously defined” and remains inferior to the overall endeavor of the Treaty solely to provide regulations for the trade in tropical timber between the producing and the consuming members.⁸⁹⁶ For the purpose of the current research the ITTA is, thus, limited in several aspects: firstly, with regard to its regional scope (tropical forests only); secondly, in terms of the regulated substance (it is limited in its

party to this Agreement, or any member with tropical forest resources and/or a net exporter of tropical timber in volume terms which is not so listed and which becomes a party to this Agreement and which the Council, with the consent of that member, declares to be a producer member”.

⁸⁹² According to art. 2 para 5 ITTA, 2006 “Consumer member” means any member which is an importer of tropical timber listed in annex B which becomes a party to this Agreement, or any member which is an importer of tropical timber not so listed which becomes a party to this Agreement and which the Council, with the consent of that member, declares to be a consumer member”.

⁸⁹³ ITTO, Members under ITTA, 2006.// http://www.itto.int/itto_members/, last viewed 18 April 2016.

⁸⁹⁴ ITTA, 2006, Art. 1, chapeau. Furthermore, the ITTA provides for a long list of objectives. The ITTA is supposed to provide, *inter alia*, for “[...] an effective framework for consultation, international cooperation and policy development among all members with regard to all relevant aspects of the world timber economy; [...] a forum for consultation to promote non-discriminatory timber trade practices; [...] enhancing the capacity of members to implement strategies for achieving exports of tropical timber and timber products from sustainably managed sources; [...] improved understanding of the structural conditions in international markets including long-term trends in consumption and production, factors affecting market access, consumer preferences and prices, and conditions leading to prices which reflect the costs of sustainable forest management.” See, ITTA, 2006, article 1, (a) – (s).

⁸⁹⁵ The ITTA stipulates recognition of the UNFF, the CPF (of which the ITTO is a member), the Forest Principles, the UNFCCC, and the CBD (preamble, C); furthermore a reference to conservation, sustainable forest management is made throughout the Preamble as well as within the objectives of Art. 1 “Objectives”.

⁸⁹⁶ G. Nagtzaam, The International Tropical Timber Organization and Conservationist Forestry Norms: A Bridge too Far.// < http://works.bepress.com/gerry_nagtzaam/4/>, last viewed 18 April 2016; A. Eikermann, Forests in International Law, Is there Really a Need for an International Forest Convention?, 2015, p. 78. Please note, that the CITES, which has been selected for the analyses in the current chapter, similar to the ITTA, addresses issues of international trade. In comparison to the ITTA, which aims to “[...] promote the expansion and diversification of international trade in tropical timber”, the CITES views trade as a threat to endangered species and recognizes the need for “the protection of certain species of wild fauna and flora against over-exploitation through international trade”.

coverage of forest components and applies mostly to timber); thirdly, it is limited in its protective scope, as its primary objective is the expansion of trade (it is “a commodity agreement with an environmental aspect”⁸⁹⁷).

4.3.2. United Nations Convention to Combat Desertification (UNCCD).

As for the UNCCD, it is also of limited use for the purpose of the current research. As such, the UNCCD was adopted on 17 June 1994, after more than 20 years of “arduous” negotiations towards the convention process.⁸⁹⁸ Today the UNCCD boasts almost universal membership with 195 parties to the Convention.⁸⁹⁹ The Convention contains forty articles, divided into six parts;⁹⁰⁰ supplemented by five regional implementation annexes to the Convention (regarding Africa; Asia; Latin America and the Caribbean; the Northern Mediterranean; and Central and Eastern Europe). Both, the text of the Convention and its regional annexes, bring about a strong regional focus.⁹⁰¹ The declared aim of the Convention is to combat desertification and mitigate the effects of drought (art. 2 para 1). However, the UNCCD addresses not only environmental, but also socio-economic objectives.⁹⁰² Thus, the environmental objective is to be achieved “through effective action at all levels [...] in the framework of an integrated approach [...] and] the achievement of sustainable development in affected areas”.⁹⁰³ This integrated approach involves addressing not only the physical and biological, but also socio-economic aspects of the

⁸⁹⁷ F. Lesniewska, *Laws for Forests, An Introductory Guide to International Forest and Forests Related Legal Materials that Shape Forest Ethics and Practice*, 2005, p. 13.

⁸⁹⁸ A. Jamal, *The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa*; *Implementing Agenda 21*, *RECIEL*, 6, 1, 1997, pp. 1-2; N. Srivastava, *Changing Dynamics of Forest Regulation: Coming the Full Circle?*, *RECIEL*, 20 (2), 2011, p. 116; The worldwide recognition of the desertification as a transnational environmental problem came about only with the 1968 drought of the Sahel in West Africa. The UN work on desertification had begun in the 1970's. In September 1977 the UN Conference on Desertification (UNCOD) was convened with its main product – a “Plan of Action to Combat Desertification”. Subsequently many of the general areas of the Plan have found their way into the UNCCD.

⁸⁹⁹ UNCCD, *About the Convention*.// <http://www.unccd.int/en/about-the-convention/Pages/About-the-Convention.aspx>, last viewed 19 April 2016.

⁹⁰⁰ Part I (Introduction); Part II (General Provisions); Part III (Action Programs, Scientific and Technical Cooperation and Supporting Measures); Part IV (Institutions); Part V (Procedures) and Part VI (Final Provisions)

⁹⁰¹ Convention lays a great deal of emphasis on country level actions and envisages national action programs as the central element of the strategy to combat desertification (art. 9 para. (1). Guidelines for preparing and implementing these action plans are given in the Convention's annexes for different regions (art. 13.).

⁹⁰² In comparison, the selected for the following analysis treaties, namely the Ramsar, the CITES, the WHC (natural heritage), the CBD are purely conservation treaties with no mention of issues relating to social, economic or political matters.

⁹⁰³ UNCCD, Art. 2 para. 1.

processes of desertification and drought.⁹⁰⁴ Besides, “achieving [...the] objective will involve long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level”.⁹⁰⁵ Due to the added focus of the Convention on people, respectively the effect of environmental conditions on human well-being, international lawyers have termed the UNCCD a “People’s Convention”: “human beings are recognized as being at the center of concerns to combat desertification and mitigate drought”.⁹⁰⁶ Thus, the nature conservation potential of the UNCCD is of a secondary instance only. Consequently, although the UNCCD recognizes a connection between desertification, deforestation and forest degradation, the instrument is of limited use for the international forest conservation and protection. As for the SFM, it is not *the* focus, but just *one* focus under the Convention.⁹⁰⁷

4.3.3. Forests and Climate Change under the Ramsar Convention.

This section investigates the Ramsar Convention with regard to its regulation of forests and climate change. Even though conservation of forests, as such, is not an objective of the Convention and forests remain “unidentified” under the Convention,⁹⁰⁸ some of the Ramsar sites contain forest ecosystems. Firstly, the overall substance of the Convention is addressed (the regulatory regime; the scope; the objectives; and the institutional structure, 4.3.1.1.); Secondly, the implications for forests are discussed (4.3.1.2.). Thirdly, the regulation of climate change under the Convention is elaborated upon (4.3.1.3.). Finally, the interim conclusions bring the findings of the subsection together (4.3.1.4.).

⁹⁰⁴ UNCCD, Art. 4, para. 2 (a).

⁹⁰⁵ UNCCD, Art. 2, para. 2.

⁹⁰⁶ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 693; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention*, 2015, p. 129; see also R. Tarasofsky, *Assessing the International Forest Regime*, IUCN Environmental Policy and Law Paper, No. 37, 1999, p. 92.

⁹⁰⁷ R. Tarasofsky, *Assessing the International Forest Regime*, IUCN Environmental Policy and Law Paper, No. 37, 1999, p. 92; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention*, 2015, p. 129.

⁹⁰⁸ B.M.G.S. Ruis, *No Forest Convention, but Ten Tree Treaties*. // <<http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 08 April 2016.

4.3.3.1. The Ramsar Convention: General Overview.

In the 1960s with the increased loss of wetland areas, their degradation, draining and conversion to other uses, wetlands became an international concern.⁹⁰⁹ After several years of international negotiations, on 2 February 1971, the Convention on Wetlands of international Importance Especially as Waterfowl Habitat was adopted in the city of Ramsar in Iran (hence the short name of the Convention from the place of its adoption – the Ramsar Convention).⁹¹⁰ The Convention entered into force in late 1975.

As such, the Convention has provided a framework for international cooperation in order to conserve wetland habitats. As the first modern instrument seeking to conserve natural resources on a global scale,⁹¹¹ the Ramsar Convention was also among the first to experience the tension that exists between the need to protect natural resources for the good of all and the sovereign rights of states to their natural resources. On the one hand, the Contracting Parties “[...]recognize that waterfowl in their seasonal migration may transcend frontiers and so should be regarded as an international resource”;⁹¹² on the other hand, “the inclusion of a wetland in the List [of Wetlands of International Importance] does not prejudice the exclusive sovereign rights of the Contracting Party in whose territory the wetland is situated”.⁹¹³

According to art. 1 of the Ramsar Convention, “[...] wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of

⁹⁰⁹ In 1960 IUCN supported an international program for conservation and management of marshes, bogs and other wetlands (proposed by L. Hoffman). The program was designated as a project MAR, since the first three letters of the word for wetlands in several languages – MARshes, MARecages, and MARismas. In 1962 the first international conference in the French Camargue at Stes-Maaries-de-la-Mer took place. Among the outcomes of the conference was a call to spread the scientific information on the values of wetlands “[...] in order to present, in unequivocal terms, the values of wetlands to mankind”. This conference marked the first step towards the adoption of the Ramsar Convention in 1971. See, G.V.T. Matthews, *The Ramsar Convention on Wetlands: its History and Development*, 2013, p. 9; M.N. Kopylov, A.M. Solncev, *The 1971 Ramsar Convention and an Ecosystem Based Approach to the Wise Use and Sustainable Development of Wetlands*, *Environmental Law*, 2012, 3.

⁹¹⁰ Convention on Wetlands of International Importance Especially as Waterfowl Habitat, adopted 2 February 1971, in force 21 December 1975.

⁹¹¹ G.V.T. Matthews, *The Ramsar Convention on Wetlands: Its History and Development*, 2013, p. 4.

⁹¹² Ramsar Convention, Preamble, para. 5.

⁹¹³ Ramsar Convention, art. 2, para 3.

marine water the depth of which at low tide does not exceed six meters". Art. 2 para 1. further specifies "[wetlands] may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands, especially where these have importance as waterfowl habitat". Thus, the concept of "wetland" within the framework of the Ramsar Convention is a very broad one, "[broad] enough to embrace virtually every practical possibility".⁹¹⁴

Around the world wetlands are extremely diverse in nature, (depending on their method of formation, geographical location, and altitude);⁹¹⁵ types and sizes;⁹¹⁶ they occur everywhere (from the tundra to the tropics).⁹¹⁷ However, how much of the earth's surface is presently occupied by wetlands is not known exactly. Estimates suggest roughly 4-6 percent of the Earth's land surface (up to 5.7 million km²); mangroves cover some 240 000 km² of coastal area, and an estimated of 600 000 km² of coral reefs remain worldwide.⁹¹⁸ Legal scholars have commented, that the present uncertainty with regard to the exact numbers of the global wetland area stems to a certain degree from the varying definitions of wetlands.⁹¹⁹ Similar to the term "forests", "wetlands" are subject to constant change, thus, posing a great challenge to being captured by international law and policy for trying to establish clear concepts for management and protection.

The preamble to the Ramsar Convention recognizes that: "wetlands constitute a resources of great economic, cultural, scientific, and recreational value, the loss

⁹¹⁴ M. J. Bowman, *The Ramsar Convention Comes of Age*, *Netherlands International Law Review*, 42, 1, 1995, available online.// http://www.ramsar.org/sites/default/files/documents/library/the_ramsar_convention_in_international_law.pdf, last viewed 10 April 2016.

⁹¹⁵ G.V.T. Matthews, *The Ramsar Convention on Wetlands: its History and Development*, 2013, p. 38.

⁹¹⁶ IUCN Environmental Law Centre, *Wetlands, Water and the Law, Using Law to Advance Wetland Conservation and Wise Use*, IUCN Environmental Policy and Law Paper, 38, 1999, p. 3.

⁹¹⁷ Ramsar Convention Secretariat, *The Ramsar Convention Manual: 6th edition*, 2013, p. 7.

⁹¹⁸ Ramsar Convention Secretariat, *The Ramsar Convention Manual: 6th edition*, 2013, p. 8.

⁹¹⁹ M. J. Bowman, *The Ramsar Convention Comes of Age*, *Netherlands International Law Review*, 42, 1, 1995, available online.// http://www.ramsar.org/sites/default/files/documents/library/the_ramsar_convention_in_international_law.pdf, last viewed 10 April 2016; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention*, 2015, p. 85; M. Bowman, *The Ramsar Convention on Wetlands: Has it Made a Difference?*, *Yearbook of International Cooperation and Development*, 2002/2003, available online.// http://www.fni.no/ybiced/02_05_bowman.pdf, last viewed 10 April 2016.

of which would be irreparable [...]”.⁹²⁰ The Convention aims “[...] to stem the progressive encroachment on and loss of wetlands now and in the future”.⁹²¹ The original objective of the Convention is complemented with its mission statement: “Conservation and Wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”;⁹²² and a vision for the period from 2016 – until 2024: “wetlands are conserved, wisely used, restored and their benefits are recognized and valued by all”.⁹²³

The work of the Convention has been organized around three pillars: 1. The wise use of all wetlands through national plans, policies and legislation, management actions and public education; 2. The designation and sustainable management of sustainable wetlands for inclusion on the list of Wetlands of international importance; 3. International cooperation on transboundary wetlands and shared species.⁹²⁴ Through its three pillars the Convention features three regulatory techniques: the concept of “wise use”; listings; and a duty to cooperate.

The “wise use” of wetlands is the key concept orienting the work of the Ramsar Convention.⁹²⁵ According to the art. 3 Ramsar Convention “the Contracting Parties shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory”.⁹²⁶ The scope and meaning of the “wise use” concept have been elaborated outside the Convention text. For this purpose, following the meetings of the Conference of Contracting Parties, the Ramsar

⁹²⁰ Ramsar Convention, Preamble, para 4.

⁹²¹ The Ramsar Convention, preamble 4.

⁹²² Ramsar Convention, official webpage, The Ramsar Convention and its Mission.// <<http://www.ramsar.org/about/the-ramsar-convention-and-its-mission>>, last viewed 06 April 2016. See also, the Ramsar Convention, the 4th Strategic Plan 2016-2024, adopted by the 12th Meeting of the Conference of the Parties at Punta del Este, Uruguay, 1-9 June 2015, through Resolution XII.2.

⁹²³ Ramsar Convention, the 4th Strategic Plan 2016-2024, adopted by the 12th Meeting of the Conference of the Parties at Punta del Este, Uruguay, 1-9 June 2015, through Resolution XII.2.

⁹²⁴ The work of the Convention has been organized around the three pillars since the first Strategic Plan of the Ramsar Convention, prepared in 1997. See, Ramsar Convention, the 4th Strategic Plan 2016-2024, adopted by the 12th Meeting of the Conference of the Parties at Punta del Este, Uruguay, 1-9 June 2015, through Resolution XII.2, p. 2.

⁹²⁵ Ramsar Convention, the 4th Strategic Plan 2016-2024, adopted by the 12th Meeting of the Conference of the Parties at Punta del Este, Uruguay, 1-9 June 2015, through Resolution XII.2., p. 2.

⁹²⁶ Ramsar Convention, art. 3. Para 1.

Secretariat has prepared and regularly updates the “The Ramsar Handbook for the wise use of wetlands”.⁹²⁷ The latest definition of the “wise use” is based on the Convention’s mission statement, the Millennium Ecosystem Assessment’s terminology, the concepts of the ecosystem approach and sustainable use applied by the Convention on Biological Diversity, and the definition of sustainable development adopted by the 1987 Bruntland Commission.⁹²⁸ Thus, the “wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development”.⁹²⁹ The concept “wise use” was a pioneering concept when the Convention was drafted. As such the term “wise use” is entirely compatible with “sustainable use” (i.e. the terms can be used interchangeably).⁹³⁰ The Ramsar “wise use” concept is applicable not only to the listed wetlands, but also to all wetlands in a Contracting Party’s territory (i.e. regardless of their listing).⁹³¹ At the heart of the “wise use” concept is the conservation and sustainable use of wetlands and their resources, for the benefit of people and nature.⁹³²

Article 2 of the Convention puts forward the listing obligations for the Contracting Parties. At the time of signing, or when depositing their instrument of ratification or accession to the Ramsar Convention under art. 2.4. each sovereign state is required to designate at least one site as a Wetland of International Importance to be included into the List of Wetlands of International Importance under the terms of the Convention.⁹³³ Thereafter, as prescribed by article 2.1. Ramsar Convention, “[e]ach Contracting Party shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance [...]”.⁹³⁴ The Convention does not provide for the

⁹²⁷ Ramsar Convention Secretariat, *Wise Use of Wetlands*, Ramsar Handbooks 4th Edition, Handbook 1, 2010.

⁹²⁸ Ramsar Convention Secretariat, *Wise Use of Wetlands*, Ramsar Handbooks 4th Edition, Handbook 1, 2010, p. 16.

⁹²⁹ Ramsar Convention Secretariat, *Wise Use of Wetlands*, Ramsar Handbooks 4th Edition, Handbook 1, 2010, p. 16.

⁹³⁰ Ramsar Convention Secretariat, *The Ramsar Convention Manual: 6th edition*, 2013, p. 46.

⁹³¹ Ramsar Convention, art. 3, para. 1.; Ramsar Convention Secretariat, *The Ramsar Convention Manual: 6th edition*, 2013, p. 46.

⁹³² Ramsar Convention, the 4th Strategic Plan 2016-2024, adopted by the 12th Meeting of the Conference of the Parties at Punta del Este, Uruguay, 1-9 June 2015, through Resolution XII.2, p. 2.

⁹³³ Ramsar Convention, art. 2. Para 4.

⁹³⁴ Ramsar Convention, art. 2. Para 1.

explicit criteria relevant for wetlands selection. Assistance with interpreting the key word "suitable" as used in art. 2.1. of the Convention is provided in article 2.2.: "Wetlands should be selected for the List on the account of their international significance in terms of ecology, botany, zoology, limnology or hydrology".⁹³⁵ Priority is given to "wetlands of international importance to waterfowl at any season".⁹³⁶ The specific criteria for the establishment of wetlands were created by the Parties to the Convention outside the Convention text.⁹³⁷ Any Contracting Party to the Convention has the right "to add to the List of Wetlands of International Importance further wetlands situated within its territory, to extend the boundaries of those wetlands, already included by it in the List, or, because of its urgent national interest, to delete or restrict the boundaries of wetlands already included by it in the List [...]".⁹³⁸ Furthermore, the Convention establishes some form of international monitoring of the ecological condition of internationally important sites:⁹³⁹ "if the ecological character of any wetland in the territory of a Contracting Party has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference, each Contracting Party is required to arrange to be informed at the earliest possible time".⁹⁴⁰

The third pillar of the Ramsar Convention, the duty to cooperate, derives from the article 5. This norm establishes consultation and cooperation requirements between the Contracting Parties with a special view to cases "[...] of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties".⁹⁴¹ In a similar manner as with the first two pillars of the Ramsar Convention, the third pillar, i.e. the duty to cooperate, is also supported by a Ramsar Handbook.⁹⁴² The Secretariat functions as the focal point for the cooperation with and between the Parties to the

⁹³⁵ Ramsar Convention, art. 2. Para 2.

⁹³⁶ Ramsar Convention, art. 2. Para 2.

⁹³⁷ Ramsar Convention, Strategic Framework and Guidelines for the Future Development of the List of Wetlands of International Importance of the Convention on Wetlands (Ramsar, Iran, 1971), third edition, 2008.

⁹³⁸ Ramsar Convention, art. 2. Para 5.

⁹³⁹ M. Bowman, *The Ramsar Convention on Wetlands: Has it Made a Difference?*, Yearbook of International Cooperation and Development, 2002/2003, available online.// http://www.fni.no/ybiced/02_05_bowman.pdf, last viewed 10 April 2016.

⁹⁴⁰ Ramsar Convention, art. 3. Para 2.

⁹⁴¹ Ramsar Convention, art. 5.

⁹⁴² Ramsar Convention Secretariat, *International Cooperation, Handbook 20*, 2010.

Ramsar Convention.⁹⁴³ It promotes and organizes activities under Article 5 of the Convention; organizes and co-organizes regional meetings and technical workshops, as well as the COP meetings; facilitates (and sometimes financially assists) regional multi-Party wetland initiatives operating under the framework of the Convention.⁹⁴⁴

The Conference of the Contracting Parties (COP) was established in order to review and promote the implementation of the Ramsar Convention.⁹⁴⁵ The COP meetings take place once every three years (up until now, twelve Ramsar Convention COP meetings have taken place, with the most recent one – in 2015). Between the three-yearly meetings the COP is represented by the Standing Committee of the Ramsar Convention.⁹⁴⁶ The Standing Committee serves three years and consists of the Contracting Parties that have been elected during the COP meetings. The Secretariat of the Convention (22 people) coordinates the Convention's activities.⁹⁴⁷ In order to provide scientific and technical guidance to the COP, the Standing Committee and the Ramsar Secretariat the Scientific and Technical Review Panel (STRP) was established.⁹⁴⁸

During more than forty years of its existence the Ramsar Convention has gained a significant experience in dealing with wetlands. The Convention has been amended, its institutional structure has evolved, through COP resolutions it continues its development. Thus, it is possible to conclude that the Ramsar Convention has advanced into a "dynamic [and] flexible instrument for a wise – and thus, sustainable – use and conservation of wetlands".⁹⁴⁹

⁹⁴³ Ramsar Convention Secretariat, *The Ramsar Convention Manual*: 6th edition, 2013, p. 60.

⁹⁴⁴ Ramsar Convention Secretariat, *The Ramsar Convention Manual*: 6th edition, 2013, p. 61.

⁹⁴⁵ Ramsar Convention, art. 6. Article 6 of the Convention outlines the purpose and the functions of the COP. The COP is competent: (a) to discuss the implementation; (b) to discuss additions to and changes in the List; (c) to consider information regarding changes in the ecological character of wetlands included in the List; (d) to make general or specific recommendations to the Contracting Parties regarding the conservation, management and wise use of wetlands and their flora and fauna; (e) to request relevant international bodies to prepare reports and statistics on matters which are essentially international in character affecting wetlands; (f) to adopt other recommendations, or resolutions, to promote the functioning of the Convention.

⁹⁴⁶ Ramsar Convention, Third COP Meeting, 1987, Resolution 3.3.

⁹⁴⁷ Ramsar Convention, Official webpage, the Ramsar Convention Secretariat.// < <http://www.ramsar.org/about/the-ramsar-convention-secretariat>>, last viewed 08 April 2016.

⁹⁴⁸ Ramsar Convention, Fifth COP Meeting, 1993, Resolution 5.5.

⁹⁴⁹ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention*, 2015, p. 88.

Legal scholars have noted, that originally, the Ramsar Convention focused exclusively on preserving wetlands as a waterfowl habitat, being a rather species-oriented Convention (with ornithological organizations “making most of the runnings as regards to the adoption of the Convention”⁹⁵⁰); yet, over time the Convention has shifted its focus to an ecosystem-oriented Convention, acknowledging also the biological diversity and other environmental functions of wetlands.⁹⁵¹ This shift is particularly important for forests conservation and use.

4.3.3.2 Forests under the Ramsar Convention.

Today, the Ramsar Convention has 169 parties (including the Russian Federation, but not the European Union⁹⁵²) and lists 2 234 sites of international importance with the total surface of the designated areas being 215 188 919 ha.⁹⁵³ Even though conservation of forests, as such, is not an objective of the Convention and forests remain “unidentified” under the Convention,⁹⁵⁴ many of the Ramsar sites contain also forest ecosystems.

In total the Ramsar Convention recognizes 42 types of wetlands. Some of these types are “forested wetlands”: e.g. I – Intertidal Forested Wetlands (including: mangrove swamps; nipah swamps and tidal freshwater swamp forests); Xf – Freshwater, Tree-dominated Wetlands (including: freshwater swamp forests; seasonally flooded forests; wooded swamps on organic soils); and Xp – Forested Peatlands (including, peat swamp forests).⁹⁵⁵ It is estimated that around 12 percent of the total area of sites, designated under the Ramsar Convention in 74 countries around the world, are predominantly one or other of these three types

⁹⁵⁰Habitat destruction is the most significant of all the threats to bird species, and the loss of wetland areas is commonly cited as being particularly damaging in this regard.

⁹⁵¹ B.M.G.S. Ruis, No Forest Convention, but Ten Tree Treaties. // < <http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 08 April 2016; M. J. Bowman, The Ramsar Convention Comes of Age, *Netherlands International Law Review*, 42, 1, 1995, available online.// http://www.ramsar.org/sites/default/files/documents/library/the_ramsar_convention_in_international_law.pdf, last viewed 10 April 2016.

⁹⁵² According to Art. 9.2. of the Ramsar Convention “any member of the United Nations or of one of the Specialized Agencies or of the International Atomic Energy Agency or Party to the Statute of the International Court of Justice may become a Party to this Convention”. Supranational bodies, such as the EU, are thus not eligible to join this Convention.

⁹⁵³ Ramsar Convention, official webpage. // < <http://www.ramsar.org/>>, last viewed 08 April 2016.

⁹⁵⁴ B.M.G.S. Ruis, No Forest Convention, but Ten Tree Treaties. // < <http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 08 April 2016.

⁹⁵⁵ Ramsar Convention Secretariat, *The Ramsar Convention Manual*: 6th edition, 2013, p. 55.

of forested wetlands.⁹⁵⁶ Countries with the largest number of such forested wetland Ramsar sites are: Mexico, Finland, Sweden, Australia, and the USA.⁹⁵⁷

The dominant forested wetland type, designated under the Ramsar Convention, is the wetland type “Intertidal Forested Wetlands”, composed, largely, of mangrove systems.⁹⁵⁸ This vegetation type is often used by legal scholars as an example in order to illustrate how the Ramsar Convention provides for the maintenance of the forest cover.⁹⁵⁹ Mangroves are trees and shrubs commonly found along sheltered coastlines in the tropics and subtropics.⁹⁶⁰ These forests are unique ecosystems as, on the one hand, they have adapted to living in saline water, either continually or during high tides⁹⁶¹ (and no other species have adapted to such “harsh” coastal conditions⁹⁶²). On the other hand, mangroves are also unique, because of their highly important, even crucial, socio-economic and environmental functions, including: the provision of a large variety of wood and Non Wood Forest Products (NWFPs); coastal protection against the effects of wind, waves, and water currents; conservation of biological diversity; protection of coral reefs, seagrass beds and shipping lanes against siltation; and provision of spawning grounds and nutrients for a variety of fish and shellfish, including many commercial species.⁹⁶³ Whereas in 2005 around 124 countries, more recently only 112 countries reported to FAO that they have some areas classified as mangroves (the largest mangroves areas being in Indonesia, Brazil, Nigeria, Australia and Mexico).⁹⁶⁴ Today, mangrove forests are among the most threatened habitats in the world - disappearing at

⁹⁵⁶ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 34. Figures are as of 10 February 2010. Of 1,886 Ramsar sites (covering, : 185, 156, 612 ha) 202 sites (covering 22, 406, 398 ha) i.e. 12% of the total area are predominantly forested wetlands.

⁹⁵⁷ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁵⁸ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁵⁹ B.M.G.S. Ruis, No Forest Convention, but Ten Tree Treaties. // <<http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 08 April 2016; A. Eikermann, Forests in International Law, Is There Really a Need for an International Forest Convention, 2015, pp. 88 – 89; F. Lesniewska, Laws for Forests, An Introductory Guide to International Forest and Forest Related Legal Materials that Shape Forest Ethics and Practice, 2005, p. 16.

⁹⁶⁰ FAO, Global Forest Resources Assessment 2010, p. 28.

⁹⁶¹ R. Hassan (ed.) et al, Millennium Ecosystem Assessment, Ecosystems and Human Well-being: Current State and Trends, 2005, p. 521.

⁹⁶² UNEP, The Importance of Mangroves to People: A Call to Action, 2014, p. 6.

⁹⁶³ FAO, Global Forest Resources Assessment 2010, p. 28.

⁹⁶⁴ These are the figures for 2010. In comparison, in 2005, twelve countries more, i.e. 124, countries reported that they had mangroves. See, FAO, Global Forest Resources Assessment 2010, p. 28; 29.

an accelerating rate, particularly in the face of the growing human population and the conversion of many mangrove areas to other uses including infrastructure, aquaculture, rice and salt production.⁹⁶⁵ According to FAO, presently a total area of mangroves is 15,6 million ha.⁹⁶⁶ According to the Ramsar statistics, more than 8 million ha, i.e. 87 of “Intertidal Forested Wetlands” sites, dominated by mangrove systems, are protected under the Ramsar Convention.⁹⁶⁷ This illustrates the significance of the Ramsar Convention as the international mechanism for protection and conservation of “Intertidal Forested Wetlands”, and, in particular, mangrove forests.

In addition to “Intertidal Forested Wetlands”, the Ramsar Convention protects 87 “Freshwater, Tree-dominated Wetlands” sites (covering more than 12 million ha)⁹⁶⁸ and about 50 “Forested Peatlands” sites⁹⁶⁹ (covering more than one million ha).⁹⁷⁰ Whereas the first two types of wetlands are widely distributed geographically, the “Forested Peatlands” Ramsar sites are predominantly boreal systems, mainly found in Europe (especially Estonia, Finland and Sweden).⁹⁷¹

⁹⁶⁵ The global area of mangroves has decreased from around 16,1 million ha in 1990 to 15,6 million ha in 2010. See, FAO, Global Forest Resources Assessment 2010, p. 29; Ramsar Convention, A. Quarto, The Mangrove Forest: Background Paper, 10 November 1997.// <<http://www.ramsar.org/news/the-mangrove-forest-background-paper>>, last viewed 08 April 2016.

⁹⁶⁶ FAO, Global Forest Resources Assessment 2010, p. 29.

⁹⁶⁷ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁶⁸ Freshwater tree-dominated wetlands – are flooded forests that are either permanently or seasonally inundated with freshwater and they occur all over the world, from tropical to temperate to boreal regions. See, Ramsar, UNFF, Forests for Water and Wetlands, p. 7.// <http://www.ramsar.org/sites/default/files/documents/library/wwd2011-leaflet_en.pdf>, last viewed, 12 May 2016.

⁹⁶⁹ The most extensive forested peatlands occur in northern Europe and the Russian Federation. See, Ramsar, UNFF, Forests for Water and Wetlands, p. 6.// <http://www.ramsar.org/sites/default/files/documents/library/wwd2011-leaflet_en.pdf>, last viewed, 12 May 2016.

⁹⁷⁰ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁷¹ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35. In to consider peatlands in general, they may be described as “wetlands with peat”. Peatlands represent a third of the estimated area of the world’s wetlands. Peat is a soil material, which contains high percentage of dead organic material; it forms where the waterlogged conditions prevent the complete decomposition of dead plant material. According to some estimates, peatlands cover 3 % of the global land area (over 400 million ha; the largest peatland areas being in the Russian Federation, Canada, Indonesia and the USA). Peatlands are the most efficient terrestrial ecosystems in storing carbon; critical for biodiversity conservation and support many specialized species and unique ecosystem types; peatlands play a key role in water resource management storing a significant proportion of global freshwater resources. Peatland inventory is until now developing and most countries have insufficient information about their peatland resource. Some peatlands are overlooked, because they are erroneously not considered to be peatlands (but e.g. forests), depending on the definition used and, thus, delineation applied.

Out of the total 50 "Forested Peatland" sites only three are tropical forested peatlands located in Indonesia, Malaysia and Thailand.⁹⁷²

Furthermore, in recognition of the importance of the links between forests and wetlands, a number of other Ramsar wetland types include forested areas (i.e. other than "forested wetlands"). For instance, the "Riisitunturi National Park" in Finland represents the sloping mire type, when in fact most of the Park is covered by spruce forests; the "Cobourg Peninsula" swamps in Australia are dominated by eucalyptus forests; or the "Okefenokee National Wildlife Refuge", an extensive drainage basin and the second-largest wetland complex in the USA, is characterized by swamp forests.⁹⁷³

In addition to the conservation of the listed Ramsar Sites, the Ramsar Convention, provides that the Contracting Parties "shall" as far "as possible" use wisely (sustainably) all the wetlands in their territory.⁹⁷⁴ This includes as well the forested wetlands (i.e. forests on wet soils) beyond the listed Ramsar Sites (e.g. the extensive wet forests in Siberia of the Russian Federation). In general, forest and wetland ecosystems are inter-dependent: many wetlands are forests, and a significant proportion of the world's forests are in fact forested wetlands.⁹⁷⁵ Depending on the definition used and, thus, delineation applied forests and wetlands provide for multiple linkages and overlaps. Whereas forests fulfil the definition of wetlands, the Ramsar Convention provides for the maintenance of the forest cover.

4.3.3.3. Climate Change under the Ramsar Convention.

Wetland ecosystems make a positive contribution to combating climate change by storing and capturing carbon. For instance, peatlands, representing about a third of the estimated area of the world's wetlands,⁹⁷⁶ are the "world's most efficient terrestrial ecosystem" in storing carbon. While peatlands cover only 3 percent of the world's land area, their peat contains as much carbon as in the

⁹⁷² CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁷³ CBD, Technical Series No. 47, Water Wetlands and Forests, 2010, p. 35.

⁹⁷⁴ Ramsar Convention, art. 3, para. 1.

⁹⁷⁵ CBD, Communique, Water Security Depends on Forests and Wetlands, Forests and Wetlands – Key Facts, International Year of Forests, 2011, p. 3.

⁹⁷⁶ UNEP, GEF, Global Environmental Centre, Wetlands International, Assessment on Peatlands, Biodiversity and Climate Change, Main Report, 2008, p. IV.

atmosphere.⁹⁷⁷ Mangroves, tidal marshes and sea-grass also represent an important carbon sink and have been referred to as “blue carbon”.⁹⁷⁸ Loss of the wetland carbon sinks through drainage and conversion to other uses is a significant source of emissions. In terms of climate change impacts, wetlands are among the most vulnerable ecosystems. The IPCC’s Fifth Assessment Report identifies that climate change poses “high risks of irreversible and abrupt change in the composition, structure and function [...] of wetlands”⁹⁷⁹ (including mangroves, tropical and boreal forests).

Consequently, the Ramsar Convention, through its COP decisions, integrated the issue of climate change into its strategic plans. The most recent Strategic Plan for the period from 2016 until 2024⁹⁸⁰ identifies climate change as “one of the primary direct drivers” of degradation and loss of wetlands resources.⁹⁸¹ Furthermore, the Plan recognizes “the critical importance of wetlands for climate change mitigation and adaptation [...]”.⁹⁸²

In general, “Wetlands and climate change” are a regular topic at the Ramsar Convention COP meetings. The most recent COP Resolution entitled “Peatlands, Climate Change and Wise Use: Implications for the Ramsar Convention” indicates that “degradation and loss of many types of wetlands is occurring more rapidly [...] and that climate change is likely to exacerbate this trend, which will further reduce the mitigation capacity of wetlands [...]”.⁹⁸³ The Resolution prompts the Contracting Parties to take “urgent action as far as possible and within national capacity to [...] improve management practices of peatlands and other wetland types that are significant GHG sinks and encourages [...] wise use

⁹⁷⁷ UNEP, GEF, Global Environmental Centre, Wetlands International, Assessment on Peatlands, Biodiversity and Climate Change, Main Report, 2008, p. V.

⁹⁷⁸ S. Crooks, D. Herr, J. Tamelander, et. al., *Mitigating Climate Change through Restoration and Management of Coastal Wetlands and near-shore marine ecosystems: challenges and opportunities*, 2011.

⁹⁷⁹ IPCC, Fifth Assessment Report, *Climate Change 2014, Impacts, Adaptation, and Vulnerability, Summary for Policymakers*, p. 15; see also Ramsar Convention, Resolution X.24, *Climate Change and Wetlands*, 28 October -4 November, 2008, paras. 5 and 6, which refer to the IPCC’s Third and Fourth Assessment Reports.

⁹⁸⁰ Ramsar Convention, *The 4th Strategic Plan 2016-2024*, 12th COP, Resolution XII.2.

⁹⁸¹ Ramsar Convention, *The 4th Strategic Plan 2016-2024*, 12th COP, Resolution XII.2., p. 3, para. 10.

⁹⁸² Ramsar Convention, *The 4th Strategic Plan 2016-2024*, 12th COP, Resolution XII.2., p. 5, para. 23.

⁹⁸³ Ramsar Convention, 12th COP, Resolution XII. 11, para. 2.

management in relation to climate change mitigation and adaptation activities".⁹⁸⁴ Besides, the Resolution encourages the Contracting Parties and their representatives to reach out to their counterparts in the UNFCCC and its relevant subsidiary bodies in order to initiate and foster greater information exchange on the actual and potential roles of wetland conservation, management, and restoration activities [...] in mitigating greenhouse gas emissions through enhancing carbon sequestration and storage in wetlands;⁹⁸⁵ and also encourages that "the Ramsar Bodies [...] collaborate with relevant international conventions and organizations, including the UNFCCC bodies, within their respective mandates, on the relationship between peatlands and climate change".⁹⁸⁶ Furthermore, the Resolution points out to a gap: "[...] in its Fifth Assessment Report, the IPCC concluded that most global estimates do not include emissions from peat burning or decomposition after a land use change [...] despite the large amount of carbon stored in these ecosystems [...]".⁹⁸⁷ Finally, the Resolution acknowledges the "distinct mandates and independent legal status" of the UNFCCC and the Ramsar Convention.⁹⁸⁸

The Ramsar Convention (e.g. Secretariat) has partnered with the private sector to help finance its activities in the climate change context with increasing emphasis on restoring wetlands to reinstate their carbon storage and use such restoration in markets for carbon offsets.⁹⁸⁹ For mangrove forests, for instance, this has been the focus of the "Danone Fund for Nature (DFN)", a Ramsar, IUCN and Danone Group Initiative begun in 2008.⁹⁹⁰ It was the first partnership agreement between a Global Environment Convention and the Private Sector.⁹⁹¹

⁹⁸⁴ Ramsar Convention, 12th COP, Resolution XII, 11, para 4.

⁹⁸⁵ Ramsar Convention, 12th COP, Resolution XII, 11, para. 3.

⁹⁸⁶ Ramsar Convention, 12th COP, Resolution XII, 11, para. 29.

⁹⁸⁷ Ramsar Convention, 12th COP, Resolution XII, 11, para 7.

⁹⁸⁸ Ramsar Convention, 12th COP, Resolution XII.2. preamble, para. 17. The UNFCCC is recognized as "the primary multilateral forum on addressing climate change"; the IPCC "as the leading international body for the scientific assessment of climate change"; and the Ramsar Convention as "the primary multilateral forum on addressing wetland issues". See, Ramsar Convention, 12th COP, Resolution XII, 11, paras 18-19.

⁹⁸⁹ Ramsar Convention, 10th COP, Resolution X.12, Principles to Partnerships between the Ramsar and the Business Sector, October – November, 2008.

⁹⁹⁰ Livelihoods Fund. // < http://ramsar.rgis.ch/cda/en/ramsar-activities-partnershipindex-private-danone-danone-fund-for-23925/main/ramsar/1-63-506-98-398%5E23925_4000_0 >, last viewed 10 April 2016. Please note, that since 2011, the Fund for Nature has expanded and is now an independent entity "Livelihoods Fund".

⁹⁹¹ Livelihoods.// < <http://www.livelihoods.eu/livelihoods-mangrove-project-wins-the-ramsar-wetland-conservation-award-2015-for-innovation/> >, last viewed 10 April 2016.

The initial focus of attention under the DFN concerned the restoration of the mangrove wetlands for carbon storage and offsets (the pilot project on mangrove restoration took place in Senegal). Since 1998 more than 100 million trees were replanted under the collaborative partnership between Danone, the Ramsar Convention and the IUCN.⁹⁹²

4.3.3.4. Interim Conclusions.

The Ramsar Convention is an international environmental treaty with a focus on one particular ecosystem – wetlands. Primarily the Convention is concerned with the identification and the management of internationally important wetlands for their conservation and sustainability. Today, the Ramsar sites network constitutes the largest network of officially recognized internationally important areas in the world (covering currently more than 200 million ha).⁹⁹³ Yet, global statistics indicates that wetland ecosystems are continuously being lost at a rate faster than that of any other ecosystem, with the reported loss of natural wetlands since 1990 averaging from 64 percent to 71 percent.⁹⁹⁴ Do these figures result from the ineffectiveness and/or vagueness of the obligations for the Contracting Parties under the Ramsar Convention? Legal scholars have already commented that the obligations under the Ramsar are worded as “simply shall” obligations; the evolution of the Convention takes place through COP resolutions and guidelines, i.e. “soft law” instruments (although, defining COP resolutions in legal terms is still problematic and there is uncertainty, “whether COP decisions can be binding before a Court”); furthermore, the Convention does not provide for any kind of dispute settlement or compliance mechanism.⁹⁹⁵ Perhaps, this question requires further investigation, yet, outside of the current research.

⁹⁹² Please note, that since 2011 the Fund for Nature has expanded and is now an independent entity “Livelihoods Fund”. See, Livelihoods// <<http://www.livelihoods.eu/livelihoods-mangrove-project-wins-the-ramsar-wetland-conservation-award-2015-for-innovation/>>, last viewed 10 April 2016.

⁹⁹³ Ramsar Convention, The 4th Strategic Plan 2016-2024, 12th COP, Resolution XII.2., p. 2, para. 4.

⁹⁹⁴ Ramsar Convention, The 4th Strategic Plan 2016-2024, 12th COP, Resolution XII.2., p. 3, paras. 10-13.

⁹⁹⁵ B. Sjostedt, Case Note, Costa Rica and Nicaragua before the International Court of Justice: Trying to Work Out the Complicated Relationship between Law and the Environment, RECIEL, 22, 3, 2013, p. 370.

For the purpose of the current thesis it is important to highlight that for the obvious reasons, the Ramsar Convention does not make explicit reference to neither forests, nor climate change in the text. However, as it has been previously discussed, the treaty is directly applicable to forests, more specifically to those that simultaneously fulfil the wetland definition as set out by the Convention. It does not cover all forests as such and, thus, remains a limited, "sector-specific" approach.⁹⁹⁶ Nevertheless, given the general importance of forested wetlands (e.g. mangroves, forested peatlands, etc.), and in particular, their role in combating climate change, the Convention is a significant contribution to both, the international climate change regime (in terms of protecting and enhancing GHG sinks and reservoirs) and the international forest regulation (in particular, the conservation of forested wetlands and the use of the "wise use" concept). Furthermore, the continuing efforts of the Convention to address climate change as one of the threats to wetlands, stressing, in particular, the importance of adaptation measures "urgent action as far as possible and within national capacity",⁹⁹⁷ needs to be emphasized.

4.3.4. Forests and Climate Change under the World Heritage Convention (WHC).

Envisioning forests as cultural sites, as sites for the enjoyment of natural beauty, sites of outstanding aesthetic value and scientific significance brings some forests under the scope of the WHC. This subsection scrutinizes the WHC with regard to forests and climate change. Firstly, the overall scope of the Convention is addressed (the regulatory regime; the scope; the objectives and the institutional structure, 4.3.2.1.). Secondly, the implications of the Convention for forests are analyzed (4.3.2.2.). Thirdly, the measures to address climate change in the context of the WHC are elaborated upon (4.3.2.3.). Finally, the interim conclusions bring the findings of the subsection together (4.3.2.4.).

⁹⁹⁶ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 90.

⁹⁹⁷ Ramsar Convention, 12th COP, Resolution XII, 11, para 4.

4.3.4.1. The World Heritage Convention: the Regulatory Regime and the Institutional Structure.

The World Heritage Convention (WHC)⁹⁹⁸ grew out of increasing recognition in the 1950s and 1960s of serious anthropogenic threats to both cultural sites and natural areas.⁹⁹⁹ After several years of negotiations and preparatory work, the General Assembly of UNESCO (21 Committee Members, represented by 21 State Parties) adopted the WHC at its seventeenth session in November, 1972. The Convention entered into force in December, 1975.

In 1977 the first Operational Guidelines for implementing the WHC were drafted.¹⁰⁰⁰ Since then the Operational Guidelines have been periodically revised.¹⁰⁰¹ The primary aim of the Operational Guidelines is to facilitate the implementation of the WHC.¹⁰⁰² Today, the Guidelines form the basis for decisions under the Convention.¹⁰⁰³ According to some scholars, the Guidelines constitute a “flexible mechanism” that has been revised repeatedly by the World

⁹⁹⁸ Convention for the Protection of the World Cultural and Natural Heritage, adopted 23 November 1972, in force 17 December 1975;

⁹⁹⁹ UNESCO, World Heritage Centre, World Heritage Information Kit, 2008, p. 7. The signal event during this time was the decision by the government of Egypt to build the Aswan Dam, which would have flooded the valley containing the Abu Simbel Temples, two massive temples in southern Egypt constructed during the reign of Rameses II in thirteenth century B.C. that are considered to be Egyptian cultural treasures. Pursuant to a request for assistance from Egypt and Sudan, the UNESCO accelerated archaeological research on the site, and the temples were ultimately dismantled, moved to dry ground, and re-assembled. UNESCO also assisted in the protection of several other sites and ultimately worked with International Council on Monuments and Sites (ICOMOS) to develop a draft convention on the protection of cultural heritage. The primary impetus for a convention to address threats to both cultural and natural heritage came from the USA, which convened a White House conference in 1965 that called for a “World Heritage Trust” for the world’s outstanding natural and scenic areas and historic sites for the present and the future of the entire world citizenry. Additional support for such a treaty came from the IUCN in 1968.

¹⁰⁰⁰ UNESCO, World Heritage Committee, Operational Guidelines for the World Heritage Committee, 27 June -1 July 1977, CC-77/CONF.001/8, 30 June 1977.

¹⁰⁰¹ The historical development of the Operational Guidelines is available at, UNESCO, WHC, The Operational Guidelines for the Implementation of the World Heritage Convention. // <<http://whc.unesco.org/en/guidelines/>>, last viewed 14 April 2016.

¹⁰⁰² UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01. The Operational Guidelines, para. 1. The Operational Guidelines set forth the procedure for : (a) the inscription of properties on the World Heritage List and the List of World Heritage in Danger; (b) the protection and conservation of World Heritage Properties; (c) the granting of International Assistance under the World Heritage Fund; and (d) the mobilization of National and International Support in favor of the Convention. See, UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, The Operational Guidelines, para. 2.

¹⁰⁰³ L. Meskell, UNESCO’s World Heritage Convention at 40, Challenging the Economic and Political Order of International Heritage Conservation, *Current Anthropology*, 54, 4, 2013, p. 486.

Heritage Committee, thus illustrating the evolving nature of interpretation and changing sociopolitical context of the Convention.¹⁰⁰⁴

The institutional structure of the WHC includes a meeting of parties, the General Assembly of States Parties to the World Heritage Convention (the “General Assembly”);¹⁰⁰⁵ the Intergovernmental Committee for the Protection of the Cultural and Natural Heritage of Outstanding Universal Value (the “World Heritage Committee”);¹⁰⁰⁶ a Secretariat, “the World Heritage Centre”;¹⁰⁰⁷ a Trust Fund, “the World Heritage Fund”;¹⁰⁰⁸ and for Advisory Bodies (namely, the International Centre for Study of the Preservation and Restoration of Cultural Property (ICCROM); the ICOMOS and the IUCN).¹⁰⁰⁹

The WHC is created with the aim to conserve and protect sites – natural as well as cultural – from destruction, including the traditional causes of decay (i.e. natural) and also the changing social and economic conditions (i.e.

¹⁰⁰⁴B.M.G.S Ruis, No Forest Convention, but Ten Tree Treaties.// <<http://www.fao.org/docrep/003/y1237e/y1237e03.htm>>, last viewed 16 April 2016; L. Meskeil, UNESCO’s World Heritage Convention at 40, Challenging the Economic and Political Order of International Heritage Conservation, *Current Anthropology*, 54, 4, 2013, p. 486; also citing Sophia Labadi.

¹⁰⁰⁵ WHC, part III, art. 8.1. The General Assembly of States Parties to the World Heritage Convention includes all States Parties to the Convention. It meets once every two years during the sessions of the General Conference of UNESCO. The most recent 20th session of the General Assembly took place in November, 2015. During its sessions the General Assembly determines the uniform percentage of contributions to the World Heritage Fund applicable to all States Parties of the WHC and elects new members to the World Heritage Committee. See, UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, The General Assembly of States Parties to the WHC, para. 18.

¹⁰⁰⁶ WHC, part III, art. 8 et seq. The World Heritage Committee consists of 21 representatives from the State Parties to the Convention, elected by the parties to the WHC for the terms up to six years. The Committee meets as frequently as deemed necessary, but at least once a year. The Committee’s responsibilities include taking decisions on the “List of World Heritage” and the “List of World Heritage in Danger” under the WHC; monitoring the state of conservation of the World Heritage properties; establishing the terms for the use of the World Heritage Fund; and allocation of financial assistance upon requests from parties. UNESCO, World Heritage Centre, World Heritage Information Kit, The World Heritage Center, 2008, p, 25.

¹⁰⁰⁷ WHC, part III, art. 14. The “World Heritage Centre” acts as the Secretariat to the World Heritage Committee and ensures the day-to day management of the WHC.¹⁰⁰⁷ The main tasks of the Secretariat, *inter alia*, include: the organization of the meetings of the General Assembly and the Committee; the implementation of decisions of the Committee and resolutions of the General Assembly and reporting to them on their execution; provides advice to States Parties; receipt, registration, review and transmission to the relevant Advisory Bodies of nominations to the World Heritage List.¹⁰⁰⁷ An increasingly important element of the work of the World Heritage Centre is that of coordinating its activities with those of other multilateral cultural and environmental agreements. UNESCO, World Heritage Centre, World Heritage Information Kit, The World Heritage Center, 2008, p, 25.

¹⁰⁰⁸ WHC, part IV, art. 15 et seq.

¹⁰⁰⁹ WHC, part III, art. 8 para 3. The Advisory Bodies advise on the implementation of the WHC in the field of their expertise.

anthropogenic) damage and destruction.¹⁰¹⁰ The states-parties to the WHC recognize that "deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world".¹⁰¹¹ With the recognition that the "protection of this heritage at the national level often remains incomplete because of the scale of the resources which it requires and of the insufficient economic, scientific, and technological resources of the country where the property to be protected is situated"¹⁰¹² the WHC establishes "an effective system of collective protection of the cultural and natural heritage of outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods".¹⁰¹³ The WHC builds on the already "existing international conventions, recommendations and resolutions concerning cultural and natural property [... that recognize] the importance, for all the people of the world, of safeguarding this unique and irreplaceable property, to whatever people it may belong".¹⁰¹⁴

For the current research the concept of the "natural heritage" is of particular interest. Article 2 of the WHC defines "natural heritage" as:

- "natural features consisting of physical and biological formations or groups of such formations, which are of Outstanding Universal Value from the aesthetic or scientific point of view;
- geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of Outstanding Universal Value from the point of view of science or conservation;
- natural sites or precisely delineated natural areas of Outstanding Universal Value from the point of view of science, conservation or natural beauty".¹⁰¹⁵

With the focus on "features", "formations" and their groups, "areas" and "sites", the WHC considers for nomination only immovable heritage.¹⁰¹⁶ As for the

¹⁰¹⁰ WHC, Preamble, para. 1.

¹⁰¹¹ WHC, Preamble, para. 2.

¹⁰¹² WHC, Preamble, para. 3.

¹⁰¹³ WHC, Preamble, para. 8.

¹⁰¹⁴ WHC, Preamble, para. 5.

¹⁰¹⁵ WHC, part I, art. 2.

¹⁰¹⁶ UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, 8 July 2015, The World Heritage List, at 48.

“Outstanding Universal Value”, the Operational Guidelines for the Implementation of the WHC suggest that “Outstanding Universal Value means [...] natural significance, which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such the permanent protection of this heritage is of the highest importance to the international community as a whole.”¹⁰¹⁷ The Committee further defines the criteria for an assessment of the Outstanding Universal Value.¹⁰¹⁸

The WHC facilitates two Heritage Lists: the “World Heritage List”;¹⁰¹⁹ and the “List of World Heritage in Danger”.¹⁰²⁰ The procedure for the inscription of properties on a world heritage list is set up by the WHC and further specified by the Operational Guidelines.¹⁰²¹

The obligations with regard to identification; protection; conservation; and preservation of World Heritage belong to the States Parties in which the World Heritage exists. The obligations of the Parties to the WHC differ with respect to the status of the cultural or natural heritage in question (i.e. whether a property is included in either of the two Convention’s Lists or not; by signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage).¹⁰²² The main obligations arising for states with regard to their cultural and natural heritage, independent from an inclusion within the list, derive from articles 4 and 5 WHC. According to art. 4 WHC “each state party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage [...] situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic,

¹⁰¹⁷ UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, 8 July 2015, The World Heritage List, at 49.

¹⁰¹⁸ WHC, part III, art. 11. Para 5. The respective criteria are laid down in para. 77 of the Operational Guidelines for the Implementation of the World Heritage Convention.

¹⁰¹⁹ WHC, part III, art. 11, para. 2.

¹⁰²⁰ WHC, part III, art. 11, para 4.

¹⁰²¹ WHC, part III, art. 11 *et seq*; UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, 8 July 2015, Process for the Inscription of Properties on the World Heritage List.

¹⁰²² WHC, part III, art. 12.

scientific and technical, which it may be able to obtain".¹⁰²³ Additionally, article 5 of the WHC states that "each State Party to this Convention shall endeavor in so far as possible, and as appropriate for each country:

- (a) to adopt a general policy [...] and to integrate the protection of heritage into comprehensive planning programs;
- (b) to set up [...] services for the protection, conservation and presentation of the cultural and natural heritage [...];
- (c) to develop [...] studies and research [...] of counteracting the dangers that threaten its cultural or natural heritage;
- (d) to take the appropriate [...] measures for the identification, protection, conservation, presentation and rehabilitation of this heritage; and
- (e) to foster [...] training [...]."¹⁰²⁴

The States Parties to the Convention have the duty "not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage".¹⁰²⁵ Furthermore, "whilst fully respecting the sovereignty of the States on whose territory the cultural and natural heritage [...] is situated" the Convention recognizes the obligation "of the international community as a whole to cooperate".¹⁰²⁶

Legal critics have commented, "taking into account the obligations arising from the mere membership to the WHC, as well as the duties coming with an inscription of a cultural or natural heritage to the World Heritage List, there seems to be little incentive to enroll in the Convention".¹⁰²⁷ However, the WHC also provides for beneficial rights to States Parties in order to protect the world cultural and natural heritage located on their territories and inscribed, or potentially suitable for inscription on the World Heritage List.¹⁰²⁸ *Inter alia*, the WHC provides for international assistance, which is primarily financed from the

¹⁰²³ WHC, part II, art. 4.

¹⁰²⁴ WHC, part II, art. 5, paras a-e.

¹⁰²⁵ WHC, part II, art. 6, para. 3.

¹⁰²⁶ WHC, part II, art. 6, para. 1.

¹⁰²⁷ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 94.

¹⁰²⁸ WHC, art. 13, paras 1 and 2; art 19-26; UNESCO, World Heritage Centre, *Operational Guidelines for the Implementation of the World Heritage Convention*, WHC.15/01, 8 July 2015, International Assistance.

World Heritage Fund.¹⁰²⁹ Yet, this assistance is only “supplementary” to national efforts.¹⁰³⁰

As for a breach of Convention duties and obligations on behalf of States Parties, there is only a limited arsenal of instruments to ensure compliance; there is no legal penalty, sanction, or remedy provided for under the WHC. If a property is included in the World Heritage List, the Committee can, as a measure of compliance, either inscribe it on the List of World Heritage in Danger or threaten to delete it completely from the World Heritage List. These measures have the potential to stimulate the motivation of the State Party to take the necessary steps to avert the threat to the property.

4.3.4.2. Forests under the World Heritage Convention.

As of the year 2015, 110 World Heritage Sites are recognized as World Heritage Forest Sites.¹⁰³¹ The size of each particular Forest Site varies ranging from 18 ha (e.g. Valee de Mai, Seychelles) to 8, 8 million ha (e.g. Lake Baikal, the Russian Federation).¹⁰³² The total surface area of the World Heritage Forest Sites is now over 75 million ha.¹⁰³³ Thus, the link between forests and the WHC becomes conspicuous.

Given the significant figures of the total area of the World Heritage Forest Sites, it has to be highlighted that the definition of “forests” under the WHC has been developed for the specific purposes of the Convention. Initially, forest protected areas were included on the World Heritage List if “the nominations of the respective State Parties or [World Conservation Monitoring Center] WCMC forest data revealed a substantial amount [...] of forest cover within the site”.¹⁰³⁴ The indication of whether or not the amount of forest cover within each site was significant was based primarily on two criteria: the first, and the most important,

¹⁰²⁹ WHC, art. 15-16.

¹⁰³⁰ UNESCO, World Heritage Centre, Operational Guidelines for the Implementation of the World Heritage Convention, WHC.15/01, 8 July 2015, International Assistance, para. 233.

¹⁰³¹ UNESCO, World Heritage Centre, World Heritage Forest Program.// <
<http://whc.unesco.org/en/forests/>>, last viewed 21 April 2016.

¹⁰³² UNESCO, World Heritage Centre, World Heritage Forest Program.// <
<http://whc.unesco.org/en/forests/>>, last viewed 21 April 2016.

¹⁰³³ UNESCO, World Heritage Centre, World Heritage Forest Program.// <
<http://whc.unesco.org/en/forests/>>, last viewed 21 April 2016.

¹⁰³⁴ J. Thorsell, T. Sigaty, A Global Overview of Forest Protected Areas on the World Heritage List, A Contribution to the Global Theme Study of World Heritage Natural Sites, 1997, p. 2.

was information regarding the type and amount of forest provided by the State Party in the nomination for World Heritage designation; the second, was derived from the WCMC database for each World Heritage site and forest database files (whether a 8 km X 8 km grid cell is more than 50 percent forested).¹⁰³⁵

More recently, a slightly modified version of the definition has been developed for the purposes of the WHC: "A World Heritage Forest is a World Heritage site for which the nomination file provided by States Party or WCMC forest data reveal a substantial amount of forest cover within the terrestrial component of the site and for which forest ecosystems contribute to the site's Outstanding Universal Value".¹⁰³⁶ Thus, by specifying that the forest ecosystems within a World Heritage Forest must be recognized as contributing to the site's Outstanding Universal Value, the definition creates a clear legal connection to the application of the WHC to the conservation of such forests. Sites that may contain forests, but have been inscribed on the World Heritage List for the values unrelated to forests are, thus, ruled out. Further, it should be noted that some of the sites recognized as World Heritage Forest Sites do not fully consist of forests. The most dramatic example is the Baikal Lake in the Russian Federation. The lake itself covers 3,15 million ha of the 8,8 million ha site.¹⁰³⁷

Upon the recognition of the link between forests and the WHC, the World Heritage Forest Program (WHFP) was adopted in June 2001.¹⁰³⁸ One reason for

¹⁰³⁵ J. Thorsell, T. Sigaty, A Global Overview of Forest Protected Areas on the World Heritage List, A Contribution to the Global Theme Study of World Heritage Natural Sites, 1997, p. 3. Furthermore, in order to make mangrove forests, mixed mountain forest areas, and island system forest areas visible on a global scale, any grid cell containing these categories was classified as being entirely forested. A site was included into the World Heritage List as Forest if either or both sources (i.e. a State Party and/or the WCMC) revealed 20% or more forest cover within the site or if the extent of forest cover was a primary reason why the site was nominated and inscribed on the World Heritage List.

¹⁰³⁶ UNESCO, World Heritage Forests, Leveraging Conservation at the Landscape Level, Proceedings of the 2nd World Heritage Forests Meeting, March 9-11, 2005, World Heritage Reports, 21, p. 15.

¹⁰³⁷ UNESCO, World Heritage Forests, Leveraging Conservation at the Landscape Level, Proceedings of the 2nd World Heritage Forests Meeting, March 9-11, 2005, World Heritage Reports, 21, p. 15.

¹⁰³⁸ UNESCO, World Heritage Committee, Twenty-Fifth Session, Item 16 of the Provisional Agenda, Information on International Assistance and the World Heritage Program Initiatives, WHC-01/CONF.208/19, p. 6. The WHFP was approved following a recommendation by an expert meeting organized by the World Heritage Center in 1998 in Berastagi, Indonesia, in cooperation the CIFOR and the Government of Indonesia. The meeting concluded that the WHC had a key role to play in conserving the large proportion of global terrestrial biodiversity that exists in forests. The Report of the meeting included a list of recommendations to the World Heritage

the program establishment was “the need for strategic use of the World Heritage Fund”, i.e. a more strategic management of International Assistance provided for under the Fund.¹⁰³⁹ The aim of the WHFP was to ensure that the WHC “be used to enhance forest conservation on a global scale”.¹⁰⁴⁰ The aim is supplemented with a 20 years vision of the WHFP: “World Heritage Forests are models of forest protected area conservation at the national and international levels”.¹⁰⁴¹ The following objectives are pursued by the WHFP:

1. Studies and analyses on the Convention’s role in conservation and sustainable use of forests worldwide;
2. Establishment of a World Heritage Forest Network;
3. Studies to link World Heritage Forest Conservation and the global efforts to mitigate climate change: preserve carbon sinks, and establishment of sustainable conservation financing mechanisms;
4. Technical assistance to developing countries to design, launch and finance specific projects for individual sites.¹⁰⁴²

An Assessment of 2011 revealed that the WHFP makes a “very significant contribution to forest conservation at the global level”.¹⁰⁴³ In this regard a special role of the World Heritage Committee in constantly monitoring the state of the world heritage sites was highlighted. It was indicated that “the network of the World Heritage forests largely consists of [...] fairly resilient forests that are representative of the diversity of the world’s forest ecosystems”.¹⁰⁴⁴ Yet, it was

Committee as well as a list of forest sites that could be nominated by States Parties. See, CIFOR, Government of Indonesia, UNESCO, World Heritage Forests, The World Heritage Convention as a Mechanism for Conserving Tropical Forests Biodiversity, 1998.// <<http://whc.unesco.org/uploads/events/documents/event-103-1.pdf>>, last viewed 22 April 2016.

¹⁰³⁹ UNESCO, World Heritage Committee, Twenty-Fifth Session, Item 16 of the Provisional Agenda, Information on International Assistance and the World Heritage Program Initiatives, WHC-01/CONF.208/19, p. 4.

¹⁰⁴⁰ UNESCO, WHC, World Heritage Committee, Thirty Eighth Session, Item 5 of the Provisional Agenda: Reports of the World Heritage Centre and the Advisory Bodies, WHC-14/38.COM/5E, 30 April 2014, p. 3.

¹⁰⁴¹ UNESCO, WHC, World Heritage Committee, Thirtieth Session, Item 12 of the Provisional Agenda: Performance Indicators for World Heritage, 8-16 July 2006, WHC-06/30.COM/12, p. 8.

¹⁰⁴² UNESCO, World Heritage Committee, Twenty-Fifth Session, Item 16 of the Provisional Agenda, Information on International Assistance and the World Heritage Program Initiatives, WHC-01/CONF.208/19, p. 7.

¹⁰⁴³ UNESCO, Adapting to Change, The State of Conservation of World Heritage Forests in 2011, World Heritage Papers, 30, 2011, p. 21.

¹⁰⁴⁴ Resilience – forest capacity to recover from occasional catastrophes (e.g. forest fires, hurricanes, disease outbreaks, or even temporary anthropogenic disturbances such as illegal

also highlighted that the Outstanding Universal Value of World Heritage Forests is more vulnerable than that of other World Heritage Sites,¹⁰⁴⁵ suggesting that “the conservation of World Heritage Forests is increasingly difficult”.¹⁰⁴⁶ The Assessment concluded that most “large, intact protected forests meeting inscription criteria have been [already] identified and inscribed on the World Heritage List”, thus there is little scope left for new inscriptions.¹⁰⁴⁷

Just recently the role of the WHC “as an important instrument for global forest conservation” was reestablished.¹⁰⁴⁸ According to the 2015 Report on the World Heritage Thematic Programs, the WHFP played a major role in achieving this goal and has made important contributions to achieving the objectives set forth by the program.¹⁰⁴⁹ However, notwithstanding the significance of the results achieved, and due to the limited available financial resources, the World Heritage Center and the Advisory Bodies have suggested “it is no longer necessary to maintain a dedicated thematic program for forests and recommends the Committee to phase it out”.¹⁰⁵⁰

4.3.4.3. Climate Change under the World Heritage Convention.

As part of the nomination process for new sites to be inscribed on the World Heritage list, climate change has been featured as one of “the environmental pressures” affecting the site that States Parties need to consider when preparing the nomination documentation.¹⁰⁵¹ With regard to the already existing designated natural and cultural world heritage sites protected under the WHC, a

logging or hunting). See, UNESCO, *Adapting to Change, The State of Conservation of World Heritage Forests in 2011*, World Heritage Papers, 30, 2011, p. 17.

¹⁰⁴⁵ UNESCO, *Adapting to Change, The State of Conservation of World Heritage Forests in 2011*, World Heritage Papers, 30, 2011, p. 20.

¹⁰⁴⁶ UNESCO, *Adapting to Change, The State of Conservation of World Heritage Forests in 2011*, World Heritage Papers, 30, 2011, p. 21.

¹⁰⁴⁷ UNESCO, *Adapting to Change, The State of Conservation of World Heritage Forests in 2011*, World Heritage Papers, 30, 2011, p. 19.

¹⁰⁴⁸ UNESCO, WHC, World Heritage Committee, Thirty-Eight Session, Item 5 of the Provisional Agenda: Reports of the World Heritage Center and the Advisory Bodies, 5E. Report on the World Heritage Thematic Programs, WHC-14/38.COM/5E, p. 5.

¹⁰⁴⁹ UNESCO, WHC, World Heritage Committee, Thirty-Eight Session, Item 5 of the Provisional Agenda: Reports of the World Heritage Center and the Advisory Bodies, 5E. Report on the World Heritage Thematic Programs, WHC-14/38.COM/5E, p. 5.

¹⁰⁵⁰ UNESCO, WHC, World Heritage Committee, Thirty-Eight Session, Item 5 of the Provisional Agenda: Reports of the World Heritage Center and the Advisory Bodies, 5E. Report on the World Heritage Thematic Programs, WHC-14/38.COM/5E, p. 5.

¹⁰⁵¹ UNESCO, World Heritage Centre, *Operational Guidelines for the Implementation of the World Heritage Convention*, WHC.15/01, 8 July 2015, Properties for Inscription of the World Heritage List, Annex 5, p. 85.

2006 survey of States Parties revealed that 125 World Heritage Sites were considered to be threatened by climate change (with 19 states affected by glacial melt and retreat and 18 by sea level rise).¹⁰⁵²

The issue of climate change and its impacts on the World Heritage natural and cultural properties received an increasing attention in the period between 2004 and 2006, when 37 non-governmental organizations and individuals from several countries filed five petitions with the World Heritage Committee, requesting that it add several World Heritage Sites to the Convention's List of World Heritage in Danger.¹⁰⁵³ This led to the Committee establishing a working group to consider climate change impacts on World Heritage, develop of a climate change response strategy and report for dealing with the issue.¹⁰⁵⁴ The World Heritage Committee reviewed and endorsed these documents at its 30th session and requested all State Parties to implement the Strategy so as to protect the Outstanding Universal Values, integrity and authenticity of the World Heritage Properties from the adverse impacts of climate change.¹⁰⁵⁵ Since then the World Heritage Centre has provided support to States Parties and site managers in tackling climate change threats through, *inter alia*, its publications: of Climate Change and World Heritage Report on predicting and managing impacts of climate change on World Heritage and Strategy to assist States Parties to implement appropriate management responses,¹⁰⁵⁶ the Policy Document on the Impacts of Climate Change on World Heritage Properties,¹⁰⁵⁷ and the compendium of Case Studies on Climate Change.¹⁰⁵⁸ More recently, in 2014, the Practical Guide to Climate Change Adaptation has been published

¹⁰⁵² World Heritage Centre, Predicting and Managing the Effects of Climate Change on World Heritage, 2006.

¹⁰⁵³ Four of the petitions were filed in 2004, for Sagarmatha National Park (Nepal), Huascarán National Park (Peru), the Great Barrier Reef (Australia) and Belize Barrier Reef Reserve System (Belize); the fifth in 2006 by non-governmental organizations in the USA and Canada, seeking to add the Waterton-Glacier International Peace Park to the list. Further petitions have since been received. For the overview of the petitions and the World Heritage Committee/ Parties' Responses to the Petitions, see, see W.C.G., Burns, Belt and Suspenders? The World Heritage Convention's Role in Confronting Climate Change, RECIEL, 18 (2), 2009.

¹⁰⁵⁴ UNESCO, World Heritage Committee, Decision 29 Com 7B.a, 15 July 2005.

¹⁰⁵⁵ UNESCO, WHC, Decision 30 COM 7.1.

¹⁰⁵⁶ UNESCO, World Heritage Centre, Climate Change and World Heritage Report on predicting and managing impacts of climate change on World Heritage and Strategy to assist States Parties to implement appropriate management responses, 2007.

¹⁰⁵⁷ UNESCO, World Heritage Centre, Policy Document on the Impacts of Climate Change on World Heritage Properties, 2008.

¹⁰⁵⁸ UNESCO, World Heritage Centre, Compendium of Case Studies on Climate Change, 2007.

specifically in order to help natural World Heritage managers to better prepare for the impacts of climate change.¹⁰⁵⁹ Overall, four elements have been suggested to be central to the WHC climate change response:

1. Increasing the resilience of WHC sites to climate change;
2. Monitoring climate change impacts;
3. Establishing carbon-financed forest protection measures;
4. Further research into climate change impacts on the network of WHC sites.¹⁰⁶⁰

The World Heritage Forests have been recognized to be a particularly vulnerable group of World Heritage Sites, where climate change is expected to significantly increase the complexities of protected area management in the coming years.¹⁰⁶¹ However, as the WHFP is suggested to be “phased out”, the work on World Heritage Forests adaptation to climate change is to be continued as part of the overall adaptation of World Heritage Sites to climate change.¹⁰⁶²

A study commissioned by the WHP in 2012 calculated the total stock of carbon in the World Heritage Forest Sites (trees, leaves, litter, and soils) at 10,5 billion tons,¹⁰⁶³ demonstrating a massive potential of World Heritage Forests for REDD+. Therefore, the World Heritage Centre has sought to define the comparative advantage of World Heritage Forests in engaging with REDD+ with a pilot project and carbon financed forest management implemented in the Tropical Rainforest Heritage of Sumatra in Indonesia in the period from 2009 until 2011.¹⁰⁶⁴

¹⁰⁵⁹ UNESCO, World Heritage Centre, Climate Change Adaptation for Natural World Heritage Sites, A Practical Guide, 2014.

¹⁰⁶⁰ See response by the World Heritage Center to CITES request for information on climate change activities.// < <https://cites.org/common/com/pc/19/E19-08-03-01-A1.pdf> >, last viewed 24 April 2016.

¹⁰⁶¹ UNESCO, WHC, Adapting to Change, The State of Conservation of World Heritage Forests in 2011, 2011, p. 5.

¹⁰⁶² UNESCO, WHC, World Heritage Committee, Thirty-Eight Session, Item 5 of the Provisional Agenda: Reports of the World Heritage Center and the Advisory Bodies, 5E. Report on the World Heritage Thematic Programs, WHC-14/38.COM/5E, p. 5.

¹⁰⁶³ UNESCO, 10,5 Billion Tonnes of Carbon Stored in the World Heritage Forest Sites.// < <http://whc.unesco.org/en/news/937> >, last viewed 24 April 2016.

¹⁰⁶⁴ UNESCO, Adaptive and Carbon-Financed Forest Management in the Tropical Rainforest Heritage of Sumatra, 2009-2011.// < <http://unesdoc.unesco.org/images/0021/002198/219893E.pdf> >, last viewed 24 April 2016.

4.3.4.4. Forests and Climate Change under the World Heritage Convention: Interim Conclusions.

Since its adoption, the WHC has grown into a Convention boasting today almost universal membership with 191 parties to the Convention (including the Russian Federation and the EU Member States).¹⁰⁶⁵ The total number of the World Heritage Properties (cultural, natural and mixed) comprises 1031;¹⁰⁶⁶ with 110 World Heritage Sites recognized as the World Heritage Forest Sites with an Outstanding Universal Value. Legal scholars have commented, in particular, on the success of the World Heritage Fund, a financial mechanism under the WHC, which allows providing financial assistance for states in reaching conservation aims in the interest of mankind as a whole.¹⁰⁶⁷

To protect natural and cultural sites “for all peoples of the world [...] safeguarding this unique and irreplaceable property, to whatever people it may belong”¹⁰⁶⁸ is, on the one hand, a fundamental tenet of the WHC. Thus, the recognized and protected under the WHC forests receive the status of “Common Heritage of Mankind”. The nature of the legal concept is a form of trust with the principal aim of good management for the benefit of mankind as a whole.¹⁰⁶⁹ On the other hand, the Convention shows a strong respect towards the principle of State sovereignty, contained in its art. 11 (3), providing that “the inclusion of property on the Heritage List requires the consent of the State concerned”. Thus, no property is inscribed to the World Heritage List unless the State in whose territory the site is situated agrees.

If to compare the WHC to the Ramsar Convention, the obligations under the WHC are more stringent and more specific than those, “worded as simply shall

¹⁰⁶⁵ UNESCO, WHC, States Parties, Ratification Status. // < <http://whc.unesco.org/en/statesparties/>>, last viewed 12 April 2016. The EU is unable to be a Party because the treaty is not open to such organizations. See, WHC, art. 31 and art. 32. It is in any event impractical since membership requires Parties to nominate properties on their national territory.

¹⁰⁶⁶ UNESCO, World Heritage Centre, World Heritage List.// < <http://whc.unesco.org/en/list/>>, last viewed, 21 April 2016.

¹⁰⁶⁷ P. Birnie, A. Boyle, C. Redgewell, *International Law and the Environment*, 2009, p. 680; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 96.

¹⁰⁶⁸ WHC, preamble, para. 5.

¹⁰⁶⁹ A. Kiss, D. Shelton, *Guide to International Environmental Law*, 2007, p. 16; D. Bodansky, J. Brunnee, E. Hey, *The Oxford Handbook of International Environmental Law*, 2010, p. 561-564.

obligations” under the Ramsar Convention. In this respect, thus, the WHC goes beyond the Ramsar.¹⁰⁷⁰ Furthermore, both Conventions provide protection to sites, and both are limited by listings. With regard to forests, the WHC offers recognition and protection to those, which are listed in the World Heritage List; and focuses on their Outstanding Universal Values (including, *inter alia*, the aesthetic, scientific and cultural functions and/or services). Therefore, similar to the Ramsar Convention, the WHC does not cover all forest as such, but remains a conditional approach.

For the purpose of the present research, it is important to highlight that the WHC does not make explicit reference to neither forests, nor climate change in the text. Yet, given the significant figures of the total area of the World Heritage Forest Sites, and the special role of the World Heritage Committee in constantly monitoring the state of the sites, the WHC can still be viewed as an important instrument for global forest protection and conservation. Besides, in the similar line as the Ramsar Convention, the WHC contributes to the overall objective of the international climate change regime (e.g. by protection and conservation of forests as GHG sinks and reservoirs). One more important highlight - is the recognition of greater vulnerability of the World Heritage Forest Sites and, in particular, their Outstanding Universal Values, (in comparison to other World Heritage Sites) in the face of the changing climate. This has suggested that the protection and conservation of the World Heritage Forests is increasingly more difficult and requires forest-specific (adaptation) measures.

4.3.5. Forests and Climate Change under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The CITES¹⁰⁷¹ is a species conservation Convention, covering all kinds of animal and plant species, which naturally include trees. This subsection firstly, gives a short overview of the regulatory regime, the scope, the objectives and the institutional structure of the Convention (4.3.3.1.). Secondly, the implications of the Convention for forests are discussed (4.3.3.2.). Thirdly, the measures to address climate change in the context of the CITES are elaborated upon

¹⁰⁷⁰ P. Birnie, A. Boyle, C. Redgewell, *International Law and the Environment*, 2009, p. 680.

¹⁰⁷¹ CITES, adopted 3 March 1973, in force 1 July 1975.

(4.3.3.3.). Finally, the interim conclusions bring the findings of the subsection together (4.3.3.4.).

4.3.5.1. CITES: General Overview.

The CITES grew out of the increasing recognition that wild fauna and flora are “an irreplaceable part of the natural systems of the earth” and that there is a need for the “protection of certain species of wild fauna and flora against over-exploitation through international trade”.¹⁰⁷² The CITES became an innovative advancement to the global level of a variety of sectorial and regional approaches to grant protection measures to species.¹⁰⁷³ The first attempts to design a draft of the treaty took place in 1963, when the need for a convention to regulate international wildlife trade was first identified in a decision of the IUCN.¹⁰⁷⁴ In 1972 the UN Conference on the Human Environment called for negotiations on a convention to be concluded as soon as possible.¹⁰⁷⁵ Consequently, in 1973 the CITES was signed. It entered into force 2 years later, in 1975.¹⁰⁷⁶ Currently the Convention boasts nearly universal membership with 182 Parties to the CITES

¹⁰⁷² CITES, preamble, para. 1 and 4.

¹⁰⁷³ To name just a few, the 1893 Bering Sea Fur Seals Arbitration; the 1911 and 1957 Pacific Fur Seal Treaties; the 1957 Interim Convention on Conservation of North Pacific Fur Seals; the 1902 Convention for the Protection of Birds Useful to Agriculture; the 1973 Agreement on the Conservation of Polar Bears; the 1980 Convention on the Conservation of Antarctic Marine Living Resources; the 1991 Protocol on Environmental Protection to the Antarctic Treaty; the 1940 Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere; the 1979 Convention on the Conservation of European Wildlife and Natural Habitats. According to P. H. Sand, the two predecessors most similar to CITES were the 1900 London Convention Designated to Ensure the Conservation of Various Species of Wild Animals in Africa which are Useful to Man or Inoffensive (i.e. First London Convention) and the 1933 Convention relative to the Preservation of Fauna and Flora in their Natural State (Second London Convention). For further information see, P. H. Sand, Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment, *European Journal of International Law*, 1, 1997, pp. 31-33; P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 686; Ed Couzens, CITES at Forty: Never Too Late, to Make Lifestyle Changes, *RECIEL*, 22, 3, 2013, pp. 311-323.

¹⁰⁷⁴ CITES, Keynote Address by CITES Secretary-General John E. Scanlon at the International Conference on Wildlife Crime – The Hague, Netherlands, The Origins of CITES.// <https://cites.org/eng/news/sq/keynote_address_by_cites_sq_john_scanlon_at_the_international_conference_on_wildlife_crime_01032016>, last viewed 30 April 2016.

¹⁰⁷⁵ The result of the negotiation process then was the endorsement of Recommendation 32 of the Stockholm Declaration: “It is recommended that Governments give attention to the need to enact international conventions and treaties to protect species inhabiting international water or those which migrate from one country to another” and “that a broadly based convention should be considered which would provide a framework by which criteria for some regulations could be agreed upon and the overexploitation of resources curtailed by signatory countries”. See, Declaration of the UN Conference on the Human Environment, adopted 16 June 1972, B – Recommendations for Action at the International Level.

¹⁰⁷⁶ On 13 April 1987 the Bonn Amendment to the CITES entered into force. On 29 November 2013 the Gaborne Amendment entered into force.

(including the Russian Federation and the European Union).¹⁰⁷⁷ The CITES is widely regarded as one of the most important international conservation instruments.¹⁰⁷⁸

The sole aim of the Convention is to control or prevent international trade in endangered wildlife species, live or dead animals and plants as well as their parts and derivatives, by means of permits, issued by the exporting country, and, in exceptional cases, to additional licensing by the importing country.¹⁰⁷⁹ Currently the CITES regulates international trade in over 35 600 of animals and plants, including their parts and derivatives (roughly, 5600 species of animals and 30 000 species of plants).¹⁰⁸⁰ The CITES vision statement reads: "Conserve biodiversity and contribute to its sustainable use by ensuring that no species of wild fauna or flora becomes or remains subject to unsustainable exploitation through international trade [...]".¹⁰⁸¹

The CITES obliges States that are Parties to the Convention, *inter alia*, not to trade in listed species other than in accordance with the Convention and to take appropriate measures to enforce the Convention and to prohibit trade in violation thereof. Depending on the types of protection from over-exploitation afforded, the Convention lists species in its three Appendices. Appendix I lists species that are the most endangered among CITES-listed animals and plants (art. II, para 1). They are threatened with extinction and CITES prohibits international trade in specimens of these species (art. III). There are a number of exemptions to this general prohibition (art. VII). Appendix II lists species that are not necessarily threatened with extinction now, but may become so, unless trade is closely controlled in order to avoid utilization incompatible with their survival. Appendix II also includes the so-called "look alike species", i.e. species

¹⁰⁷⁷ CITES, Member Countries. // < <https://cites.org/eng/disc/parties/index.php>>, last viewed 26 April 2016; CITES, List of Contracting Parties. // <<https://cites.org/eng/disc/parties/chronolo.php>>, last viewed 27 April 2016.

¹⁰⁷⁸ CITES, CITES Strategic Vision: 2008-2020, General Introduction, para. 2.

¹⁰⁷⁹ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 686.

¹⁰⁸⁰ CITES, The CITES Species. // <<https://cites.org/eng/disc/species.php>>, last viewed 29 April 2016.

¹⁰⁸¹ CITES, CITES Strategic Vision: 2008-2020, CITES Vision Statement. However, the convention text itself does not refer to the need to balance environmental and development interests in the way envisaged by the sustainability principle. See, C. Fuchs, *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): conservation efforts undermine the legality principle*, *German Law Journal*, 9, 2008, p. 1567.

whose specimens in trade look like those of species listed for conservation reasons (art. II para. 2). Appendix III is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation (art. III para. 3). An Appendix III listing requires the listing party to issue export permits for the species, and obligates importing countries to require presentation of export permits when the specimen comes from the listing party, and certificate of origin when the specimen comes from another range state. Species may be added to or removed from Appendix I and II, or moved between them, only by the COP (art. XV), whereas Appendix III of CITES includes species listed at any time and by any range Party unilaterally (art. XVI). As noted by Oldfield, decisions arising from the listing process represent “a specific form of delegated lawmaking” as, once agreed by the parties, they become legally binding after 90 days without ratification.¹⁰⁸²

The CITES listing approach is not absolute: provided an exemption clause applies (art. VII) the listed species may be traded to a specific degree. Additionally, Parties may enter a reservation, i.e. a unilateral statement that it will not be bound by the provisions of the Convention relating to trade in a particular species listed in the Appendices (art. XV, XVI or XXIII). Thus, the CITES “[...] allows dissenting countries to opt out of collective decisions on species listing”.¹⁰⁸³ This has been recognized by legal scholars as a “fatal loophole”, which allows States to carry on unlimited trade of specific species, despite the fact it is actually covered by a treaty amendment.¹⁰⁸⁴

As for the institutional structure, the text of the Convention provides only for the COP (art. XI) and a Secretariat (art. XII). The Secretariat is administered by UNEP (art. XII para. 1). Functions of the Secretariat include (art. XII), *inter alia*: arranging and servicing meetings of the Parties; undertaking scientific and technical studies; issuing new editions of Appendices I, II, and III; study the

¹⁰⁸² S. F. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 291.

¹⁰⁸³ P. H. Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, *European Journal of International Law*, 1, 1997, p. 40.

¹⁰⁸⁴ P. H. Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, *European Journal of International Law*, 1, 1997, p. 40; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 66.

reports of Parties and to request from Parties further information in order to ensure the implementation of the Convention. Subsidiary Bodies to the Convention have been established already after the treaty's entry in to force, under "the residual decision-making powers of the COP".¹⁰⁸⁵ The Standing Committee provides policy guidance to the Secretariat concerning the implementation of the Convention; oversees the management of the Secretariat's budget; and coordinates and oversees, where required the work of other committees and working groups. The two scientific committees, i.e. the one on Animals and the one on Plants, provide scientific support to decision-making about the respective species.¹⁰⁸⁶ The CITES Trust Fund, which is replenished from contributions from Parties to the Convention, applies for the financing purposes.¹⁰⁸⁷

The mandate of the CITES placed the treaty in a "disputed territory", namely, the "borderland of environmental conservation and trade regulation".¹⁰⁸⁸ Should the disputes arise between two or more Parties with respect to the interpretation or application of the provisions of the CITES, the Convention provides for the resolution of disputes (art. XVIII). However, the text of the Convention does not provide clarity for a compliance control.¹⁰⁸⁹ The compliance procedure developed gradually, through a series of resolutions by the COP, by way of trade embargoes - i.e. multilateral recommendations to suspend trade in CITES-listed specimens with the country concerned.¹⁰⁹⁰ Subsequently, the procedures have been codified in the 2007 Guidelines on Compliance with the Convention.¹⁰⁹¹ As

¹⁰⁸⁵ P. H. Sand, Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment, *European Journal of International Law*, 1, 1997, p. 35. As Sand notes, a total of 190 recommendations adopted in the course of nine ordinary and two extraordinary meetings held since 1976 laid down an entirely new body of rules, which has been streamlined since 1994 in the form of "resolutions", "revised resolutions", and "decisions" [... which] have shaped the CITES regime in a manner barely foreseeable at the time of its creation.

¹⁰⁸⁶ CITES, the Structure of CITES.// < <https://cites.org/eng/disc/org.php>>, last viewed 27 April 2016.

¹⁰⁸⁷ CITES, How is CITES Financed.// < <https://cites.org/eng/disc/fund.php>>, last viewed 27 April 2016.

¹⁰⁸⁸ P. H. Sand, Enforcing CITES: The Rise and Fall of Trade Sanctions, *RECIEL*, 22, (3), 2013, p. 251.

¹⁰⁸⁹ P. H. Sand, Enforcing CITES: The Rise and Fall of Trade Sanctions, *RECIEL*, 22, (3), 2013, p. 251; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 67.

¹⁰⁹⁰ P. H. Sand, Enforcing CITES: The Rise and Fall of Trade Sanctions, *RECIEL*, 22, (3), 2013, p. 251.

¹⁰⁹¹ CITES, Guide to CITES Compliance Procedure.// < <https://cites.org/eng/res/14/14-03C15.php>>, last viewed 27 April 2016. For the review of the historical evolution of the CITES

Sand comments, today "CITES offers, perhaps the most striking illustration of a workable system of collective treaty sanctions, gradually developed in practice, and credited by some observers with an almost 100 percent success rate".¹⁰⁹² Since 1985 the system has been enforced against at least 43 recalcitrant States (Parties and non-Parties).¹⁰⁹³

The CITES has been acknowledged as one of the most successful international environmental treaties in the world.¹⁰⁹⁴ Legal scholars note also that it is challenging to correlate the effectiveness of the Convention directly with the actual (positive or negative) conservation status of a species in its natural habitats.¹⁰⁹⁵ Yet, the CITES has been attributed to "a number of substitution effects on the consumption side of the wildlife market", including:

- (a) in the food and fashion industries (e.g. the disappearance of luxury products from species listed in Appendix I, such as e.g. the replacement of leopard fur coats by synthetic fabrics);
- (b) in medical/pharmaceutical research, and to some extent in the pet trade, substitution of captive-bred for wild-caught animals in Appendix I;
- (c) in many wildlife-consuming economies, a shift from CITES-controlled species to other species, not yet listed in the Appendices.¹⁰⁹⁶

As for the latter, concerns have been expressed over a potential "domino effect", i.e. the effect of international trade developments on the previously unaffected species (e.g. a growing trade in hippopotamus ivory, as a substitute for elephant

sanction scheme in practice over the past three decades, and its effectiveness in achieving compliance, see, P. H. Sand, *Enforcing CITES: The Rise and Fall of Trade Sanctions*, RECIEL, 22, (3), 2013; R. Reeve, *The CITES Treaty and Compliance: Progress of Jeopardy?*, Sustainable Development Program, Briefing Paper, 2004.

¹⁰⁹² P. H. Sand, *Enforcing CITES: The Rise and Fall of Trade Sanctions*, RECIEL, 22, (3), 2013, p. 252.

¹⁰⁹³ P. H. Sand, *Enforcing CITES: The Rise and Fall of Trade Sanctions*, RECIEL, 22, (3), 2013, p. 251.

¹⁰⁹⁴ C. Fuchs, *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): conservation efforts undermine the legality principle*, German Law Journal, 9, 2008, pp. 1565-1596; also citing E. M. McOmer, *Problems in Enforcement of the Convention on International Trade in Endangered Species*, Brooklyn Journal of International Law, 2, 2002; see also, P. H. Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, European Journal of International Law, 1, 1997, p. 52.

¹⁰⁹⁵ N. Srivastava, *Changing Dynamics of Forest Regulation: Coming Full Circle?*, RECIEL, 20, 2, 2011, p. 116; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 63.

¹⁰⁹⁶ P. H. Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, European Journal of International Law, 1, 1997, p. 54.

ivory).¹⁰⁹⁷ Other concerns include that the CITES may even lead to detrimental consequences in that a trade ban may result in the perverse incentives to trade the specimen illegally on the black market.¹⁰⁹⁸

4.3.5.2. Forests under the CITES.

Forests species are included into all of the CITES Appendices and, thus, have been subjected to the CITES regulation.¹⁰⁹⁹ During the evolution of the CITES since its adoption (over more than forty years) the inclusion of tree species in the Appendices of the Convention has undergone a “radical shift in attitudes”.¹¹⁰⁰ When the CITES came into force in 1975, the Appendices included only eighteen tree species mostly of local or historical importance.¹¹⁰¹ The listings of tree species with commercial significance was then limited because of their rarity and/or national protection status. Interest in using the provisions of CITES to regulate the commercially valuable international timber trade has developed during the 1980s in parallel with a rising awareness of the lack of sustainable forest management in tropical regions and growing concerns about the impact of logging as a threat to forest biodiversity.¹¹⁰² The fundamental concerns with regard to listing considered during those times included: whether commercial timber species are ever likely to become biologically threatened with extinction as a result of international trade; and, furthermore, whether the CITES listing criteria could be validly applied to timber species.¹¹⁰³ There were

¹⁰⁹⁷ P. H. Sand, *Whither CITES? The Evolution of a Treaty Regime in the Borderland of Trade and Environment*, *European Journal of International Law*, 1, 1997, p. 55.

¹⁰⁹⁸ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 64.

¹⁰⁹⁹ For the introduction on the tree species that are regulated under the CITES, see, M. Groves, C. Rutherford, *CITES and Timber, A guide to CITES-listed Tree Species*, 2015.

¹¹⁰⁰ For the evolution of the CITES listing of tree species, see, D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2009, p. 209; S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 291-293.

¹¹⁰¹ CITES, *CITES Highlights its Contribution to Sustainable Forest Management on International Day of Forests 2016*.// <
https://cites.org/eng/news/CITES_highlights_contribution_sustainable_forest_management_International_Day_of_Forests_2016_210316>, last viewed 28 April 2016. Honduras Mahogany (*Swietenia Humilis*) was one such species. Mainly occurring as scattered individuals, the timber of this species is generally used for wood carvings.

¹¹⁰² These concerns were more generally expressed by environmental organizations in tropical timber importing countries of Europe and North America. Timber-exporting countries and timber trade interests were generally opposed to international regulation of the timber trade. See, for example, WWF, *Tropical Forest Conservation: A Position Paper*, 1981. The paper states that there were moves by conservation organizations in Germany, the Netherlands and the United States to call for a boycott on the import of tropical timber into the EU.

¹¹⁰³ S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 292.

no new listings in the 1980s (although some species moved between appendices).¹¹⁰⁴

In 1992 the CITES “was reactivated” with inclusion of various commercially valuable timber species in the CITES Appendices I and II.¹¹⁰⁵ According to Oldfield, listing the commercially important tree species takes considerably longer; even when “the perception of endangerment is high” and “the scientific case is strong, the economic interests are overwhelming”.¹¹⁰⁶ Thus, for instance, it took ten years of international debate to achieve the CITES Appendix II listing for the Bigleaf Mahogany (*Swietenia Macrophylla*).¹¹⁰⁷ The challenges associated with this particular tree species included, *inter alia*, the high unsustainable logging practices and, the difficulty associated with implementation.¹¹⁰⁸ Yet, the listing is viewed as a major CITES accomplishment with regard to forest species: not only “it is the first commonly traded timber species listed in Appendix II”, but also its implementation will “undoubtedly shape how the Parties and industry view the role of the Convention in helping to control the international trade in timber in future”.¹¹⁰⁹

In total, today all the three CITES Appendices list more than 600 tree species, including some of the world’s most economically valuable trees.¹¹¹⁰ Additionally,

¹¹⁰⁴ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2009, p. 209.

¹¹⁰⁵ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2009, p. 209. The Appendix I listed Brazilian Rosewood (*Dalbergia Nigra*); the Appendix II listed Commoner lignum vitae (*Guaiacum Officinale*), Afromosia (*Pericopsis Elata*) and American Magagony (*Swetnia Mahagoni*).

¹¹⁰⁶ S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 293.

¹¹⁰⁷ For more information on the “Bigleaf Mahogany” process please see, CITES, Bigleaf Mahogany.// < <https://cites.org/eng/prog/mwg.php>>, last viewed 28 April 2016. The Bigleaf Mahogany is a tree endemic to the Neotropics that can grow up to 45 m. in height and 2 m. in trunk diameter. It is harvested for its highly-valued timber, to make furniture, paneling or musical instruments. Whereas the information on mahogany inventories and status is incomplete, there is evidence on the sharp decline of the original wild populations in the Neotropics and even its extinction in Costa Rica, parts of Brazil, Bolivia and South America. See also, WWF, Big Leaf Mahogany.// < http://wwf.panda.org/what_we_do/endangered_species/bigleaf_mahogany/>, last viewed 28 April 2016.

¹¹⁰⁸A. Blundell, *A Review of the CITES Listing of Big-Leaf Mahogany*, *Oryx*, 38, 01, 2004, p. 84.

¹¹⁰⁹ A. Blundell, *A Review of the CITES Listing of Big-Leaf Mahogany*, *Oryx*, 38, 01, 2004, p. 84; T. Mulliken, *FAO, The Role of CITES in Controlling the International Trade in Forest Products, Implications for Sustainable Forest Management*, 2009, p. 65.

¹¹¹⁰ CITES, *CITES Highlights its Contribution to Sustainable Forest Management on International Day of Forests 2016*. // < https://cites.org/eng/news/CITES_highlights_contribution_sustainable_forest_management_International_Day_of_Forests_2016_210316>, last viewed 28 April 2016.

the forest-related work of CITES encompasses species other than trees, including “forest dwelling plants” and “forest dwelling animals”.¹¹¹¹

Analyzing the significance of the CITES structure and provisions with regard to forests, legal scholars have highlighted the following:¹¹¹² firstly, the scope of the treaty is limited with regard to forests in a number of ways. The CITES applies to the listed species only. Besides, it offers protection only for individual species. This is viewed as “a major gap with regard to forests”; in particular, for instance, in contrast to habitats protection, or even more generally, in contrast to the focus on management at the ecosystem level in the context of SFM. Furthermore, the CITES is a trade agreement for endangered listed species. Thus, the protection is conditional: i.e. a specimen has to be endangered, listed and traded in order to be granted protection. The sole source of threat to endangered species, according to the CITES, is trade, thus, the treaty does not address other drivers for species loss, and, in particular, for forest loss. An important caveat is that CITES only deals with the legally traded products, and therefore does not offer tools to directly tackle illegal trade. Furthermore, the treaty offers limited benefit with regard to maintaining forest cover: the focus is on trade, rather than on conservation in the actual sense of the term.

Secondly, as it has been already discussed in the previous subsection (4.3.1.), the straightforward listing system of the CITES is weakened by the variety of loopholes. This general weakening of the CITES may affect the conservation status of forests. For instance, a loophole may be found within the exemptions made in art. VII CITES. Seven exemptions are made, including exemptions of varying degree of specimens that are personal or household effects; specimen bred in captivity or artificially propagated for commercial purposes, or parts or derivatives of such plants or animals, the non-commercial loan, donation, or exchange between scientists or scientific institutions, as well as for traveling

¹¹¹¹ D. Humphreys, *Deforestation and the Crisis of Global Governance*, 2009, p. 210; T. Mulliken, *FAO, The Role of CITES in Controlling the International Trade in Forest Products, Implications for Sustainable Forest Management*, 2009, p. 17.

¹¹¹² S. Aguilar, *Regulatory Tools for the Management of Fish and Timber Species through CITES*, *RECIEL*, 22, 3, 2013, p. 282; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 64; C. L. McDermott, et al, *International Forest Policy – the Instruments, Agreements and Processes that Shape it*, 2007, p. 55; S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 295; N. Srivastava, *Changing Dynamics of Forest Regulation: Coming Full Circle?*, *RECIEL*, 20, 2, 2011, p. 116.

zoos, circuses, menageries, plant exhibitions or other traveling exhibitions. In practice it may be challenging for Authorities to determine the origin of specimen and their purpose of use. While these exemptions apply mostly to forest dwelling plants and animals, not so much to trees, the weakening of the CITES by such a loophole still affects the conservation status of forests.¹¹¹³

Thirdly, the implications for forests are largely dependent on the compliance of states with the provisions of the CITES, as well as their enforcement. The CITES is hard to enforce: it entails a high level of engagement by management, scientific and custom authorities from the countries of origin, as well as those of transit countries and final destinations;¹¹¹⁴ the number of States Parties, permits and custom points reached a confusing number, customs personnel are not trained biologists and identifying species is a challenging task; with regard to trade in tree species, in particular, the CITES is confronted with the difficulties in effective monitoring.¹¹¹⁵

It is also challenging to meet the requirement that range States ensure exports are actually compatible with sustainable management of timber species.¹¹¹⁶ Thus, for instance, exports of Appendix II specimen should only be permitted when, *inter alia*: (a) a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species (art. IV, (a)). That means that prior to the granting of a CITES export permit for a species listed in Appendix II the scientific authority of the exporting country carries out a so-called "non-detriment finding" (NDF). As such, an NDF is an assessment tool that derives from the requirement for Scientific Authorities to advise, prior to authorizing exports of Appendix II species, that a particular export "will not be detrimental to the survival of [that] species".¹¹¹⁷ As there are no binding criteria

¹¹¹³ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 69.

¹¹¹⁴ S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 298.

¹¹¹⁵ A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 70.

¹¹¹⁶ S. Oldfield, *The Evolving Role of CITES in Regulating the International Timber Trade*, *RECIEL*, 22, 3, 2013, p. 298.

¹¹¹⁷ Typically an NDF will evaluate the status of a species in the wild to: establish whether or not populations are declining; quantify pressures from harvest and other stressors like habitat loss; and, based on historical international trade levels, determine which – if any-level of international

on how to perform NDFs, the extent to which scientific authorities implement this requirement is variable; decisions are often made on an intuitive basis and result in “qualitative variance” in NDFs among the Parties.¹¹¹⁸ On the other hand, legal scholars also note that NDF, as a tool, has a “strong proactive potential”; it is “a pulley to raise the bar and adopt effective measures for sustainable management of species”.¹¹¹⁹ For timber species, the formulation of NDFs can provide a basis for including considerations of SFM within CITES (and *vice versa*, the impact of export of tree species within the considerations of SFM); a mechanism for harmonizing with broader SFM policies.¹¹²⁰

4.3.5.3. Climate Change under the CITES.

As such, there is no explicit reference to the issue in the text of the Convention. Yet, the adverse effects of climate change impact the CITES-listed species and the habitats upon which they depend.¹¹²¹ One example of how climate change might frustrate the aims of CITES is the extinction of the Golden Toad (*Incilius Periglenes*) from the cloud forest of Costa Rica. The extinction has been attributed to climate change, in particular, the reduced mist frequency and a warmer and dryer climate in the forest.¹¹²² This species is included in the CITES Appendix I.¹¹²³ One more example, more specific with regard to tree species, is the reaction to climate change of the Korean Pine (*Pinus Koraiensis*) species from the Far East of the Russian Federation. The species is listed in the CITES

trade is adequate for such species. In line with the findings, Scientific Authorities will offer a positive or negative response to permit applications.

¹¹¹⁸ S. Aguilar, Regulatory Tools for the Management of Fish and Timber Species through CITES, RECIEL, 22, 3, 2013, p. 283. Please note that in 2013 the guidelines on NDFs were adopted. This adoption of guidelines reflects the effort by some countries to strengthen the normative content of this tool, on the one hand, and the resistance by others that adopted them with the express statement that the guiding principles are non-binding.

¹¹¹⁹ S. Aguilar, Regulatory Tools for the Management of Fish and Timber Species through CITES, RECIEL, 22, 3, 2013, p. 284.

¹¹²⁰ S. Oldfield, The Evolving Role of CITES in Regulating the International Timber Trade, RECIEL, 22, 3, 2013, p. 298; S. Aguilar, Regulatory Tools for the Management of Fish and Timber Species through CITES, RECIEL, 22, 3, 2013, p. 283-284; A. Eikermann, Forests in International Law, Is There Really a Need for an International Forest Convention?, 2015, p. 70.

¹¹²¹ CITES, Sixteenth Meeting of the COP, Bangkok (Thailand), 3-14 March, 2013, Climate Change, COP 16, Doc. 27 (Rev 1).// < <https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-27.pdf>>, last viewed 30 April 2016.

¹¹²² CITES and Climate Change: A Need for Integration, 2012.// < <http://www.defenders.org/sites/default/files/publications/cites-and-climate-change-a-need-for-integration.pdf>>, last viewed 30 April 2016.

¹¹²³ CITES, Appendices, I, II, and III.// < <https://cites.org/sites/default/files/eng/app/2016/E-Appendices-2016-03-10.pdf>>, last viewed 30 April 2016.

Appendix III.¹¹²⁴ Recent research shows how the global warming and increased precipitation result in shifting of the forests, dominated by the species, polewards and, moreover, in its transformation into broadleaved dominated forests.¹¹²⁵ It is important to highlight that climate change may have not only negative, but also positive repercussions for the CITES species and the habitats upon which they depend.

At its 15th meeting, held in Doha (Qatar) in 2010, the CITES COP discussed “the issue of climate change and its potential environmental impacts, which has come increasingly to the fore” and that may have actual and potential impacts on the CITES implementation.¹¹²⁶ The CITES Secretariat expressed the belief that “the Convention does not have a significant role to play in addressing the causes of climate change or the overarching mitigation and adaptation measures required to deal with it”.¹¹²⁷ It was suggested then that climate change within the CITES context should be limited to aspects of science-based decision-making; the Secretariat was tasked with requesting information from other MEAs on their activities linked to climate change and CITES.¹¹²⁸ At the most recent 16 COP meeting held in Bangkok (Thailand) in 2013, six CITES science-based decision making processes that are actually or likely to be affected by climate change have been identified.¹¹²⁹ They can generally be grouped into those that relate to species listings and those that relate to NDFs.¹¹³⁰ It was acknowledged that these processes provide the scope to consider the impacts of

¹¹²⁴ CITES and Climate Change: A Need for Integration, 2012.// < <http://www.defenders.org/sites/default/files/publications/cites-and-climate-change-a-need-for-integration.pdf>>, last viewed 30 April 2016.

¹¹²⁵ J. Zhang, Composition and Structure of *Pinus Koraiensis* Mixed Forests Respond to Spatial Climate Changes, 2014. // < <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0097192>>, last viewed 30 April 2016.

¹¹²⁶ The discussion was based on the document, prepared by the CITES Secretariat. See, CITES, Fifteenth Meeting of the COP, Doha (Qatar), 13-25 March, 2010, COP 15 Doc 10.1, Strategic Matters.// < <https://cites.org/sites/default/files/eng/cop/15/doc/E15-10-01.pdf>>, last viewed 30 April 2016.

¹¹²⁷ CITES, Fifteenth Meeting of the COP, Doha (Qatar), 13-25 March, 2010, COP 15 Doc 10.1, Strategic Matters, 7 (c).// < <https://cites.org/sites/default/files/eng/cop/15/doc/E15-10-01.pdf>>, last viewed 30 April 2016.

¹¹²⁸ CITES, Decisions 15.15-15.17.

¹¹²⁹ CITES, Sixteenth Meeting of the COP, Bangkok (Thailand), 3-14 March, 2013, Climate Change, COP 16, Doc. 27 (Rev 1).// < <https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-27.pdf>>, last viewed 30 April 2016.

¹¹³⁰ The six identified science based decision processes are: 1. Species listings; 2. NDF 3. Periodic Review of the Appendices; 4. Review of Significant Trade; 5. Quotas; and 6. Trade in alien invasive species.

climate change on species in trade, even if “climate change” is not explicitly mentioned. Furthermore, it was recognized that the current provisions of the Convention and of Resolutions of the COP are sufficiently comprehensive and flexible to take into account the implications of climate change into decision making. Yet, some Parties suggested, that in order to highlight explicitly the ways in which climate change may be taken into consideration, further guidance (e.g. in a form of a Resolution or other guidance on incorporating climate change science into CITES decision-making process) may be useful.¹¹³¹

4.3.5.4. Forests and Climate Change under the CITES: Interim Conclusions.

The CITES is tailored to control or prevent trade in endangered species. Accordingly, despite the fact that it is one of the most important international conservation instruments, CITES remains a trade-oriented convention. It contributes to the international regulation of forests in a number of ways. Firstly, the indirect contribution of the CITES to addressing illegal timber trade, one of the major drivers for global deforestation and forest degradation, needs to be acknowledged. Secondly, the CITES protects forest species, including tree species, forest dwelling plants and forest dwelling animals. The major focus is, thus, on the productive forest function and/or service (i.e. provision of a wide range of wood and NWFP). Yet, in this regard, it needs to be revised that forests “are complex communities of many different species coexisting in and on a given area of land”,¹¹³² they “are much more than timber as several other plant species and fauna dependent on forests together comprise the forest ecosystems”¹¹³³ and, as such, the CITES fails to recognize the multiplicity of forest functions and services and provide for their mutual preservation.

Among the four conventions selected for the analysis (i.e. the WHC, the Ramsar, the CITES, and the CBD), the CITES, given its focus on the adverse effects of international trade in endangered species, is the least involved with the issue of

¹¹³¹ CITES, Sixteenth Meeting of the COP, Bangkok (Thailand), 3-14 March, 2013, Climate Change, COP 16, Doc. 27 (Rev 1).// < <https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-27.pdf>>, last viewed 30 April 2016.

¹¹³² R. G. Tarasofsky, Assessing the International Forest Regime, IUCN Environmental Law Centre, IUCN Environmental Policy and Law Paper No. 37, p. 65.

¹¹³³ N. Srivastava, Changin Dynamics of Forest Regulation: Coming Full Circle?, RECIEL, 20, 2, 2011, p. 116.

climate change. The response by CITES to the actual and potential effects of climate change, as some legal scholars put it, has been relatively “muted” up until now;¹¹³⁴ it is restricted to identifying the impacts of climate change on the science based decision making processes under the Convention (in particular, its listings and NDFs) and surveying other MEA’s climate change responses. For the purpose of the current thesis, it is important to highlight, that adaptation measures, required to deal with the impacts of climate change on species, including trees, forest dwelling plants and animals, remain largely outside the scope of the Convention and its regime; as the CITES Secretariat puts it “other agreements and organizations are better placed to do this”.¹¹³⁵

4.3.6. Forests and Climate Change under the CBD.

Although the CBD does not specifically refer to forests, its entire scope is potentially relevant to forests. This subsection investigates the CBD with regard to forests and climate change. Firstly, the overall scope of the Convention is addressed (the institutional structure; the objectives; principles and obligations; the ecosystem approach; 4.3.4.1.). Secondly, the implications of the CBD for forests are analyzed (the focus is on the Work Program on Forest Biological Diversity and the Aichi Biodiversity Targets; 4.3.4.2.). Thirdly the measures to address climate change in the context of the CBD are elaborated upon (4.3.4.3.). Finally, the interim conclusions bring the findings of the subsection together (4.3.4.4.).

4.3.6.1. CBD: General Overview.

The CBD¹¹³⁶ is the centerpiece of contemporary international nature conservation law.¹¹³⁷ The Convention was negotiated in the light of the growing international concern for the alarming rates of species extinction and the recognition of the “great” threats caused by human activities to species and

¹¹³⁴ C. Redgwell, *Climate Change and International Environmental Law*, in R. Rayfuse, Sh. V. Scott, *International Law in the Era of Climate Change*, 2013, p. 128.

¹¹³⁵ The CITES Secretariat does not believe that the Convention has a major role to play in addressing the causes of climate change or the overarching mitigation and adaptation measures required to deal with it. According to the Secretariat, other agreements and organizations are better placed to do this. Please see, CITES, Fifteenth Meeting of the COP, Doha (Qatar), 13-25 March, 2010, COP 15 Doc 10.1., *Climate Change*, para 7, a. // <<https://cites.org/sites/default/files/eng/cop/15/doc/E15-10-01.pdf>>, last viewed 22 July 2016.

¹¹³⁶ CBD, adopted 5 June 1992, in force 29 December 1993.

¹¹³⁷ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 616.

ecosystems.¹¹³⁸ In comparison to the prior analyzed instruments (i.e. the Ramsar Convention, the WHC, and the CITES) the CBD does not follow the listing approach. The Convention was adopted on 22 May 1992 and entered into force on December 1993. There are currently 196 Parties to the Convention (including the EU and the RF).¹¹³⁹

a. Institutional Structure of the CBD.

The Convention establishes institutional arrangements, which provide a mechanism for the further development and monitoring of the implementation of the Convention through the meetings, work programs, reviews and negotiations. Three institutions established by the Convention are: the COP (art. 23 CBD); a Secretariat (art. 24 CBD); and a Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA, art. 25 CBD). In addition, the Convention establishes a financial mechanism for the provision of financial resources to developing country Parties for the purposes of the Convention (art. 21 CBD). Art. 39 of the CBD designated the Global Environmental Facility (GEF) on an interim basis to operate the financial mechanism of the Convention, and the GEF continues to fulfil this function. Furthermore, the Convention enables the COP to establish subsidiary bodies as it deems necessary for the implementation of the Convention (art. 23, para. 3).

b. Objectives of the CBD.

In comparison to the protection of solely species or habitats, the CBD covers a broader range of issues. According to art. 2 CBD "biological diversity" means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems". The objectives of the Convention are rather broad and include: "the conservation of biological diversity [1], the sustainable use of its components [2] and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources [3]".¹¹⁴⁰

¹¹³⁸ CBD, History of the Convention. // < <https://www.cbd.int/history/> >, last viewed 03 May 2016.

¹¹³⁹ CBD, List of Parties. // < <https://www.cbd.int/information/parties.shtml> >, last viewed 03 May 2015.

¹¹⁴⁰ CBD, art. 1.

The “prime” objective of the CBD is the conservation of biological diversity.¹¹⁴¹ The Convention foresees measures on “*in situ*”¹¹⁴² and “*ex situ*”¹¹⁴³ biodiversity conservation (respectively, art. 8 and art. 9 CBD). “In-situ conservation” promotes conservation through protection of ecosystems in natural surroundings; “ex-situ conservation” predominantly complements “in-situ measures” through preservation of the components of biological diversity outside of their natural habitats (e.g. botanical gardens and gene banks).

The CBD’s principle objective is closely interlinked with its objective to “sustainably use” the components of biological diversity. The concept of “sustainable use” is defined as “[...] the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations”. The concept balances the use and the protection of biological resources. On the one hand, it allows the people concerned to obtain benefits from the resource in question; on the other hand, the concept maintains the status of the resource in question. According to Eikermann, the “sustainable use” concept holds the potential to overcome the “deep chasm” between the principle of sovereignty over natural resources and the common concern with regard to biological diversity.¹¹⁴⁴

The third CBD objective, i.e. “the fair and equitable sharing of the benefits arising out of the utilization of genetic resources [...]”, is clearly linked to the first two objectives (i.e. conservation and sustainable use of biological diversity). By ensuring benefit-sharing, it creates incentives to conserve and sustainably

¹¹⁴¹ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 622.

¹¹⁴² In-situ conservation means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surrounding where they have developed their distinctive properties. Ex-situ conservation means the conservation of components of biological diversity outside their natural habitats. See, CBD, art. 2, “In-Situ Conservation”.

¹¹⁴³ Ex-situ conservation means the conservation of components of biological diversity outside their natural habitats. See, CBD, art. 2, Ex-Situ Conservation. See, CBD, art. 2, “In-Situ Conservation”.

¹¹⁴⁴ Furthermore, the concept takes up the concerns of indigenous and local communities most affected by protected areas that exclude any kind of human use and sustain their livelihoods. See, A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 100.

use genetic resources, and establishes a stronger recognition of the particular linkage between the role of indigenous peoples, sustainable development and the natural environment.¹¹⁴⁵ The objective is further developed through the Nagoya Protocol to the CBD.¹¹⁴⁶

The Convention's three objectives are further supported by the CBD Strategic Plan for Biodiversity for the period from 2011 until 2020.¹¹⁴⁷ As such, the Plan is an overarching "flexible framework on biodiversity that is relevant to all biodiversity-related conventions"¹¹⁴⁸ and various bodies of the UN system. The mission of the Strategic Plan is "to take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being and poverty eradication".¹¹⁴⁹ At the heart of the Plan are 5 strategic goals, specified in 20 targets, collectively known as the Aichi Biodiversity Targets.¹¹⁵⁰ If the plan is to be realized, these targets must be met by 2020.

c. Principles and Obligations under the CBD.

The CBD is subjected to the principle of state sovereignty over natural resources. According to its art. 3 "States have [...] the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction".

¹¹⁴⁵ IUCN, An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing, IUCN Environmental Policy and Law Paper No. 83, 2012; CBD, About the Nagoya Protocol.// <<https://www.cbd.int/abs/about/default.shtml/>>, last viewed 03 May 2016.

¹¹⁴⁶ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS), adopted 29 October 2010, in force 12 October 2014.

¹¹⁴⁷ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets.

¹¹⁴⁸ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, preamble para. 5.

¹¹⁴⁹ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, Mission.

¹¹⁵⁰ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, Strategic Goals and the Aichi Biodiversity Targets.

The objectives of the Convention on Biological Diversity (i.e. the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources) are translated into binding commitments in its normative provisions (art. 6 to 20), including:

- general measures for conservation and sustainable use (art. 6);
- identification and monitoring of the components of biological diversity important for its conservation and sustainable use; and identification of processes and activities, which have significant adverse impacts on the conservation and sustainable use of biological diversity (art. 7);
- providing for in-situ conservation; establishment of a system of protected areas where special measures need to be taken to conserve biological diversity; provision of guidelines for the management of protected areas or areas where special measures need to be taken to conserve biological diversity (art. 8);
- providing for ex-situ conservation (art. 9);
- integrating considerations of the conservation and sustainable use; consider sustainable use of biological diversity when adopting measures related to the use of biological resources (art. 10);
- adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity (art. 11);
- promoting, establishing and maintaining research and training measures for the identification, conservation and sustainable use of biological diversity and its components (art. 12);
- promoting and encouraging public awareness and education (art. 13);
- introducing impact assessment in order to minimize adverse impacts on biological diversity (art. 14);
- creating conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties (art. 15);
- providing and/or facilitating access for and transfer among of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources (art. 16);
- facilitating the exchange of information (art. 17);

- promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity (art. 18);
- taking measures in order to provide the appropriate handling of biotechnology and the distribution of its benefits (art. 19);
- providing financial support (art. 20).¹¹⁵¹

Some principles and core obligations from the substantive part of the CBD are given an added emphasis and/or a special recognition in the recital of the treaty. Although generally, in international law preambles are not capable of creating binding legal effects upon parties (preambles are not enforceable as such), yet, as well accepted in customary international law, the preamble of a treaty can still have legal significance, for instance, as a relevant tool for the interpretation of the text in dispute.¹¹⁵² As some legal scholars put it, "preambular recitals, however vaguely expressed, are nonetheless important as a guide to the parties' intentions in adopting particular measures".¹¹⁵³

The preamble of the CBD mentions some of its principles and substantive provisions in more specific terms. The preamble accords to the biological diversity its "intrinsic value" (in addition, to the recognition that the biological diversity has a range of other, more anthropocentric, values, such as, ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic).¹¹⁵⁴ Besides, the preamble establishes that "the conservation of biological diversity is a common concern of humankind".¹¹⁵⁵ Although, according to Kis, the concept "does not connote specific rules and obligations [...], it] establishes the general legal basis for the concerned community to act. It removes the topic from states' exclusive domestic jurisdiction and makes it a

¹¹⁵¹ For a more detailed analyses, see, CBD, Handbook of the Convention on Biological Diversity, Including its Cartagena Protocol on Biosafety, 3d edition, 2005; IUCN Environmental Law Centre, IUCN Biodiversity Program, Guide to the Convention on Biological Diversity, Environmental Policy and Law Paper N 30, 1998.

¹¹⁵² Art. 31 of the Vienna Convention on the Law of Treaties: "1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose. 2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text including its preamble and annexes [...]" Thus, where the accurate meaning of a substantive provision is in dispute, the preamble text may be helpful.

¹¹⁵³ P. Birnie, A. Boyle, C. Redgwell, International Law and the Environment, 2009, p. 618.

¹¹⁵⁴ CBD, preamble, para. 1.

¹¹⁵⁵ CBD, preamble, para. 3.

legitimate matter for international regulation".¹¹⁵⁶ Furthermore, the CBD preamble reaffirms the sovereign rights of states over their own biological resources;¹¹⁵⁷ and reaffirms the States' responsibility for conserving their biological diversity and biological resources in a sustainable manner.¹¹⁵⁸ Similar to the line taken in the substantive part of the Convention, the preamble notes "the fundamental requirement for the conservation of biological diversity is the *in-situ* conservation of ecosystems and natural habitats".¹¹⁵⁹ Given that the substantive part provides for environmental impact assessment, the preamble, with regard to precautionary principle, notes "that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat".¹¹⁶⁰ Finally, the preamble provides for a "weakly expressed"¹¹⁶¹ inter-generational equity principle referring to Parties' determination "to conserve and sustainably use biological diversity for the benefit of present and future generations".¹¹⁶²

d. The Ecosystem Approach.

The ecosystem approach under the CBD represents a shift from the "sectoral approaches" in international environmental protection and conservation towards a broader approach: from species – towards sites and/or habitats – up to ecosystems.¹¹⁶³ The approach was acknowledged as "a primary framework of action to be taken under the Convention" already in 1995 at the second COP meeting.¹¹⁶⁴ It was formally adopted in 2000 at COP 5.¹¹⁶⁵ As such, the ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.¹¹⁶⁶ The approach has a rather broad, but at the same time more

¹¹⁵⁶ A. Kis, D. Shelton, *Guide to International Environmental Law*, 2007, p. 14.

¹¹⁵⁷ CBD, preamble, para. 4.

¹¹⁵⁸ CBD, preamble, para. 5.

¹¹⁵⁹ CBD, preamble, para. 10.

¹¹⁶⁰ CBD, preamble, para. 9.

¹¹⁶¹ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 619.

¹¹⁶² CBD, preamble, para. 23.

¹¹⁶³ IUCN, *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing*, IUCN Environmental Policy and Law Paper No. 83, 2012, p. 3.

¹¹⁶⁴ CBD, COP 2, Decision II/8, para. 1.

¹¹⁶⁵ CBD, COP 5, Decision V/6.

¹¹⁶⁶ CBD, COP 5, Decision V/6, para. A. 1.

problem oriented, scope.¹¹⁶⁷ Article 2 of the CBD defines “ecosystem” as “a dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit”.¹¹⁶⁸ This definition does not specify any particular spatial unit or scale (e.g. in comparison to the Convention definition of “habitat”¹¹⁶⁹). “Thus the term ecosystem does not, necessarily, correspond to the terms “biome”, or “ecological zone”, but can refer to any functioning unit at any scale. Indeed, the scale of analysis and action should be determined by the problem being addressed. It could be a grain of soil, a pond, a forest, a biome or the entire biosphere”.¹¹⁷⁰ Through the CBD ecosystem approach, and, in particular, its 12 complementary and interlinked principles, established at the CBD COP 5, the interrelation between the organisms and their environment (respectively, species, and their habitats) is recognized.¹¹⁷¹

4.3.6.2. Forest under the CBD.

The interrelation of the biodiversity and forests has been previously established by the current research.¹¹⁷² Forest provide various forms of biodiversity, including “structural diversity” (i.e. areas of forests, natural and protected forests, species mixture, and age structure); “compositional diversity”, (i.e. numbers of total flora/fauna species, numbers of endangered species); and “functional diversity”, (e.g. the impact of major processes and natural and human-induced disturbances). Forests are a part of biodiversity and a home to biodiversity, harboring up to 90 percent of the world’s terrestrial biodiversity. Furthermore, forest biodiversity represents a cornerstone function with regard to ecosystem functions and services, performed by forests, other than biodiversity conservation.

Although the CBD does not specifically refer to forests, its entire scope is potentially relevant to forests, as they fall within the definition of the term

¹¹⁶⁷ CBD, COP 5, Decision V/6.

¹¹⁶⁸ CBD, Article 2, Use of Terms, Ecosystem.

¹¹⁶⁹ Habitat – means the place or type of site where an organism or population naturally occurs. See, CBD, article 2, Use of Terms, Habitat. See, CBD, Article 2, Use of Terms, Habitat.

¹¹⁷⁰ CBD, COP 5, Decision V/6, Ecosystem Approach, para. A.3.

¹¹⁷¹ CBD, COP 5, Decision V/6.

¹¹⁷² For more information please see chapter 2 “Scientific Background” (subsection 2.2.4.1. “Conservation of Biological Diversity”) of the current thesis.

biological diversity. In addition, forest have become “very much a part of the scope of the Convention, owing to [...] the subsequent decisions adopted by the CBD”.¹¹⁷³ Forests are addressed under the CBD in a number of ways, this subsection investigates the CBD’s Work Program on Forest Biological Diversity (WPFBD) and the Aichi Biodiversity Targets.

a. Work Program on Forest Biological Diversity.

A decision to work on the links between forests and biological diversity was adopted at the second session of the CBD’s COP.¹¹⁷⁴ In 1996 the third COP took notice of the crucial role of forests in conserving biodiversity and, furthermore, stressed the fact, that forests are becoming degraded and their biological diversity lost.¹¹⁷⁵ It was then affirmed that the Convention has a clear role and a mandate in issues of forest biological diversity; and that there is a need to establish a focused work program for forest biological diversity. Subsequently, in 1998 at COP 4, recognizing that issues related to forests must be dealt with in a comprehensive and holistic manner, including environmental, economic and social values and issues, the WPFBD was adopted.¹¹⁷⁶ Originally, the program was envisaged for three phases, each of three year duration. However, the COP noted that the time frame of the WPFBD needs to remain flexible, on the assumption that in its consideration, the COP is able to identify a rolling longer-term program of work.¹¹⁷⁷

The WPFBD focuses “on the research, co-operation and development of technologies necessary for the conservation and sustainable use of forest biological diversity of all types of forests in the program elements and priority areas [...] identified”.¹¹⁷⁸ The program elements include:

1. Holistic and inter-sectoral ecosystem approaches that integrate the conservation and sustainable use of biological diversity, taking account of social and cultural and economic considerations;

¹¹⁷³ N. Srivastava, *Changing Dynamics of Forest Regulation: Coming Full Circle?*, RECIEL, 20, 2, 2011, p. 117.

¹¹⁷⁴ CBD, COP 2, Decision II/9.

¹¹⁷⁵ CBD, COP 3, Decision III/12, Program of Work for Terrestrial Biological Diversity: Forest Biological Diversity.

¹¹⁷⁶ CBD, COP 4, Decision IV/7, Forest Biological Diversity.

¹¹⁷⁷ CBD, COP 4, Annex, Work Program for Forest Biological Diversity under the Convention on Biological Diversity, B. Timeframe.

¹¹⁷⁸ CBD, COP 4, Annex, Work Program for Forest Biological Diversity under the Convention on Biological Diversity, I Introduction, 1.

2. Comprehensive analysis of the ways in which human activities, in particular forest-management practices, influence biological diversity and assessment of ways to minimize or mitigate negative influences;
3. Methodologies necessary to advance the elaboration and implementation of criteria and indicators for forest biological diversity;
4. Further research and technological priorities identified in the recommendation II/8 of the SBSTTA as well as issues identified in the review and planning process under the work program.¹¹⁷⁹

The objectives of the WPFBD are, *inter alia*, to enhance Parties' abilities to realize the objectives of the Convention through [...] measures for enhancing the integration of conservation and sustainable use of biological diversity into their national forest and land use programs and forest-management systems, facilitate the implementation of the objectives of the CBD based on the ecosystem approach, identify traditional forest systems of conservation and sustainable use of forest biological diversity and to promote the wider application, use and role of traditional forest-related knowledge in sustainable forest management and the equitable sharing of benefits, contribute to ongoing work in other international and regional organizations and processes, in particular to the implementation of the proposals for action of the IPF and to provide input to IPF, contribute to the access to and transfer of technology, and identify the contribution of networks of protected areas to the conservation and sustainable use of forest biological diversity.¹¹⁸⁰

The WPFBD is designed to be "action oriented, demand-driven, needs-driven and flexible enough to reflect and respond to changing conditions, including, but not limited to, the outcome of and the priorities to be identified by the IFF".¹¹⁸¹ According to some legal scholars, in its initial phase the work of the WPFBD, especially with regard to the identified program elements, focused largely on the parameters and decisions established by the IFF; and, thus, was rather

¹¹⁷⁹ CBD, COP 4, Annex, Work Program for Forest Biological Diversity under the Convention on Biological Diversity, II Work Program, Elements of the Proposed Work Program.

¹¹⁸⁰ CBD, COP 4, Annex, Work Program for Forest Biological Diversity under the Convention on Biological Diversity, II Work Program, Objectives.

¹¹⁸¹ CBD, COP 4, Annex, Work Program for Forest Biological Diversity under the Convention on Biological Diversity, II Work Program, I. Introduction.

subordinated to the work of the IFF.¹¹⁸² Additionally, the WPFBD did not provide for an agreed institutional framework for the envisaged coordination and cooperation, particularly, with regard to the IFF and the UNFCCC. It also lacked a specific timetable for achieving the outputs identified in the Program.

At COP 5 it was decided to consider expanding the focus of the WPFBD from research to practical action at COP 6.¹¹⁸³ In addition, an Ad hoc Technical Expert Group on Forest Biodiversity was established to assist the SBSTTA in its work on biological diversity.¹¹⁸⁴ The functions of the Ad hoc Technical Expert Group on Forest Biological Diversity included the review of available information on the status and trends of, and major threats to, forest biological diversity, in order to identify significant gaps in that information; identification of options and suggesting priority actions, timeframes and relevant actors for the conservation and sustainable use of forest biological diversity; identification of innovative, efficient and state-of-the-art technologies and know-how relating to assessment, planning, valuation, conservation and sustainable use of forest biodiversity and provide advice on ways and means of promoting the development and transfer of such technologies.¹¹⁸⁵ The work of the Ad hoc Technical Expert Group on Forest Biological Diversity was scheduled to be completed in time for the sixth meeting of the COP.¹¹⁸⁶

At its sixth meeting in 2002 the CBD COP adopted the expanded program of work on forest biological diversity.¹¹⁸⁷ It set forth three program elements:

1. Conservation, Sustainable Use and Benefit-Sharing;
2. Institutional and Socio-Economic Enabling Environment; and
3. Knowledge, Assessment and Monitoring.

¹¹⁸²R. Khalastchi, R. Mackenzie, *The Conservation and Sustainable Use of Forest Biological Diversity: The Role of the Convention on Biological Diversity* in R. Tarasofsky, *Assessing the International Forest Regime*, IUCN Environmental Policy and Law Paper No. 37, 1999, p. 46; A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 105.

¹¹⁸³ CBD, COP 5, Decision V/4, Progress Report on the Implementation of the Program of Work for Forest Biological Diversity, para. 2.

¹¹⁸⁴ CBD, COP 5, Decision V/4, Progress Report on the Implementation of the Program of Work for Forest Biological Diversity, para. 4.

¹¹⁸⁵ CBD, COP 5, Decision V/4, Annex I, Ad Hoc Technical Expert Group on Forest Biological Diversity.

¹¹⁸⁶ CBD, COP 5, Decision V/4, Annex I, Ad Hoc Technical Expert Group on Forest Biological Diversity.

¹¹⁸⁷ CBD, COP 6, Decision VI/22, para. 10.

The program elements are further divided into twelve more specific goals, further subdivided into twenty-seven objectives and, furthermore, into one hundred and thirty activities to ensure the conservation and sustainable use of forest biodiversity at national level (e.g. by developing good forest governance, promoting law enforcement and addressing related trade). Thus, the expanded program provides for an extensive list of measures. Although, similar to the initial WPFBD, the current Program lacks institutional and temporal frameworks, the Program is still a significant step forward in a longer-term strategy to implement the objectives of the Convention as they relate to forests biological diversity. As a rolling work program it comes under review at every subsequent COP and offers opportunities for further progress with regard to the forest biodiversity issues.

b. Forests and the Aichi Biodiversity Targets.

Several of the Aichi Biodiversity Targets directly relate to forests:

- Target 5: The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced;
- Target 7: All areas under forestry are managed sustainably, ensuring conservation of biodiversity;
- Target 11: At least 17 percent of terrestrial and inland water areas are conserved;
- Target 14: Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded;
- Target 15: Enhance the resilience and the contribution of biodiversity to carbon stocks through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.¹¹⁸⁸
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¹¹⁸⁸ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, Strategic Goals and the Aichi Biodiversity Targets.

The Fifteenth Aichi Biodiversity Target is further supported by the global initiative on forests, climate change and biodiversity - the "Bonn Challenge".¹¹⁸⁹ As part of the Challenge parties and partners of the CBD announced the ambition to restore at least 150 million hectares of degraded forest landscapes by 2020.¹¹⁹⁰ More recently, this target was endorsed by the New York Declaration on Forests,¹¹⁹¹ a voluntary and non-legally binding political declaration, adopted at the UN Climate Summit in 2014.¹¹⁹²

4.3.6.3. Climate Change under the CBD.

Similar to the environmental treaties previously investigated in this chapter (i.e. the Ramsar Convention, the WHC, and the CITES) the CBD does not make explicit reference to climate change, and, yet, the climate change issue is integrated into the core activities of the CBD. This integration results from both, the widespread negative impacts of climate change on biological diversity, on the one hand, (e.g. climate change is likely to become the dominant direct driver of biodiversity loss already by the end of this century¹¹⁹³); and, on the other hand, from the capacity of the CBD to contribute to addressing climate change and, more specifically, to the overall goal of the UNFCCC. Ecosystems play one of the key roles in mitigation (can remove and store carbon) and in adaptation to climate change.

¹¹⁸⁹ Bonn Challenge, The Challenge, A Global Aspiration.// < <http://www.bonnchallenge.org/content/challenge>>, last viewed 09 May 2016.

¹¹⁹⁰ IUCN, Leaders Define Pathway to restoring 150 million hectares of lost forests. // < <http://www.iucn.org/?uNewsID=8147>>, last viewed 09 May 2016; IUCN, World on track to meet ambitious forest restoration goal. // < <http://www.iucn.org/?uNewsID=19085>>, last viewed 09 May 2016; UN, Climate Summit 2014, Action Areas, Forests.// < <http://www.un.org/climatechange/summit/action-areas/#forests>>; UN, Press Release, Declaration Would End Billions of Tons of Climate Pollution per Year, Restore 350 Million Hectares of Forests; Backed by Tangible Private Sector Commitments. //< <http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/FORESTS-PR-REVISED.pdf>>, last viewed 09 May 2016.

¹¹⁹¹ New York Declaration on Forests, adopted 23 September 2014.

¹¹⁹² The Declaration is signed by 36 countries (including the EU, but not the Russian Federation), 20- sub national governments, 53 multi-national companies, 16 groups representing indigenous communities, and 54 non-government organizations. *Inter alia*, the Declaration calls for the restoration of 150 million ha of degraded landscapes and forestlands by 2020. See, UN, Climate Summit 2014, Action Areas, Forests.// < <http://www.un.org/climatechange/summit/action-areas/#forests>>; UN, Press Release, Declaration Would End Billions of Tons of Climate Pollution per Year, Restore 350 Million Hectares of Forests; Backed by Tangible Private Sector Commitments. //< <http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/FORESTS-PR-REVISED.pdf>>, last viewed 09 May 2016.

¹¹⁹³ Millennium Ecosystem Assessment, Ecosystems and Human Well Being, 2005, p. 31.// < <http://www.millenniumassessment.org/documents/document.356.aspx.pdf> >, last viewed 07 May 2016; see also CBD, COP X, Decision X/33, "recognizing that the loss of biodiversity and its potential damage is one impact of, *inter alia*, climate change".

Already in 2000 the CBD COP highlighted the risks of climate change, *inter alia*, in particular, to forest ecosystems; drew attention to the serious impacts of biodiversity loss on these ecosystems;¹¹⁹⁴ and adopted the first decision on adaptation to climate change.¹¹⁹⁵ Since then the mandate for the CBD with regard to adaptation has increased in strength. At CBD COP-10 the ecosystem-based approach for adaptation was established. It recognizes that "ecosystems can be managed to limit climate change impacts on biodiversity";¹¹⁹⁶ and may include sustainable management, conservation and restoration of ecosystems.¹¹⁹⁷

As a cross cutting issue "the biodiversity and climate change" was included into the work under the Convention in 2004 at its COP 7¹¹⁹⁸ and since then the issue has come under the review at every COP meeting.¹¹⁹⁹ Consequently, the issue of climate change was integrated into the Strategic Plan for Biodiversity for the period from 2011 until 2020 and the Aichi Biodiversity Targets, which currently include the following specific targets:

- Target 10: The multiple anthropogenic pressures on coral reefs and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning;
- Target 15: Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems,

¹¹⁹⁴ CBD, COP 5, Decision V/4.

¹¹⁹⁵ In particular, decision V/3 on marine and coastal biodiversity included adaptation to climate change within the framework of "priority areas for action on coral bleaching". See, CBD, COP 5, Decision V/3.

¹¹⁹⁶ CBD, COP 10, Decision X/33, Ecosystem-Based Approaches for Adaptation.

¹¹⁹⁷ CBD, COP 10, Decision X/33, Ecosystem-Based Approaches for Adaptation.

¹¹⁹⁸ CBD, COP 7, Decision VII/15, Biodiversity and Climate Change.

¹¹⁹⁹ Please see CBD, COP 8, Decision VIII/30, Biodiversity and Climate Change: Guidance to Promote Synergy Among Activities for Biodiversity Conservation, Mitigating or Adapting to Climate Change and Combating Land Degradation; CBD, COP 9, Decision IX/16, Biodiversity and Climate Change; CBD, COP 10, Decision IX/33, Biodiversity and Climate Change; CBD, COP 11, Decision XI/21, Biodiversity and Climate Change: Integrating Biodiversity Considerations into Climate-Change Related Activities; CBD, COP 12, XII/20, Biodiversity and Climate Change and Disaster Risk Reduction. Please note, there are also other CBD COP Decisions relevant to climate change and biodiversity.

thereby contributing to climate change mitigation and adaptation and to combating desertification.¹²⁰⁰

Furthermore, the climate change issue is addressed under the CBD by means of institutional cooperation. United as a consequence of their common identity as the "Rio Conventions", the CBD, the UNFCCC, and the UNCCD have addressed the issue of climate change through the so called "Joint Liaison Group" (JLG).¹²⁰¹ In particular, the synergies between the CBD and the climate change regime have intensified with the inclusion of the LULUCF sector under the Kyoto Protocol (e.g. where CDM project participants are prescribed to identify in their documentation the impacts on biodiversity of proposed CDM projects involving LULUCF).¹²⁰² Besides, activities on "Forests and Climate Change" and "Climate Change Adaptation" are included into the "list of activities of parties to promote synergies among the Rio Conventions".¹²⁰³ Similarly, the Liaison Group of Biodiversity-related Conventions (including the CBD, the Convention on Conservation of Migratory Species,¹²⁰⁴ the CITES, the International Treaty on Plant Genetic Resources for Food and Agriculture,¹²⁰⁵ the Ramsar Convention, the International Plant Protection Convention,¹²⁰⁶ and the WHC)¹²⁰⁷ among other options for cooperation identifies "developing common approaches to addressing climate change".¹²⁰⁸ While each convention stands on its own – with its own specific objectives and commitments – interlinkages between the issues each addresses, and potential complementarities in their monitoring and implementation processes, provide a basis for cooperation. The challenge is to

¹²⁰⁰ CBD, COP 10, Decision X/2, The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, Strategic Goals and the Aichi Biodiversity Targets.

¹²⁰¹ CBD, COP 6, Decision VI/20.

¹²⁰² For more information see, part 6.4 "Forests under Climate Law and Policy Governing Sink Projects, chapter VI "Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (Perspectives from the EU and the RF)". See also, C. Redgwell, Climate Change and International Environmental Law, in R. Rayfuse, Sh. V. Scott, International Law in the Era of Climate Change, 2012, p. 134.

¹²⁰³ CBD, COP 9, Decision IX/16, Annex II.

¹²⁰⁴ CMS, adopted 23 June 1979, in force 1 November 1983.

¹²⁰⁵ International Treaty on Plant Genetic Resources for Food and Agriculture, adopted 3 November 2001, in force 29 June 2004.

¹²⁰⁶ International Plant Protection Convention, adopted 6 December 1951, in force 3 April 1952.

¹²⁰⁷ The mandate for establishing the Liaison Group of Biodiversity-related Conventions was set out by the Parties to the CBD in decision VII/26, paras 1, 2.

¹²⁰⁸ CBD, Options for Cooperation.// < <https://www.cbd.int/cooperation/related-conventions/options.shtml>>, last viewed 09 May 2016.

do so in a manner that adds value to existing efforts, making use of the relative strength of each convention without duplicating work.

4.3.6.4. Forests and Climate Change under the CBD.

Compared to the previously analyzed treaties, the CBD fully covers forest biodiversity (i.e. the largest share of forests). The Convention also provides for the most comprehensive approach to sustainable use and conservation, i.e. the ecosystem approach. Furthermore, as biodiversity provides the basis for most of the other forests' services and functions, forests indirectly benefit from the CBD regulation.

The CBD, however, "has many grey areas"¹²⁰⁹ and faces general challenges that undermine as well the conservation and sustainable use of forests. Hence, legal scholars comment on the CBD's provisions, which are "broad",¹²¹⁰ "soft, and open-ended".¹²¹¹ Both the CBD's recitals in the preamble and its substantive provisions in Arts 6-20 are expressed in broad terms, the requirements of which are often further weakened by additional qualifications. These qualifications include "as far as possible", "as appropriate", "practicable in accordance with particular conditions and capabilities", "likely to"; and such limited requirements as to "endeavor", "encourage" and "promote".¹²¹² As has been noted by legal scholars, "these are at best suggestions for how the basic MEA obligations [...] should be implemented at the national level [...] leading to a plethora of implementation styles, ranging from ignorance to full enactment in national law".¹²¹³ This creates a challenging situation, where the effectiveness of the CBD depends largely on States' practices implementing the Convention. In this regard, it needs to be highlighted, that the CBD is a framework convention, and its broad hard and soft obligations are further clarified and specified in its respective Protocols and COP decisions, as is, for instance, in the case with

¹²⁰⁹ P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 617.

¹²¹⁰ IUCN, *An Explanatory Guide to the Nagoya Protocol on Access and Benefit-sharing*, IUCN Environmental Policy and Law Paper No. 83, 2012, p. 3.

¹²¹¹ A. Johannsdottir, I. Cresswell and P. Bridgewater, *The Current Framework for International Governance of Biodiversity: Is it Doing More Harm than Good*, *RECIEL*, 19 (2), 2010, p. 142.

¹²¹² P. Birnie, A. Boyle, C. Redgwell, *International Law and the Environment*, 2009, p. 617.

¹²¹³ A. Johannsdottir, I. Cresswell and P. Bridgewater, *The Current Framework for International Governance of Biodiversity: Is it Doing More Harm than Good*, *RECIEL*, 19 (2), 2010, p. 146.

regard to forest biodiversity. Thus, the CBD's broad wording of the obligations does not render the Convention as ineffective *per se*.

Similarly, to the protection of forests, the protection and conservation of biodiversity is confronted by the principle of state sovereignty over natural resources. It has been challenging for the international environmental law to overcome the classic concept of sovereignty over natural resources. Therefore, the implementation of any international protection and conservation regulation largely depends upon national implementation, which ultimately and significantly affects the effectiveness of international regulations.

In the same way as the previously analyzed treaties, the CBD does not make explicit references to climate change in the text of the Convention. Yet, the issue has come under review at every COP meeting since 2000. In the context of climate change and forests the work of the CBD on adaptation to climate change needs to be acknowledged. Depending on the implementation practices, the ecosystem-based approach for adaptation can contribute to adaptation of forests (biodiversity) for climate change, SFM, their conservation and restoration.

4.3.7. The value of Forest and Climate Change Regulation in International Environmental Law.¹²¹⁴

Bearing in mind that global climate can benefit from the international measures aimed at forest protection, conservation and SFM, the current section of the research has investigated four treaties: i.e. the Ramsar Convention, the CITES, the WHC, and the CBD. Two questions have been addressed: how does each regime regulate forests? And how does each regime respond to the climate change impacts (the focus is on forests)? The analyses has revealed that although with different scopes, subject matter, type of norms and methodological approach,¹²¹⁵ each of the analyzed treaties, clearly regulates one or more forest function(s) and service(s), and addresses the issue of climate

¹²¹⁴ The Ramsar Convention, the CITES, the WHC, the CBD.

¹²¹⁵ Whereas the CBD contains, in many instances, rather general framework provisions that are open for interpretation and balancing of competing interests; the Ramsar Convention, the CITES, and the WHC all contain general principles but also rely upon listings of the object that is eventually to enjoy the conservation.

change (primarily, due to its impacts on the species and habitats protected under the treaties).

All of the analyzed treaties contribute to the overall international forest regulation for their protection, conservation and SFM. Although, these treaties have not been created to apply to forests directly, they may be interpreted *ex post* to address certain aspects of forests, their functions and services within the framework of a treaty's specific goals and objectives. The characteristic feature of all the analyzed treaties is that they lack explicit references with regard to forests in their substantive provisions. Most references to the underlying causes of deforestation and forest degradation, the concept of SFM, forest protection and conservation, can be found in the "soft", or "secondary" law of the treaties, i.e. the COP decisions or guidelines, which have weak or unclear status under international law (and probably do not create the necessary obligations for States to act accordingly). Furthermore, each treaty facilitates the prioritization of specific forest functions within the framework of the respective treaty this lack of forest specific regulation under each treaty may lead to the lack of forest-specific implementation of these treaties.¹²¹⁶

All the analyzed treaties are clearly external to the international climate change regime, where climate change, its causes and effects are a core area of concern and activity. Climate change is not mentioned explicitly in the texts of the treaties. While the analyzed treaties primarily address the effects of impacts of climate change and not its root cause in terms of the source of GHG emissions, these treaty regimes do have a potentially significant contribution to make, particularly in terms of protecting and enhancing GHG sinks and reservoirs, including forests. Some types of common responses to climate change may be noted across the analyzed treaties. Firstly, the impacts of climate change on species and habitats have already inspired integration of response mechanisms into existing management plans for protected areas under the treaties. Additionally, each of the analyzed regimes recognizes the need for further monitoring and research into the impacts of climate change on species and

¹²¹⁶ See the investigation in chapter VI "Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (perspectives from the EU and the RF)."

habitats, including the identification of the most vulnerable ones. Secondly, all these regimes acknowledge the need to further work on resilience of species, sites and ecosystems to climate change and increase their ability to adapt to climate change impacts and responses. Thirdly, there has been increased cooperation between treaty bodies, including their secretariats and scientific advisory bodies, as well as with the UNFCCC and other organizations, coupled with the development of other public/private partnerships. There is little evidence, however, of changes in the nature of the legal tools and techniques deployed under the analyzed treaties to meet the challenges posed by climate change, in particular, with regard to forests.

Looking across the entire suite of the analyzed forest related treaties, it can be concluded that each treaty contains the potential to contribute to the regulation of one or more forest function(s) and, thus, may have a positive effect on one or more forest function(s). However, these treaties do not address the multi-functionality of forests for the benefit of mankind and, furthermore, these treaties lack specificity to address the related threats imposed, *inter alia*, by climate change on the functioning of forests. It can thus be argued, that the current collection of international forest related tools is not tailored for forests; or worse, this variety is providing a sense of false security as global deforestation, forest degradation and climate change continue.¹²¹⁷

¹²¹⁷ For the elaboration on the most important gaps in the international forest regulation see chapter V "International Climate Change Regime and Forest Regulation: Evaluation of Forest-related Interactions at the International Level".

Chapter V: Evaluation of Forest-related Interactions between the Environmental Regimes at the International Level.¹²¹⁸

The present chapter investigates the forest-related interactions between the selected environmental regimes at the international level. The chapter aims at answering the main research questions: How do the international environmental regimes interact with regards to forest regulation? What are the consequences of the interactions at the international level (i.e. conflicts, gaps, synergies)? and which legal means can be suggested in order to manage the interactions? The first part of the chapter, i.e. "Analytical Framework" sets the point of reference, i.e. the analytical framework for investigating the interactions. The part focuses on "fragmentation" as a concept to describe and analyze the multiple overlapping with regards to forest regulation environmental regimes (5.1.). The second part of the chapter, i.e. "Forests in the International Environmental Law: Evaluation of Interactions", is the actual analysis. First, the part investigates the interactions between the selected forest-related treaties (the UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES, and the CBD). The analyzed interacting elements include: objectives, principles, concepts, norms, tools and measures. Beyond the rather "textual" interactions (i.e. the interactions, stemming from the text of the treaties) the part investigates such interacting elements as party membership and the interactions, stemming from the activities and outputs of COPs and party memberships. Besides, the part considers soft-hard law interactions in the context of the international forest regulation. Interactions of the investigated elements may result in conflicting (e.g. competing, overlapping, duplicating), synergetic or neutral effects. Furthermore, it is possible to identify gaps, which have been overlooked and/or due to the absence of enabling possibility have not been addressed by the treaties' actors. (5.2.). Part three, i.e. "Fragmentation of the International Forest Regulation" brings the findings of the chapter together (5.3.). Finally, part four, i.e. "Evaluation of Forest-related Interactions between the Selected Environmental Regimes at the International Level: Promoting Cooperation and

¹²¹⁸ I.e. the forest-related treaty regimes UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES, and the CBD; and the "soft" (the Chapter 11 of the Agenda 21, the 1992 Forest Principles, the 2007 UN Forest Instrument, and the UNFF process) and "hard" international forest law interactions.

Coordination”, suggests the legal means to manage the interactions with regards to forest regulation at the international level (5.4.).

5.1. Analytical Framework.

The present part of the chapter, i.e. “Analytical Framework” sets the point of reference, i.e. the analytical framework for investigating interactions of the selected international environmental regimes with regards to forest regulation. The part focuses on “fragmentation” as a concept to describe and analyze the multiple overlapping environmental regimes. The first section of the part studies the concept of fragmentation in international law (5.1.1.). The second section highlights the debated aspects of the term “fragmentation” and discusses different types of fragmentation (5.1.2.). Pros and cons of fragmentation are investigated in section three (5.1.3.). Section four provides a theoretical exploration of the consequences of fragmentation in the context of treaty interactions (5.1.4.), illustrating how international law scholars have suggested that the fragmentation of international law may be detrimental (5.1.4.1.) as well as beneficial (5.1.4.2.). Section five studies the “traditional international law tools” to manage treaty interactions (5.1.5.). Section six focuses on “hard” and “soft” law interactions (5.1.6.). Finally, section seven brings the findings of the part together (5.1.7.).

5.1.1. The Concept of Fragmentation in International Law.

The background of fragmentation was sketched already more than half a century ago.¹²¹⁹ Since then the phenomenon of fragmentation of international law is a much debated issue in international law literature.¹²²⁰ More recent discussions

¹²¹⁹ C. W. Jenks, *The Conflict of Law-Making Treaties*, *British Year Book of International Law*, 30, 1953, p. 401, p. 403. C.W. Jenks drew particular attention to the two phenomena: the lack of a general legislative body in the international world; and the “imperfect development of the law governing the revision of multipartite instruments and defining the legal effect of such revision”.

¹²²⁰ UNGA, *Fragmentation of International Law: Difficulties arising from the diversification and expansion of international law*, Report of the Study Group of the International Law Commission Finalized by. M. Koskenniemi, 58th Session, Geneva, 1 May – 9 June and 3 July -11 August 2006, UN Doc. A/CN.4/L.682; R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003; E. Benvenisti, G.W. Downs, *The empire’s new clothes: political economy and the fragmentation of international law*, *Stanford Law Review*, 60, 2007, pp. 595-632; G. Hafner, *Pros and Cons ensuing from Fragmentation of International Law*, *Michigan Journal of International Law*, Pros and Cons En ensuing from Fragmentation of International Law, 25, 2003, pp. 849-863; N.F. Kislitsyna (Кислицина Н.Ф.), *The Contemporary Development of the International Law System (Развитие системы международного права на современном этапе)*, 2014; H. van Asselt, *Fragmentation of the Global Climate Governance*, 2015; M. Ralf, J. Pauwelyn, *Conflict of norms*

on the phenomenon have originated from the concern about the proliferation of courts and tribunals. This debate became the focus of international attention when the two consecutive International Court of Justice (ICJ) Presidents, His Excellency (H.E.) Judge Schwebel and H.E. Judge Guillaume addressed the theme in their addresses to the UN GA.¹²²¹ In a similar way, concerns have been raised with regards to an increasing specialization within international law, respectively a split off of the field of general international law into subsystems, so-called "self-contained regimes" (i.e. the term has been used to label a treaty or a set of treaties in international law that set up a system of norms that to some extent exclude applicability of general international law).¹²²² In 2000 the International Law Commission (ILC)¹²²³ took notice of the phenomenon and included the fragmentation of international law into its work programme,¹²²⁴ subsequently adopting in 2006 its report on the fragmentation of international law.¹²²⁵

In the context of international environmental law the phenomenon of a multitude of parallel, substantially or partially overlapping and colliding agreements, exacerbated by the practice of negotiating ever more binding

or conflict of laws? Different techniques in the Fragmentation of Public International Law, *Duke Journal of Comparative and International Law*, 2012, pp. 349-376.

¹²²¹ H.E. Judge Stephen M. Schwebel, President of the International Court of Justice to the UNGA, 27 October 1998.// < <http://www.icj-cij.org/presscom/index.php?pr=619&pt=1&p1=6&p2=1&PHPSESSID=5c407> >, last viewed 02 February 2016; H.E. Judge Gilbert Guillaume, President of the International Court of Justice to the UNGA, 26 October 2000.// < <http://www.icj-cij.org/court/index.php?pr=%2084&pt=3&p1=1&p2=3&p3=1> >, last viewed 02 February 2016. Whereas H.E. Judge Schwebel presented a rather balanced view on burgeoning of new specialized international courts and tribunals, H.E. Judge Guillaume perceived the creation of new international judiciaries as a threat that might undermine the authority of ICJ. In his address, H.E. Judge Guillaume pointed out to the risks of overlapping jurisdictions, form shopping and the danger of conflicting inconsistent judgements.

¹²²² B. Simma, *Self-contained regimes*, *Netherlands Yearbook of International Law*, 16, 1985, pp. 111-136.

¹²²³ International Law Commission was established by the UN GA in 1947 to undertake the mandate of the Assembly under article 13 (1) (a) of the Charter of the UN to "initiate studies and make recommendations for the purpose of ... encouraging the progressive development of international law and its codification". Many of the most important international conventions have grown out of the Commission's work (e.g. the Law of the Sea, 1958; Diplomatic Relations, 1961; Law of Treaties in 1969; etc.). Apart from preparing such drafts, the ILC issues reports and studies. See, ILC.// < <http://legal.un.org/ilc/> >, last viewed 1 February 2016; M. N. Shaw, *International Law*, Sixth Edition, 2008, pp. 119-121.

¹²²⁴ ILC, Report of the International Law Commission of the work of its fifty-second session, 1 May - 9 June and 10 July - 18 August 2000, Official Records of the General Assembly, Fifty-fifth session, supplement no. 10, UN Doc. A/55/10, para. 729.

¹²²⁵ ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskeniemi, A/CN.4/L. 682, 13 April 2006.

instruments, i.e. fragmentation, has been referred to as a “treaty congestion”.¹²²⁶ The fact that the number of multilateral and bilateral treaties concluded between States has been growing over the last several decades has been an important feature of international environmental law. The trend was triggered by the United Nations Conference on the Human Environment (UNCHE), held in Stockholm in 1972, and by the “Earth Summit” (UNCED), which was held in Rio de Janeiro, in 1992. Currently, there are around one thousand international instruments that include at least some provisions related to the environment and its protection.¹²²⁷ Many of the existing environmental conventions substantially or partially overlap and are linked to one another by their respective subjects, their scopes, objectives or approaches.

5.1.2. The Challenge of Defining Fragmentation.

Similar to the phenomenon itself, the definition of the term “fragmentation” has also been a subject of vigorous debates among international lawyers. Partly the debates among lawyers may be explained by the “many faces”, which fragmentation may take: substantive and institutional;¹²²⁸ fragmentation along the lines of issue areas (e.g. debate on trade versus environment) and along geographical boundaries (e.g. global versus regional); relationship between different interpretations of general international law,¹²²⁹ the relationship between general international law and specialized regimes,¹²³⁰ or the relationship among two or more specialized regimes;¹²³¹ and even fragmentation

¹²²⁶ E. Brown Weiss, *International Environmental Law and the Emergence of a New World Order*, the *Georgetown Law Journal*, 81, 1993, pp. 675-710.

¹²²⁷ E.B. Weiss, *Understanding Compliance with International Environmental Agreements: The Baker’s Dozen Myths*, *University of Richmond Law Review*, 32, 1999, p. 1555.

¹²²⁸ ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006, para. 13. The ILC study made a clear demarcation between the institutional and substantive fragmentation, choosing not to examine “the competence of various institutions applying international legal rules and their hierarchical relations inter se” (i.e. institutional fragmentation), and, instead, focusing on “the splitting up of the law into highly specialized “boxes” that claim relative autonomy from each other and from the general law” (i.e. substantive fragmentation).

¹²²⁹ An example can be the Tadic case (Prosecutor versus Dusko Tadic), in which the International Criminal Tribunal for the Former Yugoslavia came to a different judgement about the criterion to assess when an armed military group can be said to be acting on behalf of a foreign power than the International Court of Justice had before.

¹²³⁰ An example is the examination of how the general law of state responsibility relates to non-compliance mechanisms used in international environmental law or other more specialized regimes that may conflict with or complement the general rules.

¹²³¹ For example, various trade and environment disputes.

of sites of governance.¹²³² The common meaning associated with fragmentation has been suggested to be as follows: “the process or state of breaking or being broken into fragments”.¹²³³ Among the most recent and, perhaps, broadest definitions of fragmentation is the one proposed by H. van Asselt: “the increased specialization and diversification in international institutions, including the overlap of substantive rules and jurisdictions”.¹²³⁴

5.1.3. The Pros and Cons of Fragmentation.

There have been arguments for and against fragmentation.¹²³⁵ Initially, the fragmentation of international law has largely been classified and interpreted as a risk and a threat to international law.¹²³⁶ One argument often used against fragmentation is that the growing body of international legal rules threatens the unity and coherence of international law, as various specialized rules are created (which allow international judicial institutions to come to diverging decisions).¹²³⁷ Another drawback is that fragmentation can arguably be used by

¹²³² Under the term “governance” international lawyers have sought to understand the phenomenon of governance beyond the state: e.g., the possibility to extend international institutional law to treaty bodies; e.g., “informal international lawmaking” - as the normative output that is the result of international cooperation with other (non-state) actors taking the lead or/and when international law-making does not fit the traditional understating as other instruments or procedures are used. See, H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, pp. 35-39.

¹²³³ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 32. In this regard, three general observations have been made: first, the very notions of “breaking” or “fragments” suggests that there once was, still is or there will be something that is “whole” or “complete” (1); second, fragmentation can be viewed as “static” (state) or “dynamic” process (2); third, the idea of fragmentation implies that there are driving forces behind it (3).

¹²³⁴ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 35.

¹²³⁵ G. Hafner, *Pros and Cons Ensuing from Fragmentation of International Law*, *Michigan Journal of International Law*, 25, 2004, pp. 849 -863; H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 39.

¹²³⁶ Thus, for instance, the ILC feasibility study on the fragmentation of international law, conducted by G. Hafner in 2000 indicated that the issue was the one that should be looked at mainly in terms of “risks”, “threats”, and other negative connotations. See, ILC, *Report of the International Law Commission of the work of its fifty-second session, 1 May – 9 June and 10 July – 18 August 2000*, *Official Records of the General Assembly, Fifty-fifth session, supplement no. 10*, UN Doc. A/55/10.

¹²³⁷ For instance, a dispute between Ireland and the United Kingdom regarding the construction of a MOX plant reprocessing nuclear fuel lead to three different legal procedures, each based on a different body of substantive law. The facts of the case allowed participants to the dispute to simultaneously frame it as an issue of the law of the sea, as inter-EC relationship of two EU Member States, and as one concerning the (possible) pollution of the North Sea. ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, *Report of the Study Group of the International Law Commission*, Finalized by M. Koskeniemi, A/CN.4/L. 682, 13 April 2006, paras. 10, 439-442; 10. N.F. Kislitsyna (Кислицина Н.Ф.), *The Contemporary Development of the International Law System (Развитие системы международного права на современном этапе)*, 2014, p. 15; H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 40.

a handful of powerful states to their advantage. These states have the flexibility to opt for a mechanism that best serves their interests, and can create new agreements if the old ones no longer serve their interests. With regard to dispute settlement, this may lead to “forum shopping”: countries are likely to choose the forum that is most likely to deliver a positive outcome.¹²³⁸ Finally, a fragmented international legal system could lead to prioritization of certain fields of international law over others (e.g. the dominance of international economic law over international environmental law).¹²³⁹

A different perspective treats fragmentation as a benevolent phenomenon: a “sign of vitality” of international law;¹²⁴⁰ and a positive indicator of increased diversity in legal norms and the expansion of international law to previously unregulated fields.¹²⁴¹ Increased specialization is arguably a way of accommodating states’ diverging interests: “growing number of treaties, institutions, and adjudicative bodies in a broad sense reflect ways to address specific needs, which actors have identified as worth regulating by the means and methods of international law. As such, specialization is the essence and success of the international legal system”.¹²⁴² One more point of view is that regulatory competition may allow for the development of different solutions in different regulatory contexts, of which the most effective will survive and even may be diffused to other regulatory contexts.¹²⁴³

5.1.4. Treaty Interactions.

Although international treaties are created largely independently from and parallel to one another (due to the absence of a universal legislature or an administration with a comprehensive mandate), the treaties do not operate in

¹²³⁸G. Hafner, Pros and Cons Ensuing from Fragmentation of International Law, *Michigan Journal of International Law*, 25, 2004, p. 857; ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskeniemi, A/CN.4/L. 682, 13 April 2006.

¹²³⁹H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 41.

¹²⁴⁰A. Eikermann, *Forests in International Law, Is There Really a Need for an International Forest Convention?*, 2015, p. 160; also citing J. Pauwlyn, *Fragmentation of International Law*, in R. Wolfrum (ed), *Max Planck Encyclopedia of Public international Law*.

¹²⁴¹H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 42.

¹²⁴²N. Matz-Luck, *Structural Questions of Fragmentation*, *American Society of International Law Proceedings*, 105, 2011, pp. 125 -127; G. Hafner, *Pros and Cons Ensuing from Fragmentation of International Law*, *Michigan Journal of International Law*, 25, 2004, pp. 859 -860.

¹²⁴³H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 42.

entire isolation from one another. When operating in the same policy domain, agreements overlap and interact. Treaty interactions are of particular relevance to the field of international environmental law.¹²⁴⁴ One factor for that is the interdependence of ecological processes and, therefore, the linkage of the problems addressed by the treaties. Consequently, the regulation of one environmental issue almost necessarily touches upon topics subject to other international legal instruments.

Apart from the “ecological interdependence” of the regulated subject matter of international environmental treaties, these treaties interact – whether in a conflictive or synergetic way – in legal and political aspects. The line between legal and political interactions is often hard to draw, and, thus, “the interactions of international treaties” has not only been a subject matter for international legal research, but also for the international relations and international political sciences.¹²⁴⁵ Various terms and concepts have been developed referring to connections between the overlapping treaties, their regimes and institutions: “interactions”, “interlinkages”, “interplay”, “linkages”, “overlap”.¹²⁴⁶ “Conflict” stands for a purely legal concept.¹²⁴⁷

¹²⁴⁴ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 4.

¹²⁴⁵ H. van Asselt, *Fragmentation of Global Climate Governance*, 2014, pp. 31 – 39; R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 12.

¹²⁴⁶ H. van Asselt, *Fragmentation of Global Climate Governance*, 2014, p. 45. In his study on regime interactions, to avoid misunderstandings, H. van Asselt utilizes the term “interaction” denoting that one regime may influence other regimes.

¹²⁴⁷ As for the definition of the term “conflict” legal literature is split: some authors argue for a “narrow” definition, and others favor a “broad” definition. According to an early study of W. Jenks in 1953 “a conflict in a strict sense of direct incompatibility arises only where a party to the two treaties cannot simultaneously comply with its obligations under both treaties”. This test of impossible joint compliance has been supported by some international lawyers (eg. G. Marceau, 2001), but has increasingly come under fire (J. Pauwelyn, 2003; E. Vranes, 2009). Recently it has been suggested to add to the notion of a legal conflict between norms an additional definition of “policy conflicts” – incompatibilities between regimes which not need to be resolved through establishing a hierarchy between them (i.e. one of the norms necessarily prevails; H van Asselt, 2015). The ILC in its Report on Fragmentation of International Law adopted “a wide notion of conflict as a situation where two rules of principles suggest different ways of dealing with a problem [leading to contradictory outcomes]”. See, W. Jenks, *The conflict of law making treaties*, *British Yearbook of International Law*, 30, 1953, p. 426; G. Marceau, *Conflicts of Norms and Conflicts of Jurisdictions: the relationship between the WTO Agreement and MEAs and other Treaties*, *Journal of World Trade*, 35, 6, 2001, p. 1082; J. Pauwelyn, *Conflicts of Norms in Public International Law, How WTO law relates to other Rules of International Law*, 2003, p. 166 – 175; E. Vranes, *Trade and the Environment, Fundamental Issues in International and WTO Law*, 2009, p. 19-21; H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 52-55; ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskeniemi, A/CN.4/L. 682, 13 April 2006, para. 25.

The interacting elements (i.e. what interacts?) may include:

- norms;
- objectives;
- approaches, principles and concepts;
- obligations;
- tools and measures.¹²⁴⁸

Beyond the rather “textual” interactions, i.e. the interactions stemming from the texts of the treaties, it is possible to identify the interactions, resulting from the activities and outputs of a treaty’s institutions and resulting decisions of COPs. In comparison to treaties, the standards for implementation of COP decisions are often set by subsidiary treaty bodies, i.e. scientific and technological advisory bodies. Furthermore, interacting elements may include party membership.¹²⁴⁹ Interactions of the elements may result in conflictive, synergetic, or neutral effects. A remark needs to be made that the effects of interactions may materialize directly at the international level, but also emerge in a later phase (e.g. a “conflict of implementation”). Additionally, it is possible to identify gaps, which have been entirely overlooked and/or due to the absence of enabling possibility have not been addressed by treaties’ actors.

5.1.4.1. Conflicts.

A conflict, in the strict sense, relates to the incompatibility of two legal norms, i.e. one obligation cannot be fulfilled without necessarily violating the other.¹²⁵⁰ In the case of international treaties, and according to this definition, only two regulations of international law that establish incompatible obligations would be considered to be in conflict with one another. Incompatible norms are the clearest indicator of a conflict, although the cases of incompatible norms are limited in practice, given that states generally do not enter into agreements that could conflict with each other (the “presumption against conflict”¹²⁵¹). In the field of international environmental law the collisions and overlaps that lead to

¹²⁴⁸ Adapted from R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003; H. van Asselt, *Fragmentation of Global Climate Governance*, 2014, p. 54. Please note that the list is non-exhaustive.

¹²⁴⁹ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 6.

¹²⁵⁰ H. Kelsen, *General Theory of Norms*, 1991, p. 123.

¹²⁵¹ J. Pauwelyn, *Conflict of Norms in Public International Law: How WTO Law Relates to Other Rules of International Law*, 2003, pp. 240-244.

the assumption of “treaty congestion” may not necessarily take this incompatible form, but rather establish divergences or inconsistencies without establishing contradicting, absolute obligations.¹²⁵² In comparison to the incompatibilities, these collisions represent “conflicts” in a broader sense. However, even these more broadly defined conflicts may have the same negative effects as the more narrowly defined legal conflicts. Since any contradictions can, due to uncertainties involved in the application of the respective regulations, diminish the potential effectiveness of international forest law, all conflicting divergences are included in the following examination of forest-related interactions.

a. Conflicting Objectives.

The case of “colliding (diverging) objectives” is often illustrated by the case of treaties pursuing free trade versus treaties for the benefit of nature conservation.¹²⁵³ In this case, at least at first glance, the objectives may be deemed incompatible. In international environmental law the conflict of “colliding objectives” due to the different purposes and fields of regulation is considered to be a very likely scenario,¹²⁵⁴ especially if the objectives of one convention do not take the aims of other agreements into consideration. Yet, the contradicting aims of international environmental agreements usually do not establish the narrowly defined “incompatible conflicts”. While the ultimate objectives of environmental agreements characterize the detailed obligations, laid down by the treaty, the objectives themselves may not incorporate clear enough provisions such, that they establish regulations that are incompatible with the aims of other agreements. It may be the concrete duties and obligations established by an environmental treaty in order to pursue its objectives that can initiate conflicts with another agreement. Thus, it may be the case that a conflict does not materialize directly at the international level, but rather emerges as a conflict between obligations or as a conflict in the implementation phase, i.e. on a subsequent level. Thus, conflicting objectives,

¹²⁵² R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 6.

¹²⁵³ S. Charnovitz, *Multilateral Environmental Agreements and Trade Rules*, *Environmental Policy and Law*, 26, 1996, p. 163; J. Cameron, J. Robison, *The Use of Trade Provisions in International Environmental Agreements and their Compatibility with the GATT*, *Yearbook of International Environmental Law*, 3, 1992, p. 3; H. van Asselt, *Fragmentation of Global Climate Governance*, 2014, p. 54.

¹²⁵⁴ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 8.

with their influence on the obligations, created by the various environmental agreements, can also be the basis for subsequent conflicts and are of special importance for the potential inconsistency between the international forest-related agreements.

b. Conflicting Approaches, Principles and Concepts.

The use of different approaches, principles and concepts embrace the application of approaches, principles and concepts that can be considered incompatible. Approaches, principles and concepts are important not only for the general guidance they provide, but also in the way they inform the interpretation of an agreement by its State Parties. Conflicts with other agreements can, for instance, result from the application of different approaches, e.g. the precautionary approach, inspiring action to prevent environmental degradation in the face of a scientific uncertainty, may be at odds with an approach emphasizing cost-effectiveness.¹²⁵⁵ Since a treaty's approach "documents only the controlling underlying concepts and considerations", it is possible that two agreements, although following the same approach, differ with regard to their aims or political priorities.¹²⁵⁶

c. Conflicting Obligations.

Conflicting obligations are a traditional example of conflicting legal regulations.¹²⁵⁷ Conflicting obligations arise if the duties imposed or behavior required by the provisions of one agreement collide with an obligation owed under the rules of another treaty. In its strict legal sense a conflict may appear when an agreement clearly and unambiguously formulates the duties of the States Parties. If duties are vague and in need of interpretation, a conflict in the strict sense is less likely to appear and a clear incompatibility is challenging to be established. Although two vague obligations could, in the end, also be interpreted as being incompatible with one another. Conflicts between the vague obligations are more likely to emerge after the interpretation of the vague

¹²⁵⁵ H. van Asselt, *Fragmentation of Global Climate Governance*, 2014, p. 54.

¹²⁵⁶ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 7.

¹²⁵⁷ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 10.

obligations by State Parties, i.e. taking the form of “implementation conflicts”.¹²⁵⁸

d. Conflicts at the Implementation Phase.¹²⁵⁹

Even if the objectives, approaches and obligations of agreements do not directly collide at the international level, the means to pursue these aims and duties can initiate conflicts at the implementation phase. Thus, although conflicts are rooted in the international environmental law instruments themselves, they realize their potential in a later phase, involving the implementation of obligations derived from international environmental agreements into national law. Conflicts at the implementation phase are particularly relevant if duties and obligations, e.g. in framework conventions, are deliberately expressed in vague terms, thus, granting States Parties a wider margin of interpretation and discretion in the adoption of mechanisms to pursue the objectives of an agreement.

5.1.4.2. Synergies.

The term “synergy” has a positive connotation, associated with enhancing of the effect of one or both interacting elements and/or regimes.¹²⁶⁰ Synergies may materialize in the shape of “normative reinforcement”, when norms have synergistic effect. For instance, one norm may oblige states to tackle one cause of biodiversity loss by designating protected areas, whereas another norm may direct states to address another driver by talking climate change mitigation measures. “Shared principles and concepts” may strengthen the internal coherence of treaties’ regimes. “Streamlined monitoring and reporting obligations” reduces data collection requirements at the national level and decrease the administrative burden on states in terms of submitting reports on overlapping issues to different environmental conventions. “Shared supporting measures”, i.e. linking the supporting provisions of different agreements, related to capacity building, scientific cooperation, education and awareness, technology transfer, may lead to enhanced cost-effectiveness. Congruency in “party

¹²⁵⁸ See the following subsection d. “Conflicts at the Implementation Phase”.

¹²⁵⁹ Adapted from R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 11.

¹²⁶⁰ Adapted from H. van Asselt, *The Fragmentation of Global Climate Governance*, 2014, p. 55.

membership” may serve as a useful starting point for a harmonized treaty development (although, the harmonizing function of the same membership also requires that the same national agencies are represented in the different treaty negotiations¹²⁶¹).

5.1.5. The Traditional¹²⁶² International Law Tools to Manage Treaty Interactions.

International law has long been aware of interactions between treaties, treaty regimes, and other legal sources. Interactions expand the effect of a stand-alone instrument and provide a potentially added value, by either strengthening (i.e. synergy) or weakening the baseline effect of an instrument, taken in isolation (i.e. conflict). The adoption and application of the Vienna Convention on the Law of Treaties (VCLT)¹²⁶³ has provided a traditional “tool-box” for dealing with fragmentation.¹²⁶⁴ Since then the tools and legal techniques for dealing with normative treaty conflicts have been subjected to legal discussions.¹²⁶⁵

The initial understanding of a conflict “in a strict sense of direct incompatibility [...] where a party to the two treaties cannot simultaneously comply with its obligations under both treaties”¹²⁶⁶ has been supported by some international lawyers,¹²⁶⁷ but increasingly came under fire.¹²⁶⁸ If to assume that States generally do not enter into agreements that could conflict with each other, it has become challenging to apply the strict notion of a conflict in many cases,

¹²⁶¹ Thus, for instance, a national environmental ministry and a ministry of economics may represent different opinions with regards to priorities in forest regulation. Even if the treaty may have identical membership, the congruency in the international negotiations will depend on the national institutions, representing the state at the international level.

¹²⁶² Sometimes also referred to as “classic” or “historic”.

¹²⁶³ Vienna Convention on the Law of Treaties, adopted 23 May 1969, entered into force 27 January 1980.

¹²⁶⁴ ILC, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006, p. 250.

¹²⁶⁵ H. van Asselt, The Fragmentation of Global Climate Governance, 2015; R. Wolfrum, N. Matz, Conflicts in International Environmental Law, 2003; C.J. Borgen, Resolving Treaty Conflicts, *George Washington International Law Review*, 2005, 37, pp. 573-648.

¹²⁶⁶ W. Jenks, The conflict of law making treaties, *British Yearbook of International Law*, 30, 1953, p. 426.

¹²⁶⁷ G. Marceau, Conflicts of Norms and Conflicts of Jurisdictions: the relationship between the WTO Agreement and MEAs and other Treaties, *Journal of World Trade*, 35, 6, 2001, p. 1082;

¹²⁶⁸ J. Pauwelyn, Conflicts of Norms in Public International Law, How WTO law relates to other Rules of International Law, 2003, p. 166 – 175; E. Vranes, Trade and the Environment, *Fundamental Issues in International and WTO Law*, 2009, p. 19-21.

particularly, in international environmental law.¹²⁶⁹ More recently the ILC in its Report on Fragmentation on International Law adopted a wider definition of a conflict “as a situation where two rules or principles suggest different ways of dealing with a problem”¹²⁷⁰ (leading to contradictory outcomes).

Capturing the various types of contradictions between norms and different (treaty) regimes has been entitled as a “significant challenge” due to the variety of interactions between treaties, treaty regimes and other legal sources.¹²⁷¹ In its strict notion, legal conflicts may arise between interpretations of the same law, between general law and a specialized field of law, as well as between two specialized fields of international law. When a conflict is detected, the question which needs to be answered is: which law – respectively which interpretation – should ultimately prevail? In order to answer the question, international law itself as well as international legal science and literature, provide various techniques,¹²⁷² including conflict avoidance and conflict resolution. Conflict avoidance tools have the result that there is no conflict in the strict legal sense, whereas conflict resolution tools determine which norm prevails in case there is such a conflict.¹²⁷³

Conflict avoidance tools include: treaty changes and drafting; and interpretation. Changing one or both treaties, is, perhaps, the most straightforward route (on paper) towards enhancing the compatibility of two treaties. This is possible through amendment of a treaty (procedures normally differ for each treaty); an *inter se* agreement between states-parties to one of the treaties, modifying a treaty; or even more radically - by ending one of the treaties. These conflict avoidance tools are, however, essentially political in nature, and only secondarily legal. They are preceded by a political process or (re)negotiation, therefore situation-dependent and unsteady. A conflict of norms may furthermore be

¹²⁶⁹ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003.

¹²⁷⁰ ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006, para. 25.

¹²⁷¹ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 52.

¹²⁷² Vienna Convention of the Law of the Treaties, adopted 23 May 1969, entered into force 27 January 1980; ILC, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006; H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015.

¹²⁷³ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 62.

avoided by the interpretation of norms in question. Treaty interpretation is a particularly legal technique that judicial bodies as well as diplomats and government officials may apply to harmonize two norms that are incompatible. The main rules on how to interpret treaties are found in articles 31 “General Rule of Interpretation”, 32 “Supplementary Means of Interpretation” and 33 “Interpretation of Treaties Authenticated in Two or More Languages” of the VCLT.¹²⁷⁴

In addition, international law provides techniques for the resolution of conflicts: conflict (or savings) clauses and priority rules. The general purpose of the conflict clauses is to clarify the relationship between treaties. Conflict clauses can be found either in the main body of a treaty or in its preamble, being formulated in a wide variety of ways: granting priority to (specific) existing or future treaties or both of these;¹²⁷⁵ claiming priority over (specific) existing or future treaties, or over all treaties;¹²⁷⁶ determining priority on the basis of a seemingly objective indicator (e.g. several environmental treaties contain similar provisions allowing for the treaty with the highest level of environmental protection to prevail). If a normative conflict cannot be avoided by treaty changes or interpretation, or resolved by a conflict clause, international law provides various rules for conflict resolution. The most well-known are the priority rules, which can broadly be described with reference to the Latin terms *lex superior*,¹²⁷⁷ *lex posterior*¹²⁷⁸ and *lex specialis*.¹²⁷⁹

¹²⁷⁴ Vienna Convention on the Law of Treaties, adopted 23 May 1969, entered into force 27 January 1980.

¹²⁷⁵ An example of a treaty granting priority to future agreements is Art. 3.1. of the Convention on the Non-Navigational Use of Watercourses, which allows states to enter into new agreements adjusting the provisions of that treaty. See, Convention on the Law of the Non-Navigational Uses of International Watercourses, adopted 21 May 1997, Art. 3.1.; see also the VCLT, art. 30.2. :“when a treaty specifies that it is subject to, or that it is not to be considered as incompatible with, an earlier or later treaty, the provisions of that other treaty prevail”.

¹²⁷⁶ An example of the first case is the Article 311.1. of the United Nations Convention on the Law of the Sea (UNCLOS), which claims priority of UNCLOS over specific earlier treaties on the law of the sea. The same Convention also exemplifies the second case by indicating that future agreements modifying or suspending provisions of UNCLOS cannot undermine the central provisions of the treaty (art. 311.3.). The third case is most famously expressed in the Charter of the United Nations, which claims priority over all other international legal instruments (art. 103). See, United Nations Convention on the Law of the Sea, adopted 10 December 1982, in force 16 November 1994; Charter of the United Nations, adopted 26 June 1945, in force 24 October 1945.

¹²⁷⁷ *Lex superior derogate lex inferiori* refers to the priority of hierarchically superior norms. Application of this rule presupposes that there is or can be a normative hierarchy in international law. However, it is generally assumed that, with the possible exception of Article 103 of the UN

5.1.6. Hard and Soft Law Interactions.

The internationally accepted classification of sources of international law is formulated in the Statute of the ICJ. According to its article 38 international law is provided by the three sources: international conventions, international custom, and the general principles of law.¹²⁸⁰ In addition to these traditional sources of international law, there is a somewhat obscure category, termed "soft law". In general "soft law" may be understood as "[...] law instruments [that]

Charter and *jus cogens*, there is no hierarchy of norms in international law. Article 103 of the UN Charter states that "in the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail". As Article 103 is part of a Treaty, it can also be seen as a far-reaching conflict clause. Although the legal consequences for acts contravening this clause (i.e. adopting a treaty that contradicts the UN Charter) are not entirely clear, most scholars seem to agree that the UN Charter does not make the conflicting treaty null and void. See, ILC, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006, paras. 333-334; see also, VCLT, adopted 23 May 1969, entered into force 27 January 1980, art. 53 "Treaties conflicting with a peremptory norm of general international law ("*jus cogens*")".

¹²⁷⁸ *Lex posterior derogate legi priori*, essentially means that the more recent norm prevails over the older norm. The Vienna Convention has effectively codified the notion of *lex posterior* by stating that: "When all the parties to the earlier treaty are parties also to the later treaty but the earlier treaty is not terminated or suspended [...], the earlier treaty applies only to the extent that its provisions are compatible with those of the later treaty" (art. 30.3.). The notion is based on the idea that the will of states may change over time and that new treaties derogating from older ones reflect this "new" will. This assumption is valid if the membership of both treaties is identical, for instance in the case of two bilateral treaties between the same states, or between two multilateral treaties with the same membership. This means that the *lex posterior* rule can apply only to a limited number of cases of conflict only. See, VCLT, adopted 23 May 1969, entered into force 27 January 1980, art. 30.3; R. Wolfrum, N. Matz, Conflicts in International Environmental Law, 2003, pp. 153-154.

¹²⁷⁹ *Lex specialis derogate legi generali* refers to a priority rule of "special" norms over general norms. In the Vienna Convention no explicit reference is made to *lex specialis*. The rule could refer to a special norm providing a more detailed elaboration or application of the general norm, in which case there is not really a conflict between norms (1). Two norms could also apply to the same set of facts but point in different directions, without any clear hierarchical relationship (2). In this case *lex specialis* can come into play as a conflict resolution technique. The key question here is which of the norms is more "specific". This may be straightforward in some cases. For example, a protocol or other agreement implementing a framework treaty should arguably prevail over the more general framework agreement. However, such cases are rare, given the close interdependence between these types of treaties (e.g. the UNFCCC, and its Kyoto Protocol). They rather represent the first type (1 - above) of *lex specialis*, where a norm applies upon or elaborates another. The second type (2 - above) poses a more difficult challenge: dealing with treaties (or norms in treaties) that do not appear to have a clear relationship to each other, but still apply to the same set of facts. The "specialty" or "generality" depends on the facts of the case and is likely to be in the eye of beholder. As the ILC notes, "that assessment is dependent on and makes constant reference to evaluative judgements of what is central and what is marginal to a case, what aspects of it should be singled out and what aspects may be glossed over". See, ILC, Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission, Finalized by M. Koskenniemi, A/CN.4/L. 682, 13 April 2006, paras. 56-57, 106; R. Wolfrum, N. Matz, Conflicts in International Environmental Law, 2003, pp. 156; H. van Asselt, The Fragmentation of Global Climate Governance, 2015, p. 70.

¹²⁸⁰ UNTS, Statute of the International Court of Justice, 26 June 1945, 33, p. 993.

range from treaties, but which include only soft obligations ("legal soft law"), to non-binding or voluntary resolutions and codes of conduct formulated and accepted by international and regional organizations ("non-legal soft law"), to statements prepared by individuals in a non-governmental capacity, but which purport to lay down international principles".¹²⁸¹ The concept and nature of "soft law" has long been the subject of legal research.¹²⁸² Due to the complexity of the subject, few general remarks need to be made for the purpose of the research.

First of all, "soft law" nature of an instrument needs not to be immediately equated to the "ineffectiveness" of an instrument.¹²⁸³ Yet, the prevailing expectation is that "hard law" instruments are "[...] subject to more thorough negotiation and preparation [...]" and are "[...] likely to improve the quality of implementation and compliance".¹²⁸⁴ Secondly, although "soft law" should not be considered an independent, formal source of international law, it may have its value "[...] in developing, interpreting and clarifying international as well as municipal law [and providing for] a model formula for the drafting of international and municipal law, and [containing] elements which contribute to the evolution of international law".¹²⁸⁵ Finally, a characteristic feature of "soft law" is the lack of state consent, correspondingly the lack of consent by states to

¹²⁸¹ C. M. Chinkin, *The Challenges of Soft Law: Development and Change in International Law*, *International Comparative Law Quarterly*, 38, 1989, p. 851. See also, A. Boyle, *Some Reflections on the Relationship of Treaties and Soft Law*, *International and Comparative Law Quarterly*, 48, 4, 1999, p. 901-913; J. Friedrich, *International Environmental "Soft Law"*, 2013, p. 13.

¹²⁸² R. J. Dupuy, *Declaratory Law and Programmatic Law: From Revolutionary Custom to "Soft Law"*, in R. J. Akkerman, et al. (eds), *Declarations on Principles: A Quest for Universal Peace*, 1977; D. Shelton (ed), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System*, 2000; J. Klabbers, *The Undesirability of Soft Law*, *Nordic Journal of International Law*, 67, 1998; L. Senden, *Soft Law in European Community Law*, 2004; J.E. Alvarez, et al., *International Organizations and Law-makers*, 2005; A. von Bogdandy, et al, *The Exercise of Public Authority by International Institutions: Advancing International Institutional Law*, 2010; B. Kingsbury, et al, *The Emergence of Global Administrative Law*, *Law and Contemporary Problems*, 2004-2005, pp. 15-62.

¹²⁸³ See, for instance, C.M. Chinkin, *The Challenges of Soft Law: Development and Change in International Law*, *International Comparative Law Quarterly*, 38, 1989. Please note that the term "effectiveness" is a critical and debated one. See, M. G. Faure, *Effectiveness of Environmental Law, What does the Evidence Tell Us?*, *William and Mary Environmental Law and Policy Review*, 36, 2, 2012.

¹²⁸⁴ J. B. Skjaereth, et al, *Soft law, Hard Law, and Effective Implementation of International Environmental Norms*, *Global Environmental Politics*, 6, 2006, pp. 104-120.

¹²⁸⁵ D. Thurer, *Soft law*, in R. Wolfrum (ed.) *Max Planck encyclopedia of public international law*, online edition. //<www.mpepil.com>, last viewed 12 May 2017.

be bound by an agreement.¹²⁸⁶ State consensus is being perceived as an essential factor for the legitimacy of an agreement, which may also have consequences for the States' compliance with an agreement.¹²⁸⁷

Up until now the studies on the interactions between soft and hard law have been rather limited.¹²⁸⁸ The literature on interactions has mainly focused on how soft and hard law can function as alternatives or complements,¹²⁸⁹ and, more recently, indicated how they may also act as rivals.¹²⁹⁰ The most recent legal scholarship distinguishes three general ways in which soft and hard law may interact: "sequencing", complementary and antagonistic.¹²⁹¹ First, "Sequencing" focuses on the soft law "hardening" over time. In international environmental law, soft law, such as non-binding declarations can be seen as a useful step in the process of developing hard law in the form of custom or legally binding treaties. Non-legally binding documents or declarations can be used by states or non-state actors in the negotiations of new legally binding instruments and may shape the contours of emerging hard law through a process of legalization. Second, the interactions may be complementary. Traditionally, such type of interactions is understood as hard law being strengthened by complementary soft law, with soft law filling the gaps. For instance, treaties can be supplemented by non-binding guidelines or interpretations. Legal scholars

¹²⁸⁶ "Those States that reject any particular resolution or code do not generally distance themselves from the negotiating process and do not subsequently ignore its existence. Instead they make it public that they feel no obligation to comply, allowing other States to react as they think appropriate". See, C.M. Chinkin, *The Challenges of Soft Law: Development and Change in International Law*, *International Comparative Law Quarterly*, 38, 1989, p. 866.

¹²⁸⁷ D. Bodansky, 1995, *International Law and the Protection of Biological Diversity*. *Vanderbilt Journal of Transnational Law*, 28, 1995, pp. 623-634; J. Brunne, S.J. Toope, *Legitimacy and legality in international law: an interactional account*, 2010, p. 88; *Recognizing a compliance pull in soft law agreements*, E.B. Weiss (ed), *International compliance with nonbinding accords, studies in transnational legal policy*, American Society of International Law, 29, 1997.

¹²⁸⁸ Most studies on interactions in legal scholarship focus on traditional treaty-based regimes, which generally constitute hard law. See, A.E. Boyle, *Some Reflections on the Relationship of Treaties and Soft Law*, *International and Comparative Law Quarterly*, 1999, 48, pp. 901-913; M. Bothe, *Legal and Non-Legal Norms – A Meaningful Distinction in International Relations?*, *Netherlands Yearbook of International Law*, 11, 1980, pp. 65-95.

¹²⁸⁹ A. Boyle, *Some reflections on the Relationship of Treaties and Soft Law*, *The International and Comparative Law Quarterly*, 48, 1999; D. Shelton, *Comments on the Normative Challenge of Environmental "Soft Law"* in Y. Kerbrat, S. Malijen-Dubois (ed), *The Transformation of International Environmental Law*, 2011, pp. 61-73.

¹²⁹⁰ M. A., Pollack, G. M. Shaffer, *The Interaction of Formal and Informal Lawmaking*, in J. Pauwelyn, R. A. Wessel, and J. Wouters (eds), *Informal International Lawmaking*, 2012, pp. 241 – 270.

¹²⁹¹ Adapted from H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, pp. 47-52.

highlight that non-legally binding agreements are generally associated with greater flexibility and are usually easier to negotiate than legally binding treaties.¹²⁹² Finally, the relationships between soft and hard law may also be antagonistic. Rather than hardening itself, soft law may actually “soften” hard law by providing for an alternative forum.¹²⁹³

5.1.7. Interim Summary.

Notwithstanding the variations in its perceptions, fragmentation accurately describes the reality of international law and “the current state of international affairs, where the emergence of different social rationalities at the global level has led to the multiple regimes that overlap in terms of their subject matter”.¹²⁹⁴ Assuming the shape of conflicts (e.g. conflicting objectives, conflicting approaches, conflicting obligations, conflicts at the implementation phase) fragmentation poses a number of practical challenges to the application and the effect of the international law. However, by enhancing the effectiveness of one or more interacting legal instruments, the phenomenon may also assume the shape of a positive synergy (e.g. synergy between norms; streamlined monitoring and reporting obligations; positive diffusion and learning, etc.). Fragmentation may also lead to neutral/indeterminate effects (i.e. neither beneficiary, nor detrimental): with no discernible effect at all. Furthermore, it is possible to identify gaps, which have been entirely overlooked by treaties’ actors and/or due to the absence of enabling possibility have not been addressed. The adoption and application of the Vienna Convention on the Law of Treaties (VCLT) has provided a “traditional tool-box” for dealing with fragmentation (i.e. conflict avoidance and conflict resolution techniques).

5.2. Forests in the International Environmental Law: Evaluation of Interactions.¹²⁹⁵

The international forest regime comprises two sets of norms and norm-creation processes regarding forests. On the one hand, there are the international political processes, established, primarily, for the purpose of developing norms

¹²⁹² J. Friedrich, *International Environmental “Soft Law”*, 2013, pp. 5 – 8.

¹²⁹³ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 51.

¹²⁹⁴ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 42.

¹²⁹⁵ Based on the findings of the previous chapters.

for the international regulation of all forests, the outcomes of which directly aimed at forest, but lack legal obligation (Chapter 11 of Agenda 21, the 1992 Forest Principles, the 2007 UN Forest Instrument, and the UNFF process). On the other hand, there are the legally-binding norms of international law that have a bearing on forests, but which are not specific to forests and their management (the UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES, and the CBD). The present part of the chapter, i.e. "Forests in the International Environmental Law: Evaluation of Interactions" attempts to evaluate interactions with regards to the international forest regulation at the international level. First, the analytical framework, identified in part one of the chapter, i.e. "Analytical Framework", is utilized in order to evaluate the interactions among the selected for the purpose of the research forest-related treaties and their regimes (i.e. the UNFCCC, the Paris Agreement, the Ramsar Convention, the WHC, the CITES, and the CBD) (5.2.1.). The second section of the part investigates the soft-hard law interactions in the context of international forest regulation (5.2.2.).

5.2.1. International Forest Law: Evaluation of Interactions.

The present section investigates the interactions between the forest-related international treaties. The international forest-related treaties cover regulatory measures and instruments with regard to the protection of forested wetlands (the Ramsar), of certain tree species and forest species in general from illegal trade (the CITES), forests of outstanding value (the WHC), forest biodiversity (the CBD), and forests in their capacity as carbon sinks, reservoirs and sources (the UNFCCC and the Paris Agreement). The regulatory measures and instruments employed by these agreements vary with regard to the ultimate environmental objective of each agreement from *inter alia* listing approaches, to the setting of clear commitments and obligations for the ratifying States, or obligatory management standards for protected (forest) areas under a particular agreement. Consequently, these treaties, cover the multifunctional character of forests and provide protection measures for specific forest functions and services, while simultaneously serving the different stakeholder's interests in forests. Besides, each treaty possesses permanent and reliable treaty infrastructure: the relevant treaty organs provide for the "living character" of the

treaties, allowing them to develop in accordance with technical and scientific developments, and/or political changes and create opportunities for cooperation; financial infrastructure; regulation with regard to monitoring, assessment and reporting; mechanisms for the settlement of disputes; compliance and enforcement mechanisms.

5.2.1.1. Interacting Objectives.

When investigating the objectives of the selected international treaties, i.e. the UNFCCC, the Ramsar Convention, the WHC, the CITES, and the CBD, varying objectives have to be distinguished (Figure 17, Objectives of the Selected International Forest-related Treaties). It needs to be remarked, however, whereas the objectives of the UNFCCC, the Paris Agreement and the CBD are expressed explicitly in the text of the respective treaties, the precise objectives of the Ramsar Convention, the WHC, and the CITES are challenging to pinpoint. These objectives are referred to here as they have been established, based on the previous findings of the research.¹²⁹⁶

Figure 17: Objectives of the International Treaties Related to Forests.

Title	Objectives of the International Treaties Related to Forests
UNFCCC	"Stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner". ¹²⁹⁷
Paris Agreement	"The Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the treat of climate change in the context of sustainable development and efforts to eradicate poverty,

¹²⁹⁶ See chapter IV "Forests and Climate Change under the International Forest Regime".

¹²⁹⁷ UNFCCC, adopted 9 May 1992, in force 21 march 1994, art. 2.

	<p>including by:</p> <p>(a) Holding the increase in the global average temperature to well below 2 ° C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;</p> <p>(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production; and</p> <p>(c) Making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development”.¹²⁹⁸</p>
Ramsar Convention	[...] to stem the progressive encroachment on and loss of wetlands now and in the future. ¹²⁹⁹
WHC	[...] to conserve and protect sites – natural as well as cultural from destruction, including the traditional causes of decay (i.e. natural) and also changing social and economic conditions (i.e. anthropogenic) damage and destruction. ¹³⁰⁰
CITES	[...] to control or prevent international trade in endangered wildlife species, live or dead animals and plants as well as their parts and derivatives by means of permits. ¹³⁰¹
CBD	“The conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources”. ¹³⁰²

On the one hand, considering the broad understanding of the objectives, all these treaties are conservation treaties and, therefore, the objectives of the regimes can generally be said to be converging, and even supportive. For instance, the UNFCCC, the Paris Agreement the CITES, the WHC, and the Ramsar Convention all collaterally promote biodiversity goals and, thus, to a considerable degree share the treaty’s scope and purpose with the CBD. The

¹²⁹⁸ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 2.

¹²⁹⁹ Ramsar Convention, adopted 2 February 1971, in force 21 December 1975, preamble 4.

¹³⁰⁰ WHC, adopted 23 November 1972, in force 17 December 1975, preamble para. 1.

¹³⁰¹ CITES, adopted 3 March 1973, in force 1 July 1975. preamble para. 4.

¹³⁰² CBD, adopted 5 June 1992, in force 29 December 1993, art. 1.

CITES, however, deserves particular attention. Due to its dual objective (on the one hand, the prevention of international trade in endangered wildlife species; on the other hand, the conservation of wild species of plants and animals) the CITES may inspire not only synergetic, but also conflicting interactions. Thus, for instance, there are divergences in the specific policy objectives between the CBD and the CITES. Whereas the CITES is motivated by the undoubted threats posed to some species by overexploitation of international trade, trade is not the only threat to species, and under some circumstances trade restrictions may even exacerbate causes of species (biodiversity) extinction, thus, undermining the overall objective of the CBD.¹³⁰³

With regard to forests the objectives of the treaties' regimes vary from protection of forests and their functions as carbon sinks and sources; to protection of forested wetlands; to protection of forests for their outstanding universal value; to preventing trade in endangered forest species, i.e. protection of certain tree species (and forest dwelling species); and to conservation of forest biodiversity. In the long term these forest-related objectives serve the varying goals of the treaties. Although these diverging objectives with regards to forests do not directly establish incompatible conflicts (i.e. in its strict sense, relating to the incompatibility of two legal norms), yet, these objectives characterize the forest-related obligations, established by each treaty in order to pursue its objectives, and may initiate conflicts with another agreement in a later phase (e.g. as a "conflict of implementation").¹³⁰⁴ Therefore, in this regard, the interactions may be described as competing, i.e. conflicting.

5.2.1.2. Interacting Approaches.

Generally, the environmental treaties under the analysis, all promote and protect the welfare of humans, the environment being seen as serving the humankind (i.e. anthropocentric approach¹³⁰⁵). This statement, however, warrants further qualification. On the one hand, there is the exclusively

¹³⁰³ R. Cooney, CITES and the CBD: Tensions and Synergies, *RECIEL*, 10, 3, 2001, p. 265.

¹³⁰⁴ See chapter VI "International Climate Change and Forest Regulation: Evaluation of Forest-related Interactions at the Implementation Level (perspectives from the EU and the RF)".

¹³⁰⁵ Anthropocentrism holds that the purpose of environmental law is to protect and promote the welfare of humans. See, *Encyclopedia of Law and Society: American and Global Perspectives, Doctrinal Issues in Environmental Law*, 2007, p. 486.

anthropocentric approach of simply valuing the environment in terms of immediate human utility (e.g. the Ramsar Convention), on the other hand, there is a more “diluted anthropocentrism”, which recognizes the interrelatedness and interdependence of the natural world of which human being form a part (e.g. the CBD. The CBD recognizes that the value of the biosphere is integrated with the importance of conservation of the biosphere for human survival).¹³⁰⁶ Thus, a general overlap between the treaties may be established with regard to the anthropocentric approach of the treaties.

5.2.1.3. Interacting Principles.

All the investigated international treaties recognize the sovereign right of states over natural resources (Figure 18), each treaty placing a varying emphasis upon national sovereignty over management of natural resources.

Figure 18: Recognition of the Sovereign Right of States over Natural Resources.

Title	Recognition of the Sovereign Right of States over Natural Resources
UNFCCC	<p>“Recalling also that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction”;¹³⁰⁷</p> <p>“Reaffirming the principle of sovereignty of States in international cooperation to address climate change”.¹³⁰⁸</p>
Paris Agreement	<p>“In pursuit of the objective of the [UNFCCC] Convention and being guided by its principles”.¹³⁰⁹</p>

¹³⁰⁶ C. Redgwell, *Life, the Universe and Everything: A Critique of Anthropocentric Rights*, in A.E. Boyle and m. R. Anderson (eds), *Human Rights Approaches to Environmental Protection*, 1996, p. 71.

¹³⁰⁷ UNFCCC, adopted 9 May 1992, in force 21 march 1994, preamble, para 8.

¹³⁰⁸ UNFCCC, adopted 9 May 1992, in force 21 march 1994, preamble, para 9.

Ramsar Convention	"The inclusion of a wetland in the List [of Wetlands of International Importance] does not prejudice the exclusive sovereign rights of the Contracting Party in whose territory the wetland is situated". ¹³¹⁰
WHC	"Whilst fully respecting the sovereignty of the States on whose territory the cultural and natural heritage [...] is situated, and without prejudice to property right provided by national legislation, the States Parties to this Convention recognize that such heritage constitutes a world heritage for whose protection it is the duty of the international community as a whole to cooperate". ¹³¹¹
CITES	"Recognizing that peoples and States are and should be the best protectors of their own wild fauna and flora". ¹³¹²
CBD	"States have [...] the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction". ¹³¹³

Overall, sharing this principle makes it a common theme for the forest-related international environmental law treaties. At the same time this allows for identifying an important gap in the international forest regulation – no recognition of the global significance of forests (e. g. the climate protection function, performed by forests, has global significance). In the light of the research it is important that the international forest regulation expresses a recognition that forests are more than solely a national resource, subject to the exclusive control of nation states. Thus, for instance, the UNFCCC counterbalances the principle of state sovereignty by the acknowledgement that "change in the Earth's climate and its adverse effects are a common concern of

¹³⁰⁹ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 3.

¹³¹⁰ Ramsar Convention, adopted 2 February 1971, in force 21 December 1975, art. 2.3.

¹³¹¹ WHC, adopted 23 November 1972, in force 17 December 1975, art. 6.1.

¹³¹² CITES, adopted 3 March 1973, in force 1 July 1975. preamble para. 3.

¹³¹³ CBD, adopted 5 June 1992, in force 29 December 1993, art. 3.

humankind”.¹³¹⁴ In line with the UNFCCC the Paris Agreement acknowledges “that climate change is a common concern of humankind”.¹³¹⁵ In a similar line the Ramsar Convention expresses confidence that “the conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with coordinated international action.”¹³¹⁶ The cultural and natural heritage under the WHC is recognized as constituting “a world heritage for whose protection it is the duty of the international community as a whole to cooperate”.¹³¹⁷ And, finally, the CBD recognizes that “the conservation of biological diversity is a “common concern” of humankind”.¹³¹⁸ However, when taken together, all the selected for the purpose of the analyses forest-related international environmental treaties lack the acknowledgement of the global public interest in forests. The global public interest in forests goes beyond the mere recognition of a shared interest in a particular forest function, covered by a single international forest-related agreement.

5.2.1.4. Interacting Concepts.

There is no reference to (the concept of) SFM in the texts of the investigated forest-related treaties. The concept is a forest - specific concept. It attempts to incorporate and recognize all the multiple forests’ values (i.e. economic, ecological and social); and, further, to give equal weighting to each value in such a way that all forest functions and services continue to flourish. Although a clear universal definition of the SFM concept has not yet emerged, the general meaning of the concept may be clustered in the context of the UN-forest institutions:¹³¹⁹ SFM “[...] is a dynamic and evolving concept that aims to maintain and enhance the economic, social and environmental value of all types of forests for the benefit of present and future generations”.¹³²⁰ The concept

¹³¹⁴ UNFCCC, adopted 9 May 1992, in force 21 March 1994, preamble, para 1.

¹³¹⁵ Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, preamble, para. 11.

¹³¹⁶ Ramsar Convention, adopted 2 February 1971, in force 21 December 1975, preamble, para. 5.

¹³¹⁷ WHC, adopted 23 November 1972, in force 17 December 1975, art. 6.1.

¹³¹⁸ CBD, adopted 5 June 1992, in force 29 December 1993, preamble, para 3.

¹³¹⁹ Legal scholars have distinguished “the primary set of international instruments, relating to SFM” namely those, created by the UNFF and the UN-Forest institutions (e. g. FAO) and “other [forest] relevant international instruments, which as well create their individual SFM requirements and standards”. See, P. T. Takoukam, *Sustainable Forest Management Tools – National Legal Frameworks since 1992*, *Environmental Policy and Law*, 41/2, 2011, p. 77.

¹³²⁰ FAO, *Managing forests for climate change*, 2010, p. 2. A description also used by the UN GA in establishing the UN Forest Instrument. See, UN GA, 62d session, Agenda item 54, Resolution

“aims to ensure that the goods and services derived from the forest meet present-day needs while at the same time securing their continued availability and contribution to long-term development. [...] In its broadest sense, forest management encompasses the administrative, legal, technical, economic, social and environmental aspects of the conservation and use of forests. It implies various degrees of deliberate human intervention, ranging from actions aimed at safeguarding and maintaining the forest ecosystem and its functions, to favoring specific socially or economically valuable species or groups of species for the improved production of goods and services”.¹³²¹

The initial discussions of the SFM concept at the international level took place in the context of “sustainable development”. States, present at the 1992 UNCED, held in Rio, unanimously adopted the Rio Declaration and committed to “cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in [...] the] Declaration and in the further development of international law in the field of sustainable development”.¹³²² One of the central issue of this 1992 world forum was the management of the world’s forest resources; within the rather general issue of sustainable development States also discussed the SFM concept. Thus, art. 2 (b) of the 1992 Forest Principles provide that “forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural, and spiritual needs of present and future generations”.¹³²³ However, at the international level this basic idea did not receive further shaping within the SFM context, and the development of the concept has taken place at the regional level.¹³²⁴

adopted by the General Assembly 62/98, UN Forest Instrument, 31 January 2008, UN Doc. A/RES/62/98.

¹³²¹ FAO, Sustainable Forest Management. // <<http://www.fao.org/forestry/sfm/en/>>, last viewed 20 June 2015.

¹³²² Rio Declaration on Environment and Development, adopted 14 June 1992, Principle 27.

¹³²³ Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted 14 June 1992, art. 2 (b).

¹³²⁴ The beginning of the ongoing SFM-concept-developing process within the “Forest Europe” took place at the first Ministerial Conference on the Protection of Forests in Europe (MCPFE) in 1990. The signatories to the General Declaration of the Conference recognized “[...] the right of future generation to benefit from a quality environment that is healthy and unpolluted, which, for forests, must be expressed in ecological, economic and social terms in a way, which is reflected in a sustainable and multi-purpose management of forests”. The second MCPFE, which took place in Helsinki in 1993, established a workable definition of SFM: “the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future,

Although there is no reference to (the concept of) SFM in the texts of the investigated forest-related treaties, arguably, it may be suggested that there are frequent references to the concept of "sustainable development".¹³²⁵ This concept attempts to take account of concerns regarding economic development, environmental protection (including human health), and social development (including human rights).¹³²⁶ Currently, there still exist significant differences and uncertainties regarding the precise meaning and the legal status of the concept. The most often cited definition is the one, contained in the Bruntland Commission's report "Our Common Future": "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of "needs", in particular, the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs".¹³²⁷

relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems". Besides, the H1 Helsinki Resolution laid down the general guidelines for sustainable management of forests in Europe. At the follow-up meeting held in 1994, criteria and indicators (C&I) were introduced to further define the elements of SFM. These C&I were based upon Resolutions H1 and H2 from the Helsinki Process. Criteria in this context characterize or define the essential elements or a set of conditions or processes by which SFM may be assessed; an indicator, which can be measured or described, is a quantitative direction of the change within each criterion. The C&I were designed to complement national and/or regional instruments in the assessment of the progress towards the sustainable management of forests.

¹³²⁵ Please note, that the concept of "wise use" under the Ramsar Convention was a pioneering concept, which had been adopted long before the term "sustainable development" was coined in 1987. The "wise use" concept is the key concept orienting the work of the Ramsar Convention. The scope and the meaning of the "wise use" concept have been elaborated outside the Convention text. The latest definition of the "wise use" is based on the Convention's mission statement, the Millennium Ecosystem Assessment's terminology, the concepts of the ecosystem approach and sustainable use applied by the CBD, and the definition of sustainable development adopted by the 1987 Bruntland Commission. Thus, the "wise use of wetlands is the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development". According to the Ramsar Secretariat, "wise use" is entirely compatible with "sustainable use". See, Ramsar Convention Secretariat, *The Ramsar Convention Manual*, 6th edition, 2013, p. 46; Subsection 4.3.1.1. "Ramsar Convention: General Overview", section 4.3.1. "Forests and Climate Change under the Ramsar Convention", chapter IV "Forests and Climate Change under the International Forest Regime" of the present thesis.

¹³²⁶ For the general information on the concept, its origin, evolution and legal status, please see, D. Barstow Magraw, L. D. Hawke, *Sustainable Development*, in D. Bodansky, J. Brunne, E. Hey, *The Oxford Handbook of International Environmental Law*, 2007, pp. 613 – 638.

¹³²⁷ World Commission on Environment and Development, *Our Common Future*, 1987, IV Conclusion, Sustainable Development, para. 1.

Sustainable development may be considered to consist of the following core elements:

- the needs of present and future generations must be taken into account (inter-generational equity¹³²⁸);
- the needs of the world's poor must receive priority, and abject poverty must be eliminated (intra-generational equity¹³²⁹);
- the environmental needs to be preserved at least to a significant degree.¹³³⁰

The scope and the legal meaning of the concepts, i.e. the "SFM" concept and the "Sustainable Development", diverge. Thus, in comparison to the concept of SFM, the concept of "sustainable development" is much broader in its scope and legal meaning. Consequently, the references to the "sustainable development" in the texts of the selected treaties lack the necessary specificity to achieve sustainable forest management. Therefore, it is possible to identify a gap in the current international forest regulation – no reference to sustainable forest management in the language of the selected forest-related international treaties.

5.2.1.5. Interacting Norms.

Interactions of norms may occur when a protected area is established, for instance, under the Ramsar Convention or the WHC. The question, which arises is - whether it is sufficient to manage these areas according to the standards set

¹³²⁸ Intergenerational equity is based on the recognition of two key facts: that human life emerged from and is dependent upon the Earth's natural resources base, including its ecological processes, and is, thus, inseparable from environmental conditions and that human beings have a unique capacity to alter the environment upon which life depends. Based on these two facts it is possible to outline the notion of the intergenerational equity as "humans that are alive today have a special obligation as custodians or trustees of the planet to maintain its integrity to ensure the survival of the human species. A lot has been written on the principle of the intergenerational equity by E.B. Weiss. See, E.B. Weiss (ed.), *In Fairness to Future Generations: International Law, Common Patrimony and Intergenerational Equity*, 1989; E.B. Weiss, *The Planetary Trust: Conservation and Intergenerational Equity*, *Ecology Law Quarterly*, 11, 4, pp. 495-582. See also, D. Shelton, *Equity, Intra-Generational Equity*, in D. Bodansky, J. Brunnee, E. Hey (eds), *The Oxford Handbook of International Environmental Law*, 2007, p. 643.

¹³²⁹ Intergenerational equity aims to ensure justice among human beings that are alive today. In the field of environmental protection, states and the international community must fairly allocate and regulate scarce resources to ensure that the benefits of environmental resources, the costs associated with protecting them, and any degradation that occurs (i.e. all the benefits and burdens) are equitably shared by all members of society. See, D. Shelton, *Equity, Intra-Generational Equity*, in D. Bodansky, J. Brunnee, E. Hey (eds), *The Oxford Handbook of International Environmental Law*, 2007, p. 642.

¹³³⁰ L. D. Hawke, *Sustainable Development*, in D. Bodansky, J. Brunnee, E. Hey, *The Oxford Handbook of International Environmental Law*, 2007, p. 619.

by the respective convention, or if the regulations of the CBD apply as of the broader treaty, covering all of the biological diversity? In this regard art. 22 para 1 of the CBD reads "the provisions of this Convention shall not affect the rights and obligations of any contracting Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity".¹³³¹ At first sight, this clause provides that the regulations of the CBD do not affect the rights and obligations of any Contracting Party, deriving from the existing treaties. However, the clause also contains a qualification that can in fact reverse the result of the application of the clause. It provides that all instruments, the exercise of which poses a risk of a serious threat to biological diversity, shall be inferior to the exercise of the CBD. Only those that do not seriously harm biological diversity shall prevail. The interpretation of this clause, however, faces difficulties, since there are no criteria as to when the exercise of rights and obligations poses a serious threat to biological diversity. The conflict clause indicates that in case of a conflict, the specified conflicting provision of the other international convention cannot be applied in the particular instance.

5.2.1.6. Interacting Instruments.

Analyzing the tools, measures, and mechanisms, provided for by the treaties to reach their ultimate objectives, it is possible to establish that some treaties share common tools. Thus, for instance, the Ramsar Convention, the WHC, and the CITES utilize the listing approach. The challenge with listing, in particular with the Ramsar Convention and the WHC, lies in the fact that the right to recommend a certain site (be it a forested wetland or a forested natural or cultural heritage) to the Ramsar List, or/and to the World Heritage List, rests largely with the Party, which holds the site. This approach is in line with the general principle of the state sovereignty over natural resources and, yet, it diminishes the overall impact, which the conventions could exert. Counterbalancing are the funds available under the Conventions. They provide some incentives for the listing.

¹³³¹ CBD, adopted 5 June 1992, in force 29 December 1993, art. 22 Relationship with Other International Conventions, para 1.

Some treaties under the investigation establish protected areas, e.g. the Ramsar Convention, the WHC and the CBD. As forests are not the main subject of these conventions, these conventions capture only some forests, i.e. primarily the forest area as a protected area. The management provisions for the areas protected under the scope of the conventions are not forest-specific.¹³³²

Additionally, each of the analyzed regimes, relies on scientific monitoring and reporting in order to assess the achievements with the identified goals and objectives. The importance of the initiative on streamlining the forest-related reporting obligations, which takes place under the CPF of the UNFF, has been already discussed by the research and is not unnecessarily revised here.¹³³³

Except for the international climate change regime, where climate change, its causes and effects are a core area of concern and activity, there is little evidence of significant changes in the nature of the legal tools and techniques deployed under the analyzed treaties to meet the challenges posed by climate change and, in particular, to the challenges in this regard faced by forests. Up until now, rather than developing a *sui generis* response to climate change and/ or forest management, their protection and conservation has been largely a matter of interpretation or application of existing texts, tools and techniques. In the case of the investigated treaties the needed flexible adaptation over time to the new challenges is achieved through the supplementation of a convention text by COP decisions. Yet, in the coming years certain tools/techniques may require adjustment in the light of the climate change impacts. This is particularly relevant for the techniques used to establish protected forest areas and their management. Biological adaptation of forest to climate change may lead to shifting of the ecological boundaries and migration patterns with the subsequent need to legally adapt through consideration of more flexibility in fixed boundaries of protected forest areas. As the impacts of climate change escalate, further responses may include increased recourse to danger listing. On the other hand, in the future "de-listing" may also become necessary or appropriate for tree and other forest species and forest sites, which are adversely affected by

¹³³² See chapter IV "Forests and Climate Change under the International Forest Regime".

¹³³³ Please see subsection 4.2.3.2. "Institutional Structure and Membership: UNFF and its Collaborative Partnership on Forests"

climate change. The forest-related treaties may also consider “emergency adaptation” measures where natural or assisted forest adaptation to climate change is not sufficient (e.g. severe forest fires). Thus, for instance, some of the agreements already provide “emergency responses” to conventional threats (e.g. the WHC Rapid Response Facility (RRF) was established in order to provide timely resources (up to US\$ 30 000) to address severe and time sensitive threats and emergencies affecting natural world heritage sites (NWHS) and surrounding areas).¹³³⁴

5.2.1.7. Interacting COP Decisions.

Except for the UNFCCC and the recent Paris Agreement, the characteristic feature of all of the analyzed treaties is that they lack the explicit reference to forests in their substantive provisions. Most references to forests, the underlying causes of deforestation and forest degradation, forest protection, conservation and sustainable management can be found in the soft and/or the secondary law of the treaties, i.e. the COP decisions, resolutions, guidelines, and work programs.

For instance, a forest-related overlap is the consequence of interactions between the CBD and the UNFCCC regimes.¹³³⁵ These interactions have their origin in the decisions, made by the treaty bodies of the international climate change regime. The use of forest “sinks” under the Kyoto Protocol may lead to conflicting interactions between the climate and biodiversity regimes in the implementation phase. As the forest-related rules developed under the Kyoto Protocol do not sufficiently safeguard biodiversity concerns they may result in destructive monoculture tree plantations,¹³³⁶ a lack of protection for existing primary forests and an increase in the use of fast growing “non-native” and “exotic” tree species, and, thus, frustrate the objectives of the CBD. In this case the interactions between the Kyoto Protocol and the CBD are largely predetermined

¹³³⁴ CBD, RRF.// < <http://whc.unesco.org/en/activities/578> >, last viewed 11 May 2017.

¹³³⁵ These interactions are further discussed in chapter VI “International Climate Change Regime and Forest Regulation: Evaluation of Forest-related Interactions at the Implementation Level (perspectives from the EU and the RF)”.

¹³³⁶ A “forest model” that has already been critically described by the research for its negative environmental impacts (disruption of groundwater flows, reduction of biodiversity, degradation of soils, etc.). For more information, see, subsection “Primary, Secondary, and Planted, and Tree Plantations”, section 2.2. “Global Forests: General Background”, chapter II “Climate Change and Forests: Scientific Background”.

by the type of incentives, provided by the rules on forest carbon sinks under the Kyoto Protocol. The outcomes of the interactions between the two regimes depend on whether these rules only seek to maximize the carbon sequestration potential of forests or whether they limit such behavior, given the associated potential biodiversity impacts.

The conflicting interactions between the Kyoto Protocol and the CBD are primarily due to the strong incentives under the Kyoto Protocol to achieve emission reductions cost effectively, be it through the accounting of LULUCF activities for the purposes of achieving the Kyoto targets, or through the CDM and/or JI. In contrast, the incentives to protect biodiversity while implementing such activities are procedural or formulated broadly. Although the decisions on LULUCF and on the inclusion of afforestation and reforestation into the CDM and JI provide some safeguards for biodiversity protection, these incentives are rather weak.

A remark needs to be made to the extent of these conflicting interactions, which needs not to be exaggerated. The actual practice shows the forestry projects in the CDM and JI remain rather limited in number and scope due to the various reasons: late finalization of the LULUCF modalities, temporary nature of the forest carbon credits, their exclusion from the EU's emission trading scheme, and the challenges associated with meeting the methodological requirements.¹³³⁷

Perhaps, more important is the fact that similar concerns have been associated with the emerging REDD + mechanism.¹³³⁸ Its impacts on biodiversity also depend on the design details as well as the REDD +'s implementation in practice. The recent inclusion of the mechanism into the Paris Agreement shows that the parties pay attention to the potential impacts of the REDD + mechanism on biodiversity, but mainly in terms of "co-benefits", "non-carbon benefits" or

¹³³⁷ See section 3.3. "Forest Regulation under the International Climate Change Regime", chapter 3 "Forests under the International Climate Change Regime".

¹³³⁸ See subsection 3.3.3.3. "Challenges Associated with REDD +", chapter 3 "Forests under the International Climate Change Regime".

“safeguards”, implying that the main objective of the mechanism remains to maximize the reduction of CO₂ emissions.¹³³⁹

5.2.1.8. Overlapping Treaty Memberships.

Membership is rather a political interacting element. In terms of numbers, all the investigated treaties enjoy almost a universal state membership: the UNFCCC has 196 parties to the Convention; the Ramsar Convention – 169 parties; the CITES – 182 parties; the WHC – 192; the CBD – 196.¹³⁴⁰ As of May, 2017, 145 Parties have ratified the Paris Agreement.¹³⁴¹ Thus, there is clearly an overlap in treaty membership between the investigated treaties. However, what is at times more important is the political power attributed to a member of a treaty or its regime. To provide an example of the difference, which a state is able to make, when it is or it is not a party to a particular instrument, one may consider the non-membership of the United States of America (USA) to the CBD or/ and the non-membership of the USA to the Kyoto Protocol. The differences in state membership (and also differences in voting structures) give an indication about the interactions between treaties with respect to power imbalances within the agreements.

5.2.1.9. Interactions at the Implementation Level.

Whilst forest-related treaties may not collide directly with regard to their objectives or obligations and may be well compatible at the international level, the means to pursue these aims and duties can initiate conflicts in a later phase, involving the implementation of obligations, derived from international environmental agreements into national law. In the context of international forest-related treaties conflicting interactions at the implementation phase are particularly relevant. The forest-related provisions in the selected international environmental law (e.g. UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES and the CBD) are deliberately cast in vague terms, thus, granting States Parties a wider margin of interpretation and discretion in the adoption of

¹³³⁹ Please see subsection 3.3.3.1. “From RED to REDD and REEDD +: the evolution of a forest-based mitigation approach for developing countries”, section “3.3. Forest Regulation under the International Climate Change Regime”, chapter three “Forests under the International Climate Change Regime”

¹³⁴⁰ As of 1st of August 2016.

¹³⁴¹ UNFCCC, The Paris Agreement. // < http://unfccc.int/paris_agreement/items/9485.php>, last viewed 11 May, 2017.

mechanisms to pursue the objectives of each particular agreement. Each international forest-related treaty pursues its own ultimate environmental objective, therefore, the implementation of a single treaty may disregard other objectives by prioritizing its own objectives over other possible forest-related objectives. The investigation of the interactions at the implementation level, i.e. at the level of the European Union (EU) and the Russian Federation (RF), is carried out in Chapter VI "International Climate Change Regime and International Forest Regime: Evaluation of Forest-related Interactions at the Implementation Level (perspectives from the EU and the RF)" of the research.

5.2.1.10. Forest-related Treaties: Evaluation of Interactions.

The investigated international environmental law treaties related to forests, i.e. the UNFCCC, the Paris Agreement, the Ramsar Convention, the WHC, the CITES, and the CBD, are legally binding in nature. These treaties provide for sustainable utilization and management of particular forest functions and services and, therefore, contribute to the international regulation of forests.

Yet, when taken together, these treaties do not form a comprehensive and uniform whole. Each treaty is constructed to pursue its particular environmental objectives. Each objective characterizes the forest-related obligations, established by each particular forest-related treaty in order to pursue its own objectives, and may initiate conflicts with another forest-related agreement in a later phase (e.g. conflict of implementation). With regard to forests the objectives of the treaties' regimes vary from protection of forests and their functions as carbon sinks and sources; to protection of forested wetlands; to protection of forests for their outstanding universal value; to preventing trade in endangered forest species, i.e. protection of certain tree species (and forest dwelling species); and to conservation of forest biodiversity. As of now, there is no indication of how these objectives with regard to forests need to be achieved simultaneously.

Each investigated treaty lacks forest-specificity: no fundamental forest-related objectives, principles and concepts (e.g. as they put forward by the forest-specific political processes). The implementation of forest-specific regulation

under these treaties is subordinated in each case to the overall objective of each particular treaty. Consequently, it may be suggested that the investigated international environmental law treaties, despite their legally-binding nature, are fragmented and incomplete for the regulation of forests, in particular, in the face of the changing climate (e.g. the lack of acknowledgement of the global public interest in forests (e.g. climate protection function), prioritization of a particular forest function subordinated to the ultimate objective of a treaty, lack of equal acknowledgement of all forest functions and services, no reference to the SFM concept in the texts of the investigated forest-related treaties, lack of forest-specific provisions on forests adaptation to climate change impacts). Thus, forest-specific implementation of these treaties may be significantly impeded and subordinated to the implementation for the achievement of the overall treaty objective(s).

5.2.2. International Forest “Soft” and “Hard” Law: Evaluation of Interactions.

The international forest regime comprises both soft law (i.e. the Chapter 11 of the Agenda 21, the 1992 Forest Principles, the 2007 UN Forest Instrument, and the UNFF process) as well as hard law (i.e. the UNFCCC, the Paris Agreement, the Ramsar Convention, the WHC, the CITES, and the CBD). The international forest soft law provides for *inter alia* for fundamental principles and objectives for international forest regulation. These instruments promote the need to equitably support and put into effect the social, economic, ecological, cultural and spiritual interests in forests, thus, recognizing the multifunctional character of forests. Furthermore, these instruments provide substance for the SFM concept. Additionally, the instruments address the underlying threats to forests, and by doing so, allow for the development of forest-specific responses to counter these threats. Forest-related treaties complement the forest-specific substance, provided by the international forest soft law, by providing for treaty infrastructure and the coverage of particular forest functions and related interests within the scope of each particular treaty.

Yet, in the light of the research a further remark needs to be made. As follows, the essential forest-specific content is scattered among the instruments of

different legal nature, i.e. non-legally binding – soft law instruments, and legally-binding international treaties – the international hard law. As referred to by the research previously, the soft law nature of an instrument need not to be immediately equated with its ineffectiveness.¹³⁴² However, the classification of an instrument as “hard law” and “soft law” necessarily leads to a difference in terms of States’ compliance with the instrument. Thus, formally, the fundamental principles and objectives for forest-specific regulation at the international level remain “soft” (i.e. non-enforceable). On the other hand, the forest-related environmental treaties, cover the various forest functions and services and the associated interests in forests, however, the multiple forest functions are isolated among the environmental treaties and are pursued largely independently from one another. And, although these environmental treaties interact in various ways, as of now there is no indication, how the forest-related objectives may be achieved simultaneously. As such, these treaties are not forest-specific. Their ultimate objectives vary from the protection of climate (UNFCCC and the Paris Agreement), to stemming the progressive encroachment on and loss of wetlands (the Ramsar Convention), to conservation and protection of sites – natural as well as cultural from destruction (the WHC), to controlling of international trade in endangered wildlife species (the CITES), to conservation of biodiversity (the CBD). This in turn, creates a major regulatory gap with regard to the forest-specific implementation of these environmental agreements.

5.3. Fragmentation of International Forest Regulation.

The starting point for the common meaning associated with fragmentation is “the process or state of breaking or being broken into fragments”.¹³⁴³ This understanding of fragmentation does not neatly fit to describe the fragmentation within the international forest regime. The very notion of “breaking” or “fragments” suggests that there once was, there still is, or there will be something that is “whole” or “complete”. In the case of the international forest regulation, however, there is no single nucleus-source from which the multiple forest-related instruments have developed. Some instruments were created to apply specifically to forests; others - have not been created to apply directly to

¹³⁴² See section 5.1.2. “Hard and Soft Law Interactions” of the present chapter.

¹³⁴³ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 32.

forests, yet apply to forests by means of *ex post* treaty interpretation; furthermore, there are decisions, resolutions and recommendations of treaty organs, which have been created to regulate forests specifically, but nevertheless are subordinated to the overall objective of a particular environmental treaty regime. The international forest regulation emerges from several sources at different speeds and in different directions. Thus, in this case the "whole" needs not to be viewed as some form of absolute unity with a clear normative hierarchy, but rather as a sum of its fragmenting parts, which all require equitable implementation.

The traditional tools of international law for the management of treaty interactions are not suitable in the case of the "international forest regime" for a number of reasons. First of all, as follows from the research findings, the interactions between the forest - related treaties do not lead to the pure "normative" conflict. The conflicting potential of the international treaties is rather associated with their competing underlying values and the overall environmental objectives. The forest related objectives of the treaties vary from the protection of forests and their functions as carbon sinks and sources; to the protection of forested wetlands; to the protection of forests for their outstanding universal value; to preventing trade in endangered forest species, i.e. protection of certain tree species (and forest dwelling species); and to conservation of forest biodiversity. Such conflict, i.e. the "conflict of values", may manifest itself rather at a later phase, i.e. treaties' implementation into (sub) national law. Secondly, the tools of international law for the management of treaty interactions are hierarchy-oriented, implying there is a need to prioritize one norm over the other. Yet, in the case of the forest-related treaties it is not the question of which norm or which regime should prevail, if any. As it has been previously established by the research, it is rather a question of how to safeguard the overall implementation of the international forest regulation simultaneously. And, finally, the traditional tools of international law to manage treaty interactions are based on or linked to the law of treaties and therefore may neglect the complex structure of the "international forest regime", which consists of more than only legally-binding sources.

5.3.1. Cooperation and Coordination.

For the case of the international forest regulation the traditional (i.e. international law) understanding of fragmentation and of legal measures to deal with fragmentation have proved to be too narrow. This does not, however, preclude the existence of legal conflicts within the “international forest regime”, and, furthermore, the possible application of traditional tools to manage the interactions between the forest related instruments in international environmental law. It rather emphasizes the idea that the traditional discussion on fragmentation of international (environmental) law has been rather limited up until now and that the traditional concept of fragmentation needs further adjustments in the light of the findings of the research.

The debates on fragmentation of international law, and the recognition that the international environmental law may require tools beyond the traditional legal techniques to manage treaty interactions, have stimulated the search for more appropriate means in order to deal with conflictive treaty interactions and to promote synergies between treaties.¹³⁴⁴ With regard to the international forest regulation, where it is not the lack of a pure legal conflict as such, but rather the conflict of values, special tools to manage interactions are required, so as to stimulate equitable feasibility of all rationales by promoting cooperation and coordination.

Cooperation is a broad and not very precisely defined concept. In international law cooperation is generally considered to be a coordinated (and voluntary) action of two or more subjects of international law that has a joint objective as its aim.¹³⁴⁵ Cooperation can take place through simply information exchanges between treaty bodies, or in a more ambitious form, comprising joint planning of programs. Furthermore, cooperation may include coordination of the substantive decision making and/or providing for joint implementation programs and

¹³⁴⁴ R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003; H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015.

¹³⁴⁵ N. Matz, *Cooperation and International Environmental Governance*, in R. Wolfrum, N. Matz, *Conflicts in International Environmental Law*, 2003, p. 161.

activities.¹³⁴⁶ Coordination is possible between (groups of) actors involved in the interaction with a view to addressing conflicts and enhancing synergies without resorting to legal means (e.g. dispute settlement mechanisms).

Treaty coordination and cooperation is a rather complicated and limited tool. Largely this is due to the unclear status of the actors involved, i.e. the decision – making bodies, such as COPs of environmental treaties, and the administrative bodies, such as treaty secretariats. The former, are regarded as the “key actors behind the scenes”¹³⁴⁷ in managing interactions. It is, yet, unclear if the activities by the decision making bodies could be seen as international lawmaking; if such decisions possess a legally binding nature; and if a decision, adopted under one COP, could by means of cooperation and coordination become binding upon a party to another COP, even though it is not a member to the former treaty. In addition, it is challenging to establish a clear legal authority of a COP to enter into cooperation and coordination agreements with other COPs. In interaction management the involvement of treaty administrative bodies, in a similar line, raises legal questions.

5.3.2. Cooperation and Coordination between the Forest-related Treaties.

Recognizing various treaty interactions with regard to forests the international forest related regimes have envisaged specific forms of cooperation. In some cases, specific forums have been established for MEA secretariats, allowing for a more structural discussion about the overlaps. The prime example being, perhaps, the CPF, which seeks to foster collaboration between 14 organizations that “have substantial programs on forests”, including the secretariats of several environmental regimes.¹³⁴⁸ Just recently it has been noted that the “members of the CPF have different agendas, mandates, priorities, work plans and governing bodies, which often results in varying levels of commitment, duplication and insufficient uptake of joint outputs”. As an informal, flexible and voluntary

¹³⁴⁶ H. van Asselt, *Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes*, *International Law and Politics*, 44, 2012, p. 1258.

¹³⁴⁷ H. van Asselt, *The Fragmentation of Global Climate Governance*, 2015, p. 75.

¹³⁴⁸ Please see subsection 4.2.3.2. Institutional Structure and Membership: the UNFF and its CPF, section 4.2. “International Forest Regulation: Forest Soft Law and the UNFF”, chapter 4 “Forests and Climate Change under the International Forest Regime”.

arrangement of partners that share a common goal, the CPF could contribute significantly to fostering collaboration between the organizations, and yet, partially due to the lack of “effective working modality”, partially due to the lack of “common programming and expectations” up until now the CPF has not fulfilled “its mandate in respect of [...] enhancing cooperation and coordination among its members”.¹³⁴⁹

One more example is the CBD regime, which has established a rather comprehensive Work Program on Forest Biodiversity (WPFB). Various COP decisions highlight the need for cooperation and collaboration, in particular, with members of the CPF in matters with regard to the WPFB. However, largely these requests for cooperation remain mere aspirational textual references. In the light of the research, of particular importance that the interactions between the CBD and the UNFCCC have not received sufficient cooperative actions and are in need of further intensification.¹³⁵⁰

Generally, the parties to the treaties recognize the interactions between the instruments with regard to forests rather extensively. Various calls for cooperation and coordination exist within the COP decisions of the international forest-related treaties. Often these calls inspire information exchange between treaty secretariats. Although, the information exchange between the administrative bodies of treaties offers an opportunity to influence the outcome of COPs and may even encourage a harmonizing implementation of treaties at the national level, COPs may choose either to consider or not to consider the information. Generally, the exchange of information places no great strain on the treaty organs; the shared information only provides opportunities for the harmonization of different agreements, provided that treaty organs and member States not only desire the collaboration between treaties, but also use the shared information towards this end. In the context of international forest regulation it may be, thus, suggested that a mere exchange of information, without more action, is not sufficient to lead to better coordination, although it is

¹³⁴⁹ UNFF, Report of the First Meeting of the Open-ended Intergovernmental Ad Hoc Expert Group on the International Arrangement on Forests, CPF, Weaknesses, 17 March 2014, p. 9.

¹³⁵⁰ Please see subsection 3.3.3.4. “Challenges Associated with REDD +”, chapter III “Forests under the International Climate Change Regime”.

a necessary precondition. The information exchange as a cooperation tool is rather weak.

In the light of these elaborations, it may be suggested that the interactions, both conflictive and synergetic, between the treaties in forest matters remain unexploited. The work and the weaknesses of the CPF illustrate the potential for further cooperation and collaboration. On the other hand, it also signals of the much effort required in order to put cooperation and coordination instruments in the forest context to practice.

5.3.3. Fragmentation of International Forest Regulation: Interim Conclusions.

As it has been established by the research, fragmentation challenges the international forest regulation and needs to be addressed. Traditionally, the fragmentation of international law has been understood as proliferation of treaties, an increasing specialization and diversification of institutions, particularly the creation of new international judiciaries, specialized courts and tribunals. In the context of international environmental law the fragmentation developed to be referred to as a "treaty congestion". In the context of international forest regulation within the international environmental law fragmentation may be referred to as the divergence of values, objectives or rationales of treaties that potentially could be merged under a common topic.

The traditional tools of international law to manage the interactions between treaties are conflict and hierarchy oriented. They are tailored to resolve legal conflicts of norms, and, establish a priority of one norm over another. In the case of international forest regulation the traditional tools to manage treaty interactions are not suitable. For the cases where it is not the pure legal conflict of norms, but rather the divergence of values and rationales that lead to conflictive interactions, international law has provided tools such as institutional cooperation and coordination. In the context of international forest regulation these tools have been widely acknowledged, and yet not used appropriately.

5.4. Evaluation of Forest-related Interactions between Environmental Regimes at the International Level: Promoting Cooperation and Coordination.

The present chapter "Evaluation of the Forest-related Interactions at the International Level" has addressed the main research questions: How do the international environmental regimes interact with regards to forest regulation? What are the consequences of the interactions at the international level (i.e. what conflicts, synergies and gaps is it possible to detect?) and which legal means is it possible to suggest in order to manage the interactions with regard to forest regulation at the international level.

As follows from the investigation, the forest-related interactions between the international environmental regimes are rather complex. The complexity largely comes from the highly fragmented nature of the "international forest regime". It is disconnected and multicentric, it is developing at different speeds and in different directions, rather than strategically and holistically along a common front. The international initiatives available for forest regulation will persist in the future. In the context of international forest regulation fragmentation may be understood as the divergence of values, objectives or rationales of international law instruments that potentially could be merged under a common topic. The essential forest-specific content is scattered among the instruments of different legal nature, i.e. international forest soft and hard law. Formally, the fundamental principles and objectives for forest-specific regulation at the international level remain soft (i.e. non-enforceable). The forest-related treaties cover the various forest functions and services and the associated interests in forests, however, the multiple forest functions are isolated among the environmental treaties and are largely pursued independently from one another. As of now there is no indication, how the forest-related objectives of the treaties may be achieved simultaneously. As such, these treaties are not forest-specific. Their ultimate objectives vary. This, in turn, creates a major regulatory gap with regard to the forest-specific implementation of these environmental agreements.

Fragmentation presents a challenge for the international forest regulation. Meeting the challenge requires embracing the complexity of the international

forest regime. As J. Rayner puts it, the available forest initiatives are full of real potential, and yet they “[...] require a more effective approach to coordination if they are ultimately to improve forest conditions and livelihoods as well as achieve their own goals”.¹³⁵¹

There are various approaches in order to enhance existing cooperation and coordination among the instruments of international (environmental) law. Legal scholars suggest “clustering” as “institutional and organizational arrangements short of a merger that will increase the efficiency and effectiveness of existing agreements without requiring elaborate changes in legal or administrative arrangements”.¹³⁵² Clustering could entail the grouping of MEAs by issue area, by region, by function, by human activity, or by environmental policy instrument. Yet, from a practical perspective, in the context of the international forest regulation, “clustering” may lead to a situation where a more comprehensive non-forest specific environmental regime (e.g. the international climate change regime (in terms of its budget and rulebook) could dominate the cluster.

More specifically to forests, it has been suggested to institutionalize global cooperation for integration, harmonization and simultaneous further development of the existing instruments, with the role to ensure the integration and harmonization of forests instruments to the IPF, currently the UNFF.¹³⁵³ The better management of the existing international forest regime has been viewed as a promising alternative for overcoming global forest regime fragmentation. The “better management” could be achieved through “patching the existing regime to allow positive interplay between the regime elements” and “improving outcome through coordination”.¹³⁵⁴ Furthermore, the future prospect of international forest law has been suggested by the lawyers in the identification

¹³⁵¹ J. Rayner, et al, *Embracing Complexity: Meeting the Challenges of International Forest Governance*, 2010, p. 16.

¹³⁵² Von Moltke (2005), 177 – 178.

¹³⁵³ Skala-Kuhmann A., *Legal Instruments to enhance the conservation and sustainable management of forests resources at the international level*, a study commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, 1996, p. 35.

¹³⁵⁴ Rayner J., et al, *Embracing Complexity: Meeting the Challenges of International Forest Governance*, 2010 p. 103.

of a means by which the existing law can be implemented effectively on a global scale (and not the creation of further international agreements).¹³⁵⁵

Legal scholars have also explored the concept of “international coordination convention” in the context of forest regulation.¹³⁵⁶ In comparison to the concept of a “traditional treaty” and the concept of “treaty cooperation and coordination”, which promote cooperation, advanced from within the single treaties, a “coordination and cooperation convention” could provide an external legal framework for coordination and cooperation. Such a convention rather than aiming at the overall substantive regulation of forests as such, would aim at the coordination and cooperation of the existing forest-related processes and international law related to forests. The international coordination convention might be regarded as an independent instrument, comparable to the Vienna Convention on the Law of Treaties. It needs to tie parties to their forest-related obligations and intervene in relation to other instruments whereas and when such intervention is required. The convention may act as a tool to manage interactions between the forest-related instruments.

5.4.1. International Forest Coordination Convention.

The experience of the Forest Europe process and its attempts to adopt the Legally Binding Agreement on Forests in Europe (LBA on Forests in Europe, Appendix 1)¹³⁵⁷ may be used to draw the basis of an international forest coordination convention.

The draft of the LBA on Forests in Europe builds on such international forest-related instruments as: the Agenda 21, the 2007 UN Forest Instrument; the decisions taken under the CBD, the UNFCCC, UNCCD, and the Ramsar

¹³⁵⁵ C. Mackenzie, Future Prospects for International Forest Law, *International Forestry Review*, 14, 2, 2012, p. 256.

¹³⁵⁶ Skala-Kuhmann A., Legal Instruments to enhance the conservation and sustainable management of forests resources at the international level, a study commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, 1996, p. 172; Eikermann A., Forests in International Law, Is there really a Need for an International Forest Convention?, 2015, p. 176. See also, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659, final, Brussels, 20.09.2013.

¹³⁵⁷ See section 4.1.1.4. “Pre-constitutional period: International Forest Regulation from 2011 until Present”

Convention as well as in other global and regional instruments relevant to forests.¹³⁵⁸ The negotiating parties were able to agree upon the key forest-related terms and definitions, including, among others: sustainable forest management,¹³⁵⁹ forest ecosystem services,¹³⁶⁰ and even forests¹³⁶¹.

The objectives of the LBA's draft include the following (art. 2 "Objectives"):

- (a) To reinforce and strengthen the implementation of SFM and to ensure the multifunctionality of forests and the long-term provision of a broad range of forest ecosystem services and goods derived from them;
- (b) To enhance the role of forests and forestry in contributing to solving global challenges;
- (c) To provide a framework for fostering national actions and international cooperation;
- (d) To maintain, protect, restore and enhance forests, their health, productivity, biodiversity, vitality and resilience to threats and natural hazards, and their capacity to adapt to climate change as well as their role in combating desertification;
- (e) To ensure that forests contribute effectively to sustainable development, livelihoods and the well-being of society by providing economic, environmental, cultural and social benefits at all levels.

The focus on the forest-specific objectives may ensure that forest issues do not fall behind for the benefit of the ultimate environmental treaty objectives of international forest-related treaties.

Art. 4. 2 (a) provides the criteria for SFM as a legally binding framework for international and/or national policy development on forests and their management. Article 3 (a) stipulates that when implementing the Convention

¹³⁵⁸ Forest Europe, INC4, Draft Negotiating Text as at 8 November 2013, preamble.

¹³⁵⁹ SFM – means the stewardship and use of forests and forest lands in way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems.

¹³⁶⁰ Forest ecosystem services means the benefits people obtain from forest ecosystems. These include provisioning, regulating, cultural and supporting services.

¹³⁶¹ Forest (each Party in each national territory is entitled to apply its own definition of forests in its national forest legislation) – for the purpose of the Convention, "forest" – means an area of land spanning more than 0,5 ha with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

"each party is responsible for the SFM on its own territory and for the development and implementation of its related policies, adequate to its respective national conditions and needs, while recognizing the *shared interests and responsibilities concerning forests*".¹³⁶² Hence, the draft convention recognizes that although forests are a national resource, forests also have significance beyond a State.

Arts 5-11 are far reaching articles on forest resources and their contribution to global carbon cycles (art. 5); forest health and vitality (art. 6); productive functions of forests (art. 7); forest biodiversity (art. 8); protective functions of forests (art. 9); socio – economic functions of forests (art. 10); and monitoring and reporting (art. 11). In particular, art. 6 (b) provides that parties "shall have in place or adopt legislative, administrative or other policy measures to adapt forest management practices to changing climatic conditions, including by measures for strengthening the adaptive capacity of forests and for reducing forests vulnerability".

The draft text of the Convention, rather than being new or even primary, focuses on its additional character to the existing international forest regulation. The coordinating character of the convention is provided for in the preamble to the draft, thus, submitting the interpretation of the Convention as a whole to this coordinating character. Parties recognize "the need to establish a legally binding agreement to ensure or reinforce sustainable forest management, ensure multifunctionality of forests, avoid fragmentation of forest related policies and to complement and promote existing international, regional and subregional agreements, cooperation and initiatives to this end".¹³⁶³ One of the explicit objectives of the Convention is "to provide a framework for fostering national actions and international cooperation".¹³⁶⁴ Additionally, art 3 (f) stipulates that "this convention is intended to re-inforce and strengthen the implementation of sustainable forest management in a way that is mutually supportive with existing rights and obligations under other multilateral agreements relevant to this Convention". Furthermore, art. 4 (d) provides that "while implementing the

¹³⁶² Emphasis added.

¹³⁶³ Forest Europe, INC4, Draft Negotiating Text as at 8 November 2013, preamble.

¹³⁶⁴ Forest Europe, INC4, Draft Negotiating Text as at 8 November 2013, preamble.

provisions contained in this Convention and in order to promote sustainable forest management [the Parties shall] strengthen and enhance international, regional and cross-border cooperation as well as coordination to foster coherence and avoid duplication of or overlap with the work of relevant international agreements.”

Indeed, at the international level a forest cooperation convention may be subject to various challenges. For instance, as any other international agreement, it may require substantial resources (e.g. time, money) for its negotiations. Arguably, the fact that it builds on the already existing forest-related instruments may reduce the required effort significantly. Consensus building may become one more challenging issue. Yet, as the coordination convention builds on the existing forest-related treaties, and their forest-related substantive provisions, the consensus on the treaties to be coordinated might be more easily achieved (i.e. limited substance to further consent on, e.g. consensus may be needed in order to agree on how to implement the existing forest-related substance in a mutually supportive way). Furthermore, state membership might also be a critical issue with regard to international forest coordination convention. Ideally, membership to the coordination convention and the membership in all coordinated agreements should be congruent. One more critical issue is the implementation of the coordination convention. The particular design of a compliance mechanism is critical. The Draft of the LBA on Forests in Europe (even though (yet) not formally adopted¹³⁶⁵) illustrates that it is generally possible to reach an agreement on a coordinating tool for forest regulation. The Draft may be suggested as a useful model for an international coordination convention on forests.

¹³⁶⁵ Possible ways to find a common ground on the LBA will be further explored at an appropriate time and at the latest by 2020.

Chapter VI: Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (Perspectives from the EU and the RF).

The previous chapters of the research have established that the forest-related treaties pursue very different environmental objectives. Although the treaties do not collide directly to their objectives and/or obligations and are well compatible at the international level, it was suggested that the means to pursue the aims and duties under the international agreements may initiate further interactions in a later phase, involving the implementation of obligations into national law. More specifically, with regard to the international forest regulation, it was suggested that the implementation of a single treaty regime may disregard forest-specific objectives at the implementation level by prioritizing the ultimate objective of a regime over forest-specific objectives and concerns. In order to examine this more precisely, the present chapter investigates the forest-related interactions under the international climate change regime at the implementation level. The focus of the chapter is on the forest-related measures, which have been implemented by the EU and the RF in order to comply with their international climate change obligations. The questions addressed by the current chapter – what are the forest-related consequences of the interactions between the regimes at the implementation level? whether (and if yes then how) compliance with the international climate change regime leads to (new) conflicting interactions with regards to forest regulation in (sub) national environmental law and policy? Which regulatory gaps can be detected at the implementation level?

In order to answer the research questions the first part of the chapter sets the point of reference. It reviews the implementation of the international climate change regime into the environmental law and policy of the EU and of the RF.¹³⁶⁶ What are the (sub) national obligations under the international climate change regime? Which measures have been adopted in order to comply with the international climate obligations? How are forests incorporated into these measures? (6.1.). The following three parts of the chapter investigate the specific forest-related cases of implementing the international climate law

¹³⁶⁶ The choice of these two domains is explained in part 1.4. "Research Structure and Methodology" chapter I "Introduction to the Research" of the current research.

obligations by the EU and the RF. Thus, the second part of the chapter investigates how the LULUCF sector is integrated into the implementation of the international climate change regime by the EU and the RF. What is the value of the (sub) national LULUCF accounting rules for forest regulation? (6.2.). The third part focuses on (sub) national climate law and policy on renewable energy sources (RES). What is the value of the sub (national) climate law and policy on RES for forest regulation? (6.3.). The fourth part of the chapter investigates the implementation of CDM and JI forestry projects. What is the value of climate law and policy governing CDM and JI forestry projects for forest regulation? (6.4.). Finally, the fifth part brings the findings of the chapter together and provides some concluding remarks (6.5.).

A natural threshold question in a chapter addressing national implementation is: "What is implementation"? As such, there is no general consensus as to the meaning of the term, its definitions vary and often the term is even used interchangeably with the term "compliance."¹³⁶⁷ An expansive definition of the term "implementation" might include "policies, strategies, implementation, enforcement, and strengthening endogenous capacity in terms of finance, scientific, and technological expertise".¹³⁶⁸ The definition of "implementation" provided by the United Nations Environmental Program (UNEP) encompasses "*inter alia*, all relevant laws, regulations, policies, and other measures and initiatives, that contracting parties adopt and/or take to meet their obligations under a multilateral environmental agreement and its amendments, if any".¹³⁶⁹ This chapter adopts the definition of the "national implementation" as "measures, which parties take to make international agreements operative in their domestic law".¹³⁷⁰ National implementation ensures compliance with

¹³⁶⁷ R. Reeve, *Policing International Trade in Endangered Species: The CITES Treaty and Compliance*, 2002, p. 16.

¹³⁶⁸ C. Redgwell, *National Implementation*, in D. Bodansky, et al, *The Oxford Handbook of International Environmental Law*, 2007, p. 924.

¹³⁶⁹ UNEP, *Governing Council Decision SS. VII/4, Compliance with and Enforcement of Multilateral Environmental Agreements*, Doc. UNEP (DEPI)/MEAs/WBG.1/3, Annex II, February, 2002.

¹³⁷⁰ R. Reeve, *Policing International Trade in Endangered Species: The CITES Treaty and Compliance*, 2002, p. 16.

international environmental treaties. Compliance being generally understood in international law as "behavior that conforms to a treaty's specific rules".¹³⁷¹

6.1. How is the International Climate Change Regime Implemented into (sub) National Environmental Law and Policy (the EU and the RF)?

The international climate change regime is founded on obligations, which have been different for Annex I¹³⁷² and non-Annex I parties.¹³⁷³ Under the UNFCCC both, the EU and the RF, are Annex I parties.¹³⁷⁴ For these parties there are three main sets of obligations created under the regime, namely: Measurement, Reporting and Verification (MRV) obligations; Emission Limitation and Reduction Commitments; and Eligibility requirements as a precondition for the participation of Annex I parties in the flexible mechanisms under the Kyoto Protocol (i.e. the JI, the CDM, the ETS). Both, the EU and the RF, have adopted various legislative measures aimed at the fulfillment of the obligations created by the international climate change regime. Specific legislation has been adopted regarding compliance with the MRV obligations and the eligibility requirements. As for the limitation and reduction commitments, the EU and the RF have adopted various pieces of legislation aimed directly and indirectly at the reduction of their GHG emissions. This part reviews the implementation of the international climate change regime into environmental law and policy of the EU (6.1.1.) and of the RF (6.1.2.). It aims to answer the following questions: which measures have

¹³⁷¹ R. Mitchell, Compliance Theory, Compliance, Effectiveness, and Behavior Change in International Environmental Law, in D. Bodansky, et al, The Oxford Handbook of International Environmental Law, 2007, pp. 894-920.

¹³⁷² Annex I Parties include the industrialized countries that were members of the Organization for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

¹³⁷³ Non – Annex I Parties are mostly developing countries.

¹³⁷⁴ Please note that under the UNFCCC all commitments are based on the principle of common but differentiated responsibilities, taking into account the specific national and regional development priorities, objectives and circumstances of each Party to the Convention. The 2015 Paris Agreement recognizes and builds on the principles, established by the UNFCCC and, notably, on the principle of "common, but differentiated responsibilities and respective capabilities"(CBDRC). However, in comparison to the UNFCCC, the Paris Agreement specifies that the CBDRC is to be implemented "in the light of different national circumstances" (art. 2.2.). Although the principle's "responsibility-sharing" formula remains essential to the legitimacy of the climate change regime, the further qualification expands the principle to go beyond the simple distinction between developed and developing countries. Thus, in the Agreement, on the one hand, the differentiation persists, but on the other hand, there is also a wide range of provisions that entail obligations or contributions for each Party to the Agreement, regardless of their status (i.e. developed or developing). For more information see, subsection 3.2.3.2. "Core Legal Principles", part 3.2. "International Regulatory Climate Change Regime", chapter III "Forests under the International Climate Change Regime".

been adopted by the EU and the RF in order to comply with the international climate obligations? And, more specifically, what are the forest-related measures, which have been implemented by the EU and the RF, in order to comply with their international climate change obligations?¹³⁷⁵

6.1.1. The International Climate Change Regime and the EU.

This section reviews the implementation of the international climate change regime by the EU. Firstly, the obligations of the EU under the regime are reviewed (6.1.1.1.). Secondly, the EU climate and energy efficiency policy for 2020 is revised (6.1.1.2.). Thirdly, the EU climate and energy framework for 2030 is studied (6.1.1.3.). Fourthly, the EU Climate Policy Roadmap for 2050 is investigated (6.1.1.4.). Finally, the interim conclusions bring the findings of the section together, pointing out how forests are incorporated into the EU climate law and policy (6.1.1.5.).

6.1.1.1. Obligations of the EU under the International Climate Change Regime.

The EU and its MS have accepted the rules of the international climate change regime and are therefore committed to contributing to the fight against global warming by developing and implementing national policies aimed at mitigation of and adaptation to climate change. The EU approved the UNFCCC through Council Decision 94/69/EEC, concerning the conclusion of the UNFCCC,¹³⁷⁶ approved and subsequently ratified the Kyoto Protocol to the UNFCCC via Council Decision 2002/358/EC, concerning the approval on behalf of the European Community of the Kyoto Protocol to the UNFCCC and the joint fulfilment of commitments thereunder,¹³⁷⁷ and recently approved and ratified the Paris Agreement.¹³⁷⁸

¹³⁷⁵ The forest-related part of implementing international climate law obligations into (sub) national environmental law is further investigated in the following three parts of the chapter (i.e. "Forests under Climate Law and Policy on the LULUCF Sector", "Forests under Climate Law and Policy on RES", and "Forests under Climate Law and Policy Governing Sink Projects").

¹³⁷⁶ Council of the European Union, Council Decision 94/69/EEC of 15 December 1993, concerning the conclusion of the United Nations Framework Convention on Climate Change, OJ L 33/11, 7 February 1994.

¹³⁷⁷ Council of the European Union, Council Decision 2002/358/EC, concerning the approval on behalf of the European Community of the Kyoto Protocol to the UNFCCC and the joint fulfilment of commitments thereunder, OJ L 130, 25 April 2002.

¹³⁷⁸ UNFCCC, status of ratification.// <http://unfccc.int/paris_agreement/items/9444.php>

The Kyoto Protocol, in particular, had and still has a significant influence on the European Climate Actions. The Protocol aims to reduce GHG emissions in order to combat global warming.¹³⁷⁹ Based on the “common, but differentiated responsibilities principle”, the Protocol requires the industrialized countries mentioned in Annex I to the UNFCCC to limit or reduce their GHG emissions as specified in Annex B to the Kyoto Protocol. All EU Member States are listed in Annex I and Annex B respectively. Article 4 of the Kyoto Protocol allows its Parties to fulfil the reduction requirements jointly. The EU made use of this provision and committed itself to a common emission reduction goal of 8 percent compared to 1990 level in the first commitment period and a reduction of 20 percent (30 percent under certain conditions¹³⁸⁰) in the second commitment period. That means that the EU and its MS, parties to the Kyoto Protocol, have a common GHG reduction goal.¹³⁸¹

In the first commitment period of the Kyoto Protocol (from 2008 until 2012), the individual emission targets were distributed between the EU Member States in a so-called “Burden-Sharing Agreement”.¹³⁸² The agreement was legally binding

¹³⁷⁹ See subsection 3.2.2. “Kyoto Protocol”, section 3.2. “International Regulatory Climate Change Regime”, chapter 3 “Forests under the International Climate Change Regime”. The ratification of the Kyoto Protocol by the EC was ensured by the adoption of a Council Decision in 2002. See, Council of the European Union, Council Decision 2002/358/EC of 25 April 2002, concerning the approval, on behalf of the European Community of the Kyoto Protocol to the UNFCCC and the joint fulfilment of commitments thereunder, OJ L 130, 15 May 2002.

¹³⁸⁰ The EU has offered to move to 30 percent reduction by the year 2020 under the condition that a global agreement for the period beyond 2012 is concluded in which the developing countries commit themselves to “contribute adequately according to their responsibilities and respective capabilities” and the developed states commit themselves to “comparable emission reductions”. See, UNFCCC, Doha Amendment to the Kyoto Protocol, art. 1 (A).

¹³⁸¹ All MS are in compliance with the Kyoto Protocol, if the EU as a whole achieves its joint target (regardless whether a particular Member State met its national target or not). The MS are not in compliance with the Kyoto Protocol if the EU as a whole does not achieve its reduction target and also the respective Member State does not fulfil its national target. For more information on the joint fulfillment provisions see, F. Yamin, *The Use of Joint Implementation to Increase Compliance with Climate Change Convention*, RECIEL, 2, 4, 1993, pp. 348-353; L. Massai, *The Kyoto Protocol in the EU: European Community and MS*, 2011; M. Faure, M. Peeters (eds.), *Climate Change Liability*, 2011. For a study of national climate law (as a framework through which international and European obligations are implemented and/or enforced) see, M. Peeters, et al., *Climate Law in EU MS Towards National Legislation for Climate Protection*, 2012; M. Peeters, *Climate Law in the Netherlands, The Search towards a National Legislative Framework for a Global Problem*, Netherlands Comparative Law Association. // <<https://www.ejcl.org/143/art143-13.pdf>>, last viewed 29 May 2017.

¹³⁸² Council of the European Union, Council Decision concerning the approval, on behalf of the European Community, of Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitment thereunder, Council Decision, 2002/358/EC, 25 April 2004, OJ 15 May 2002, L 130/1; EC, Commission Decision Determining the Respective Emission Levels allocated to the Community and each of its Member States under the Kyoto Protocol pursuant to Council Decision 2002/358/EC, OJ 16 December 2014, L358/87; EC,

and, according to the states' relative wealth, obliged some Member States to reduce the release of GHGs, while other countries (e.g. those with economy in transition to a market economy) were allowed to emit even more than in the base year (Annex II of the "Burden Sharing Agreement"). In order to meet its obligations under the Kyoto Protocol, the EU has adopted various provisions aimed at the fulfilment of the obligations, created by the Kyoto Protocol. Thus, among others, specific legislation has been adopted, regarding compliance with the MRV obligations and the eligibility requirements as a precondition for the participation of the EU in the flexible mechanisms. As regards the EU emission reduction commitment, apart from the "Burden-Sharing Agreement", the EU has adopted different pieces of legislation aimed directly and indirectly at the reduction of GHG emissions in the EU.¹³⁸³ Largely due to the active legislative action in the field, the obligation under the first commitment period of the Kyoto Protocol, i.e. to meet emission reduction goal of 8 percent, compared to 1990 levels, was successfully completed by the EU and its MS.¹³⁸⁴

With regard to the second commitment period of the Kyoto Protocol (from 2013 until 2020)¹³⁸⁵ the harmonization process of the EU climate policies continued. Adopted in 2009 the Climate and Energy Package introduced new legislation and revised the already existing directives. The Emissions Trading Scheme Directive (ETS Directive)¹³⁸⁶ established the emission cap for energy companies and

Commission Decision, Determining the Respective Emission Levels allocated to the Community and each of its Member States under the Kyoto Protocol pursuant to Council Decision 2002/358/EC, OJ 16 December 2010, L 332/41.

¹³⁸³ These are further discussed in the following sections of the research.

¹³⁸⁴ UNFCCC, FCCC/KP/CMP/2016CAR/EU, Final Compilation and Accounting Report for the EU for the first Commitment Period of the Kyoto Protocol, 2 August 2016. // < https://unfccc.int/files/kyoto_protocol/compliance/application/pdf/cc-ert-2016-car-eu_final_compilation_and_acctg_rpt.pdf>, last viewed 06 June 2017; European Commission, Climate Action, Kyoto 1st Commitment Period, (2008-2012). // < https://ec.europa.eu/clima/policies/strategies/progress/kyoto_1_en>, last viewed 26 March 2017.

¹³⁸⁵ UNFCCC, Kyoto Protocol, Doha Amendment to the Kyoto Protocol, adopted 8 December 2012. Please note, that the Doha Amendment has not (yet) entered into force. Based on the current number of Parties to the Kyoto Protocol (192), the Amendment will enter into force on the ninetieth day after the Depositary receives 144 instruments of acceptance. As of April, 2017 only 77 Parties have deposited their instrument of acceptance. See, Kyoto Protocol, art. 20 para 4, art. 21 para 7; UNFCCC, Status of the Doha Amendment. // http://unfccc.int/kyoto_protocol/doha_amendment/items/7362.php, last viewed 26 May 2017.

¹³⁸⁶ E.P., the Council of the European Union, Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community and Amending Council Directive 96/61/EC, O.J., L 275, 25 October 2003.

industrial sectors in the MS, providing a maximum amount of GHGs that may be emitted by all the installations covered. For the sectors, which do not fall within the ETS Directive, the Effort Sharing Decision (ESD)¹³⁸⁷ established reduction or limitation targets for each Member State (Annex II). The implementation of these legislative acts, including compliance with the emission caps, ensures the achievement of the Kyoto targets for 2020.¹³⁸⁸

In March, 2015, the EU submitted its INDC under the UNFCCC process: "The EU and its Member States are committed to a binding target of an at least 40 percent domestic reduction in GHG by 2030 compared to 1990, to be fulfilled jointly, as set out in the conclusions by the European Council of October 2014".¹³⁸⁹

6.1.1.2. EU Climate and Energy Efficiency Policy for 2020.

Whereas the EU climate policy of the 1990s and 2000s represented a rather fragmented mix of various legislative acts,¹³⁹⁰ starting from 2000s the trend has changed towards harmonization and integration of EU climate and energy policies. In the face of the upcoming international negotiations for a Kyoto Protocol successor and with the intention to maintain its leadership role in the global efforts to combat global warming, the EU introduced its unilateral climate

¹³⁸⁷ E.P, the Council of the European Union, Decision 406/2009/EC of the E.P. and of the Council 23 April 2009 on the Effort of Member States to reduce their Greenhouse Gas Emissions to Meet the Community's Greenhouse Gas Emission Reduction Commitments up to 2020, O.J., L 140/136, 05 June 2009.

¹³⁸⁸ Please note that due to the fact that the scope of the 2009 Climate and Energy Package differs to some extent from the scope of the second commitment period under the Kyoto Protocol, the emission reductions achieved by applying the existing EU legislation cannot be used to calculate the progress achieved in meeting the Kyoto-goals "one to one". Thus, for instance, the Climate and Energy Package uses 1990 as the uniform base year for emission reductions, while the reference years in the second Kyoto period vary between the EU Parties. Besides the different global warming potentials, i.e. different indexes reflecting the climatic impact of a certain GHGs, were used to aggregate GHGs. For the second Kyoto Period the more up-to-date 4th IPCC Assessment Report was used to aggregate GHG emissions, while the Climate and Energy Package used the 2nd IPCC Assessment Report. This is crucial for the calculation of the unit "CO₂ equivalent". Therefore, considering the different approaches to the base years and global warming potentials, the emission budget, underlying the EU's Package has to be "translated" to the Kyoto targets for the second commitment period. See, EC, Staff Working Document, Preparing the EU's Quantified Emission Limitation or Reduction Objective (QELRO), based on the EU Climate and Energy Package, SWD (2012), 18 final, p. 6.

¹³⁸⁹ UNFCCC, INDCs as communicated by Parties, INDC of the EU, 2015.// <http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Latvia/1/LV-03-06-EU%20INDC.pdf>, last viewed 04 November 2016.

¹³⁹⁰ For more information on the early EU climate law and policy please see, E. Woerdman, M. Roggenkamp, M. Holwerda, Essential EU Climate Law, 2015.

targets. In order to achieve the long-term goal of a maximum temperature increase of 2 degrees Celsius above pre-industrial levels, the European Council agreed in March 2007 on the so called EU "20-20-20" targets. By the year 2020:

- Emissions of GHGs shall be reduced by 20 percent (compared to 1990 levels);¹³⁹¹
- The share of renewable energy sources in the energy mix shall be raised to 20 percent;
- Energy efficiency shall be improved by 20 percent.¹³⁹²

The legislative action taken by the EU to transform the goals into reality can be distinguished into two areas of activity: the Climate and Energy Package for 2020 (a set of binding legislation to ensure the EU meets its climate and energy targets) and measures for increasing energy efficiency, i.e. the Energy Efficiency Plan of 2011¹³⁹³ and the Energy Efficiency Directive.¹³⁹⁴

The Climate and Energy Package for 2020 (adopted in 2009) consists of four main legislative innovations – three of which directly address the GHG emissions and one on the promotion of RES:

- Comprehensive reforms of the ETS Directive;
- Comprehensive reforms of the RES Directive;¹³⁹⁵
- The inclusion of the non-ETS sectors via the ESD;
- The introduction of a Directive dealing with the environmentally safe sequestration of CO₂ in the underground (Carbon Capture and Storage Directive).¹³⁹⁶

¹³⁹¹ Under specified conditions of enhanced international climate action, this would be 30%.

¹³⁹² European Council, Presidency Conclusions of 8th and 9th March 2007, 7224/1/07.// <https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/93135.pdf>, last viewed 07 October 2016.

¹³⁹³ E.C., Communication from the Commission to the E.P., the Council, the European Economic and Social Committee and the Committee of the Regions, Energy Efficiency Plan, 2014, COM 201/109/Final, Brussels 8 March 2011.

¹³⁹⁴ E.P., Council of the European Union, Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012, On Energy Efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

¹³⁹⁵ E.P., Council of the European Union, Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009, on the Promotion of the Use of Energy from Renewable Sources and Amending and subsequently Repealing Directives 2001/77/EC and 2003/30/EC, O.J. L 140/16, 05 June 2009.

¹³⁹⁶ E.P., Council of the European Union, Directive of the European Parliament and of the Council of 23 April 2009, On the Geological Storage of Carbon Dioxide and Amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) 1013/2006, O.J. L 140/114, 05 June 2009.

Two major objectives of the Climate and Energy Package for 2020 and the Energy Efficiency Plan are: the reduction of GHG emissions and securing energy supply. On the one hand, the atmosphere needs to be protected from increasing anthropogenic GHG emissions. In this regard the switch to “green” energy sources and improvements regarding energy efficiency at all states of the energy chain in connection with binding emission reduction targets for all sectors contribute to climate protection. On the other hand, increasing the share of renewable energy sources in the energy mix and improving the relative energy efficiency of products, installations and buildings reduces the dependence on fossil fuels as well as on foreign energy supply.¹³⁹⁷

6.1.1.3. EU Climate and Energy Framework for 2030.

In October 2014, the European Council agreed on a political direction for the climate policy framework for the year 2030.¹³⁹⁸ Similar to the 20-20-20 goals for 2020, the climate and energy targets are divided into GHG mitigation, renewable energy sources and energy efficiency. In particular, for 2030 the EU aims to:

- reduce emissions of domestic anthropogenic GHGs by at least 40 percent compared to 1990 levels;
- increase the share of renewables in the energy mix to at least 27 percent;
- improve energy efficiency by at least 27 percent.

The first two objectives, i.e. on the reduction of the GHGs and on the RES, later became binding (through the ordinary legislative procedure). Notably, the target to achieve “at least 40 percent reduction in emissions of GHG, compared to 1990 levels” also serves as the EU’s international commitment under the Paris Agreement on climate change.¹³⁹⁹ It is to be achieved by reducing GHG emissions in the ETS sector by 43 percent below 2005 levels, and emissions in

¹³⁹⁷ Please note, that in 2014 more than half of the EU-28’s gross inland energy consumption (i.e. 53,5%) came from imported sources. Much of the energy is imported into the EU from the Russian Federation. For more information please see, E.C., Eurostat, Statistics Explained, Energy Production and Imports. // < http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports>, last viewed 07 October 2016.

¹³⁹⁸ European Council, Conclusions of 23d and 24th of October, 2014, EUCO 169/14.// < http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf>, last viewed 08 October 2016.

¹³⁹⁹ UNFCCC, INDCs as Submitted by Parties, Latvia and European Commission on Behalf of the European Union and its MS, INDC, 2015. // <<http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>>, last viewed 04 November 2016.

the non-ETS sector by 30 percent below 2005 levels. The third objective, regarding energy efficiency is only indicative and falls behind the 30 percent target for energy efficiency improvements as proposed by the Commission initially. Yet, this goal will be reviewed in 2020 with the aim of increasing it to 30 percent.¹⁴⁰⁰

In the time of writing the research, the EU is in the process of reviewing and updating its climate-related legislation to bring it into line with the 2030 targets. The process started in July 2015 with a proposal for reforming the EU ETS, aiming at 43 percent reduction in emissions of GHGs in the ETS sector, compared to 2005 levels.¹⁴⁰¹ In July, 2016 the European Commission presented two legislative proposals: (1) for a Regulation (ESR) to limit national emissions of GHGs for the 2021 – 2030 period in sectors not covered by the EU ETS;¹⁴⁰² and (2) for a Regulation (2016 LULUCF Regulation) on the inclusion of GHG emissions and removals from LULUCF into the 2030 climate and energy framework.¹⁴⁰³ The legislative proposal for the promotion of the RES (recast¹⁴⁰⁴) was introduced in November, 2016 as part of the so-called “ Energy Winter Package”.¹⁴⁰⁵

¹⁴⁰⁰ European Council, Conclusions of 23d and 24th of October, 2014, EUCO 169/14, p. 3. // < http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf>, last viewed 08 October 2016.

¹⁴⁰¹ E.C., Proposal for a Directive of the European Parliament and of the Council, amending Directive 2003/87/EC to Enhance Cost -Effective Emission Reductions and Low-Carbon Investments, COM (2015), 337 final, 2015/148 (COD), 15 July 2015.

¹⁴⁰² E.C., Proposal for a Regulation of the European Parliament and of the Council on Binding annual Greenhouse Gas Emission Reductions by Member States from 2021 to 2030 for a Resilient Energy Union and to meet Commitments under the Paris Agreement and Amending Regulation No 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and other Information Relevant to Climate Change, COM (2016) 482 final, 2016/0231 (COD), 20 July 2016.

¹⁴⁰³ E.C., Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry into the 2030 Climate and Energy Framework and Amending Regulation No 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and other Information Relevant to Climate Change, 2016/0230 (COD), COM (2016) 479 final, 20 July 2016.

¹⁴⁰⁴ Recasting is like codification in that it brings together in a single new act a legislative act and all the amendments made to it. The new act passes through the full legislative process and repeals all the acts being recast. But unlike codification, recasting involves new substantive changes, as amendments are made to the original act during preparation of the recast text. See, European Commission, Legal Service, Recasting.// < http://ec.europa.eu/dgs/legal_service/recasting_en.htm>, last viewed 22 March 2017.

¹⁴⁰⁵ E.C., Energy, Commission Proposes New Rules for Consumer Centered Clean Energy Transition. // < <http://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>>, last viewed 06 February 2017; E.C., Proposal for a

6.1.1.4. EU Climate Policy Roadmap for 2050.

The Commission developed a long-term vision for a decarbonized society and economy.¹⁴⁰⁶ At the heart of the future climate policy is the "Roadmap for 2050", which envisages GHG emission reductions of 80-95 percent by the year 2050 compared to 1990 levels.¹⁴⁰⁷ In order to achieve this ambitious GHG target, the Commission defined a pathway with "milestones" to keep on track. By 2030, the GHG emissions should be at least 40 percent below 1990 levels and by 2040 at least 60 percent. In 2050, the GHG emissions in the EU should be cut by 80 percent through domestic reductions only (so without offsetting through the carbon market, especially reductions achieved in non-EU countries by usually a flexibility mechanism under the Kyoto Protocol). The key sectors, which should contribute to the achievement of the 2050 target, according to their economic and technological potential, include: power, industry, transport, residential and services, and agriculture.

6.1.1.5. Interim Conclusions: Implementation of the International Climate Change Regime by the EU and the Forest-related Measures.

The EU is a party to the UNFCCC, the Kyoto Protocol and the recent Paris Agreement.¹⁴⁰⁸ Having accepted the rules of the international climate change

Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources (recast), COM (2016) 767 Final, 2016/0382 (COD) 30 November 2016.

¹⁴⁰⁶ E.C., Communication to the EP and the Council, the European Economic and Social Committee and the Committee of the Regions, "A Roadmap for moving to a competitive low carbon economy in 2050", COM (2011), 112 final.

¹⁴⁰⁷ The emission reduction goal for 2050 was recognized by the European Council in October 2009, see European Council, Presidency Conclusions 29th and 30th of October 2009. // < http://ec.europa.eu/regional_policy/sources/cooperate/baltic/pdf/council_concl_30102009.pdf>, last viewed 08 October 2016. Please, note, however, that the fusion of environmental and energy security objectives within the EU's energy policy in the 2050 Energy Roadmap has attracted criticism for harming the EU's energy security by making it conditional (e.g. rather than unfettered by) environmental objectives. Thus, in November, 2012 at the workshop, organized by the EU Parliament's external policy committee in order to discuss the implications of the Roadmap 2050 criticism was raised on the assumptions that the EU's quest for energy security, which is simultaneously environmentally friendly places the EU at a disadvantage when compared with other energy consumers, e.g. China and India, which pursue a harder energy security. See, E.P. // < [http://www.europarl.europa.eu/RegData/etudes/note/join/2010/433681/EXPO-AFET_NT\(2010\)433681_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/note/join/2010/433681/EXPO-AFET_NT(2010)433681_EN.pdf)>, last viewed 19 May, 2017.

¹⁴⁰⁸ For more information on the division of internal and external competences between the participating in the international climate change regime EU and its MS and the implications of this commitment in respect of joint and differentiated obligations and responsibilities of the EU and the MS, please see, L. Massai, the Kyoto Protocol in the EU, European Community and MS under International and European Law, 2011.

regime the EU and its MS are, therefore, committed to contributing to the fight against global warming by developing and implementing (sub) national law and policy aimed at mitigation of and adaptation to climate change.¹⁴⁰⁹ In its current state the EU climate law and policy is an aggregate of both binding and non-binding measures to combat global warming and its consequences. The EU climate action includes measures on GHG emission reductions, measures on energy efficiency and renewable energy sources. There is a clear trend towards harmonizing and integrating the EU climate and energy policies – from the early fragmented mix of various legislative acts towards binding GHG emission targets and an EU-wide system of GHG emission trading.¹⁴¹⁰

A number of the EU climate and energy targets in the short and long term will directly and indirectly affect forests both in the EU and world-wide (among these is the ambition to reach 20 percent of energy from renewable sources, reduce GHG emissions by 20 percent as compared to the levels in 1990 by 2020, etc.). Out of the four legislative items in the EU “2020 Climate and Energy Package”

¹⁴⁰⁹ As for the EU, since the entry into force of the Treaty of Lisbon, the framework for EU climate law can be found in article 194 TFEU. The provisions, however, to a large extent, codify a pre-existing policy (see, for an overview, H. H. D. Vedder, *The Treaty of Lisbon and European Environmental Law*, *Journal of Environmental Law*, 2010, 22, 2, pp. 285-99). A significant part of EU climate law is adopted within the framework of Articles 192 and 114 TFEU. Both articles remain relevant today (e.g. several pieces of legislation on climate change and renewable energy have been passed under the competence of art. 192 TFEU (e.g. the legislation relating to the EU ETS (Directive 2003/87/EC) and/or the legislation establishing the regulatory framework on CCS in the Union (Directive 2009/31/EC)). It is important to take into account Article 4 TFEU according to which “the environment” and “energy” as well as the “internal market” are so-called “shared competences”. Climate change as such is not mentioned in that list of “shared competences”, but that is mentioned in the provisions that elaborate the environmental and energy areas (e.g. art. 194 TFEU climate change can be said to be implicit in the inclusion of energy efficiency and renewable energy in that provision). As a result, the EU as well as the MS are competent in these fields. In practice this means that as long and insofar as the EU has not enacted legislation in a certain area, regulating this area remains for the MS (see, art. 5 (2) TFEU, Protocol No. 25 and Declaration No. 18 attached to the Treaty of Lisbon on shared competences. Moreover, when the EU has regulated a certain area, there is a possibility for the EU to “withdraw itself from this area and thus had back the competence to regulate these matters to the MS”.) The shared competence means that there is room for MS governance, but the results of governance at the MS level have to comply with EU law. See, D. Benson and A. Jordan, *A Grand Bargain or an Incomplete Contract?: European Union Environmental Policy after the Lisbon Treaty*, 17 *European Energy and Environmental Law Review*, 5, 2008, pp. 280-290; L. Hancher, *Energy and the Environment, Striking a Balance*, 26 *Common Market Law Review*, 3, 1989, pp. 475 -512; S. Bogojevic, *Climate Change Law and Policy in the EU*, in C. P. Carlarne et al., *The Oxford Handbook of International Climate Change Law*, 2016, pp. 670 – 688; Client Earth, *The Impact of the Lisbon Treaty on Climate and Energy Policy – an Environmental Perspective*, 2010.

¹⁴¹⁰ In particular, the trend is obvious if to consider a longer period, for instance, from the first indicative rules at the beginning of 1990s towards binding GHG targets and an EU-wide system of GHG emissions trading after 2000. For an overview, see, E. Woerdman, *Essential EU Climate Law*, 2015.

one is particularly relevant and important for forests: the 2009 RES Directive, which concerns the use of wood biomass for energy generation. Besides, in November, 2016 the European Commission presented the legislative proposal for the promotion of the RES (Recast), which introduces several amendments to the 2009 RES Directive. Some of the amendments concern specifically forest biomass as a RES. Furthermore, the recent legislative proposal for a 2016 LULUCF Regulation represents one more cornerstone of the EU's emission-reduction efforts that will affect forestry. Finally, in order to meet its international GHG emission reduction obligations under the Kyoto Protocol the EU MS have actively taken part in the CDM flexibility mechanism, which allows industrialized countries to invest in forestry projects, hosted in developing countries.¹⁴¹¹ These climate measures and their significance for forest regulation are considered in greater detail in the following sections of the chapter.

6.1.2. The International Climate Change Regime and the RF.¹⁴¹²

This section reviews the implementation of the international climate change regime by the RF. First, the obligations of the RF under the international climate change regime are revised (6.1.2.1.). Second, the main climate policy document in the RF, i.e. the RF Climate Doctrine, is analyzed (6.1.2.2.). Third, the RF Climate Doctrine Implementation Plan is studied (6.1.2.3.). Fourth, the RF GHG Emission Reduction Target and National Accounting Rules are investigated (6.1.2.4.). Fifth, the RF synergetic climate law and policy, including measures on energy efficiency (a) and measures on RES (b) are reviewed (6.1.2.5.). Finally, the interim conclusions bring the findings of the section together, pointing out how forests are incorporated into the RF climate law and policy (6.1.2.6.).

¹⁴¹¹ Please note, that there is only one JI LULUCF project, namely "Romania Afforestation of Degraded Agricultural Land Project", which is carried out in one of the EU MS, namely Romania. The research considers safeguarding environmental sustainability of JI forestry projects under the subsection "Environmental Sustainability under the JI LULUCF Projects in the RF". The project "Romania Afforestation of Degraded Agricultural Land Project" is not considered under the current research. For more information on the project, please see, UNFCCC, JI project, Project Overview, Romania Afforestation of Degraded Agricultural Land.// <<http://ji.unfccc.int/JIITLProject/DB/UUPQK3EXX9F5KBJO4PGDO6WWTDLRD7/details>>, last viewed 26 March 2017.

¹⁴¹² Adapted from Y.M. Gordeeva, The RF and the International Climate Change Regime, Carbon and Climate Law Review, 3, 2014, pp. 167-174.

6.1.2.1. Obligations of the RF under the International Climate Change Regime.

The RF is a party to the UNFCCC and its Kyoto Protocol. Two Federal Laws on Russia's ratification of the UNFCCC¹⁴¹³ and its KP¹⁴¹⁴ lay down the foundation of the national climate law and policy. As an Annex B country, or in other words, a developed country, which at times of the Kyoto Protocol adoption was undergoing a process of transition to a market economy, the RF had a legally binding GHG emission reduction commitment under the first commitment period of the Kyoto Protocol. The obligation to keep its emissions at the 1990 levels for the period from 2008 until 2012 posed no challenge.¹⁴¹⁵ It was successfully met by the country during the first commitment period without much legislative action in the field. Russia's compliance under the Kyoto Protocol in the first commitment period was largely driven by the objective to participate in the Kyoto flexibility mechanisms (i.e. ETS, CDM, JI), which triggered the institutional compliance under the Protocol.¹⁴¹⁶ However, in practice, JI was the only

¹⁴¹³ RF Law, On Ratification of the UNFCCC, 34 Federal Law, 04 November 1994. Author's translation from Russian.

¹⁴¹⁴ RF Federal Law, On Ratification of the Kyoto Protocol to the UNFCCC, № 128 – Federal Law, 04 November 2004, Author's translation from Russian.

¹⁴¹⁵ A popular misconception is that the KP obligations posed no challenge for Russia due to the sharp economic downfall following the collapse of the Soviet Union in 1991. The recent studies, however, show that structural changes in Russia's economy played a key role in the country's dramatic GHG emissions decrease (e.g. I.A. Bashmakov, et al.). A. Korppoo comments, that "Russian emissions plummeted during the first half of the 1990s as a result of the post-Soviet economic restructuring. During this restructuring period, emissions decreased primarily as a result of the closures of obsolete industrial production facilities which had become unprofitable under the newly established market economy system. Over time, economic restructuring and the modernization of technologies in both industry and households has led to improvements in energy efficiency that have allowed Russia to limit the growth in national emissions to an average 1 percent per annum from 2000 to 2012. As a result, Russia's emissions remained 31, 5 percent below the 1990 level in 2012." For more information, see W. T. Douma, et al, Russia and the International Climate Change Regime, in S. Oberthur, et al (eds), *The New Climate Policies of the EU*, 2010, p. 289; I. A. Bashmakov et al (*И. А. Башмаков*), *Costs and Benefits of Low Carbon Economy and Societal Transformation in Russia, Perspectives for the Period until 2050 and after (Затраты и Выгоды Низкоуглеродной Экономики и Трансформации Общества в России, Перспективы до и после 2050 г.)*, 2014. // < <http://www.cenef.ru/file/2050.14.pdf>>, last viewed 20 May, 2017; A. Korppoo, et al, *Russian Law on Climate Change*, in C. P. Carlarne, et al, *The Oxford Handbook of International Climate Change Law*, 2016, p. 701.

¹⁴¹⁶ The main legal elements of institutional compliance under the Kyoto Protocol included requirements to submit annual GHG inventories following the IPCC guidelines, and to establish a registry to keep track of domestic emissions and implementation of the Kyoto mechanisms. Roshydromet together with the Institute of Global Climate and Ecology were designated as the entities responsible for developing Russia's GHG inventory. The Ministry of Natural Resources, together with the Ministry of Economic Development are selected as the institutions responsible for establishing the required registry. See, RF, Order of the Government № 278 – R (*Распоряжение Правительства РФ № 278-Р от 1 марта 2006*), *The Measures for Creation of the Russian System for Estimating anthropogenic emissions in order to implement the Kyoto Protocol to the UNFCCC (with amendments), О мерах по Созданию Российской Системы Оценки*

mechanism in which Russia participated in the period from 2008 until 2012 (there are 98 JI projects with the RF participation, currently registered under the international climate change regime, out of which two are forestry JI projects).¹⁴¹⁷

Although the Doha Amendment to the Kyoto Protocol introduced the second commitment period to last from 2013 until 2020,¹⁴¹⁸ the RF refused to enter the second commitment period.¹⁴¹⁹ In comparison to the first commitment period, where the fate of the Kyoto Protocol to a large extent, depended on Russia's decision to ratify the agreement,¹⁴²⁰ it was easier for the country not to sign up for (and, subsequently, not to ratify) the second commitment period.¹⁴²¹ By the end of the first commitment period due to the low participation of States to the Kyoto Protocol, and, in particular, the low participation of the States – major emitters, the dysfunctionality of the Kyoto Protocol had become obvious and Russia was not the only developed country to reject the pact (e.g. the United States, Canada and Japan as well took the same standing).

Антропогенных Выбросов в Целях Реализации Киотского Протокола к Рамочной Конвенции ООН об Изменении Климата (с изменениями и дополнениями), 01 March 2006; RF, Government Decree of the Russian Federation № 215 – R (Распоряжение Правительства РФ № 215-Р от 20. 02. 2006), To fulfil the Commitments of the Russian Federation within the Kyoto Protocol to the UNFCCC (В Целях Реализации Обязательств РФ, вытекающих из Киотского Протокола к Рамочной Конвенции ООН об Изменении Климата), 20 February 2006.

¹⁴¹⁷ UNFCCC, JI Project Overview, Track 1, Track 2, Russian Federation. // < http://ji.unfccc.int/JI_Projects/ProjectInfo.html>, last viewed 28 March 2017. Please note, that it is not specified immediately, whether the RF invested in the projects, or participated only as a host country to the projects.

¹⁴¹⁸ UNFCCC, Kyoto Protocol, Doha Amendment to the KP, adopted 08 December 2012.

¹⁴¹⁹ See, A. Korppoo, et al, Russian Law on Climate Change, in C. P. Carlarne, et al, The Oxford Handbook of International Climate Change Law, 2016; Greenpeace, What Happened in Doha, 8 December 2012. // <http://www.greenpeace.org/international/Global/international/briefings/climate/Doha2012/QandAoutcomeDoha.pdf>, last viewed 20 May 2017; Climate Home, Russia Negotiators Complain of Legal Nihilism at UN Climate Talks. // <<http://www.climatechangenews.com/2012/12/14/russia-negotiators-complain-of-legal-nihilism-at-un-climate-talks/>>, last viewed 20 May 2017.

¹⁴²⁰ The Kyoto Protocol required the ratification by a group of developed countries that brought together fifty-five percent of their total emissions in order to enter into force. As the USA decided to withdraw with its twenty-five percent share, the Protocol could not have entered into force without Russia's seventeen percent.

¹⁴²¹ For more information on the RF position on the adoption of the Doha Agreement, see International Institute for Sustainable Development, Earth Negotiations Bulletin, Summary of the Doha Climate Change Conference. // < <http://unfccc.int/resource/docs/2016/car/eu.pdf>>, last viewed 07 June 2017; Climate Home, Russian Climate Negotiator Brands UNFCCC Rules Row "Nonsense". // < <http://www.climatechangenews.com/2013/06/11/russian-climate-envoy-brands-unfccc-rules-row-nonsense/>>, last viewed 07 June 2017.

In September 2013 Russia adopted a domestic emissions limitation target: “not more than 75 percent of the GHG emissions in 1990 level” by 2020,¹⁴²² along with the Russia’s earlier international pledge in the Copenhagen Climate Conference in 2009.¹⁴²³ In practice these targets appear unlikely to go beyond “business as usual” emission levels (even imply a negligible growth in Russia’s emissions) and are considered achievable even in the absence of further national legislative actions and/or specific mitigation measures.¹⁴²⁴

In April, 2015, Russia submitted its INDC under the UNFCCC process: “limiting emissions of anthropogenic GHGs in Russia to 70-75 percent of 1990 levels by the year 2030 [...], subject to the maximum possible account of absorbing capacity of forests”.¹⁴²⁵ According to the INDC “Russian boreal forests have global significance for mitigating climate change, protecting water resources, preventing soil erosion and conserving biodiversity on the planet. Russia accounts for 70 percent of boreal forests and 25 percent of the world’s forest resources. Rational use, protection, maintenance and forest reproduction, i.e. forest management, is one of the most important elements of the Russian policy to reduce GHG emissions.”¹⁴²⁶

¹⁴²² RF President Order (*Указ Президента РФ*), № 752-President Order, 30 September 2013, On GHG Emissions Reduction (*О Сокращении Выбросов Парниковых Газов*). Author’s translation from Russian.

¹⁴²³ The Copenhagen Accord is a non-binding international agreement under the UNFCCC process. It aims to control the increase of the surface temperature of the Earth to below 2 ° C. Under the Accord, industrialized countries commit to implement, individually or jointly, the quantified economy-wide emissions targets for 2020. See, UNFCCC, The Copenhagen Accord, Copenhagen, 18 December 2009, para 4.

¹⁴²⁴ A. Kokorin, A. Korppoo, Russian Greenhouse Gas Target 2020, 2014.// <<http://library.fes.de/pdf-files/id-moe/10632.pdf>> last viewed 04 November 2016; A. Korppoo, A. Kokorin, Russia’s 2020 GHG emission target: Emission Trends and Implementation, Climate Policy, 2015. // <http://www.tandfonline.com/doi/full/10.1080/14693062.2015.1075373>, last viewed 04 November 2016.

¹⁴²⁵ UNFCCC, INDCs as communicated by Parties, INDC of the Russian Federation, 2015.// <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>, last viewed 04 November 2016.

¹⁴²⁶ UNFCCC, INDCs as communicated by Parties, INDC of the Russian Federation, 2015.// <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>, last viewed 04 November 2016. Please note, in the light of the research, this may be considered a rather aspirational statement. Although, indeed, the RF forests have a significant role in climate change mitigation, the actual integration of forests into the national climate law and policy has up until now been rather limited.

In April, 2016 Russia signed the Paris Agreement;¹⁴²⁷ yet, the country is rather restrained about its ratification in the near future. The Special Adviser on Climate Change Issues to the RF President, Mr. A. Bedritsky, in his comments about the Russia's position on the ratification of the Paris Agreement states that: "The ratification process for Russia is a process that involves implementation of Russia's international obligations. As of now the country, still, needs to draft and implement corresponding national regulation, such as, for instance, a low-carbon development strategy. This work has not even yet begun [...] furthermore, the necessary amendments need to be made to the already implemented national legislation, to prevent the introduction of potentially conflicting norms [...]. It is possible to assume that Russia may prepare a draft on ratification of the Paris Agreement by 2019 – 2020. Then, possibly, the Russian legislation will be ready for the implementation of its international climate obligations under the Paris Agreement [...]"¹⁴²⁸

6.1.2.2. RF Climate Doctrine.

In 2009 the RF President signed the RF Climate Doctrine.¹⁴²⁹ It is the main climate policy document in Russia. Generally doctrines are used to promote governmental policy in specific areas (e.g. military, environmental, climate, etc.). *De facto* and *de jure* a doctrine is a declaration of certain principles, without implying legal obligations upon the authorities. Thus, the Climate Doctrine is a political document that sets out a unified position on the issue of climate change in the RF and outlines the goals, principles and necessary actions for climate policy. The document states that it is to serve "as a foundation for the development and implementation of climate policy".¹⁴³⁰

In the sixth Russian communication under the UNFCCC process, the Climate Doctrine is referred to as "the most significant among the national programs,

¹⁴²⁷ UNFCCC, the Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016.

¹⁴²⁸ A. Bedritsky (А. Бедрицкий), Special Adviser to the RF President on Climate Change Issues, Russia will not Artificially Speed Up the Ratification Process (РФ не будет Искусственно Ускорять Ратификацию Парижского Соглашения).// < <http://tass.ru/obschestvo/3639933> >, last viewed 03 November 2016. Author's translation from Russian.

¹⁴²⁹ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009.

¹⁴³⁰ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009, para 1.

providing a set of measures to reduce anthropogenic emissions of GHGs and promoting conservation and enhancement of sinks and reservoirs of GHGs".¹⁴³¹ The political and social significance of the Doctrine lies in recognizing the problem of climate change, its expected impacts on the territory of the RF, and the need to act, as well as acknowledging climate change as a security issue. Although the RF Climate Doctrine recognized the anthropogenic nature of climate change, the wording of the document also recognizes the skeptical views as regards climate science: "the scientific justification of the Doctrine includes the recognition of the fact that the anthropogenic factor *may* have an effect on the climate system triggering an important reaction, which is adverse and dangerous [...]".¹⁴³²

In the Climate Doctrine the main principles of Russian climate policy are outlined as follows:

- Russia's interests in climate change have a global nature and are not limited to its national boundaries;
- The priority of national interests while developing and implementing the climate policy;
- Clarity and informational transparency and public dialogue;
- The need for domestic and international partnerships on research and projects on climate change;
- Comprehensive consideration of both potential losses and advantages related to climate change; and
- Flexibility of climate policy to allow for regular and timely update according to new knowledge and changes in the international framework for climate change and national policies of other countries.¹⁴³³

The Doctrine foresees such measures as strengthening and developing of information and scientific knowledge on climate change; developing and

¹⁴³¹ RF Ministry of Natural Resources and Environment (*Министерство Природных Ресурсов и Экологии РФ*), Roshydromet (*Росгидромет*), Russia's Sixth National Communication under the UNFCCC, (*Шестое Национальное Сообщение Российской Федерации*), December, 2013, p. 81.

¹⁴³² Emphasis added.

¹⁴³³ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009, II Objectives and Principles of the Climate Policy.

implementing of short – and long-term adaptation and mitigation policies; and participating in international initiatives on climate change and related issues.¹⁴³⁴

According to the Doctrine the RF focuses its climate measures on GHG emission reductions as well as on measures to increase the absorption capacity of existing GHG sinks and reservoirs. This is to be achieved through measures on increasing of energy efficiency in all sectors of economy; promotion of renewable and alternative energy use; promotion of economic incentives in order to reduce anthropogenic GHG emissions; and conservation of GHG sinks and reservoirs, including SFM, afforestation and reforestation measures.¹⁴³⁵

Importantly, the document recognizes that effective climate change mitigation policy, mainly through energy efficiency measures, can serve as a catalyst for the technological modernization of the Russian economy, strengthening its position in the world economic community and increasing its competitiveness.¹⁴³⁶

The RF Climate Doctrine implies no timeframe or financial resources for its implementation. Its major significance remains in stimulating further action and endorsement of climate policies at the highest political level.

6.1.2.3. RF Climate Doctrine Implementation Plan.

In pursuance to the RF Climate Doctrine, the RF Government worked out the RF Climate Doctrine Implementation Plan (RF CDIP).¹⁴³⁷ The document was adopted in 2011, two years after the Doctrine. The CDIP outlines 31 action requests for about a dozen federal ministries and subordinate governmental agencies. In particular, paragraphs one to seven address climate change research and

¹⁴³⁴ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009, III Content of the Climate Policy, para 18.

¹⁴³⁵ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009, III Content of the Climate Policy, para 23.

¹⁴³⁶ RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009, III Content of the Climate Policy, para 24.

¹⁴³⁷ RF Government Resolution, № 730-R, (*Распоряжение Правительства РФ Об Утверждении Комплексного Плана Реализации Климатической Доктрины РФ на Период до 2020 года*), RF Climate Doctrine Implementation Plan until 2020, 25 April 2011.

awareness; paragraphs eight to seventeen focus on adaptation; paragraphs eighteen to twenty-three include overall political and economic measures to mitigate anthropogenic influence on climate to be implemented until 2020; paragraphs twenty-four to thirty-one center around Russia's international obligations with regard to climate change adaptation and mitigation. However, like the Doctrine that governs it, the CDIP includes no quantitative objectives and identifies no sources of financial or professional support.

The mostly declarative character of Climate Doctrine and its Implementation Plan make it challenging to estimate the effects achieved several years after these documents have been adopted. In particular with regard to the CDIP, due to the fact that some of the measures listed in the CDIP had been launched long before the Plan was actually adopted (for example, limitations on methane emissions from oil production, energy efficiency in buildings, etc.), legal scholars comment that the Plan fails to provide much in the way of mandating new and concrete climate measures.¹⁴³⁸ It may be remarked as well that little implementation has taken place according to the set schedule.¹⁴³⁹

On a positive side, annually the Ministry of Natural Resources and Ecology of the RF reports on the progress made by the responsible federal ministries and subordinate governmental agencies on every action-request included in the CDIP.¹⁴⁴⁰ Such reports are to be published each year until the full implementation of the Plan in 2020. This "keeping tables on" the implementation will likely further stimulate coordinated climate actions at various administrative

¹⁴³⁸ A. Korppoo, M. Gutbrod, S. Sitnikov, Russian Law on Climate Change, in C. P. Carlarne, K. R. Gray, R. Tarasofsky (eds), *The Oxford Handbook of International Climate Change Law*, 2016, p. 713.

¹⁴³⁹ A. I. Bedritsky, On Russia's International Commitments to Limit GHG Emissions under the New International Climate Agreement (*Об обязательствах России по Ограничению Выбросов Парниковых Газов в Рамках Нового Соглашения по Климату*), in RF State Duma (Государственная Дума Федерального Собрания РФ Шестого Созыва), Committee on Natural Resources, the Use of Natural Resources and Ecology (Комитет по Природным Ресурсам, Природопользованию и Экологии), Proceedings of the Meeting, Legal Regulation of the GHG Emissions in the RF, 15 June 2016, p. 41; A. Kokorin, A. Kroppoo, Russia's Post – Kyoto Climate Policy: Real Action or Merely Window-Dressing?, 2013. // < <http://www.wwf.ru/resources/publ/book/eng/833>>, last viewed 09 November 2016.

¹⁴⁴⁰ For the most recent report, see Ministry of Natural Resources and Ecology of the Russian Federation (*Министерство Природных Ресурсов и Экологии РФ*), 2015 Report on Implementation of the RF CDIP for the Period up until 2020 (*Доклад о Ходу Реализации в 2015 году Комплексного Плана Реализации Климатической Доктрины Российской Федерации на Период до 2020 года*), 2015. // < <http://www.mnr.gov.ru/regulatory/detail.php?ID=143628>>, last viewed 07 November 2016.

levels and keep Russian stake-holders informed on the climate change environmental problem, the domestic countermeasures, and the relative international activities.

6.1.2.4. RF GHG Emission Reduction Target and National Accounting Rules.

In April 2015, the RF submitted its INDC under the UNFCCC process with the target of “limiting emissions of anthropogenic GHGs in Russia to 70-75 percent of 1990 levels by the year 2030”.¹⁴⁴¹ This target is in line with the earlier binding target set in 2013 by the RF President. In pursuance to the RF Climate Doctrine the RF President ordered the government of the RF “[...] by 2020 to provide for the GHG emissions reduction at the level not exceeding 75 percent of the GHG emissions in 1990” and to “adopt an Implementation Plan in order to achieve in 2020 the established volume of GHG emissions, foreseeing in the Plan the establishment of indicators on GHG emissions cuts in various sectors of economy”.¹⁴⁴² The RF government acknowledged that achieving the binding national target requires the establishment of a national system for monitoring, reporting and verification (MRV) of anthropogenic GHG emissions.¹⁴⁴³ Such a system is also important for setting future longer-term GHG emission reduction goals for the country: i.e. for the period up until 2030, 2035 and 2050.¹⁴⁴⁴

The current accounting system on the GHG emissions and removals in the RF has been established in pursuance of the RF’s international obligations under the UNFCCC process and largely builds on the IPCC guidelines.¹⁴⁴⁵ According to the

¹⁴⁴¹ UNFCCC, INDCs as communicated by Parties, INDC of the RF, 2015.// <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>, last viewed 26 May 2017.

¹⁴⁴² RF, RF President Order No 752, (Указ Президента РФ от 30 сентября 2013), About GHG Emissions Reduction, (О Сокращении Выбросов Парниковых Газов), 30 September 2014.

¹⁴⁴³ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), I. Introduction, para 1.

¹⁴⁴⁴ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), II. Goals, Tasks, and Principles on the Development of the RF System for GHG Emissions Monitoring, Reporting and Verification, para. 8.

¹⁴⁴⁵ See, RF Government Resolution No 278-R, (Распоряжение Правительства РФ от 01 Марта 2006), 01 March 2006.

RF Government, the system “serves well for the purpose of the RF’s national reporting and accounting under the UNFCCC regime”.¹⁴⁴⁶ However, the system “does not fully satisfy the contemporary the national climate policy goals and objectives”.¹⁴⁴⁷ Thus, the current systematic inventories on GHG emissions in Russia are carried out only at the federal level, inventories of the GHG emissions at the level of Russia’s constituent territories (regions) remain voluntary and fragmented.¹⁴⁴⁸ Besides, the current “system operates with aggregated data”, i.e. represents total emissions by an economic sector, and lacks representation of GHG emissions data by a single installation and/or enterprise.¹⁴⁴⁹ Furthermore, *inter alia*, the fact that the system “is characterized by a two-year delay in reporting (i.e. a report accounts for GHG emissions and removals of the year, which took place two years prior to the actual reporting)”,¹⁴⁵⁰ has been acknowledged in the RF “as not meeting the objectives and tasks of the current [national] climate policy”.¹⁴⁵¹

¹⁴⁴⁶ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), II. Goals, Tasks, and Principles on the Development of the RF System for GHG Emissions Monitoring, Reporting and Verification, para. 2.

¹⁴⁴⁷ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), II. Goals, Tasks, and Principles on the Development of the RF System for GHG Emissions Monitoring, Reporting and Verification, I. Introduction, para. 3. See also, N.I. Chludeneva, Challenges and Prospects for Legal Regulation on GHG Emissions at the National Level (RF’s Experience), RF State Duma (Государственная Дума Федерального Собрания РФ Шестого Созыва), Committee on Natural Resources, the Use of Natural Resources and Ecology (Комитет по Природным Ресурсам, Природопользованию и Экологии), Proceedings of the Meeting, Legal Regulation of the GHG Emissions in the RF («Материалы Заседания по Теме «Правовое Регулирование Выбросов Парниковых Газов в РФ»»), 15 June 2016, p. 29.

¹⁴⁴⁸ N.I. Chludeneva, Challenges and Prospects for Legal Regulation on GHG Emissions at the National Level (RF’s Experience), RF State Duma (Государственная Дума Федерального Собрания РФ Шестого Созыва), Committee on Natural Resources, the Use of Natural Resources and Ecology (Комитет по Природным Ресурсам, Природопользованию и Экологии), Proceedings of the Meeting, Legal Regulation of the GHG Emissions in the RF, 15 June 2016, p. 29.

¹⁴⁴⁹ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), I. Introduction, para. 2.

¹⁴⁵⁰ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), Introduction, para. 3.

¹⁴⁵¹ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions

In 2014, following the President's Order, the RF Government worked out an Implementation Plan on measures to provide for achieving the binding national GHG emissions reduction target by 2020,¹⁴⁵² which envisages three major steps: (1) "creation of the GHG accounting system:"; (2) "evaluation and estimation of the national GHG emission volumes for the period up until 2020, and further up until 2030, including evaluation of the RF's potential to cut GHG emissions in various sectors of economy"; (3) "establishment of the state regulation of the volumes of the GHG emissions".¹⁴⁵³ Each step is further subdivided into several action requests addressed to RF federal ministries (mostly the RF Ministry of Economic Development, RF Ministry of Natural Resources, RF Ministry of Energy, RF Ministry of Industry and Trade, and RF Ministry of Transportation), to "Sberbank", and the all-Russia Business Association ("Delovaya Rossiya").¹⁴⁵⁴

In 2015 the Development Concept on the National MRV System for GHG Emissions has been adopted.¹⁴⁵⁵ The implementation of the Development Concept is to proceed in a step-wise approach in the period from 2015 until 2020.¹⁴⁵⁶ As a first step, during the period from 2015 until 2016, a proposal to

Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), Introduction, para. 3.

¹⁴⁵² RF, RF Government Resolution No 504-R, (Распоряжение Правительства РФ от 02 Апреля 2014), In Pursuance of the RF President's Order No 752, dated 30th September 2013, "About GHG Emissions Reductions" (Во Исполнение Указа Президента РФ от 30 сентября 2013 г.), 02 April 2014. Please note, that, a two-year delay with regard to reporting of accounts for GHG emissions and removals is also applicable to other UNFCCC/KP parties, such as, for instance, the EU.

¹⁴⁵³ RF, RF Government Resolution No 504-R, (Распоряжение Правительства РФ от 02 Апреля 2014), In Pursuance of the RF President's Order No 752, dated 30th September 2013, "About GHG Emissions Reductions" (Во Исполнение Указа Президента РФ от 30 сентября 2013 г.), 02 April 2014, paras I, II, and III.

¹⁴⁵⁴ All-Russia business association "Delovaya Rossiya" (Business Russia) – is an independent non-for-profit organization representing interests of Russian small and medium entrepreneurs, doing business mainly in non-commodity sectors of the Russian economy. The aim of "Delovaya Rossiya" is through dialogue between the Civil Society and the Government to form a favorable business environment, to achieve development of Russia as a democratic country integrated into the global economy with a modern and up-to-date diversified national economy, developed and civilized national business and strong state, that provides and guaranties effective growth and order. Over 2,500 members. More than 60 regional offices. // <www.Deloros.ru>, last viewed 11 November 2016.

¹⁴⁵⁵ RF, Resolution of the RF Government No 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015.

¹⁴⁵⁶ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, V. Implementation of the Concept, para. 2.

amend the Federal Law "On Environmental Protection"¹⁴⁵⁷ with regards to state regulation on the GHG emissions has been drafted¹⁴⁵⁸ and the methodological guidelines and rules for the GHG emissions accounting in organizations, carrying out economic and other activities on the territory of the RF were adopted.¹⁴⁵⁹ These methodological guidelines and rules cover mostly emissions from industrial, transport (including aviation and rail-road) and energy economic sectors of the RF.¹⁴⁶⁰ The second step, i.e. during the period from 2017 until 2018, involves measures to include "other sectors of economy" into the national MRV system for GHG emissions. Finally, the third step, in the period from 2019 until 2020, envisages the adoption of an Action Plan on GHG Emission Reductions in the RF for the period up until 2020 and beyond, i.e. until 2030.¹⁴⁶¹

As such the RF's binding GHG emission reduction target is unlikely to go beyond "business as usual" emission growth levels in the country. The target is widely considered to be achievable even in the absence of further regulations or mitigation efforts.¹⁴⁶² Yet, in the coming years, the establishment of the legal

¹⁴⁵⁷ RF, Federal Law «On Environmental Protection» № 7- FZ (Федеральный Закон «Об Охране Окружающей Среды» № 7-ФЗ от 10 января 2002), 10 January 2002.

¹⁴⁵⁸ RF, Government of the RF, Draft Amendments to the Federal Law "On Environmental Protection" with regards to the regulation of the volume of GHG emissions, (Проект, Федеральный Закон, О Внесении Изменений в Федеральный Закон «Об Охране Окружающей Среды» в Части Регулирования Объема Выбросов Парниковых Газов). See, RF State Duma (Государственная Дума Федерального Собрания РФ Шестого Созыва), Committee on Natural Resources, the Use of Natural Resources and Ecology (Комитет по Природным Ресурсам, Природопользованию и Экологии), Proceedings of the Meeting, Legal Regulation of the GHG Emissions in the RF, 15 June 2016, pp. 1-2.

¹⁴⁵⁹ RF, RF Ministry of Natural Resources and Environment, (Министерство Природных Ресурсов и Экологии РФ), Decree No 300 (Приказ от 30 Июня 2015), 30 June 2015.

¹⁴⁶⁰ RF, RF Ministry of Natural Resources and Environment, (Министерство Природных Ресурсов и Экологии РФ), Decree No 300 (Приказ от 30 Июня 2015), 30 June 2015, Annex I.

¹⁴⁶¹ RF, Resolution of the RF Government No 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), the Development Concept on the National MRV System for GHG Emissions (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в Российской Федерации), 22 April 2015, V. Realization of the Development Concept (Реализация Концепции).

¹⁴⁶² S.N. Bobylev, A. V. Stetsenko, Forest Projects: Climate Change and Ecosystem Services (Лесные Проекты: Климатические Изменения и Экосистемные Услуги), Proceedings of the Saint Petersburg Scientific Research Institute of Forest Management (Труды Санкт-Петербургского Научно-Исследовательского Института Лесного Хозяйства), 3, 2016, pp. 85-86; M. M. Kakitelashvili, The Prospects of Russia's Participation in the Kyoto Protocol (Перспективы Участия России в Киотском Протоколе), Environmental Law, (Экологическое Право), 2016, № 2, p. 31.; V. Malakhov, Economic Perspectives on Low-carbon Development in Russia, International Journal of Low-Carbon Development, 5 (4), 2010, p. 302; I. Bashmakov, Low-Carbon Russia, (Низкоуглеродная Россия), 2009.// <http://www.imemo.ru/files/File/ru/conf/2009/27052009/270509_prz_BASH.pdf>, last viewed 11 November 2016; A. Korpoo, A. Kokorin, Russia's 2020 GHG emissions target: Emission trends and Implementation, Climate Policy, 2015. // <

framework for the national MRV system of anthropogenic GHG emissions will be crucial for the RF.¹⁴⁶³ The framework will not only allow Russia to track and actually reduce its GHG emissions in all sectors of the economy, and by doing so - to stimulate the introduction of low - carbon technologies and promote the development of markets for “green” and renewable energy; it will, as well, allow Russia to comply with its international climate obligations and, thus, further contribute to the global efforts on combatting climate change.

6.1.2.5. RF Synergetic Climate Law and Policy.

The RF Climate Doctrine was designed as a strategic document; it was not aimed to create concrete climate change mitigation and adaptation measures. Actual measures that contribute to achieving progress in mitigating GHG emissions are envisaged in national “synergetic” laws, e.g. measures on energy efficiency and renewable energy regulation. Although these measures are not designed to address climate change issues directly, they take account of the anthropogenic impact on climate and have potential to mitigate climate change effects.

A remark needs to be made, that although the climate-related synergies have been in general recognized in the RF,¹⁴⁶⁴ the research on how to enhance the synergies remains rather limited (e.g. the research aimed at capturing the synergies between the interacting climate-related laws and policies and the research aimed at the minimization of (actual and/or potential) conflicting interactions).

<http://www.tandfonline.com/doi/abs/10.1080/14693062.2015.1075373?journalCode=tcpo20> >, last viewed 11 November 2016.

¹⁴⁶³ N.I. Chludeneva, Challenges and Prospects for Legal Regulation on GHG Emissions at the National Level (RF’s Experience), RF State Duma (Государственная Дума Федерального Собрания РФ Шестого Созыва), Committee on Natural Resources, the Use of Natural Resources and Ecology (Комитет по Природным Ресурсам, Природопользованию и Экологии), Proceedings of the Meeting, Legal Regulation of the GHG Emissions in the RF, 15 June 2016, pp. 28- 29.

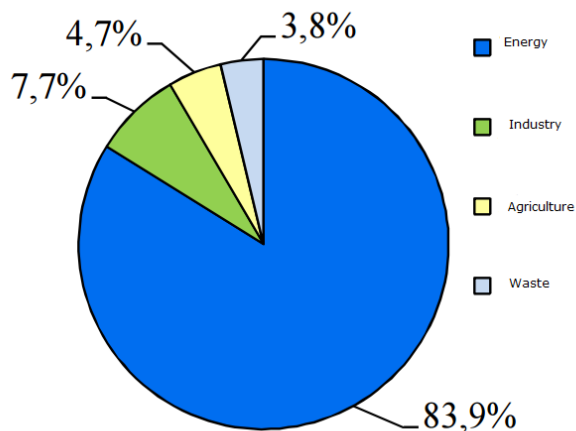
¹⁴⁶⁴ Thus, for instance, the RF Sixth National Communication under the UNFCCC lists various legislative acts, which are relevant to the Russian climate law and policy. For instance, the Federal Law on Energy Saving and Energy Efficiency, although referred to as “a climate protection means” was not in any degree inspired by the urgent need to cut anthropogenic GHG emissions. The law mostly responds to concerns over the economic development of the country. For other examples and more information on synergetic climate law and policy in Russia, see, the RF Sixth National Communication under the UNFCCC, 2013, pp. 76 - 122. Author’s translation from Russian.

The present section reviews Russian policies and measures in two key areas of climate protection: energy efficiency and renewable energy.

a. Measures on Energy Efficiency.

The most significant synergetic effect for climate could be achieved through successful implementation of Russia's policies on energy efficiency and energy conservation. The energy sector is currently the largest emitter of GHGs in the country, accounting for 83,9 percent of the total emissions (2013, Figure 19).¹⁴⁶⁵

Figure 19. The RF GHG Emissions by Economic Sectors (CO₂ equivalent), 2013.



Source: Russian Sixth National Communication under the UNFCCC, December 2013, p.11. Author's translation from Russian.

In 2008 the President of the RF set out a goal to cut the energy intensity of the Russian GDP by 40 percent by 2020 compared to 2007.¹⁴⁶⁶ Currently, Russia's

¹⁴⁶⁵ Second Bi-annual Report of the Russian Federation to the UNFCCC, 2015.// <https://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/2br_rus.pdf>, last viewed 03 November 2016. Author's translation from Russian.

¹⁴⁶⁶ RF, the Order of the President of the RF № 889 (*Указ Президента РФ*), On Measures to Increase Energy and Ecological Efficiency of Various Sectors of Russian Economy, (*О некоторых мерах по повышению энергетической и экологической эффективности российской экономики*), 4 June 2008.

GDP is 2-2,5 times more energy intensive than that of the World's leading economies, including the USA, Japan and Canada.¹⁴⁶⁷ In pursuance of the legally binding President's Order, a "RF Energy Strategy" for the period through 2030 sets a political objective to reduce Russia's energy intensity of GDP by requiring making it at least two times more efficient than in 2005 by the year 2030.¹⁴⁶⁸

In November, 2009 the RF government adopted the federal law on Energy Efficiency RF and Energy Savings (which succeeded the previous federal law on energy efficiency No 28-FZ of April 1996).¹⁴⁶⁹ The law creates a legal, organizational and economic foundation to stimulate and require energy saving and energy efficiency in the country; it introduces such measures as awareness-rising (e.g. labelling, metering, auditing, State information system); regulatory (e.g. (partial) ban of incandescent light bulbs, requirements for new buildings, public sector targets and rules); and economic measures (e.g. long-term heat tariffs, fiscal incentives, energy service contracts).

b. Measures on Renewable Energy Sources (RES).

The promotion and utilization of RES have recently received significant attention on the Russian national policy agenda. This has been reflected in many strategic policy documents, including: the Energy Strategy up until 2030 (November, 2009);¹⁴⁷⁰ the Concept for Long-Term Social and Economic Development up until 2020 (November, 2008);¹⁴⁷¹ the Climate Doctrine (December, 2009);¹⁴⁷² and

¹⁴⁶⁷ A. Novak, RF Minister of Energy at the Meeting of the RF Government, 7 March 2013.// < <http://government.ru/news/707/>>, last viewed 06 November 2016.

¹⁴⁶⁸ RF, RF Government Resolution № 1715 – R (*Распоряжение Правительства РФ*), Energy Strategy of Russia for the Period until 2030 (*Об Энергетической Стратегии России на Период до 2030 года*), 13 November 2009, p. 1.

¹⁴⁶⁹ RF, Federal Law No 261 – FZ, (*Федеральный Закон № 261 - ФЗ*), On Energy Conservation and Increasing Energy Efficiency and Amending Certain Legislative Acts of the Russian Federation, (*Об Энергосбережении и о Повышении Энергетической Эффективности и о Внесении Изменений в Отдельные Законодательные Акты РФ*), 23 November 2009, art. 10.

¹⁴⁷⁰ RF Government, Resolution of the RF Government No 1715-R, (*Распоряжение Правительства РФ от 13 ноября 2009*), RF Energy Strategy for the Period up until 2030 (*Энергетическая Стратегия РФ до 2030 года*), 13 November 2009, 10. Utilization of renewable energy sources and local types of fuel.

¹⁴⁷¹ RF Government, Resolution of the Government of the RF No 1662-R, (*Распоряжение Правительства РФ от 17 ноября 2008*), The Concept for the Long-Term Social and Economic Development of the RF to 2020, (*«О Концепции Долгосрочного Социально-Экономического Развития Российской Федерации на Период до 2020 года»*), 17 November 2008.

¹⁴⁷² RF President Order № 861-RP, RF Climate Doctrine, (*Распоряжение Президента РФ "О Климатической Доктрине"*, 861-РП, 17.12.2009), 17 December 2009.

the State Energy Efficiency Program (April, 2014).¹⁴⁷³ Thus, for instance, the RF 2020 Concept for Long-Term Social and Economic Development among other strategic objectives foresees “achieving a leading position in the development of renewable energy sources” and “introducing environmentally friendly technologies for energy production on an industrial scale”.¹⁴⁷⁴ The 2009 RF Climate Doctrine, *inter alia*, calls for an increased and “active use” of renewable resources for energy purposes.¹⁴⁷⁵ In a similar line, the recent Proposal for the Energy Strategy up until 2035, among other strategic objectives, envisages further promotion and use of RES.¹⁴⁷⁶

The national strategic RES target (i.e. policy target) is to increase the renewable energy generation and consumption (excluding large-scale hydropower) from 0,5 percent towards 4,5 percent of national energy needs by 2020.¹⁴⁷⁷ There are a number of strategic objectives attached to the renewable and local energy resources use and promotion, including: combating climate change; reducing the anthropogenic impact on environment while addressing the growing energy demand; the rational use of available fossil fuel resources; maintaining the health and quality of life of the population; reduction of State expenditures on medical care; reducing the costs for electricity transition and distribution; diversification of the country’s fuel and energy mix; and enhancing security of energy supply.¹⁴⁷⁸

¹⁴⁷³ RF Government, Decree of the RF Government No 321, (Постановление Правительства РФ от 15 Апреля 2014), Approval of the RF State Program “Energy Efficiency and Energy Development” (Об утверждении государственной программы РФ «Энергоэффективность и Развитие Энергетики»), 15 April 2014.

¹⁴⁷⁴ RF Government, Resolution of the Government of the RF No 1662-R, (Распоряжение Правительства РФ от 17 Ноября 2008), The Concept for the Long-Term Social and Economic Development of the RF to 2020, («О Концепции Долгосрочного Социально-Экономического Развития Российской Федерации на Период до 2020 года»), 17 November 2017, I. Strategic Objectives, 4. Innovative Socio-Economic Development.

¹⁴⁷⁵ RF President Order № 861-RP, RF Climate Doctrine, (Распоряжение Президента РФ “О Климатической Доктрине”, 861-РП, 17.12.2009), 17 December 2009, paras 23, 24, 41.

¹⁴⁷⁶ RF Government, Proposal for a RF Government Resolution, RF Energy Strategy up until 2035, Revision date 1 February 2017. // < <http://minenergo.gov.ru/node/1920>>, last viewed 15 February 2017.

¹⁴⁷⁷ RF Government, Resolution of the RF Government No 1715-R, (Распоряжение Правительства РФ от 13 ноября 2009), RF Energy Strategy for the Period up until 2030 (Энергетическая Стратегия РФ до 2030 года), 13 November 2009, VI. Perspectives and Strategic Initiatives, 10. Renewable Energy Resources.

¹⁴⁷⁸ RF Government, Resolution of the RF Government No 1715-R, (Распоряжение Правительства РФ от 13 ноября 2009), RF Energy Strategy for the Period up until 2030 (Энергетическая Стратегия РФ до 2030 года), 13 November 2009, VI. Perspectives and Strategic Initiatives, 10. Renewable Energy Resources.

As for the legal framework on the promotion and use of RES it is still “at the rudimentary stage of its development”¹⁴⁷⁹ and is highly fragmented.¹⁴⁸⁰ On a number of occasions legal scholars have called to fill the regulatory gap and suggested that a federal law on renewable energy sources needs to be promulgated.¹⁴⁸¹ In 1999 a proposal for the Federal Law “On Renewable Energy Sources Promotion and Use” was adopted by the State Duma and the Federation Council.¹⁴⁸² However, then President Yeltsin vetoed the proposal, providing that the draft “did not have a precise subject for regulation”, “some of its provisions are contradictory and/or overlapping”, and “some provisions are of declarative character”.¹⁴⁸³ A few other attempts to adopt a federal law on the issue were undertaken in 2003 and later in 2007, however, they resulted only in the adoption of amendments, concerning the use of RES, to various legislative

¹⁴⁷⁹ S.V. Kozlov (*С.В. Козлов*), *Renewable Energy in Russia and Germany: Present State and Future Prospects of the Legal Framework (Возобновляемая Энергетика в России и Германии: Состояние и Перспективы Правового Регулирования)*, *Legal Bulletin of Young Scientists (Юридический Вестник Молодых Ученых)*, 2015, 1, p. 32.

¹⁴⁸⁰ For an overview of the legal framework on the promotion and use of renewable energy sources in the RF please see, A.A. Skovpen (*А.А. Сковпень*), *The Use of Renewable Energy Sources: Legal Analysis of the Foreign and National Laws (Использование Возобновляемых Источников Энергии: Анализ Зарубежного и Национального Законодательства)*, *Legal Energy Forum (Правовой Энергетический Форум)*, 2013, 3; A. E. Kopylov (*А.Е. Копылов*), *Status and Prospects of Developing Legislative and Regulatory Frameworks for Russia’s System Supporting Renewable Energy Sources (Состояние и Перспективы Развития Законодательной и Нормативной Базы Российской Системы Поддержки ВИЭ)*, *Energy Law (Энергетическое Право)*, 2015, 2.

¹⁴⁸¹ A. V. Brown, *Russian Renewable Energy Market: Design and Implementation of National Policy*, *Russian Energy and Mining Law Journal*, 6, 2005, p. 33; S.V. Kozlov (*С.В. Козлов*), *Renewable Energy in Russia and Germany: Present State and Future Prospects of the Legal Framework (Возобновляемая Энергетика в России и Германии: Состояние и Перспективы Правового Регулирования)*, *Legal Bulletin of Young Scientists (Юридический Вестник Молодых Ученых)*, 2015, 1, p. 32; International Finance Corporation (IFC), *Renewable Energy Policy in Russia, Waking the Green Giant, “Green” Paper for Discussion, 2011.* // <<https://www.ifc.org/wps/wcm/connect/bf9fff0049718eba8bcaaf849537832d/PublicationRussiaRE-EP-CreenGiant-2011-11.pdf?MOD=AJPERES>>, last viewed 17 February 2017; K.V. Papenov, A. N. Kazantseva, *State Support for Renewable Energy Resources (Государственная Поддержка Развития Альтернативной Энергетики)*, *Entrepreneurship Law (Предпринимательское Право)*, 2, 2016.

¹⁴⁸² RF, Federation Council, *Proposal for a Federal Law № 98033104-2, On the State Politics in the Sphere of Utilization of Non-traditional Renewable Energy Sources (Информация о Причинах Отклонения Федерального Закона «О Государственной Политике в Сфере Использования Нетрадиционных Возобновляемых Источников Энергии» Президентом РФ)*, 22 April 1999.

¹⁴⁸³ RF Government, *Information on the Reasons to Decline the Federal Law “On the State Politics in the Sphere of Utilization of Non-traditional Renewable Energy Sources” by the RF President (Информация о Причинах Отклонения Федерального Закона «О Государственной Политике в Сфере Использования Нетрадиционных Возобновляемых Источников Энергии» Президентом РФ)*, 25 November 1999, № Пр-1544.

acts.¹⁴⁸⁴ Up until now a consolidated legal framework on the issue has not (yet) emerged.

Among others, the regulation on renewable energy use and promotion is contained in the “Federal Electricity Law” (as amended in 2016);¹⁴⁸⁵ the Decree of the RF Government On the Qualification of a Renewable Energy Generating Facility (2008);¹⁴⁸⁶ the Decree of the RF Ministry of Energy approving the allocation scheme of renewable energy generating facilities on the territory of the RF (as amended in 2012);¹⁴⁸⁷ the Decree of the RF Government On the Mechanism for Promoting the Use of Renewable Energy in the Wholesale Market of Electric Energy and Power” (2013);¹⁴⁸⁸ and the Decree of the RF Government on Incentives for the Use of RES in the Retail Market of Electricity (2015).¹⁴⁸⁹ Thus, the “Federal Electricity Law” establishes competences of the Federation and its subjects in the field of renewable energy use and promotion;¹⁴⁹⁰ the law as well outlines functions of the wholesale electricity and capacity market regulator.¹⁴⁹¹ As for the Decree of the RF Government “On the Qualification of a Renewable Energy Generating Facility” (2008), it provides technical and legal criteria for installations to be qualified as a renewable energy generating facility

¹⁴⁸⁴ For more information please see, A. E. Kopylov (A.E. Копылов), Status and Prospects of Developing Legislative and Regulatory Frameworks for Russia’s System Supporting Renewable Energy Sources (*Состояние и Перспективы Развития Законодательной и Нормативной Базы Российской Системы Поддержки ВИЭ*), Energy Law (*Энергетическое Право*), 2015, 2.

¹⁴⁸⁵ RF, Federal Law (Федеральный Закон) № 35-FZ, 26 March 2003, On Electricity Power Industry (Об Электроэнергетике), as amended 28 December 2016.

¹⁴⁸⁶ RF, Decree of the RF Government № 426, (*Постановление Правительства РФ от 3 июня 2008*), On the Qualification of a Renewable Energy Generating Facility (О Квалификации Генерирующего Объекта, Функционирующего на Основе Использования Возобновляемых Источников Энергии), 03 June 2008.

¹⁴⁸⁷ RF, Ministry of Energy, Order № 316 (Приказ Минэнерго России от 29 Июля 2011), On the Allocation scheme of Renewable Energy Generating Facilities on the Territory of the RF (Об утверждении Схемы Размещения Генерирующих Объектов Электроэнергетики на Основе Использования Возобновляемых Источников Энергии на Территории РФ), 29 July 2011, as amended 20 August 2012.

¹⁴⁸⁸ RF, Decree of the Russian Government N 449 (Постановление Правительства РФ от 28 мая 2013), On the Mechanism of Promoting the Use of Renewable Energy in the Wholesale Market of Electric Energy and Power, (О Механизме Стимулирования Использования Возобновляемых Источников Энергии на Оптовом Рынке Электрической Энергии и Мощности), 28 May 2013.

¹⁴⁸⁹ RF, Decree of the RF Government № 47, (*Постановление Правительства РФ от 23 января 2015*), On Changes to Certain Acts of the Government of the RF in order to Incentivize the Use of Renewable Energy Sources in the Retail Market of Electricity, (*О внесении Изменений в некоторые Акты Правительства РФ по Вопросам Стимулирования Использования Возобновляемой Энергии на Розничных Рынках Электрической Энергии*), 23 January 2015.

¹⁴⁹⁰ RF, Federal Law (Федеральный Закон) № 35-FZ, 26 March 2003, On Electricity Power Industry (Об Электроэнергетике), as amended 28 December 2016 art. 21.

¹⁴⁹¹ RF, Federal Law (Федеральный Закон) № 35-FZ, 26 March 2003, On Electricity Power Industry (Об Электроэнергетике), as amended 28 December 2016 art. 33.

(e.g. to be eligible for a state support). The 2011 Order of the RF Ministry of Energy lists renewable energy generating facilities on the territory of the RF (as amended in 2012).¹⁴⁹² According to the list,¹⁴⁹³ most of the facilities use hydropower in order to produce energy; some facilities also use biogas, sun and wind energy; and only a few utilize biomass for the energy purposes. In 2013 a legal basis for the promotion of renewable energy (i.e. solar energy, wind energy, and small-scale hydroelectricity) in the Russia's capacity market was established; it provides guarantees of a twelve to fourteen percent return on investment into RES projects over the following fifteen years.¹⁴⁹⁴ Just recently, i.e. in 2015, the Decree of the RF Government established State support mechanisms (i.e. mostly feed-in tariffs) for the RES use on the electricity energy markets.¹⁴⁹⁵

6.1.2.6. Interim Conclusion: Implementation of the International Climate Change Regime by the RF and the Forest-related Measures.

The RF is a party to the UNFCCC and its Kyoto Protocol and, therefore, the country is committed to contributing to the fight against global warming by developing and implementing national policies aimed at mitigation and adaptation to climate change. In its current state, however, the legal basis of the Russian mitigation and adaptation policies is rather fragmented. Furthermore, as some legal scholars note, the national legislation in its current state significantly lags behind the actual needs to protect climate.¹⁴⁹⁶ The

¹⁴⁹² RF, Ministry of Energy, Order № 316 (Приказ Минэнерго России от 29 Июля 2011), On the Allocation scheme of Renewable Energy Generating Facilities on the Territory of the RF (Об утверждении Схемы Размещения Генерирующих Объектов Электроэнергетики на Основе Использования Возобновляемых Источников Энергии на Территории РФ), 29 July 2011, as amended 20 August 2012.

¹⁴⁹³ Please note that the list is obsolete (since 2012 the list has not been amended and some of the renewable generating facilities are not listed, e.g. the significant solar RES facilities in the Crimean Peninsula).

¹⁴⁹⁴ RF, Decree of the Russian Government No 449 (Постановление Правительства РФ от 28 мая 2013), On the Mechanism of Promoting the Use of Renewable Energy in the Wholesale Market of Electric Energy and Power, (О Механизме Стимулирования Использования Возобновляемых Источников Энергии на Оптовом Рынке Электрической Энергии и Мощности), 28 May 2013.

¹⁴⁹⁵ RF, Decree of the RF Government No 47, (Постановление Правительства РФ от 23.01.2015), On Changes to Certain Acts of the Government of the RF in order to Incentivize the Use of Renewable Energy Sources in the Retail Market of Electricity, (О внесении Изменений в некоторые Акты Правительства РФ по Вопросам Стимулирования Использования Возобновляемой Энергии на Розничных Рынках Электрической Энергии), 23 January 2015.

¹⁴⁹⁶ U. A. Rusakova, Climate Policy of the Russian Federation and Solving the Problem of Global Climate Change, (Климатическая Политика РФ и Решение Проблем Изменения Глобального Климата), Vestnik MGMIО, (Вестник МГИМО), 1 (40), 2015, p. 169-170. The author advocates

cornerstone of the national climate law and policy and the key tool for reducing GHG emission, i.e. the national accounting rules for GHG MRV, is still in its developmental phase and is only envisaged to be finalized by 2020.

The focused climate policies, like the Climate Doctrine and its Implementation Plan, are of declarative character and can hardly be expected to deliver any significant mitigation and adaptation outcomes. Their task is rather to establish the general “trend” of the country’s approach to climate law and policy. The key tool for reducing GHG emission, i.e. the national GHG accounting rules, are still in their developmental phase and are only envisaged to be finalized by 2020. The synergetic climate law and policy, e.g. focusing on the energy sector and/or on the promotion of the renewable energy sources, in theory, could be expected to deliver more emission reductions over time. Yet, the declarative character of the targets and their poor enforcement undermine the tasks in hand. Besides, the climate related synergies, although generally recognized, require further research and revision in order to fully realize their potential to provide for climate benefits.

As for forests, their integration into the RF national climate law and policy has been rather limited up until now. Partly, this may be explained by the existing regulatory gaps that still need to be closed, as, for instance, by adopting national accounting rules, including the rules for the GHG emissions accounting from the LULUCF sector. As for the synergetic RF climate laws and policies on the RES, currently they focus, primarily, on the promotion and use of RES such as solar, wind, and small-scale hydroelectricity, providing limited attention to the promotion of wood biomass as a RES. Finally, although the RF has been actively participating in the JI flexibility mechanism under the Kyoto Protocol, there are only two JI projects, which implement forestry activities. The integration of forests into the RF climate law and policy and the associated

for a more active position of Russia in overcoming the effects of climate change, as well as the reduction of anthropogenic impact on the global climate effects. Furthermore, the author stresses the role of civil society and the media in the development of environmental awareness among the political elite of the country. See also A. Korppoo, M. Gutbrod, S. Sitnikov, Russian Law on Climate Change, in C. P. Carlarne, K. R. Gray, R. Tarasofsky (eds), *The Oxford Handbook of International Climate Change Law*, 2016, pp. 700-724.

challenges are considered in greater detail in the following sections of the chapter.

6.2. Forests under Climate Law and Policy on the LULUCF Sector.

The Land Use Land Use Change and Forestry Sector (LULUCF) is one of the five sectors (a "sector" being a grouping of related processes, sources and sinks, which constitute GHG emission and removal estimates¹⁴⁹⁷) identified by the IPCC for the purposes of accounting and reporting under the UNFCCC regime.¹⁴⁹⁸ The LULUCF sector covers anthropogenic emissions and removals of GHG resulting from changes in terrestrial carbon stocks. "Land use" refers to land practices that affect emission levels (e.g. forests); "land use change" refers to practices where the purpose of land use is changed (e.g. conversion from forest to cropland, and/or vice versa); and "forestry" refers to activities, which affect the amount of biomass in existing biomass stocks (e.g. (commercial) forests management, harvest of industrial round wood, etc.).

Current governance framework of the LULUCF sector comes mostly from the international climate change regime and is agreed upon through the relevant COP/CMP decisions for the implementation of the Kyoto Protocol and largely builds on the IPCC guidelines. The Paris Agreement, similarly to the Kyoto Protocol, requires all Parties to report information on their LULUCF emissions and removals,¹⁴⁹⁹ yet, in comparison to the Kyoto Protocol, the Agreement does not contain a single harmonized set of legally binding accounting rules and does not specify how emissions and removals from the LULUCF sector are to be counted towards national reduction targets.¹⁵⁰⁰ Parties are not bound by one stringent international set of standards. The absence of the international

¹⁴⁹⁷ IPCC, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, General Guidance and Reporting, 2006, p. 1.4. – 1.5.

¹⁴⁹⁸ The five main sectors under the international climate change regime are: energy; industrial processes and product use; agriculture, forestry and other land use (which includes LULUCF); Waste; and Other.

¹⁴⁹⁹ UNFCCC, the Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016, art. 13. For more information on mitigation under the Paris Agreement, see subsection 3.2.3.3. "Mitigation under the Paris Agreement", section 3.2.3. "The Paris Agreement", part 3.2. "International Regulatory Climate Change Regime", chapter III "Forests under the International Climate Change Regime" of the present thesis.

¹⁵⁰⁰ For more information on the LULUCF sector reporting and accounting under the Paris Agreement see subsection 3.3.1.5. "Reporting and Accounting under the Paris Agreement" section 3.3. "Forest Regulation under the International Climate Change Regime" chapter III "Forests under the International Climate Change Regime" of the present thesis.

governance allows countries to develop the LULUCF sector governance best responding to their needs, which can also provide for additional benefits, such as, for instance, forest and biodiversity conservation.

This part investigates how forests are regulated under the (sub) national climate law and policy on the LULUCF sector, first, in the EU (6.2.1.) and then in the RF (6.2.2.). The part aims to answer the following question: what is the value of the LULUCF accounting rules for forest regulation?

6.2.1. The LULUCF sector under the EU Climate Law and Policy.

Firstly, the section investigates why, despite the fact that the LULUCF sector has a significant impact on EU's emissions, under the current climate framework the contribution of the LULUCF sector is not counted towards the 2020 GHG emission reductions target (6.2.1.1.). Secondly, the development of the EU regulation on the LULUCF sector is considered (6.2.1.2.). Thirdly, the main forest-related elements of the 2013 LULUCF Decision are reviewed (6.2.1.3.) Fourthly, the three options for a potential policy design in order to include the LULUCF accounting into the EU policy framework for climate and energy for the period from 2020 until 2030 are evaluated from a forest-related perspective (6.2.1.4.). Fifthly, the 2016 Proposal for a LULUCF Regulation is studied with a particular focus on its forest-related provisions (6.2.1.5.). Finally, the interim conclusions bring the findings of the section together and provide some concluding remarks on the value of the EU regulation on the LULUCF sector for forest regulation (6.2.1.6.).

6.2.1.1. The LULUCF Sector and the 2020 GHG Emission Reduction Target.

In the EU the LULUCF sector has a significant impact on the EU's GHG emissions: the sector removes the equivalent of 9 percent of GHGs emitted in other parts of the economy (i.e. total GHG emissions, excluding the emissions from the LULUCF sector).¹⁵⁰¹ Within the EU the LULUCF sector is recorded as a

¹⁵⁰¹ E.C., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Accounting for land use, land use change and forestry (LULUCF) in the Union's climate change commitments, COM (2012), 94 final, p. 2.

net carbon sink, meaning that on aggregate the sector removes more GHG from the atmosphere than it emits.¹⁵⁰² The majority of GHG removals comes from forests absorbing CO₂.¹⁵⁰³ According to some estimates, the EU forests absorb up to 13 percent of the total EU GHG emissions each year.¹⁵⁰⁴

While reaching its climate targets for the period up to 2020 the EU chose not to rely on removals from the LULUCF sector. The current EU climate policy covers most sectors of the economy and GHG through two of its main elements, namely the EU ETS (1) and the EU ESD (2). Thus, (1) approximately 45 percent of the EU's emissions are covered by the EU ETS; it encompasses more than 11 000 large installations in power generation and manufacturing industries across the EU MS. (2) Emissions from the sectors not included in the EU ETS are addressed by the ESD. The ESD establishes binding annual GHG emission targets for MS for the period from 2013 until 2020. These targets concern emissions from the most sectors not included in the ETS, such as transport (except aviation and international maritime shipping), buildings, non-CO₂ agriculture and waste. In contrast to sectors in the EU ETS, which are regulated at the EU level, it is the responsibility of MS to define and implement national policies and measures to limit emissions from the sectors covered by the ESD. At present, CO₂ emissions and removals from LULUCF are neither included under the EU ETS, nor in the ESD.¹⁵⁰⁵ Thus, the LULUCF sector is left out of the current EU's climate commitments under the 2009 Climate and Energy Package (Figure 20).

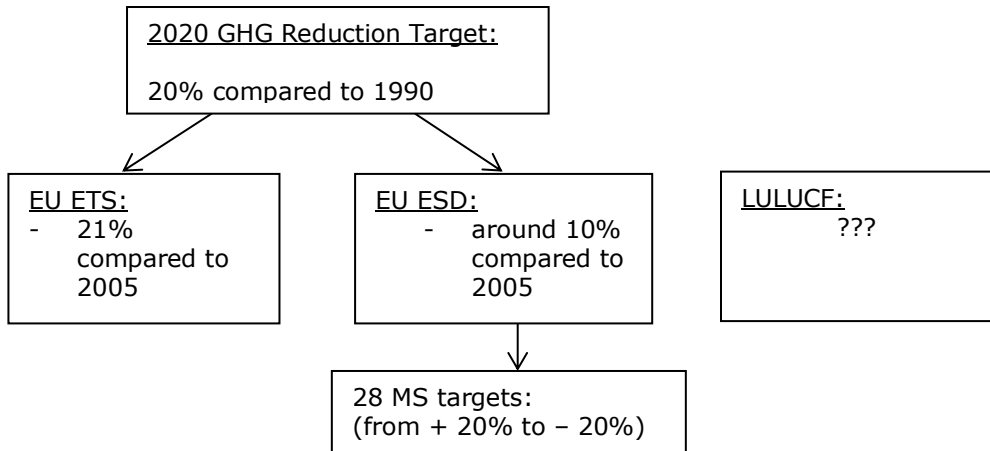
¹⁵⁰² In 2012 the LULUCF emissions in the EU-28 amounted to approximately 150 Mt CO₂ equivalent, while absorptions were over 4 000 Mt CO₂ equivalent. E.C., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Accounting for land use, land use change and forestry (LULUCF) in the Union's climate change commitments, COM (2012), 94 final, p. 2. Please note that there is significant scientific uncertainty associated with the LULUCF sector accounting, and in particular, accounting for the input of forestry. For more information see, subsection "d" "Uncertainty concerns", subsection 3.3.1.4. "Forest-related Challenges Associated with LULUCF", section 3.3.1. "Land Use, Land Use Change and Forestry Sector Reporting and Accounting", part 3.3. "Forest Regulation under the International Climate Change Regime", chapter III "Forests under the International Climate Change Regime" of the present thesis.

¹⁵⁰³ European Commission, Climate Action, Consultations on Addressing GHG Emissions from Agriculture and LULUCF in the Context of the 2030 EU Climate and Energy Framework.// http://ec.europa.eu/clima/consultations/articles/0026_en.htm, last viewed 28 October 2016.

¹⁵⁰⁴ Forest Europe, A New Role for Forests and the Forest Sector in the EU Post-2020 Climate Targets, 2015, p. 3. See also, EC, Proposal to Integrate the Land Use Sector into the EU 2030 Climate and Energy Framework, Questions and Answers, What is the Commission's Proposal on Land Use and Forestry about?, 20 July 2016.

¹⁵⁰⁵ The sectors, included under the ESD are energy, industrial processes, solvent and other product use, agriculture and waste. See, European Parliament and the Council, Decision

Figure 20. Under the 2009 Climate and Energy Package the LULUCF is left out of the Current EU's Climate Commitments.



There are two reasons why emissions and removals from the land use sector are treated differently in comparison to other sectors of the economy. First, at the time of agreeing for the EU 2020 climate and energy targets in 2008, the international rules for LULUCF accounting were at an early stage of development, that means that they were not fully agreed upon and were characterized by “serious deficiencies”.¹⁵⁰⁶ At the global level the EU was

406/2009/EC of the European Parliament and of the Council, 23 April 2009, On the Effort of MS to Reduce their GHG Emissions to Meet the Community's GHG Emission Reduction Commitments up to 2020, art. 2., Annex I. As for the LULUCF sector, it is only covered by the EU international obligations under the international climate change regime. See, European Parliament and the Council of the European Union, Decision 280/2004/EC of the European Parliament and of the Council of 11 February 2004, Concerning a Mechanism for Monitoring Community GHG Emissions and for Implementing the Kyoto Protocol.

¹⁵⁰⁶ Thus, for instance, during the first commitment period under the Kyoto Protocol, in particular, such important LULUCF activity as forest management, which represents 70% of the LULUCF sector, was accounted for on a voluntary basis. As a result, accounting in the MS was highly variable. Less than two thirds of the MS accounted for forest management. Another drawback was the lack of incentives, provided for climate change mitigation in forestry. The rules for forest management essentially guaranteed countries an amount of credit regardless of the action taken. Incentives to improve practices were limited by a cap on emissions and removals, beyond which action no longer counted. The use of credits from forest management to offset a country's emissions were capped at 3% of base year emissions for the first commitment period (both through the domestic activities and joint implementation). Please see section 3.3.1.

skeptical about using the LULUCF sector to meet targets for developed countries under the Kyoto Protocol.¹⁵⁰⁷ This skepticism was based partly on concerns about the accuracy of reporting on emissions and sinks, partly on the robustness with which changes could be attributed to human activity and partly on the risk that the inclusion, particularly of “unearned” mitigation from sinks, could significantly weaken incentives for emission reductions in other sectors. The EU’s position was that although concerns about the accuracy of reporting and the accuracy of attribution to human activities could in theory be dealt with by a rigorous approach to reporting, this did not answer concerns about the permanence of mitigation, or the displacement of effort from other sectors.

Second, at the EU level, the inclusion of LULUCF removals in 2020 climate targets was feared to lead to unfair (dis)advantages, due to the uneven distribution of LULUCF abatement potential across the EU MS.¹⁵⁰⁸ Thus, for instance, forest ecosystems, their distribution and forest sector’s significance for national economies vary greatly among the EU MS. The resulting variation creates a wide range of options for climate change mitigation in different states.¹⁵⁰⁹

6.2.1.2. The Development of EU Regulation on the LULUCF Sector.

In late 2011 the guidance on how to account for emissions and removals from the LULUCF sector was agreed in the context of international climate negotiations.¹⁵¹⁰ Following the adoption of this so- called “Durban Decision on

“Land Use, Land Use Change and Forestry (LULUCF)”, chapter 3 “Forests under the International Climate Change Regime” of the current thesis.

¹⁵⁰⁷ See, UNFCCC, Key Documents Relating to the Consideration of LULUCF under the Kyoto Protocol, FCCC/SBSTA/2004/ Misc. 1, FCCC/SBSTA/2004/Misc. 5, FCCC/SBSTA/2005/Misc. 9. // < http://unfccc.int/land_use_and_climate_change/lulucf/items/8149.php>, last viewed 21 December 2016.

¹⁵⁰⁸ E.C., 2020 Climate and Energy Package, National Emission Reduction Targets.// <https://ec.europa.eu/clima/policies/strategies/2020_en#tab-0-0>, last viewed 21 December 2016.

¹⁵⁰⁹ Forest Europe, A New Role for Forests and the Forest Sector in the EU Post-2020 Climate Targets, 2015, p. 13.

¹⁵¹⁰ The UNFCCC, Decision 17/CMP.1, Good Practice Guidance for LULUCF Activities under art. 3 and 4 of the Kyoto Protocol. Please note that the question of whether the international climate change regime COP decisions are binding under international law has been revisited by legal scholars many times. Decisions, made by treaty bodies can certainly create international obligations, but the majority view is that they lack a legally binding character. Constructivist scholars like J. Brunne, note that “[COP] decisions do contain terms that make conduct mandatory, and make access to certain benefits contingent upon compliance with some of these mandatory terms. Yet, they do not appear to be binding in a formal sense”. As T. Gehring notes,

LULUCF”, the European Commission quickly reacted and proposed in its Communication of the early 2012 how, using a step-wise approach, the LULUCF sector could increasingly be integrated in the EU’s climate policy.¹⁵¹¹

Various arguments were raised as to why this sector should be included into the EU’s climate policy, *inter alia*: (1) in order to strengthen environmental integrity, the EU’s climate policy should have a comprehensive coverage and provide for a correct reflection and equal treatment of different mitigation activities; (2) in order to identify the most cost-effective mitigation options and to ensure policy coherence “all sectors should contribute”; (3) and, given the significant carbon sinks in soils and forests, the inclusion of LULUCF should protect the existing sinks and help to enhance the mitigation potential of the sector.¹⁵¹²

In the Impact Assessment “on the role of land use, land use change and forestry (LULUCF) in the EU’s climate change commitments” the Commission identified various options on how this inclusion could be made in principle: (1) no EU action (i.e. no inclusion), (2) inclusion in the ETS, (3) inclusion in the ESD, or (4) inclusion through a new and separate framework.¹⁵¹³ It was suggested that the first option, i.e. omitting the LULUCF sector from accounting, would risk

“the precise legal status of COP decisions is of comparatively little importance for the practical operation”, COP decisions are more flexible than the regular treaty law, and at the same time able to commit the member states more intensely than mere recommendations. The contracting parties can afford to avoid determining the issue of legal status. They tend to do so because principled discussion in this regards might jeopardize the successful reliance on decisions as a means of governance. See, J. Brunne, *Coping with Consent: Law-Making under Multilateral Environmental Agreements*, *Leiden Journal of International Law*, 15, 1, 2002, p. 32; T. Gehring, *Treaty-making and treaty evolution*, in D. Bodansky, et. al (eds), *the Oxford Handbook of International Environmental Law*, 2007, pp. 492-493. For more information on the LULUCF reporting and accounting rules, see section “3.3.1. Land Use Land Use Change and Forestry Sector Reporting and Accounting”, part 3.3. “Forest Regulation under the International Climate Change Regime” chapter III “Forests under the International Climate Change Regime” of the present research.

¹⁵¹¹ E.C., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Accounting for land use, land use change and forestry (LULUCF) in the Union’s climate change commitments, COM (2012), 94 final.

¹⁵¹² E.C., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Accounting for land use, land use change and forestry (LULUCF) in the Union’s climate change commitments, COM (2012), 94 final.

¹⁵¹³ E.C., Commission Staff Working Document, Impact Assessment of the Role of land use land use change and forestry (LULUCF) in the EU’s climate change commitments, Accompanying the document, Proposal for a Decision of the European Parliament and of the Council on accounting rules and action plans on greenhouse gas emissions and removals resulting from activities related to land use, land use change and forestry, SWD (2012) 41 final.

undermining the environmental integrity of the climate commitments, reducing the coherence of EU climate policy and limiting the economic efficiency in reaching more ambitious targets. The next two options were discarded mainly due to the difficulties in addressing the specific characteristics of the LULUCF sector in the context of the ETS (e.g. too fragmented ownership of land in forestry and agriculture) and the ESD (e.g. inter-annual variations in emissions and removals and therefore difficulties with annual compliance periods under the Decision). In order to more explicitly take the specific characteristics of the sector into account, the European Commission suggested to design a new and separate legal framework and include the sector on the basis of a gradual approach. In other words, instead of immediately including the LULUCF in the EU's reduction commitment, the Communication proposed a two-step procedure. In a first step the decision would focus on agreeing on common and harmonized accounting and monitoring provisions. Only once these common rules are in place and have enhanced the knowledge base, should the second step, the full inclusion of the sector in the EU's reduction commitment, be considered.

The European Commission submitted its LULUCF proposal to the Council and the European Parliament in spring, 2012. In spite of the substantial divergence on the substance, the political agreement between the European Parliament and the Council was obtained at the end of 2012. The agreed decision text, i.e. the "LULUCF Decision" was then formally adopted on 21 May, 2013 and entered into force on the 8 July, 2013.¹⁵¹⁴

6.2.1.3. The Main Forest-related Elements of the EU LULUCF Decision.

The LULUCF Decision provides that "in the context of moving to a competitive low-carbon economy in 2050, all land use should be considered in a holistic manner and LULUCF should be addressed within the Union's climate policy" (recital 2). The subject matter of the Decision (art. 1) specifies that the Decision sets out common accounting rules applicable to emissions and removals of GHG resulting from LULUCF activities, as a first step towards the inclusion of these

¹⁵¹⁴ E.P. and the Council, Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry and on information concerning actions relating to those activities, OJ 18 June 20 13, L 165/80.

activities in the Union's emission reduction commitment, when appropriate.¹⁵¹⁵ The Decision is addressed to MS (and not to any private parties). With regards to forests, as of January 1, 2013 accounting is mandatory for MS on such LULUCF activities as "forest management" (the most significant activity in the sector) and the three sub-activities: "afforestation, reforestation and deforestation".¹⁵¹⁶

The text of the Decision provides the general accounting principles for the whole LULUCF sector. Most relevant in this context is the obligation for MS to account for both emissions and removals in order to provide a net balance across all activities over the entire period. Particularly important in that respect are the accounting principles for the most important category in this sector, i.e. "forest management". For the category the so-called "reference level" principle is applied: credits (i.e. the removals from forest management) or debits (i.e. emissions associated with forest management) have to be measured against a projected baseline scenario. This implies that each MS has to identify the projected levels of emissions/removals for its national forests and thereby establish a hypothetical carbon balance in standing forests by 2020. At the end of the accounting period each MS would then add up credits and debits for each of the individual years of the accounting period and then determine the final accounts.¹⁵¹⁷

For the category "afforestation, reforestation and deforestation" net accounting principle is applied, i.e. the MS have to reflect in their accounts the total

¹⁵¹⁵ E.P. and the Council, Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry and on information concerning actions relating to those activities, OJ 18 June 20 13, L 165/80, art. 1, Subject Matter and Scope.

¹⁵¹⁶ For the accounting of emissions and removals associated with agricultural land, that is, the two activities "cropland management" and "grazing land management" transitional provisions were agreed for the period between 1 January 2013 and 31 December 2020 (i.e. for the duration of the second commitment period of the Kyoto Protocol). These transitional rules foresee that the accounting for these two sub-activities should have already started for the first year of this period but could be preliminary and non-binding. Only towards the end of the CP are MS obliged to submit their final estimates.

¹⁵¹⁷ In contrast to the "reference level accounting principle", the principle of "net-net accounting" is applied to the agricultural land: emissions and removals in each year would be compared with those in 1990. If removals in a given year of the CP are higher (lower) than in the base year (1990) the respective number of units would be counted as credits (debits). What matters then are the net changes between total emissions and total removals for these sub-categories.

emissions and removals resulting from the activities for each of the years in the relevant accounting period (art. 5).

In addition, the LULUCF Decision includes an obligation to account for an important “pool” of carbon, namely, the emissions and removals that are associated with the use of “Harvested Wood Products” (art. 7). This provision allows excluding the emissions that are associated with “instantaneous oxidation”¹⁵¹⁸ by using different “half-life” values¹⁵¹⁹: while wood that is used for waste or for burning, immediately releases all carbon, wood used for production of paper has a half-life value of two years; wood panels – 25; and sawn wood (i.e. wood that has been produced by sawing e.g. floor panels) – 35 years.¹⁵²⁰ This allows to delay or spread over time the emissions associated with different uses of wood harvested.

Furthermore, the Decision takes into account that the emissions from the land use sector can be exposed to extreme natural events (art. 9): forest fires can, for instance, cause that the emissions, associated with the activity of “forest management” could become very high in one year, while in the following year the sector would account for net removals. In order to make sure that the fluctuations associated with such natural events are not distorting the overall balance, MS are allowed to exclude emissions associated with such “natural disturbances”¹⁵²¹ from their overall balance for the LULUCF sector.

¹⁵¹⁸ Instantaneous oxidation – an accounting method that assumes that the release into the atmosphere of entire quantity of carbon stored in harvested wood products occurs at the time of harvest. E.P. and the Council, Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry and on information concerning actions relating to those activities, OJ 18 June 20 13, L 165/80, art. 2, (w).

¹⁵¹⁹ Half-life value means the number of years it takes for the quantity of carbon stored in a harvested wood products category to decrease to one half of its initial value. Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry and on information concerning actions relating to those activities, OJ 18 June 20 13, L 165/80, art. 2, (v).

¹⁵²⁰ Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land use change and forestry and on information concerning actions relating to those activities, OJ 18 June 20 13, L 165/80, art. 7, Annex III.

¹⁵²¹ “Natural Disturbances” – any non-anthropogenic events or circumstances that cause significant emissions in forests and the occurrence of which are beyond the control of the relevant MS provided the MS is objectively unable to significantly limit the effect of events or circumstances, even after their occurrence, on emissions.

Finally, the Decision obliges MS to draw up and submit to the Commission information on LULUCF actions, which could help to limit emissions or to increase removals from the various activities, which are included in the sector (art. 10). This national information on LULUCF actions includes: (a) the description of past trends of emissions and removals; (b) projections for emissions and removals for the accounting period; (c) an analysis of the potential to limit or reduce emissions and to maintain or increase removals; (d) a list of the most appropriate measures to take into account national circumstances, i.e. measures that a MS is planning or that are to be implemented in order to pursue the mitigation potential (e.g. preventing deforestation); (e) and a list of existing and planned policies in this regard. These national LULUCF information actions, received by the European Commission, provide a good overview of LULUCF mitigation activities for each MS; facilitate the exchange of knowledge and best practices among MS; and enhance the knowledge base on the specific actual and possible policy measures with which the mitigation contribution from the LULUCF sector in the EU can be improved. Furthermore, as regards to the public access to the environmental information, the Decision states that MS must make available to the public the relevant information on their LULUCF actions and the reports, submitted to the Commission (art. 10. 4 para. 3).

6.2.1.4. How to formally include the LULUCF sector into the EU Legal Framework on Climate? a Forest-related Perspective.

In January 2014, the European Commission has proposed three principal options for a potential policy design in order to include the LULUCF accounting into the EU policy framework for climate and energy for the period from 2020 until 2030:

- 1) LULUCF Pillar (Status Quo): maintain non-CO₂ agriculture sector emissions in a potential future ESD (for the period from 2021 until 2030), and further develop a LULUCF sector policy approach separately;
- 2) Land use Sector Pillar: merging the LULUCF and agriculture sector non-CO₂ emissions into one new and independent pillar of the EU's climate policy;

- 3) Effort Sharing: include the LULUCF sector in a potential future ESD (for the period from 2021 until 2030).¹⁵²²

Between March and June 2015, the European Commission conducted public consultations on how best to address emissions from agriculture, forestry and other land use sectors in the context of the 2030 EU climate and energy policy framework.¹⁵²³ In total 138 respondents (including citizens, authorities, NGOs, research academy and trade business associations) participated in the consultations: half of the respondents had no clear preference, and approximately one third of respondents, mostly environmental NGOs and forestry organizations, were in favor of keeping LULUCF as a separate pillar within the climate policy framework.¹⁵²⁴

Following the public consultations the three options for a potential policy design in order to include the LULUCF accounting into the EU policy framework for climate and energy from 2020 until 2030 were analyzed through an impact assessment procedure, i.e. the 2016 LULUCF IA.¹⁵²⁵ The LULUCF IA considered

¹⁵²² EC, Communication, A policy framework for climate and energy in the period from 2020 to 2030, COM (2014) 15 final, 22 January 2014, p. 15.

¹⁵²³ European Commission, Climate Action, Consultations on Addressing GHG Emissions from Agriculture and LULUCF in the Context of the 2030 EU Climate and Energy Framework.// http://ec.europa.eu/clima/consultations/articles/0026_en.htm, last viewed 28 October 2016.

¹⁵²⁴ European Commission, Commission Staff Working Document, Impact Assessment, Accompanying the Document, Proposal for a Regulation of the European Parliament and of the Council, On the Inclusion of GHG emissions and removals from LULUCF into the 2030 climate and energy framework and amending Regulation N° 525/2013 of the European Parliament and the Council on a Mechanism for monitoring and reporting GHG emissions and other information relevant to climate change, SWD (2016) 249, final, 20 July 2016, Annexes to LULUCF Impact Assessment, p. 7.

¹⁵²⁵ European Commission, Commission Staff Working Document, Impact Assessment, accompanying the Document, Proposal for a Regulation of the European Parliament and of the Council, on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry into the 2030 Climate and Energy Framework and Amending Regulation No 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and Other Information Relevant to Climate Change, SWD (2016), 249 final, 20 July 2016. As such, "Impact Assessments" (IA) examine whether there is a need for EU action and analyze the possible impacts of available solutions. IA are carried out during the preparation phase, before the Commission finalizes a proposal for a new law. IA are carried out on initiatives expected to have significant economic, social or environmental impacts (e.g. legislative proposals, non-legislative initiatives (e.g. financial programs, recommendations for the negotiations of international agreements), implementing and delegated acts). The findings of the IA process are summarized in an impact assessment report. The IA report must include a description of the environmental, social and economic impacts, who will be affected by the initiative and how, the consultation strategy and the results obtained from it. See, European Commission, Commission Staff Working Document, Better Regulation Guidelines, SWD (2015) 111 Final, 19 May 2015; European Commission, Impact Assessments. // <

not only the policy design, including the choice and improvement of accounting rules for emissions and removals in different LULUCF categories (e.g. the choice of base year or period for accounting; streamlining the reporting/accounting systems and switch to land-based accounting; criteria and robust governance for setting forest reference levels), but also the need and extent for flexibility towards the agriculture sector under the ESD. As an optimal approach, the 2016 LULUCF IA recommended that the legal framework for the inclusion of the LULUCF sector into the 2030 framework takes a hybrid form, i.e. a “separate LULUCF Pillar” approach with a limited degree of flexibility with the agricultural sector of the ESD. This approach, according to the 2016 LULUCF IA, incentivizes mitigation action both in the agricultural sector under the ESD and in the LULUCF sector.

The separate “LULUCF Pillar” seems to be the most optimal approach if to consider the policy design options from a forest-related perspective. First of all, the separate “LULUCF Pillar” approach builds on the existing legislation, which already takes this approach (in particular, the Decision 529/2013/EU).¹⁵²⁶ Therefore, this option will not imply a system change, but only taking a next step in further integrating the LULUCF sector into the EU’s domestic mitigation framework.¹⁵²⁷ Secondly, this option would allow the LULUCF sector to be treated independently, taking into account the specificities of the forest sector (large uncertainty levels in estimates of emissions for forestry; uncertainty with permanence of emissions reductions; natural variability; etc.), and enabling further development of the sector-specific policies, targets and accounting rules (for instance, moving away from the Kyoto Protocol-based accounting system towards streamlining the reporting and accounting systems¹⁵²⁸) and ensuring

https://ec.europa.eu/info/law-making-process/planning-and-proposing-law/impact-assessments_en>, last viewed 23 May 2017.

¹⁵²⁶ E.P., Council of the European Union, Decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on Accounting Rules of Greenhouse Gas Emissions and Removals Resulting from Activities Relating to Land Use, Land Use Change and Forestry and on Information Concerning Actions Relating to those activities, O.J., L 165/80, 18 June 2013.

¹⁵²⁷ On the other hand, from an agriculture-related perspective it may also be viewed as a major disadvantage, because it will continue the approach of addressing separately the agricultural emissions and emissions from LULUCF by different policy tools (i.e. the ESD and a “separate pillar on LULUCF”), thus reducing policy coherence and rendering the design of incentives for action more complex.

¹⁵²⁸ Currently small, but significant differences in the approaches under the UNFCCC reporting (to some degree carried out by every Party) and the reporting and accounting framework of LULUCF under the Kyoto Protocol (carried out by so-called “Annex I” developed Parties that

consistency with related policies (e.g. policies on SFM and protection of biodiversity). A separate treatment of the LULUCF sector may be of particular importance for forest management, for which the annual accounting cycle, that applies to sectors currently covered by the ESD,¹⁵²⁹ may not be appropriate. Forests inventories require longer time for collection of carbon emissions due to the inter-annual fluctuations of emissions/removals uncertainty and for most management measures to take effect. Instead of the ESD annual accounting cycle, a sector-specific “period based” accounting may be required. Furthermore, allowing only a limited degree of flexibility between the LULUCF sector and the ESD, the “separate LULUCF Pillar” ensures that the current carbon sink, represented mostly by forests under the LULUCF, is not used to offset “fossil emissions” in other ESD sectors and does not impact the ambition to reduce emissions in the ESD sectors.

In comparison to the “separate LULUCF Pillar”, the third option, i.e. including the LULUCF sector in a potential future ESD, may provide the greatest flexibility to achieve the ESD targets and offer the MS the flexibility they need to achieve their overall target in the most cost-effective manner. Yet, this option risks that the carbon sink, represented by forests under the LULUCF sector, would be used systematically to offset emissions in other ESD sectors, thus undermining the general objective of the climate and energy framework. Furthermore, the choice of this option would pose substantial methodological and accounting issues in the absence of a robust and stable accounting system, in particular, for forestry. Similar arguments may be raised to discard the second option, i.e. merging the

ratified the Protocol) make the conversion to and from these two systems rather complex. This requires the States in the EU to maintain two parallel systems and thereby substantially increases the administrative burden. In essence, the UNFCCC approach requires reports on the current land cover categories (e.g. forestland, grassland or cropland, settlements, etc.), whereas the Kyoto Protocol reporting and accounting is focused on activities (e.g. forest management) or uses (of Harvested Wood Products). Streamlining would require converting Kyoto activities into equivalent UNFCCC land categories. For example, the Kyoto activity of “Forest Management” would be replaced by the UNFCCC reporting category “Forest Land remaining Forest Land”. Similarly, the Kyoto activity “Afforestation” would be replaced by the UNFCCC reporting categories of “Land converted to Forest Land”. For more information on the differences between the approaches, please see subsection 3.3.1.3. “Land Based and Activity Based Approaches”, section 3.3. “Forest Regulation under the International Climate Change Regime”, chapter three “Forests under the International Climate Change Regime” of the current thesis.

¹⁵²⁹ E.P. and the Council of the European Union, Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009, on the Effort of Member States to Reduce their Greenhouse Gas emissions to meet the Community’s greenhouse gas emission reduction Commitments up to 2020, O.J. L 140/136, 05 June 2009, art. 6.

LULUCF and agriculture sector non-CO₂ emissions into one new and independent pillar of the EU's climate policy.¹⁵³⁰

6.2.1.5. The 2016 Proposal for a LULUCF Regulation: a Forest-related Evaluation.

As of now, the EU as a whole is well on track to meet its 2020 climate targets.¹⁵³¹ Yet, the European Commission points out that under the current EU climate law and policy (i.e. "full implementation of existing legally binding targets as well as adopted policies") the EU may fall short of the milestone target of at least 40 percent domestic GHG emission reductions for 2030.¹⁵³² This indicates a need for additional climate measures, addressing notably the period from 2020 until 2030. The LULUCF sector may offer a significant potential for emission reduction and enhanced removals through carbon sequestration. However, in order for the input of the LULUCF sector to be accounted for towards the achievement of the EU 2030 climate targets a legal framework is needed.

In July, 2016 the European Commission proposed a regulation regarding the inclusion of GHG emissions and removals from the LULUCF sector into the EU 2030 climate and energy framework.¹⁵³³ In the light of the research, this

¹⁵³⁰ Merging LULUCF and agricultural non-CO₂ emissions into a separate pillar, would serve the integrated and holistic approach for agricultural and the forestry sector. For agricultural activities, in particular, merging of all emissions into one pillar could ensure better alignment with the existing agricultural policies and facilitate the use of Common Agriculture Policy (CAP) as a means of promoting climate mitigation efforts in the sector. This, in turn, could encourage farmers/foresters to maximize carbon stocks on their land. In addition this policy approach would allow to take into account the sector's specific particularities (e.g. permanence, long time-cycles, high natural interannual variability, etc.). Yet, this option would require a substantial review of the current EU climate policy and would raise considerable challenges given the complexity of merging the two different emission sources (i.e. the new LULUCF sector and agricultural non-CO₂ emissions from the ESD).

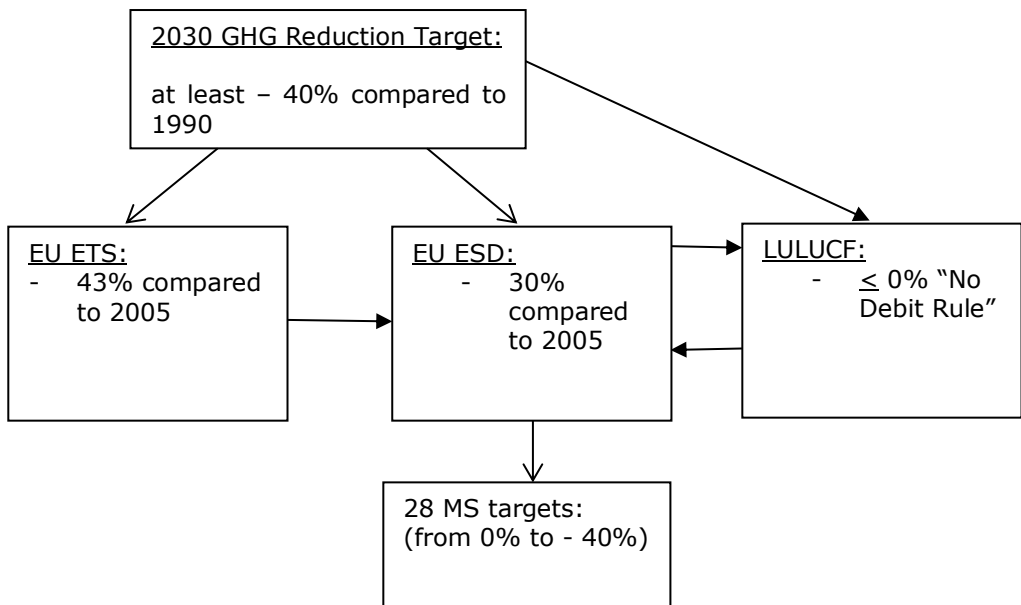
¹⁵³¹ E.C., Climate Action, Progress Made in Cutting Emissions. // < https://ec.europa.eu/clima/policies/strategies/progress_en >, last viewed 23 October 2016.

¹⁵³² European Commission, Commission Staff Working Document, Impact Assessment, accompanying the Document, Proposal for a Regulation of the European Parliament and of the Council, on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry into the 2030 Climate and Energy Framework and Amending Regulation No 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and Other Information Relevant to Climate Change, SWD (2016), 249 final, 20 July 2016.

¹⁵³³ European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry into the 2030 Climate and Energy Framework and amending Regulation 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and

legislative proposal may be seen as a significant step, addressing the regulatory gap with regard to the LULUCF sector contribution into mitigation of climate change. Although in the EU the LULUCF sector has an important impact on EU's GHG emissions (with the majority of GHG removals in the sector coming from forests absorbing CO₂) up until now the LULUCF sector was not included into the EU effort to fight GHG emissions. The proposal indicates, for the first time, a formal inclusion of the LULUCF sector towards meeting the 2030 GHG emission reduction commitment of the Union (Figure 21).

Figure 21. Formal Inclusion of the LULUCF Sector into the EU Climate Law and Policy for the Period from 2021 to 2030.



As such, the scope of the proposal mirrors the coverage of the existing EU legislation for MS under the Kyoto Protocol and the Decision 529/2013/EU. The proposed Regulation applies to the GHG carbon dioxide (CO₂), and – particularly relevant in agriculture – methane (CH₄) and nitrous oxide (N₂O), occurring on

the five land accounting categories on the territories of MS during the period from 2021 to 2030:¹⁵³⁴

- "Managed forest land", which covers forest land where no land-use change has taken place;
- "Afforested land", which covers land converted to forest land by way of a land-use change;
- "Deforested land", which covers former forest land, which has been converted to another use by way of land-use change;
- "Managed cropland", covers areas, which are or were cropland, but have not been converted from or to forest land;
- "Managed grassland", covers areas, which are or were grassland, but have not been converted from or to forest land or cropland.

This approach of "land accounting categories" is aligned with the UNFCCC "land based" reporting framework.¹⁵³⁵ It moves away from the Kyoto "activity-based" accounting approach, therefore simplifying and adapting the currently existing accounting methodology. This shift from the Kyoto "activity based" accounting to the UNFCCC "land-based" accounting is important. On the one hand, it excludes double-counting, promoting environmental integrity and reducing the administrative burden on the EU MS. On the other hand, the shift may as well be viewed as a progressive development in the LULUCF climate regulation, which

¹⁵³⁴ European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry into the 2030 Climate and Energy Framework and amending Regulation 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and Other Information Relevant to Climate Change, COM (2016) 479 final, 2016/0230 (COD), art. 2.1., Annex I A.

¹⁵³⁵ Please note, that the Paris Agreement does not specify how emissions and removals from the LULUCF sector are to be counted towards national reduction targets. The Parties are not bound by international set of standards and may use this opportunity to develop the LULUCF governance best responding to their needs. For more information on the LULUCF under the Paris Agreement subsection 3.3.1.5. "Reporting and Accounting under the Paris Agreement", section 3.3.1. "Land Use, Land Use Change and Forestry Sector Reporting and Accounting", part. 3.3. Forest Regulation under the International Climate Change Regime, chapter III "Forests under the International Climate Change Regime" of the present thesis. As for the land-based and activity-based approaches, currently national GHG balances from the LULUCF sector are reported under two parallel streams: the reporting and accounting framework of LULUCF under the Kyoto Protocol ("activity-based"); and the reporting obligations under the UNFCCC ("comprehensive", "land-based"). Conversion to and from these two systems is rather complex and substantially increases the administrative burden on the EU MS. For more information on the Land - based and Activity Based Approaches, see, subsection 3.3.1.3. "Land-based and Activity-based Approaches", section 3.3.1. "Land Use, Land Use Change and Forestry Sector Reporting and Accounting", part. 3.3. Forest Regulation under the International Climate Change Regime, chapter III "Forests under the International Climate Change Regime" of the present thesis.

may have a wide-ranging influence even on global approaches to land-based emissions and removals.

Significantly, the proposed LULUCF Regulation establishes a binding commitment of CO₂ emission reduction in forestry and land use for each MS,¹⁵³⁶ as well as related compliance rules for the period from 2021 until 2030. Up until now, the EU climate law and policy have only established accounting rules for GHG emissions and GHG removals from the LULUCF sector (Decision 529/2013/EU). As for the proposed legislation, now it sets down an explicit “no debit rule”: every MS must ensure that, during the periods from 2021 until 2025 and from 2026 until 2030, the total GHG emissions accounted for in all the land accounting categories combined do not exceed the total GHG removals (art. 4). In particular for forests, this means, that the MS have to compensate all deforestation either by equivalent afforestation or by improving sustainable management of existing forests (taking into consideration that in comparison to forest mitigation potential under the LULUCF sector, the mitigation potential in other land-use change categories, such as, for instance, “managed grassland” and/or “managed cropland”, is limited¹⁵³⁷).

The accounting rules for the LULUCF sector are largely built on the general accounting rules from the Decision 529/2013/EU. Similar to the 2013 LULUCF Decision the proposed 2016 LULUCF Regulation maintains the methodology for accounting for harvested wood products – such as paper, sawn wood, and wood panels (art. 9). As it is the case with the 2013 LULUCF Decision, the proposed 2016 LULUCF Regulation as well allows MS to exclude from their accounts unforeseen GHG emissions resulting from natural disasters – such as the destruction of large areas of forests by fire, storm or insect attack (art. 10).

¹⁵³⁶ In particular, the commitment for each MS is to ensure that the LULUCF sector should have, after the application of the accounting rules specified in the Regulation, and taking into account the flexibilities, no net emissions on their territory (i.e. “no debit rule”). See, art. 4. “Commitments”.

¹⁵³⁷ The majority of GHG removals in the LULUCF sector comes from forests absorbing CO₂. See, E.C., Climate Action, Consultations on Addressing GHG Emissions from Agriculture and LULUCF in the Context of the 2030 EU Climate and Energy Framework.// <http://ec.europa.eu/clima/consultations/articles/0026_en.htm>, last viewed 28 October 2016.

Another major change introduced by the Proposal concerns the reference values, i.e. the level of emissions used as a reference to compare emissions or removals for major LULUCF categories in a given year.¹⁵³⁸ In particular, the proposed Regulation sets binding criteria for determining forest reference levels (art. 8.3, Annex IV A). According to the proposal, the reference values for managed forest land must be based on “transparent, complete, consistent, comparable and accurate information”. Currently, each MS identifies projected levels of emissions/removals for its national forests independently (on the basis of scientific evidence).¹⁵³⁹ Adoption of the binding criteria may be viewed as a major improvement in comparison to the 2013 LULUCF Decision as these criteria facilitate comparability between MS, and allow for avoiding the selection of a reference value that may artificially influence accounting results.

One more novelty of the proposed Regulation is the establishment of the flexibility mechanisms. First of all, flexibility is allowed within the sectors of the LULUCF: “emissions should not exceed removals, calculated as the sum of total emissions and removals on the territory of each MS in the land accounting categories combined” (art. 4). Where, during the period from 2021 to 2025, a MS removes more GHG, than it emits in the LULUCF sector, a MS can transfer the net GHG removals to the period from 2026 until 2030 (art. 11.3., i.e. so called “banking”). Where in one of the two periods (i.e. from 2021 until 2025 or from 2026 until 2031) a MS emits more GHGs than it removes in the LULUCF sector, it can balance out the excess GHGs by buying a corresponding volume of GHG removals from other MS (art. 11. 2.). This flexibility is of particular significance for forests, as the ability to sell net removals to other MS means that afforestation programs can take place in the most suitable locations across the EU MS.

¹⁵³⁸ In the case of managed forest land, as the difference from the projected reference values for both periods, which take account of natural cycles and expected human intervention – such as the planned wood harvest (art. 8.1.); in the case of afforested and deforested areas, for each individual year (art. 6.1.); in the case of managed cropland and grassland, as the difference from a reference value corresponding to the GHG emissions and GHG removals for the years 2005-2007 (art. 7.1.).

¹⁵³⁹ E.P., Council of the European Union, Decision 529/2013/EU Of the European Parliament and of the Council of 21 May 2013 on Accounting Rules on Greenhouse Gas Emissions and Removals Resulting from Activities Relating to Land-use, Land-use change and Forestry and on Information Concerning Actions Relating to those Activities, O.J., L 165/80, 18 June 2013.

Finally, a remark needs to be made about the overall value of the 2016 LULUCF Proposal for forest regulation. However perfect the accounting rules for the LULUCF sector may be, their overall objective is to safeguard carbon. In particular, with regards to forests, they do not safeguard other forests' services and functions such as, for instance, the biodiversity conservation. Even if a country receives debits (emissions) from the category "Managed Forest Land", these can be cancelled by credits (removals) from the category "Afforested Lands". In general afforestation is incentivized, because it accounts on the basis of "gross – net" accounting: meaning that a total carbon flux is accounted for each year in the period from 2021 until 2025 and from 2026 until 2030. This method of accounting is different from all other LULUCF sectors. It can have a "knock on effect" that "afforested land" credits contribute disproportionately to a MS's LULUCF accounting. This method of accounting can offset any debits a MS has from "managed forest land". In other words, this means, that a MS could increase harvesting in old growth forests, as long as they increase the number of (forest) plantations. Though the total carbon balance may be neutral, the impact on biodiversity may be immense. For example, according to a report from an NGO, FERN, this is currently taking place in Ireland.¹⁵⁴⁰ The country projects that it will significantly increase harvesting in existing forests. Although this is decreasing the forest carbon sink to the point that it may become a net source of emissions, the high level of afforested lands allows the total balance to remain as positive.

6.2.1.6. Interim Conclusions: The LULUCF Sector under the EU Climate Law and Policy, Value for Forest Regulation.

The LULUCF sector has a significant impact on the EU's GHG emissions. The majority of GHG removals in the sector comes from forests absorbing CO₂. Despite its significant potential to contribute towards climate change mitigation, the LULUCF sector is currently left out of the current EU's climate commitments under the 2009 Climate and Energy Package. This is largely due to the challenges, associated with developing accounting rules, which allow taking the specific characteristics and peculiarities of the sector into account (additionality,

¹⁵⁴⁰ FERN, LULUCF, Emissions and removals of LULUCF Activities, April 2016, p. 13. // < http://www.fern.org/sites/fern.org/files/briefingnote%20lulucf_FINAL21April.pdf>, last viewed 03 November 2016.

permanence, uncertainty concerns, etc.). After the adoption of the new international rules on the LULUCF accounting in 2011, the LULUCF rules were incorporated into the EU legislation by the 2013 Decision. Although the implementation of the 2013 LULUCF Decision contributes to improved accounting by MS for the LULUCF sector by the end of 2020, the results of these accounts, as of now, play no part in the EU's reduction target for 2020. In January 2014, the European Commission addressed the regulatory gap by proposing three principal options for a potential policy design in order to include the LULUCF accounting into the EU policy framework for climate and energy for the period from 2020 until 2030 (i.e. the LULUCF Pillar, the Land Use Sector Pillar, the Effort Sharing Pillar). In the light of the research, the "LULUCF Pillar" may be viewed as the most optimal option as it allows the LULUCF sector to be treated independently under the EU climate law and policy framework, taking into account the specificities of the forest sector, enabling further development of the sector-specific policies, targets and accounting rules. It also allows to ensure consistency with the forest specific policies (e.g. such as SFM and conservation of biodiversity).

In July, 2016 the European Commission proposed a regulation regarding the inclusion of GHG emissions and removals from the LULUCF sector into the EU 2030 climate and energy framework.¹⁵⁴¹ In the light of the research, the legislative proposal is seen as a significant step, addressing the regulatory gap with regard to the LULUCF sector's contribution into the EU efforts on climate change mitigation. Whereas up until now the EU climate law and policy have only established accounting rules for GHG emissions and removals from the LULUCF sector, the proposed 2016 LULUCF Regulation sets down an explicit "no debit rule": every MS must ensure that, during the periods from 2021 until 2025 and from 2026 until 2030, the total GHG emissions accounted for in all the LULUCF sector land accounting categories combined do not exceed the total GHG

¹⁵⁴¹ European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of GHG Emissions and Removals from LULUCF into 2030 Climate and Energy Framework and Amending Regulation 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting GHG Emissions and Other Information Relevant to Climate Change, COM (2016), 479 Final, 2016/0230 (COD).

removals.¹⁵⁴² In particular, for forests, this may bring additional benefits, implying that the MS have to compensate all deforestation either by equivalent afforestation or by improving sustainable management of existing forests. However, the primary objective of the accounting rules under the 2016 LULUCF Proposal remains “to safeguard carbon”. In particular, with regard to forests, these rules do not safeguard forest functions and services other, than carbon-related forest functions and services. The research has illustrated how under the proposed accounting rules the EU MS could increase harvesting in their old growth forests, as long as they increase the number of tree plantations. In this case although the total carbon balance may be neutral, the impact on forest biodiversity will be immense.

6.2.2. The LULUCF Sector under the RF Climate Law and Policy.

Firstly, the section reviews why, despite the fact that the LULUCF sector has a significant impact on RF’s GHG emissions, under the current climate framework the contribution of the LULUCF sector is not accounted for towards the national GHG emission reduction target (6.2.2.1.). Secondly, the section studies the current proposals on how to formally include the LULUCF sector into the RF framework on climate and provides some recommendations on the matter from a forest-related perspective (6.2.2.2.).

6.2.2.1. The LULUCF Sector and the National GHG Emission Reduction Target.

Obviously, in the RF the LULUCF sector has a significant impact on the RF’s GHG emissions: the sector removes almost 30 percent of GHG emitted in other parts of the economy (i.e. total GHG emissions, excluding the emissions from the LULUCF sector).¹⁵⁴³ Within the RF the LULUCF sector is recorded as a net carbon sink, meaning that on aggregate the sector removes more GHG from the atmosphere than it emits.¹⁵⁴⁴ The majority of GHG removals come from forests

¹⁵⁴² European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of GHG Emissions and Removals from LULUCF into 2030 Climate and Energy Framework and Amending Regulation 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting GHG Emissions and Other Information Relevant to Climate Change, COM (2016), 479 Final, 2016/0230 (COD), art. 4.

¹⁵⁴³ UNFCCC, RF’s Sixth National Communication, 2013, p. 59.

¹⁵⁴⁴ UNFCCC, RF’s Sixth National Communication, 2013, p. 59.

absorbing CO₂.¹⁵⁴⁵ According to some estimates, the Russian forests absorb up to 22 percent of the total RF GHG emissions annually.¹⁵⁴⁶

The Russian climate target is “to provide for the GHG emissions reduction at the level not exceeding 75 percent of the GHG emissions in 1990 by 2020”.¹⁵⁴⁷ Although the government of the RF acknowledged that achieving the national binding target requires the establishment of a national system of MRV of anthropogenic GHG emissions,¹⁵⁴⁸ the legal framework to provide for the national GHG emissions MRV has not yet emerged.¹⁵⁴⁹ At the time of writing the research, it is yet unclear, how the input from the LULUCF sector is to be accounted for under the national climate law and policy and, furthermore, how the input is to be integrated into the national climate target on GHG emissions reduction. According to the 2015 Development Concept on the National MRV System for GHG Emissions the methodological guidance and rules for the GHG emissions accounting from the LULUCF sector may be expected during the period from 2017 until 2018.¹⁵⁵⁰

6.2.2.2. How to Formally Include the LULUCF Sector into the RF Legal Framework on Climate? a Forest-related Perspective.

In the light of the research, it is possible to make suggestions as to how to include the LULUCF sector into the RF legal framework on climate (from a forest-related perspective). It may be suggested, to provide a separate legal framework for the LULUCF sector under the RF climate law and policy. This will

¹⁵⁴⁵ UNFCCC, RF’s Sixth National Communication, 2013, p. 60.

¹⁵⁴⁶ RF Federal Forestry Agency, Future Projection of the anthropogenic GHG emissions in the national forest sector.// < <http://www.rosleshoz.gov.ru/media/news/1984>>, last viewed 09 February 2017.

¹⁵⁴⁷ RF, RF President Order No 752, (Указ Президента РФ от 30 сентября 2013), About GHG Emissions Reduction, (О Сокращении Выбросов Парниковых Газов), 30 September 2014.

¹⁵⁴⁸ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), I. Introduction, para 1.

¹⁵⁴⁹ For more information please see subsection “RF GHG Emission Reduction Target and National Accounting Rules”, section 6.1. “How is the International Climate Change Regime Implemented into the (sub)National Environmental Law and Policy (the EU and the RF)” of the current chapter.

¹⁵⁵⁰ RF, Resolution of the RF Government No- 716-R, (Распоряжение Правительства РФ от 22 апреля 2015), 22 April 2015, Development Concept on the RF System for GHG Emissions Monitoring, Reporting and Verification, (Концепция Формирования Системы Мониторинга, Отчетности и Проверки Объема Выбросов Парниковых Газов в РФ), V. Implementation of the Concept.

allow to take the specific characteristics and peculiarities of the LULUCF sector into account (e.g. sinks and sources, non-permanence, natural disturbances¹⁵⁵¹). Furthermore, instead of immediately including the LULUCF sector into the RF's binding GHG emission reduction target, it is recommended to take a step-wise approach. Firstly, the focus needs to be on agreeing and adopting a set of harmonized accounting rules and monitoring provisions for the sector. And only then, when the rules are in place and the knowledge about the national LULUCF sector has been enhanced, should the second step, i.e. the inclusion of the sector into the RF's reduction commitment, proceed.

An important issue to be considered when drafting national policy on LULUCF accounting is the design of flexibilities between the LULUCF sector and other sectors of the national economy (i.e. the design of options on the possible exchange of removal units, credits, or debits, between or within the sectors, other than LULUCF, in other words, whether the current carbon sink represented by the LULUCF sector will be used to offset "fossil fuel" emissions). The research has already illustrated how the "hybrid flexibility" approach, taken by the EU (e.g. when flexibility is allowed within the sectors of LULUCF and the agricultural sector under the ESD), could provide an example where, on the one hand, mitigation actions both in the agricultural sector under the ESD and in the LULUCF sector are incentivized, and, on the other hand, the ambition to reduce emissions in the other sectors of economy is not diminished.

In contrast, it seems that the RF may favor an "unlimited flexibility" approach (i.e. when the LULUCF sector, which represents a net sink for GHG emissions, could be used to offset emissions from non-LULUCF sectors). Thus, during the meeting, entitled "Regulatory Measures on GHG accounting in the RF", which took place in the RF State Duma, some stakeholders expressed their position as follows: "Given that the RF has surpassed its [international] GHG emission reduction obligations, and taking into consideration the volume of CO₂ absorption by the national ecosystems and biomes, such regulatory measures

¹⁵⁵¹ For the elaboration on the challenges associated with GHG accounting for the LULUCF sector, please see subsection 3.3.1.4. "Challenges associated with LULUCF", section 3.3. "Forest Regulation under the International Climate Change Regime" chapter II "Forests under the International Climate Change Regime" of the current research.

that would place additional financial burden on industry (including any possible market-based approaches, involving carbon price) should not be developed and implemented.”¹⁵⁵² It was feared that, without taking into account the full potential of the LULUCF sector to offset emissions in other sectors of economy, the possible “regulatory measures could significantly decrease the competitiveness of various sectors of national economy and imply increased costs for national industry”.¹⁵⁵³ It was further emphasized that “in order to protect Russia’s international economic interests, it is of highest priority to develop and adopt such national rules for GHG emissions accounting, which would ensure maximum consideration of the offsetting potential by national forests and by other ecosystems”.¹⁵⁵⁴ In a similar line, the recent studies by some Russian economists argue that “it is beneficial for Russia to create such a method of forest carbon accounting with economic transmission mechanism of absorbed tons by the Russian forest sector into the other sectors of the domestic economy [...] in this case, the costs of enterprises will be significantly less than the purchase of emission quotas [...]”; a “carbon price” of ecosystem services related to the absorption of GHG is viewed as an important factor to increasing the value of forests resources.¹⁵⁵⁵

¹⁵⁵² See, A.I. Silchenko, Proposal for the Briefing on “Regulatory Measures on GHG accounting in the RF”, in RF State Duma, Federal Assembly of the Russian Federation, the 6th Convocation, Highest Ecological Council, Materials of the Meeting “Regulatory Measures on the GHG Emissions in the RF”, 15 June 2016, p. 14.// <http://xn--80aamcricdvdxj0c.xn--p1ai/wp-content/uploads/2016/07/%D0%9A%D0%BE%D0%BD%D1%84%D0%B5%D1%80%D0%B5%D0%BD%D1%86%D0%B8%D1%8F_%D0%BF%D0%B0%D1%80%D0%BD%D0%B8%D0%BA%D0%BE%D0%B2%D1%8B%D0%B5-%D0%B3%D0%B0%D0%B7%D1%8B-%D1%84%D0%B8%D0%BD-5.pdf>, last viewed 10 December 2016.

¹⁵⁵³ See, A.I. Silchenko, Proposal for the Briefing on “Regulatory Measures on GHG accounting in the RF”, in RF State Duma, Federal Assembly of the Russian Federation, the 6th Convocation, Highest Ecological Council, Materials of the Meeting “Regulatory Measures on the GHG Emissions in the RF”, 15 June 2016, p. 14.// <http://xn--80aamcricdvdxj0c.xn--p1ai/wp-content/uploads/2016/07/%D0%9A%D0%BE%D0%BD%D1%84%D0%B5%D1%80%D0%B5%D0%BD%D1%86%D0%B8%D1%8F_%D0%BF%D0%B0%D1%80%D0%BD%D0%B8%D0%BA%D0%BE%D0%B2%D1%8B%D0%B5-%D0%B3%D0%B0%D0%B7%D1%8B-%D1%84%D0%B8%D0%BD-5.pdf>, last viewed 10 December 2016.

¹⁵⁵⁴ See, A.I. Silchenko, Proposal for the Briefing on “Regulatory Measures on GHG accounting in the RF”, in RF State Duma, Federal Assembly of the Russian Federation, the 6th Convocation, Highest Ecological Council, Materials of the Meeting “Regulatory Measures on the GHG Emissions in the RF”, 15 June 2016, p. 14.// <http://xn--80aamcricdvdxj0c.xn--p1ai/wp-content/uploads/2016/07/%D0%9A%D0%BE%D0%BD%D1%84%D0%B5%D1%80%D0%B5%D0%BD%D1%86%D0%B8%D1%8F_%D0%BF%D0%B0%D1%80%D0%BD%D0%B8%D0%BA%D0%BE%D0%B2%D1%8B%D0%B5-%D0%B3%D0%B0%D0%B7%D1%8B-%D1%84%D0%B8%D0%BD-5.pdf>, last viewed 10 December 2016.

¹⁵⁵⁵ See, S.N. Bobylev, A. V. Stetsenko, Forest Projects: Climate Change and Ecosystem Services (*Лесные Проекты: Климатические Изменения и Экосистемные Услуги*), Proceedings of the Saint Petersburg Scientific Research Institute of Forest Management (*Труды Санкт-*

In general the approach to forest regulation under climate law in terms of “carbon market language” is not new, and has been discussed by the research previously (e.g. REDD + instrument under the international climate change regime¹⁵⁵⁶). The side effect of such an approach is that it risks shifting the focus of environmental policy from an ecological-social reasoning (e.g. combatting climate change, protection of existing sinks in forests and enhancing the mitigation potential of the sector) to economic reasoning (e.g. commodification of forests, prioritization of their economic values). If adopted, it could allow meeting emission reduction requirements without (additional) mitigation action, i.e. through (e.g. by buying or trading) carbon sequestered in forests, while still carrying out activities, which are emitting (fossil fuels) GHGs, in other sectors of national economy. Should this be the case, it could put additional pressure on forests to provide for carbon sequestration, putting at risk other forest functions and services, such as, for instance, biodiversity conservation. Furthermore, the overall environmental ambition of the national climate target to provide for the “the GHG emissions reduction at the level not exceeding 75 percent of the GHG emissions in 1990 by 2020” could be undermined.¹⁵⁵⁷

6.3. Forests under Climate Law and Policy on RES.

The utilization of renewable energy sources contributes to climate change mitigation through, *inter alia*, the reduction of GHG emissions. The most important source of renewable energy world-wide is wood biomass.¹⁵⁵⁸ This section investigates how forests are regulated under (sub) national climate law and policy on renewable energy. This section illustrates that in the long run the regulations, promoting greater use of renewable energy, without sufficiently covering other sustainability concerns and without following an integrated approach, may lead to – intentionally or not – negative environmental impacts,

Петербургского Научно-Исследовательского Института Лесного Хозяйства), 3, 2016, pp. 77-89.

¹⁵⁵⁶ See subsection 3.3.3.4. “Challenges Associated with REDD +”, section 3.3.3. “REDD +”, part 3.3. “Forest Regulation under the International Climate Change Regime”, chapter III “Forests under the International Climate Change Regime”.

¹⁵⁵⁷ RF, RF President Order No 752, (Указ Президента РФ от 30 сентября 2013), About GHG Emissions Reduction, (О Сокращении Выбросов Парниковых Газов), 30 September 2014.

¹⁵⁵⁸ For more information on wood as a RES, please see chapter two “Climate Change and Forests: Scientific Background for International Regulation”, section three “Forests and Climate Change: Interdependence”, subsection 2.3.1.3. “Forests as a Source of Renewable Energy” of the current research.

such as, for instance, causing a rapid growth in the (unsustainable) use of wood. First, the part studies how forests are regulated under the EU climate law and policy on RES (6.3.1.). Secondly, the part reviews how forests are regulated under the RF climate law and policy on RES (6.3.2.). The part aims to answer the following question: What is the value of (sub) national climate law and policy on RES for forest regulation?

6.3.1. Forests under the EU Climate Law and Policy on RES.¹⁵⁵⁹

In the EU an important role in stimulating renewable energy use until 2020 plays the 2009 Directive on Renewable Energy Sources (RES Directive).¹⁵⁶⁰ Consistent with the strategic target of at least a 20 percent share of energy from renewable sources in the EU's gross final consumption of energy by 2020 the RES Directive establishes a common EU framework for the promotion of energy from renewable sources. In particular, the Directive sets: (1) mandatory national targets for the overall share of energy from RES in gross final consumption of energy and (2) for the share of energy from RES in transport.¹⁵⁶¹ The RED sets a mandatory target for the 28 MS to increase their share of renewable energy to 20 percent of the EU's primary energy consumption by 2020;¹⁵⁶² in comparison, in 2002 RES provided only about 6 percent of total energy requirements in the 25 countries of the EU.¹⁵⁶³ The RES Directive also obliges MS to increase renewable energy used by the transportation sector to "at least" 10 percent by

¹⁵⁵⁹ Y.M. Gordeeva, Wood Biomass Sustainability under the Renewable Energy Directive, in L. Squintani, H. Vedder, Sustainable Energy United in Diversity – Challenges and Approaches in Energy Transition in the EU, European Environmental Law Forum Book Series, Volume 1, 2014, pp. 47-63.

¹⁵⁶⁰ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16. There are other examples of regulating renewable energy use in the EU. For instance, biofuels, as a source of renewable energy, are also regulated by the Directive 2009/30/EC of the EU Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC, O. J. L 140/88.

¹⁵⁶¹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, art. 1.

¹⁵⁶² E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, art. 3.1.

¹⁵⁶³ European Commission, Biomass, Green Energy for Europe, 2005, p. 7.

2020.¹⁵⁶⁴ In comparison, the total EU liquid biofuel consumption in the transport sector constituted less than 1 percent of the total EU petrol consumption in 2004.¹⁵⁶⁵ Thus, in comparison to previous years the 2009 RES Directive stimulates a significant increase in the share of renewable energy in the EU. Lawyers have already pointed out to various legal and policy challenges, associated with the EU regulatory approach to stimulating the increase in the share of renewable energy.¹⁵⁶⁶

This section of the research focuses on the challenges associated with providing a legal framework that ensures sustainable production of wood biomass for energy purposes.¹⁵⁶⁷ The first subsection investigates how the 2009 RES Directive binding targets impact forests (6.3.1.1.). Secondly, the subsection discusses the RES Directive's sustainability criteria and their applicability to wood biomass (6.3.1.2.). Thirdly, the subsection reviews how the European Commission suggests to ensure the sustainability of wood biomass (6.3.1.3.). Fourthly, the subsection analyses the current framework for forest management, that is referred to by the European Commission as "giving certain assurances" as to provide for sustainable production of biomass within the EU¹⁵⁶⁸ (6.3.1.4.). In particular, the subsection reviews how wood biomass sustainability is considered by the SFM process under the Forest Europe Process (a), by Forest Management Planning (b), and by the Forest Law Enforcement Governance and Trade

¹⁵⁶⁴ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, art. 3.4.

¹⁵⁶⁵ European Commission, Biomass, Green Energy for Europe, 2005, p. 34.

¹⁵⁶⁶ For the discussion on the various legal challenges stemming from the EU regulatory approach to stimulating the increase in the share of renewable energy please see, M. Peeters, T. Schomerus, *Modifying Our Society with Law: The Case of EU Renewable Energy Law*, *Climate Law*, 4, 2014, pp. 131-139; M. Peeters, T. Schomerus, *Renewable Energy Law in the EU, Legal Perspectives on Bottom-Up Approaches*, 2014.

¹⁵⁶⁷ Please note that driven by the renewable energy objectives there are other challenges arising from the sharply rising demand for wood energy (e.g. mobilizing enough wood on a sustainable basis to reach the targets for renewable energy, and to incorporate woody biomass fully into national renewable energy plans; finding the most effective climate change mitigation strategy, combining carbon sequestration in forests and products with substitution of wood-based materials for non-renewable materials and (fossil) energy; maintaining the sustainability of the other parts of the forest sector faced with the consequences of increased demand for wood energy (e.g. the intensity of management needed to supply large volumes of wood for energy may result, for instance, in "energy plantations", conversion of natural forests to energy plantations, and could harm biodiversity).

¹⁵⁶⁸ E.C., Report from the Commission to the Council and the European Parliament on Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling, COM (2010) 11 final, 25 February 2010.

Initiatives (c). Fifthly, the subsection investigates the new sustainability criteria under the 2016 Proposal for a RES Directive (Recast) (6.3.1.5.). This includes, the review of the forest biomass and sustainability criteria (a), of the new specific sustainability criterion for forest biomass (b), of the “LULUCF requirements” in relation to forest biomass (c) and of the forest-related compliance and monitoring under the Proposal (d). Finally, the interim conclusions bring the findings of the subsection together and provide some concluding remarks on the value of the EU climate law and policy on RES for forest regulation (6.3.1.6.).

6.3.1.1. How do the 2009 RES Directive Binding Targets Impact Forests?

For the purpose of the RES Directive it is specified that energy from renewable sources means energy from renewable non-fossil sources, which include biomass, wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, landfill gas, sewage treatment plant gas and biogases.¹⁵⁶⁹ Currently the largest contributor of renewable energy to the EU energy system is biomass.¹⁵⁷⁰ Under the RED the term “biomass” refers to biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries [...].¹⁵⁷¹ Biomass is expected to provide a major share (57 percent) of the renewable energy consumption at the European level in 2020¹⁵⁷² and remain an important source

¹⁵⁶⁹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, art. 2 (a) “energy from renewable sources”.

¹⁵⁷⁰ See, European Commission, Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Renewable Energy Progress Report, COM (2017) 57 Final, 1 February, 2017. For instance, in 2012 biomass accounted for over two thirds, i.e. 67 percent of the gross inland energy consumption of renewables within the EU-28. Other renewable energy sources included hydro power 16 percent; wind power 9 percent; solar energy 5 percent and geothermal energy 3 percent. See, Eurostat, Agriculture, Forestry and Fishery Statistics, 2014 Edition, 2015, pp. 149-150. See also, European Commission, Energy, Energy Statistical Pocketbook. // <<https://ec.europa.eu/energy/en/data-analysis/energy-statistical-pocketbook>>, last viewed 31 March 2017.

¹⁵⁷¹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, art. 2 (a), Biomass.

¹⁵⁷² Imperial College, Center for Renewable Energy Sources, Energy Research Centre of the Netherlands, International Institute for Applied Systems Analysis, Institute for European Environmental Policy, Institute of Communication and Computer Systems, Oeko Institute, Biomass Futures – analyzing Europe’s Future Bioenergy Needs, 2012. // <<http://www.biomassfutures.eu/>>, last viewed 23 November 2016. See also, European Commission, Report from the Commission to the European Parliament, the Council, the

of renewable energy beyond 2020 in the context of the EU effort to move to a low-carbon society by the middle of the century.¹⁵⁷³ Within the biomass total, wood and wood waste provide the highest share (about 70 percent) of energy from organic, non-fossil materials of biological origin, accounting for almost half (47 percent) of the EU's gross inland energy consumption of renewables in 2012. In many European countries wood energy is the most important single source of energy from renewables (e.g. Hungary, Poland, Finland, Latvia, Lithuania, and Estonia).¹⁵⁷⁴ In the future the demand for wood biomass for energy purposes will continue to increase.¹⁵⁷⁵

Wood biomass originates from forestry.¹⁵⁷⁶ Besides bioenergy, forests are expected to provide for an extensive list of services and/or functions, including climate regulation, biodiversity conservation, timber production, etc. In the light of all these ecosystem services, wood biomass production for energy purposes puts additional burden on forests and brings up some quite alarming sustainability concerns. Thus, the European Commission highlights "biomass for bioenergy production can negatively affect forest biodiversity and carbon stocks through direct land use change (deforestation) and unsustainable forest management (e.g. forest degradation due to excessive removal of raw material)".¹⁵⁷⁷ Similarly, the European Environmental Agency (EEA) warns that the growing biomass demand is already increasing pressure on forest ecosystems and biodiversity.¹⁵⁷⁸

European Economic and Social Committee and the Committee of the Regions, Renewable Energy Report, COM 2017 (57 Final), 01 February 2017.

¹⁵⁷³ E.C., Commission Staff Working Document, Impact Assessment, Accompanying the Document, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions, A Policy Framework for Climate Change and Energy in the Period from 2020 up to 2030, SWD (2014) 15, p. 62.

¹⁵⁷⁴ Eurostat, Agriculture, Forestry and Fishery Statistics, 2014 Edition, 2015, pp. 149-152.

¹⁵⁷⁵ On average the volume of wood used for energy purposes in Europe between 2007 and 2013 increased annually by 5 percent. See, UNECE, FAO, Joint Wood Energy Enquiry, 2015. // < <https://www.unece.org/forests/jwee.html>>, last viewed 23 November 2016.

¹⁵⁷⁶ Wood as a source of energy is mostly often used in its various raw material forms: logs, stems, stumps, needles and leaves from forests; bark, sawdust and redundant cuttings from sawmills; chips and slabs from wood industry; and recycled wood from demolition. Alternatively, the raw material can be processed into forms that allow for easy transport, storage and combustion, such as chips, pellets, briquetts and powder. The most economical way of converting biomass into fuel is wood pellets, made from dried sawdust, shavings or wood powder.

¹⁵⁷⁷ E.C., Commission SWD, State of Play on the Sustainability of Solid and Gaseous Biomass used for Electricity, Heating and Cooling in the EU, SWD (2014) 259 final, 28 July 2014, p. 11.

¹⁵⁷⁸ EEA, European Forest Ecosystems State and Trends, Report No 5/2016, 2016 p. 45.

The sustainability concerns relate especially to the future, when the need for wood biomass will have multiplied and the negative environmental impacts, caused by harvesting and production of wood biomass will have more than just a marginal impact on the environment. The European Commission estimates, that if the 2020 renewable energy target is achieved, the amount of wood, used only for energy purposes in the EU, would be equivalent to today's total wood harvest.¹⁵⁷⁹ The intensification and expansion of forest management may reduce forests' capacity to sequester and store carbon, and affect forests' resilience to climate change.¹⁵⁸⁰ Other negative impacts of subsidized wood biomass production include biodiversity concerns and deterioration of water, air and soils.¹⁵⁸¹

The increasing bioenergy demands are likely to lead to intensification and expansion of forest practices not only in the EU, but increases in land use change, deforestation and forest degradation as well in other parts of the world.¹⁵⁸² According to the some estimates, the EU cannot produce and supply wood biomass for its 28 MS up to the amounts that the RES Directive is promoting, and wood biomass import is likely to play a significant role in meeting the 2020 targets.¹⁵⁸³ For instance, it is estimated that the total annual import of wood pellets (i.e. wood biomass converted into fuel) into the EU under the business as usual scenario will increase drastically from 2 million tons in

¹⁵⁷⁹ E.C., Communication from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013), 659 final, p. 2.

¹⁵⁸⁰ E.C., Commission SWD, State of Play on the Sustainability of Solid and Gaseous Biomass used for Electricity, Heating and Cooling in the EU, SWD (2014) 259 final, 28 July 2014, p. 11-12.

¹⁵⁸¹ For further information on sustainability issues associated with wood biomass harvesting and production please see, for instance, U.R. Fritsche, et al, Extending the EU Renewable Energy Directive Sustainability Criteria to Solid Bioenergy from Forests, Natural Resources Forum, 38, 2014, pp. 129-140; P. Pelkonen, et al, Forest Bioenergy for Europe, What Science Can tell Us?, 2014; BirdLife International, The Black Book of Bioenergy, 2016.

¹⁵⁸² For more information please see, FERN NGO, Bioenergy Briefing Note 1: the Limited Availability of Wood for Energy, 2015. // < <http://www.fern.org/publications/briefing-note/bioenergy-briefing-note-1-limited-availability-wood-energy>>, last viewed 23 November 2016.

¹⁵⁸³ UN, United Nations Economic Commission for Europe (UNECE), FAO, The European Forest Sector Outlook Study II 2010 – 2030, 2011, pp. 22-23.

2010 to over 16 million tons in 2020;¹⁵⁸⁴ with the RF remaining among the most important countries for the EU wood biomass import.¹⁵⁸⁵

The increasing demand for biomass for energy purposes, and in particular, for wood biomass, creates a certain legal challenge, relating to ensuring by means of legislative frameworks the sustainability of the leading renewable energy resource in the EU and in the exporting countries. In the light of the research it seems obvious, that legislation is required to regulate where and how wood biomass for energy purposes is produced.

6.3.1.2. Wood Biomass and the Sustainability Criteria under the RES Directive.

The RES Directive aims to secure efficient and sustainable use of natural resources for energy purposes. Thus, recital 65 of the Directive clearly states that “biofuel production should be sustainable. *Biofuels* used for compliance with the targets [... under the RES Directive...] should therefore be required to fulfil sustainability criteria”.¹⁵⁸⁶ According to the European Commission the RES Directive introduces “the most comprehensive and advanced binding sustainability scheme of its kind anywhere in the world”.¹⁵⁸⁷ And, yet, wood biomass is not subject to its sustainability requirements.

“Biofuels” under the RES Directive refer to liquid or gaseous fuel for transport produced from biomass;¹⁵⁸⁸ “bioliquids” means liquid fuel for energy purposes other and for transport, including electricity and heating and cooling, produced from biomass.¹⁵⁸⁹ “Bioliquids” and “biofuels” are traditionally derived from

¹⁵⁸⁴ IEA, M. Cocchi et al., *Global Wood Pellet Industry – Market and Trade Study*, 2011, pp. 6-13.

¹⁵⁸⁵ EC, *Results of the Public Consultation on Additional Sustainability Measures*, 2011, p. 4.

¹⁵⁸⁶ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16, preamble, para. 65.

¹⁵⁸⁷ E.C., *Information from EU Institutions, Bodies, Offices and Agencies, Communication from the Commission on Voluntary Schemes and Default Values in the EU Biofuels and Bioliquids Sustainability Scheme*, 19 June 2010, O. J. C 160/1.

¹⁵⁸⁸ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 2 (i).

¹⁵⁸⁹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art 2 (h).

agriculture.¹⁵⁹⁰ In comparison to wood biomass, “bioliquids” and “biofuels” comprise a minor part (approximately 1/3) of the total biomass used for energy purposes in the EU. Wood biomass falls under the third category of fuels to produce bioenergy: i.e. under the category of “solid and gaseous biomass for electricity, heating and cooling”. As a fuel, wood biomass is mostly used directly, i.e. not converted to biofuels and bioliquids, but through a straightforward combustion.

The sustainability criteria, laid down in Article 17, apply only to “biofuels” and “bioliquids”, irrespective of whether the raw materials were cultivated inside or outside the EU.¹⁵⁹¹ Compliance with these sustainability criteria is not a precondition for placing biofuels on the EU market; biofuels may be produced and imported even if the binding criteria are not met. However, in order to be calculated towards the 10 percent binding target and be eligible for financial support or state aid, compliance with the sustainability criteria is required.¹⁵⁹²

The RES Directive’s sustainability criteria are fully harmonized. They were adopted under Article 114 (ex. Article 95) of the Treaty on the Functioning of the EU (TFEU). Thus, MS are not permitted to set additional criteria for the same purposes as those of the RES Directive or exclude biofuels on sustainability grounds other than those set out in the RES Directive.¹⁵⁹³

¹⁵⁹⁰ Contemporary first generation or conventional liquid biofuels are derived mostly from agricultural resources, such as cereals, sugar beets, rapeseed, etc. Non-food feedstock biofuels of the second and the third generations, including those of the cellulosic origin, have not yet been proven on a commercial scale, and are only envisaged for the future.

¹⁵⁹¹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.

¹⁵⁹² E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.1. For a comparative analysis on the state-of-the-affairs of the regulatory approaches to sustainability of biofuels in the international, EU and Chinese legal frameworks, examining whether they may inclusively address sustainability concerns in environmental and socio-economic dimensions, see Y. Taotao, *Different Paths Towards Sustainable Biofuels? A Comparative Study of the International, EU, and Chinese Regulation of the Sustainability of Biofuels*, 2016; for the discussion of the practical implementation of the EU Renewable Energy Directive’s Sustainability Criteria, see S. Romppanen, *The EU’s Biofuels: Certified as Sustainable?*, *Renewable Energy Law and Policy Review*, Volume 3, 2012, issue 3, pp. 173-186.

¹⁵⁹³ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, preamble, rec. 94.

The RES Directive sustainability scheme may be summarized as follows. According to the “emissions related sustainability criteria”, the use of the biofuel must result in a GHG emission saving of at least 35 percent. From 1 January 2017, that figure rises to a saving of at least 50 percent. From 1 January 2018, for biofuels the production of which started on or after 1 January 2017, the figure rises to a saving of at least 60 percent.¹⁵⁹⁴

According to the “land-related sustainability criteria”, for all biofuels other than those produced from non-biological waste and residues,¹⁵⁹⁵ the “biofuels” or “bioliquids” must not have been made from raw material obtained from land with high biodiversity value (as determined in or after January 2008), for instance: namely primary forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological process are not significantly disturbed; areas designated by law or by relevant competent authority for nature protection purposes; or for the protection of rare, threatened or endangered ecosystems or species recognized by international agreements or included in lists drawn up by intergovernmental organizations, or the International Union for Conservation of Nature (IUCN) and highly biodiverse grassland.¹⁵⁹⁶ Sustainably produced biofuels must not be made from raw materials obtained from land with high carbon stock, for instance, land which was considered wetlands or areas which were continuously forested in January 2008 and no longer have that status.¹⁵⁹⁷ Sustainably produced biofuels must not be produced from raw material obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material did not involve draining previously undrained soil.¹⁵⁹⁸

¹⁵⁹⁴ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.2.

¹⁵⁹⁵ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.3.

¹⁵⁹⁶ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.3.

¹⁵⁹⁷ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.4.

¹⁵⁹⁸ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.5.

In order to indicate how MS plan to implement sustainability criteria on the national level, Article 4 of the RES Directive requires MS to submit National Renewable Energy Action Plans (NREAPs).¹⁵⁹⁹ Such Plans provide detailed roadmaps of how the MS intend to reach their legally binding 2020 target for the share of renewable energy in their final energy consumption.

Currently, the RES Directive sustainability criteria do not apply to solid biomass, such as wood.¹⁶⁰⁰ In other words, energy from wood biomass may be taken into account for the purposes of the RES Directive without references to its sustainability criteria – such as, for instance, the ability of wood biomass to contribute to the reduction of GHG emissions. In the light of the research two issues are particularly alarming: on the one hand, this state of affairs poses a significant threat to the protection of forests from degradation and deforestation both inside and outside the EU. On the other hand, the extensive use of unsustainable biomass may also threaten efforts to achieve the EU wide GHG reduction target for 2020. The regulatory gap with regard to the sustainability criteria for forest based biomass has led to many arguments and calls from environmental NGOs to establish a common EU sustainability scheme for “solid biofuels” and, for wood biomass, in particular.¹⁶⁰¹

¹⁵⁹⁹ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 4.

¹⁶⁰⁰ Please note, that in February 2010, as required by article 17 (9) of the RED, the Commission published a Report on Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling. The Report did not propose EU-wide Sustainability Criteria, but left it to “those MS that wish to introduce a scheme at national level, in order to avoid obstacles for the functioning of the international market for biomass”. See, European Commission, Report from the Commission to the Council and the European Parliament, On Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling, COM (2010)11 Final. As for the MS, in 2012 an inventory, commissioned by the EC found that some form of sustainability regulation for biomass had been introduced in 20 MS. See, L. Pelkmans, *Benchmarking Biomass Sustainability Criteria for Energy Purposes*, 2012. For a comparison of national sustainability scheme for solid biomass in the EU, see, FERN, *A comparison of National Sustainability Schemes for Solid Biomass in the EU*, 2016.

¹⁶⁰¹ WWF, *Recommendations for Sustainability Criteria for Forest Based Biomass used in Electricity, Heating and Cooling in Europe*, 2012; Bird Life, Green Peace, European Environmental Bureau, Client Earth and FERN, *NGO Briefing, Sustainability Issues for Solid Biomass in Electricity, Heating and Cooling*, 20 March 2012; European Biomass Association and Eurelectric, *Press Release: AEBIOM and EURELECTRIC call for EU wide Binding Sustainability Criteria for Biomass now*, 13 March 2013; FERN, *A Comparison of National Sustainability Schemes for Solid Biomass in the EU*, July 2016; Bird Life, et al, *Wood Biomass for Energy: NGO Concerns and Recommendations*, 2011.

6.3.1.3. How does the European Commission Suggest to Ensure the Sustainability of Wood Biomass?

At present with regard to sustainability scheme for energy uses of biomass, other than “biofuels” and “bioliquids”, and in particular “forest biomass”, the RES Directive simply establishes an obligation for the European Commission to report on the requirements for such a scheme.¹⁶⁰² The mandate in article 17.9. reads: “The Commission shall report on requirements for a sustainability scheme for energy uses of biomass, other than biofuels and bioliquids [...]. That report shall be accompanied, where appropriate, by proposals for a sustainability scheme for other energy uses of biomass [...]. That report and any proposals contained therein shall be based on the best available scientific evidence, taking into account new developments in innovative processes. If the analysis done for that purpose demonstrates that it would be appropriate to introduce amendments, in relation to forest biomass, in the calculation methodology in Annex V or in the sustainability criteria relating to carbon stocks applied to biofuels and bioliquids, the Commission shall, where appropriate, make proposals to the European Parliament and Council at the same time in this regard.”¹⁶⁰³ Furthermore, the Directive calls to take into account the “need for biomass resources to be managed in a sustainable manner”,¹⁶⁰⁴ and, yet, it does not define what “sustainable management” is; nor does the Directive explain the meaning of the term “sustainable” in this context.

In 2010 the Report on Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling (the EU Biomass Report) was adopted.¹⁶⁰⁵ In the Report the European Commission acknowledges sustainability risks associated with the increased demand for domestic and non-EU wood biomass production, but suggests that it is not (yet) necessary to establish binding sustainability criteria for solid biomass at the EU level.

¹⁶⁰² E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.9.

¹⁶⁰³ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, art. 17.9.

¹⁶⁰⁴ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 23 April 2009, O. J. L 140/16, preamble, para. 75.

¹⁶⁰⁵ European Commission, EU Biomass Report, COM (2010), 11 final.

According to the European Commission, for biomass, originating from forestry and produced in the EU the current legal framework on forest management, including the applicable forest laws of MS and forest management planning at national level, as well as policy guidance through the EU Forestry Strategy and international processes such as the Ministerial Conference for the Protection of Forests in Europe (MCPFE; Forest Europe), provides “certain assurances” for sustainable production of biomass.¹⁶⁰⁶ The same is declared true for the legal framework on forest management of the countries outside the EU.¹⁶⁰⁷

At the same time in order to minimize the risk of the development of varied and possibly incompatible criteria at national level, prevent disruption of the internal market and avoid unwarranted discrimination in the use of raw materials, the Commission recommended that MS, which have developed (or plan to develop) national sustainability rules for biomass, adopted criteria “in almost all respect the same” as laid down in the RES Directive, applying to biofuels and bioliquids.¹⁶⁰⁸ The few recommended amendments to the existing RES Directive sustainability scheme include:

- (1) not to impose the GHG performance criteria on wastes (however, the most of the wood biomass comes from forest residues, i.e. small trees, branches, tops and un-merchantable wood left on the ground after timber-harvesting operations, etc.¹⁶⁰⁹); and
- (2) to extend the methodological guidance in order to account for the GHG performance of solid and gaseous biomass used in electricity, heating and cooling,¹⁶¹⁰ including default values for certain feedstock.¹⁶¹¹

¹⁶⁰⁶ European Commission, EU Biomass Report, COM (2010), 11 final, p. 2, p. 4. Please note, from a legal perspective the fact that the European Commission suggests that it is not (yet) necessary to establish binding sustainability criteria for solid biomass at the EU level, but instead, trusts additional not binding measures such as, for instance, guidance through the EU Forest Strategy or the Forest Europe process does not provide legal certainty for sustainable biomass production. As for the “applicable laws of MS” an inventory conducted by the EC found that in 2012 some form of sustainability regulation for biomass had been introduced in 20 MS, yet “these regulations vary dramatically in their content and all fail to cover all sustainability issues”. For more information see, L. Pelkmans, *Benchmarking Biomass Sustainability Criteria for Energy Purposes*, 2012.

¹⁶⁰⁷ European Commission, EU Biomass Report, COM (2010), 11 final, p. 2.

¹⁶⁰⁸ European Commission, EU Biomass Report, COM (2010), 11 final, pp. 8 – 9.

¹⁶⁰⁹ European Commission, Commission Staff Working Document, Impact Assessment, Sustainability of Bioenergy, Accompanying the Document, Proposal for a Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources (Recast), SWD (2016) 418 Final, Part 4/4, p. 16.

¹⁶¹⁰ European Commission, EU Biomass Report, COM (2010), 11 final, pp. 8 – 9, paras 1-2, Annex I.

The Commission acknowledged “large knowledge gaps” with regard to the use of biomass for energy purposes in the EU, its amount and the effects of biomass use on the areas of its origin. In order to improve the biomass statistics, MS were required to keep records of the origin of primary biomass used in electricity, heating and cooling installations and to report the collected information to the European Commission.¹⁶¹² The Report concludes that “the emergence of wider sustainability regimes affecting forests (e.g. sustainable forest management schemes) or other agricultural or forest products will be monitored, to assess, whether sustainability requirements for only the energy uses of forest and agricultural biomass help to deliver on sustainable development for the forest and agricultural sector”.¹⁶¹³

Suggesting voluntary, rather than obligatory sustainability criteria, the Recommendations of the European Commission have led to variations between MS establishing sustainability schemes. Only a few MS have developed mandatory sustainability criteria for bioenergy, but even these vary significantly and most are not comprehensive in their approach.¹⁶¹⁴ The fact that there is no harmonized sustainability scheme at the EU level for solid biomass have led to concerns that differing national schemes for the sustainability of solid biomass used for energy might impede intra-EU and/or international trade in biomass in the future.¹⁶¹⁵

6.3.1.4. How is the Sustainability of Wood Biomass Ensured under the Current Legal Framework on Forest Management?

The European Commission refers to the current legal framework related to forest management, including the applicable forest laws of MS and forest management planning at national level, as well as policy guidance through the EU Forestry

¹⁶¹¹ European Commission, EU Biomass Report, COM (2010), 11 final, pp. 8 – 9, paras 1-2, Annex II.

¹⁶¹² European Commission, EU Biomass Report, COM (2010), 11 final, p. 9 - 10.

¹⁶¹³ European Commission, EU Biomass Report, COM (2010), 11 final, p. 10.

¹⁶¹⁴ Fern, A Comparison of National Sustainability Schemes for Solid Biomass in the EU, July 2016.// < <http://www.fern.org/sustainabilityschemes>>, last viewed 10 February 2017.

¹⁶¹⁵ European Commission, Results of the Public Consultation on Additional Sustainability Measures at EU level for Solid and Gaseous Biomass used in Electricity, Heating and Cooling, July, 2011, p. 7.

Strategy and international processes such as the Forest Europe as to “giving certain assurances” for sustainable production of biomass within the EU.¹⁶¹⁶

As such, the current EU legal framework related to forest management is rather fragmented.¹⁶¹⁷ There is no common EU policy on forests; the Treaties, establishing the EU, make no reference to specific provisions for an EU forest policy.¹⁶¹⁸ Indeed, there are policies, such as the Rural Development Regulation of the Common Agricultural Policy (CAP), the EU Industrial Policy, the EU Biodiversity Policy, the EU Water Framework Directive (WFD),¹⁶¹⁹ and the Climate and Energy package, which all have their impacts on forests, but they have been designed to address their particular non-forest issues. If to consider the WFD as an example, its primary purpose is to “establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater”,¹⁶²⁰ however, the provisions of the Directive are, as well, significant for forests. Thus, forests are identified among the “anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject”.¹⁶²¹ In order to protect waters, the WFD obliges MS to collect and maintain information on the type and magnitude of the anthropogenic pressures, such as the change in land use patterns.¹⁶²² However, as scholars note, “the ecosystem services provided by forests and the positive effects of forestry on water quality are inadequately recognized in the WFD”.¹⁶²³ Similarly, other EU forest-related laws and policies have an impact on forests, but they lack forest specificity.

¹⁶¹⁶ European Commission, EU Biomass Report, COM (2010), 11 final, p. 2.

¹⁶¹⁷ For more information on the EU forest law and policy please see, Y.M. Gordeeva, *EU Forest Law and Policy (Право и Политика ЕС в Области Лесного Хозяйства)*, Current Issues of Russian Law (*Актуальные Проблемы Российского Права*), 12, 2014, pp. 2934 – 2943.

¹⁶¹⁸ Treaty on the Functioning of the EU (TFEU), Treaty on the EU (TEU).

¹⁶¹⁹ European Parliament and the Council of the EU, Directive 200/60/EC of 23 October 2000, Establishing a Framework for Community Action in the Field of Water Policy, O.J. L. 327/1.

¹⁶²⁰ European Parliament and the Council of the EU, Directive 200/60/EC of 23 October 2000, Establishing a Framework for Community Action in the Field of Water Policy, O.J. L. 327/1, art. 1.

¹⁶²¹ European Parliament and the Council of the EU, Directive 200/60/EC of 23 October 2000, Establishing a Framework for Community Action in the Field of Water Policy, O.J. L. 327/1, Annex II.

¹⁶²² European Parliament and the Council of the EU, Directive 200/60/EC of 23 October 2000, Establishing a Framework for Community Action in the Field of Water Policy, O.J. L. 327/1, Annex II.

¹⁶²³ M. N. Futter, et al, *Forests, Forestry and the Water Framework Directive in Sweden: A Trans-Disciplinary Commentary*, *Forests*, 2, 2011, pp. 262.

In the recent years the number of forest-related policies has been increasing, creating a complex and fragmented forest-policy environment.¹⁶²⁴ Environmental NGOs have already pointed out that “there is a clear lack of coherence between these laws and policies both at the EU level and between the EU and its MS. For instance, National Action Plans for different policies such as rural development and biodiversity are not in line with each other and can even be contradictory”.¹⁶²⁵ On a number occasions the European Commission pointed out that a coherent approach to SFM and better ways of integrating forest issues at the EU level is missing.¹⁶²⁶ The expected rapid growth in the use of wood for energy purposes as a result of the RES promotion under the RES Directive and the associated regulatory gap on corresponding sustainability criteria may further aggravate the existing incoherence in the EU forest-related regulation.

In 2013, with a view to address in a holistic way the overall increasing demands put on forests by many end-uses, including the bioenergy production, a new EU Forest Strategy.¹⁶²⁷ The 2020 objective of the Strategy is “to ensure and demonstrate by 2020 that all EU forests are managed according to the principle

¹⁶²⁴ European Commission, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013, p. 3.

¹⁶²⁵ Bird Life et al, Woody Biomass for Energy: NGO Concerns and Recommendations, 2011, p. 25.

¹⁶²⁶ European Commission, Communication from the Commission to the Council and the European Parliament, Reporting on the Implementation of the EU Forestry Strategy, COM (2005) 84 final, 10 March 2005; European Commission, Communication from the Commission to the Council and the European Parliament, On an EU Forest Action Plan, COM (2006), 302 Final, 15 June 2006.

¹⁶²⁷ European Commission, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013; Council of the European Union, New EU Forest Strategy: Conclusions Adopted by the Council, Presse 297, 19 May 2014; European Parliament, Resolution on a New Forest Strategy: for Forests and the Forest-based Sector, P8_TA (2015) 0109 (2014/2223 (INI), 28 April 2015. Please note, that the concern about a lack of coherence and coordination between national forest policies and different forest-related EU policies was voiced already in 1990s. To address these concerns, a non-legally binding EU Forestry Strategy of 1998 was adopted. Its implementation left much to be desired. A review of the implementation in 2005 revealed that there was a need to strengthen coherence between EU forest-related policies, as well as coordination between the European Commission and MS. This review led to the EU Forest Action Plan in 2006. However, the 2009 mid-term evaluation of the EU Forest Action Plan concluded that its activities have been ineffective on most counts. In 2010 the European Commission Launched a “Green Paper on Forest Protection and Information in the EU”. In 2010 Council Conclusions stated that “further efforts and options for cooperation and coordination at the EU level within the framework of the Forestry Strategy and EU Forest Action Plan, with due regard to the subsidiarity principle, should be pursued”. See, P. Pelli et al, Mid-term Evaluation of the Implementation of the EU Forest Action Plan: A Study for DG Agriculture and Rural Development, 2009; European Commission, Green Paper on Forest Protection and Information in the EU: Preparing Forests for Climate Change, COM (2010) 66 Final; Council of the European Union, Council Conclusions on Preparing Forests for Climate Change: Forest Protection and Information in the EU, 3021 Environmental Council Meeting, 11 June 2010.

of SFM and that the EU's contribution to promoting SFM and reducing deforestation at global level is strengthened".¹⁶²⁸ The Strategy provides for the needed "policy framework that coordinates and ensures coherence of forest-related policies"; it positions the forest sector in a way that ensures forests' contribution to the EU's objectives and targets;¹⁶²⁹ providing a particular focus on "fostering the competitiveness and sustainability of the EU's forest-based industries, bio-energy and the wider green economy".¹⁶³⁰ And, yet, the document remains strategic in character and represents only a high level ambitious plan, remaining at the level of voluntary cooperation of the EU MS.

a. Wood Biomass and SFM under Forest Europe Process.¹⁶³¹

Among the policy guidance, which "give assurance" for sustainable production of biomass within the EU, the European Commission refers to the "Forest Europe" process.¹⁶³² As such, "Forest Europe" is a pan-European voluntary high level political process for dialogue and cooperation on forest policies in Europe. The process involves its 47 signatories (46 European countries, including the RF and the EU) into developing common strategies on how to protect and sustainably manage their forests.¹⁶³³ Periodically "Forest Europe" process hosts ministerial level conferences where non-binding ministerial commitments and resolutions are adopted. Among the achievements of the process is the establishment of the workable definition of SFM (i.e. the stewardship and the use of forests and forest lands in a way and at a rate that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil now and in the future, relevant ecological, economic and social functions, at local, national, and global

¹⁶²⁸ European Commission, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013, p. 6.

¹⁶²⁹ European Commission, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013, p. 4.

¹⁶³⁰ European Commission, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013, p. 7.

¹⁶³¹ Please note that there are other ways to implement the SFM concept, e.g. forest certification (a voluntary market driven mechanism, which through labelling forest products, enables consumers, retailers and manufacturers to acquire products, derived from environmentally and socially responsible forest operations); other certification initiatives include the normative work of the European Committee for Standardization (CEN). The focus of the current section is on the Forest Europe process.

¹⁶³² For more information on the "Forest Europe Process" please see subsection 4.1.1.3. "Pre – Constitutional Period: from 2011 Onwards (focus on "Forest Europe")" part 4.1. "Evolution of the International Forest Regulation", chapter IV. "Forests and Climate Change under the International Forest Regime".

¹⁶³³ Forest Europe, What is Forest Europe? // < <http://foresteurope.org/>>, last viewed 25 November 2016.

levels, and that does not cause damage to other ecosystems) and the elaboration of the relevant criteria and indicators.

The approach towards SFM under the “Forest Europe” process through criteria and indicators does not carry with it international normative power. Partly, this is due to the fact that it was created by the “voluntary high level political process”; besides, no commitments were pledged for its implementation by the signatories of the process. The criteria and indicator approach serves, rather, as a definitional tool by outlining the requirements for SFM. The criteria are designed for the use by states at an individual state level, and each state is responsible for ensuring that their forest regulation addresses the criteria, outlined in the definition. Thus, the process simply provides states with a voluntary framework for assessing their progress towards SFM.

In 2008 a Forest Europe Working Group on “sustainability criteria” for forest biomass production, including bioenergy was established. Initially, it was introduced in response to the legislative proposals on the promotion of the use of energy from renewable sources by the European Community.¹⁶³⁴ At a later stage, both – the sustainability criteria (article 17, RED) and its reference to an analysis by the European Commission on “requirements for a sustainability scheme for energy uses of biomass, other than biofuels and bioliquids” (article 17.9, RED) were seen to pose “possible problems from a forest point of view”.¹⁶³⁵ The objective of the Working Group was to “assess and demonstrate the applicability of existing MCPFE tools for SFM in relation to new demands for sustainable production of wood biomass” and to develop proposals for possible improvements.¹⁶³⁶ The work of the group was concluded in 2009, providing the

¹⁶³⁴ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, p. 2.// <http://www.foresteuropa.org/docs/work_programmes/MCPFEWG_sustainability_criteria_Final_report.pdf>, last viewed 25 November 2016.

¹⁶³⁵ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, p. 2.// <http://www.foresteuropa.org/docs/work_programmes/MCPFEWG_sustainability_criteria_Final_report.pdf>, last viewed 25 November 2016.

¹⁶³⁶ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, Appendix 1, MCPFE Open-ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, including Bioenergy, Terms of Reference, p. 2. // <http://www.foresteuropa.org/docs/work_programmes/MCPFEWG_sustainability_criteria_Final_report.pdf>, last viewed 26 November 2016.

recommendations that the existing SFM tools “provide an appropriate generic framework for potential verification of SFM”, and, yet, in the context of the new demands for sustainable production of wood biomass, these tools “have to be supplemented by new elements”.¹⁶³⁷ The non-binding status of the SFM instruments under the Forest Europe process was identified as “an issue for them being used by regulatory processes and institutions”.¹⁶³⁸ Furthermore, it was suggested that “the MCPFE tools for SFM should be refined and further developed in order to better meet the new requirements, such as climate change and wood based bioenergy issues”.¹⁶³⁹

More recently also the European Commission acknowledged that “with respect to the issue of forest biomass sustainability it should be recognized that the development of SFM criteria measurable is not yet sufficiently advanced for use throughout all life-cycle phases at the EU-level. To this end, the Commission is currently working to develop “objective, ambitious and demonstrable” SFM criteria that can be applied in different policy contexts regardless of the end use of forest biomass. Such exercise will be carried out in close consultation with Member States and stakeholders and building on internationally agreed criteria [reference to the “Forest Europe” process]”.¹⁶⁴⁰

b. Wood Biomass under Forest Management Planning.

“Forest Management Planning” is enumerated by the European Commission as to “give certain assurances” for sustainable production of biomass within the EU. FAO defines “Forest Management Plan” (FMP) as “all the information in the form of texts, maps, tables and graphs, collected during forest inventories and

¹⁶³⁷ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, p. 5.// < http://www.foresteuropa.org/docs/work_programmes/MCPFEWG sustainabilitycriteriaFinalreport.pdf>, last viewed 25 November 2016.

¹⁶³⁸ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, p. 5.// < http://www.foresteuropa.org/docs/work_programmes/MCPFEWG sustainabilitycriteriaFinalreport.pdf>, last viewed 25 November 2016.

¹⁶³⁹ Forest Europe, Report of the MCPFE Open-Ended Ad-Hoc Working Group on “Sustainability Criteria” for Forest Biomass Production, Including Bioenergy, 2009, p. 5.// < http://www.foresteuropa.org/docs/work_programmes/MCPFEWG sustainabilitycriteriaFinalreport.pdf>, last viewed 25 November 2016.

¹⁶⁴⁰ E.C., SWD, State of Play on the Sustainability of Solid and Gaseous Biomass Used for Electricity, Heating and Cooling in the EU, Promoting Sustainable Biomass Production and Use, Ensuring Sustainable Feedstock Production, Forest Biomass, SWD (2014) 259 final, 28 July 2014, p. 13.

condensed into a written scheme of management aiming at continuity of policy and action and controlling the treatment of a forest".¹⁶⁴¹ FMPs are based on the principles of SFM and are the key instruments in delivering multiple goods and services in a balanced way.¹⁶⁴² In most EU MSs forest legislation requires forest owners to have a FMP or an equivalent instrument in place.¹⁶⁴³ However, there is no common EU approach as regards to establishing and implementing such plans. Most often a FMP covers a period of 10-15 years and includes:

1. Articulation of the goals and objectives of the woodland owner;
2. Forest inventory data;
3. Maps, denoting relevant property-specific information (e.g. location, boundaries, individual stands, soil types, tree retention areas, key conservation features, and future harvest areas); and
4. Detailed descriptions and chronology of silvicultural treatments for each forest stand.¹⁶⁴⁴

Scholars suggest that FMP is a very broad tool with a primary objective to guide and achieve SFM; the ability of FMP to address the bioenergy-related "additional" risks for forests, associated with wood biomass harvest, is rather limited.¹⁶⁴⁵

c. Wood Biomass under Forest Law Enforcement Governance and Trade (FLEGT) Initiatives.

In the EU the legality of the imported wood biomass is ensured through the Forest Law Enforcement, Governance and Trade (FLEGT) initiatives. The FLEGT Action Plan specifies a number of measures to prevent the import of illegal

¹⁶⁴¹ FAO, FAO Term Portal, Forest Management Plan. // < <http://www.fao.org/faoterm/en/> >, last viewed 26 November 2016.

¹⁶⁴² E.C., Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A new EU Forest Strategy: for Forests and the Forest-Based Sector, COM (2013) 659 final, 20 September 2013, p. 10.

¹⁶⁴³ E.C., Environment, Nature and Biodiversity, Forests, Forest Information, Forest Management Plans or Equivalent Instruments in the European Union. // < <http://ec.europa.eu/environment/forests/information.htm> >, last viewed 26 November 2016.

¹⁶⁴⁴ E.C., Directorate-General Environment, Forest Management Plans or Equivalent Instruments, 2013.// < http://ec.europa.eu/environment/forests/pdf/fmp_table.pdf >, last viewed 26 November 2016; B. Kittler, et al, Pathways to Sustainability, An Evaluation of Forestry Programs to Meet European Biomass Supply Chain Requirements, 2012, p. 23.

¹⁶⁴⁵ U. R. Fritsche, L. Iriarte, et al, Outcome Paper: Sustainability Criteria and Indicators for Solid Bioenergy from Forests, based on the Joint Workshops on Extending the RED Sustainability Requirements to Solid Bioenergy, 2012, pp. 3-14.

timber into the EU, to improve the supply of legal timber and to increase the demand for wood from responsibly managed forests.¹⁶⁴⁶ The legal framework for the FLEGT Action Plan consists of two Regulations.

The 2005 Regulation¹⁶⁴⁷ establishes a set of rules for the import of certain timber products, which is implemented through Voluntary Partnership Agreements (VPA) with timber producing countries. Such VPAs are bilateral legally binding trade agreements between the EU and the timber exporting countries, which aim to guarantee that the wood exported to the EU is from legal sources, and to support partner countries in improving their own regulation and governance of the sector. Each VPA defines 'legal timber', based on the domestic laws and regulations of the partner country and sets out the legality requirements (including criteria and indicators) that must be met before a FLEGT license can be issued. Six countries have already signed a VPA with the EU (i.e. Cameroon, Central African Republic, Ghana, Indonesia, Liberia, Republic of Congo - Brazzaville), these countries are developing the systems agreed upon under the VPAs; nine countries are negotiating with the EU and a number of countries have expressed their interest in VPAs.¹⁶⁴⁸

The 2010 Timber Regulation¹⁶⁴⁹ prohibits placing illegally harvested timber on the EU market and lays down the obligations of operators who place timber and timber products on the EU market for the first time – to exercise due diligence and to evaluate the due diligence system.¹⁶⁵⁰ Moreover, the Regulation, *inter alia*, applies in particular to “fuel wood, in logs, in billets, in twigs, in faggots or

¹⁶⁴⁶ European Commission, Communication from the Commission to the Council and the European Parliament, Forest Law Enforcement, Governance and Trade (FLEGT), Proposal for an EU Action Plan, COM (2003) 251 Final; Council of the European Union, Council Conclusions Forest Law Enforcement Governance and Trade (FLEGT) 268/2003, OJ C 268/1, 7 November 2003.

¹⁶⁴⁷ Council of the European Union, Council Regulation, No 2173/2005 on the Establishment of a FLEGT Licensing Scheme for Imports of Timber into the European Community, OJ L 347/1, 30 December 2005.

¹⁶⁴⁸ EFI, EU FLEGT Facility, VPA Countries. // < <http://www.euflegt.efi.int/vpa-countries>>, last viewed 10 February 2017.

¹⁶⁴⁹ European Parliament and the Council of the European Union, Regulation No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the Obligations of Operators who Place Timber and Timber Products on the Market, OJ L 295/23, 12 November 2010.

¹⁶⁵⁰ European Parliament and the Council of the European Union, Regulation No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the Obligations of Operators who Place Timber and Timber Products on the Market, OJ L 295/23, 12 November 2010, art. 4.

in similar forms; wood in chips or particles; sawdust and wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms".¹⁶⁵¹ According to the Regulation "legally harvested" means harvested in accordance with applicable legislation in the country of harvest.¹⁶⁵²

Thus, in the context of FLEGT initiatives the sustainability of wood biomass may be guaranteed through legality or compliance with the national sustainability requirements for wood biomass (if any).

6.3.1.5. New Sustainability Criteria under the 2016 Proposal for a RES Directive (Recast).

In November, 2016 the European Commission adopted a Proposal for a directive on the promotion of the use of energy from renewable sources (recast).¹⁶⁵³ As such, the Proposal establishes a common framework for the promotion of energy from renewable sources in the EU for the period after 2020.¹⁶⁵⁴ It sets a binding EU target for the overall share of energy from renewable sources in gross final consumption of energy in 2030, i.e. "MS shall collectively ensure that the share of energy from renewable sources in the Union's gross final consumption of energy in 2030 is at least 27 percent".¹⁶⁵⁵ The 2020 national targets are established as baseline (i.e. MS cannot go below the 2020 national targets from 2021 onwards).¹⁶⁵⁶ Furthermore, the Proposal lays down rules on financial support to electricity produced from renewable sources, self-consumption of renewable electricity (i.e. when the generation, consumption and storage of

¹⁶⁵¹ European Parliament and the Council of the European Union, Regulation No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the Obligations of Operators who Place Timber and Timber Products on the Market, OJ L 295/23, 12 November 2010, Annex.

¹⁶⁵² European Parliament and the Council of the European Union, Regulation No 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the Obligations of Operators who Place Timber and Timber Products on the Market, OJ L 295/23, 12 November 2010, art. 2. (f).

¹⁶⁵³ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016.

¹⁶⁵⁴ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 1.

¹⁶⁵⁵ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 3.1.

¹⁶⁵⁶ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 3.3.

renewable electricity is carried out by renewable self-consumers¹⁶⁵⁷), and renewable energy use in the heating and cooling and transport sectors, regional cooperation between MS and with countries outside the EU, guarantees of origin, administrative procedures and information and training.¹⁶⁵⁸ Of particular significance for the current research is that the Proposal closes the regulatory gap and establishes sustainability and GHG emissions saving criteria not only for biofuels, bioliquids, but also for biomass fuels (i.e. “gaseous and solid fuels produced from biomass”¹⁶⁵⁹). Moreover, the Proposal introduces a new specific sustainability criterion and a new “LULUCF” requirement in relation to “forest biomass” (i.e. “biomass produced from forestry”¹⁶⁶⁰).

a. Forest Biomass and Sustainability Criteria under the 2016 Proposal for a RES Directive (Recast).

Article 26 of the Proposed Directive lays down the sustainability and GHG emissions saving criteria for “biofuels, bioliquids and biomass fuels”.¹⁶⁶¹ Similarly with the 2009 RES Directive, the proposed criteria apply irrespectively of the geographical origin of the biomass. Compliance with the criteria is not a precondition for placing biofuels, bioliquids and biomass fuels on the EU market; biofuels, bioliquids and biomass fuels may be produced and imported even if the binding criteria are not met. However, in order to be calculated towards the “Union target and Member States renewable energy share”, “measuring compliance with renewable energy obligations” and be eligible “for financial

¹⁶⁵⁷ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2. (bb).

¹⁶⁵⁸ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 1.

¹⁶⁵⁹ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2 para. (pp).

¹⁶⁶⁰ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2 para. (ii)

¹⁶⁶¹ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.

support for the consumption of biofuels, bioliquids and biomass fuels”, compliance with the sustainability criteria is required.¹⁶⁶²

Under the Proposal there are two exemptions to the sustainability requirements: (1) Firstly, an exemption is granted to “biofuels, bioliquids and biomass fuels, produced from waste and residues, other than agricultural, fisheries and forestry residues”, which need only fulfil the GHG emissions saving criteria. (2) Secondly, the EU sustainability and GHG saving criteria do not apply to biomass fuels if used in small biomass-based heating, cooling and electricity installations (below 20 megawatts (MW)),¹⁶⁶³ i.e. “biomass fuels need to fulfill the sustainability and GHG gas emissions saving criteria only if used in installations producing electricity, heating and cooling or fuels with a fuel capacity equal to or exceeding 20 MW”.¹⁶⁶⁴ This provision exempts a significant share of biomass fuels consumed today for energy purposes from the requirement to comply with the RES Directive sustainability criteria.¹⁶⁶⁵ As the European Commission explains “the EU sustainability and GHG saving criteria do not apply to small biomass-based heating/cooling and electricity installations, with a fuel capacity below 20 MW [in order] to avoid excessive administrative burden”.¹⁶⁶⁶

¹⁶⁶² European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26. 1.

¹⁶⁶³ Technologies for producing heat and electricity from biomass are well developed in the EU. Biomass heating systems range from small-scale stoves for households with capacities ranging between 5 kilowatts (kW) and 100 kW (often run on wood logs and wood pellets), to larger scale boilers for farms, commercial buildings, or in industry, reaching capacities of 100 kW to 500 kW (running on a variety of feed stocks such as wood chips and miscanthus). Large heating plants for district heating or industrial use have capacities in the range of 1 MW to up to 500 MW and are capable of using various biomass feedstock, including wood chips, straw and miscanthus. See, European Commission, Commission Staff Working Document, State of Play on the Sustainability of Solid and Gaseous Biomass used for Electricity, Heating and Cooling in the EU, SWD (2014), 259 Final, 28 July 2014, p. 5.

¹⁶⁶⁴ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.1.

¹⁶⁶⁵ Thus, 74,6% of the biomass consumed today for energy purposes is used to produce heat (78,4 Mtoe), followed by bioelectricity with (13,5 Mtoe). The largest part of biomass consumed in the heat sector goes to the residential market (53,0%) and only (25,5%) to industry. See, AEBIOM, Statistical Report, 2015, European Bioenergy Outlook, Key 2015 Findings, 2015, p. 10. // <<http://www.aebiom.org/wp-content/uploads/2015/10/AEBIOM-Statistical-Report-2015-Key-Findings1.pdf>>, last viewed 12 February 2017.

¹⁶⁶⁶ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, p. 22.

b. New Specific Sustainability Criterion for “Forest Biomass”.

A novelty of the Proposal is the new specific sustainability criterion for “forest biomass”.¹⁶⁶⁷ In order to minimize the risk of using of “unsustainable forest biomass production” biofuels; bioliquids and biomass fuels produced from forest biomass must meet the following requirements:¹⁶⁶⁸

- (a) the country in which forest biomass was harvested has national and/or sub-national laws applicable in the area of harvest as well as monitoring and enforcement systems in place, ensuring:
 - (i) harvesting is carried out in accordance to the conditions of the harvesting permit [i.e. “an official document giving the right to harvest the forest biomass”¹⁶⁶⁹] within legally gazzetted boundaries;
 - (ii) forest regeneration [i.e. “the re-establishment of a forest stand by natural or artificial means”¹⁶⁷⁰] of harvested areas takes place;
 - (iii) areas of high conservation value, including wetlands and peatlands, are protected;
 - (iv) the impacts of forest harvesting on soil quality and biodiversity are minimized; and
 - (v) harvesting does not exceed the long-term production capacity of the forest.

When evidence on compliance with the “forest biomass” sustainability criterion on a country level is not available, the Proposal suggests that a management systems at a forest holding level (i.e. “at a level of one or more parcels of forest

¹⁶⁶⁷ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.5.

¹⁶⁶⁸ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.5. (a).

¹⁶⁶⁹ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2 (jj).

¹⁶⁷⁰ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2 (ll).

and other wooded land, which constitute a single unit from the point of view of management or utilization"¹⁶⁷¹) must be taken into account to ensure that:¹⁶⁷²

- (i) the forest biomass has been harvested according to a legal permit;
- (ii) forest regeneration of harvested areas takes place;
- (iii) areas of high conservation value, including peatlands and wetlands, are identified and protected;
- (iv) impacts of forest harvesting on soil quality and biodiversity are minimized;
- (v) harvesting does not exceed the long-term production capacity of the forest.

c. Forest Biomass and the "LULUCF Requirements".

One more novelty under the Proposal for the RES Directive (Recast) is the introduction of the "LULUCF Requirements" for the "biofuels, bioliquids and biomass fuels", produced from forest biomass. The Proposal suggests that "biofuels, bioliquids and biomass fuels" produced from forest biomass must originate from the country or a regional economic integration organization, which meets the "LULUCF criteria", namely:¹⁶⁷³

- (i) is a Party to, and has ratified, the Paris agreement;
- (ii) has submitted a NDC to the UNFCCC [...] or there are national or sub-national laws in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and enhance carbon stocks and sinks;
- (iii) has a national system in place for reporting GHG emissions and removals from land use including forestry and agriculture, which is in accordance with the requirements set out in decisions adopted under the UNFCCC and the Paris Agreement.

¹⁶⁷¹ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 2. (mm).

¹⁶⁷² European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.5. (b).

¹⁶⁷³ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.6.

When evidence on compliance with the “LULUCF requirements” for “biofuels, bioliquids and biomass fuels” produced from forest biomass is not available at the country level, the management systems at a forest holding level must be taken into account to ensure that carbon stocks and sinks levels in the forest are maintained.¹⁶⁷⁴

In addition, under the Proposal for the RES Directive (Recast) there is a GHG emission saving performance requirement of “at least 80 percent for electricity, heating and cooling production from biomass fuels used in installations, starting after 1st January 2021 and 85 percent for installations, starting operation after 1st January 2026”. This means, for instance, that electricity and heat from biomass have to produce at least 80 percent fewer GHG emission compared to fossil fuels by 2021 and 85 percent by 2026.¹⁶⁷⁵ As follows, the provision has been introduced in order to ensure that burning biomass, when used in large heat and power plants, does not result in higher GHG emissions than fossil fuel use. In relation to forest biomass it safeguards that burning wood biomass does not result in higher emissions than burning fossil fuels.¹⁶⁷⁶

d. Forest-related Compliance and Monitoring.

If further “operational evidence” is needed in order to demonstrate compliance with the new sustainability criterion for “forest biomass” and for the “LULUCF requirements” for “biofuels, bioliquids and biomass fuels” produced from forest biomass the European Commission proposes that it may adopt (i.e. under the Regulation 182/2011¹⁶⁷⁷) further implementing acts.¹⁶⁷⁸ In future, under the

¹⁶⁷⁴ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.6.

¹⁶⁷⁵ European Commission, Clean Energy for All, the Revised Renewable Energy Directive, 2016.// https://ec.europa.eu/energy/sites/ener/files/documents/technical_memo_renewables.pdf >, last viewed 14 February 2017.

¹⁶⁷⁶ It has been estimated that burning forest biomass under certain conditions may produce higher GHG emissions in comparison to using other fuels for energy purposes. E.g. “Biogenic emissions remain high (higher than emissions from fossil fuels) beyond a policy-relevant timeframe for sawn wood, stumps, coarse dead wood”. See, European Commission, Commission Staff Working Document, Impact Assessment, Sustainability of Bioenergy, Accompanying the Document, Proposal for a Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources (Recast), SWD (2016) 418 final, Part 4/4, p. 106.

¹⁶⁷⁷ European Parliament and the Council of the European Union, Regulation 182/2011 of the European Parliament and of the Council of 16 February 2011, Laying down the Rules and

control of the EU MS, this will allow to lay down uniform conditions for the EU MS on the implementation of the RES Directive (Recast) forest-related provisions.

The Proposal suggests that by December, 2023 the Commission shall assess whether the new sustainability criteria effectively minimize the risk of using unsustainable forest biomass and effectively address the LULUCF requirements.¹⁶⁷⁹ It is specified that the monitoring of the origin of biofuels, bioliquids and biomass fuels, consumed in the EU and the impact of their production, including the impact on land use in the EU and the main countries of supply will be based on MS's integrated national energy and climate plans and corresponding progress reports, relevant reports of countries outside the EU, relevant reports of intergovernmental organizations, scientific studies and any other relevant pieces of information.¹⁶⁸⁰

6.3.1.6. Interim Conclusions: Forests under the EU Climate Law and Policy on RES.

When the EU set out its policy for the promotion of renewable energy in 2009, the RES Directive set very ambitious RES targets and required through the national targets a significant increase in the share of renewable energy in the EU. The research has illustrated how the increased demand for wood biomass, the largest contributor of renewable energy to the EU energy system, implies sustainability risks for forests. Although the 2009 RES Directive introduced "the most comprehensive and advanced binding sustainability scheme of its kind anywhere in the world", it did not, however, include sustainability requirements for solid biomass, in particular, biomass derived from forests. In other words, energy from wood biomass may be taken into account for the purposes of the RES Directive without references to its sustainability criteria, such as, for

General Principles Concerning Mechanisms for Control by Member States of the Commission's Exercise of Implementing Powers, OJ L 55/13, 28 February 2011.

¹⁶⁷⁸ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.6.

¹⁶⁷⁹ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 26.6.

¹⁶⁸⁰ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016) 767 Final, 2016/0382 (COD), 30 November 2016, art. 30.

instance, the ability of wood biomass to contribute to the reduction of GHG emissions. This state of affairs, on the one hand, poses threat to the protection of forests from deforestation and degradation (both inside and outside the EU); and, on the other hand, also threatens efforts to achieve the EU wide GHG reduction target for 2020.

The 2016 Proposal for a RES Directive (Recast), is, indeed, a step forward, as it attempts to close the regulatory gap and, furthermore, it extends sustainability and GHG emission saving criteria to include also "biomass fuels". In particular, in relation to "forest biomass" the Proposal introduces a "forest biomass" specific sustainability criterion and a new "LULUCF" requirement. However, if the Proposal is adopted in its current form, it is uncertain that the criteria will deliver much to minimize the risk of using unsustainable forest biomass for energy purposes. Thus, the research has established that not only a significant share of "biomass fuels" (e.g. those used in small biomass-based installations) is exempt from the requirement to comply with the sustainability and GHG emission saving criteria. But also, for the biomass that falls under the compliance requirement, the proposed forest biomass sustainability criterion and the "LULUCF requirement" establish rather weak safeguards: they ensure "forest biomass" sustainability and GHG emission saving performance through relying on compliance with the applicable national and/or sub-national laws (e.g. instead of introducing comprehensive environmental (and social) criteria for forest biomass *per se*). In addition, it is, yet, unclear, what kind of "operational evidence" will justify compliance with the proposed sustainability criterion and the "LULUCF requirement" for forest biomass.

Furthermore, it needs to be highlighted that the 2016 Proposal for a RES Directive (Refit) introduces even a more ambitious target for the share of energy from renewable sources in the Union's gross final consumption (e.g. in comparison to the 2009 RES Directive). This means that in the coming years the demand for forest biomass, as the main renewable energy resource, will continue to grow. However, there are limits to the extent to which forest biomass can be used sustainably: although forest biomass is a renewable resource and can replenish with the passage of time, it is not infinite. The

renewal rates for raw materials, used for the production of wood biomass are rather long (several decades or even longer). If the rate at which forest biomass is consumed exceeds its renewal rates, sustainability may no longer be ensured. In its present form the 2016 Proposal does not counter the increasing demand for forest biomass (on the contrary, it does completely the opposite (e.g. *inter alia*, by establishing direct and indirect support schemes for the promotion of the use of energy from renewable sources, such as subsidies, investment aid, tax exemptions or reductions, etc.). However, as the rates of wood biomass consumption for energy purposes continue to grow, it might become necessary to either set a “cap” on (i.e. limit) the amount of wood biomass used to meet the 2030 RES target, and/or establish “a preferential clause” in order to ensure that the limited sustainable forest resources are used (only) in cases, where no other renewable energy alternatives exist.

6.3.2. Forests under the RF Climate Law and Policy on RES.

This section investigates how forests are regulated under the RF climate law and policy on RES. Firstly, the subsection reviews how the national 2020 RES Target impacts forests (6.3.2.1.). Secondly, the subsection studies the national measures on the promotion of forest biomass as RES (6.3.2.2.). Finally, the subsection brings the findings together and provides some concluding remarks on how to further incorporate forest biomass in the RF framework on climate (6.3.2.3.).

6.3.2.1. How does the National 2020 RES Target Impact Forests?

Tracing the impact of the national 2020 RES target (i.e. to increase the renewable energy generation and consumption, excluding large-scale hydropower, from 0,5 percent towards 4,5 percent of national energy needs by 2020)¹⁶⁸¹ on forests presents a challenge. Today, almost eight years since its adoption, the national RES target remains strategic (i.e. not binding). The legal framework, adopted to support the target is rather fragmented and is still “at

¹⁶⁸¹ RF Government, Resolution of the RF Government No 1715-R, (*Распоряжение Правительства РФ от 13 ноября 2009*), RF Energy Strategy for the Period up until 2030 (*Энергетическая Стратегия РФ до 2030 года*), 13 November 2009, VI. Perspectives and Strategic Initiatives, 10. Renewable Energy Resources.

the rudimentary phase of its development".¹⁶⁸² As of now, it remains unclear how the country intends to achieve the target?¹⁶⁸³ How to track the progress on the way to its achievement? And, more specifically for the purpose of the research, how will forest biomass contribute to the 2020 target?

Obviously, the potential of biomass resources from forest harvesting to be used for energy purposes, are plentiful in the RF. This includes low quality wood, forest residues from forest management and wood waste from industrial processes.¹⁶⁸⁴ According to some estimates, the annual availability of wood biofuel in the RF amounts up to 130 million cubic meters.¹⁶⁸⁵ However, the actual consumption of the available forest biomass resources for energy purposes is rather low, and accounts for only 25 percent (i.e. 32, 6 million cubic meters) of the available resources.¹⁶⁸⁶ According to FAO, in the coming years the use of wood biomass for energy purposes in the RF is expected to increase

¹⁶⁸² International Finance Corporation (IFC), Renewable Energy Policy in Russia, Waking the Green Giant, "Green" Paper for Discussion, 2011.// < <https://www.ifc.org/wps/wcm/connect/bf9fff0049718eba8bcaaf849537832d/PublicationRussiaRR-EP-CreenGiant-2011-11.pdf?MOD=AJPERES>>, last viewed 17 February 2017; S.V. Kozlov (C.B. Козлов), Renewable Energy in Russia and Germany: Present State and Future Prospects of the Legal Framework (*Возобновляемая Энергетика в России и Германии: Состояние и Перспективы Правового Регулирования*), Legal Bulletin of Young Scientists (Юридический Вестник Молодых Ученых), 2015, 1, p. 33; A. Korppoo, M. Gutbrod, S. Sitnikov, Russian Law on Climate Change, in C. P. Carlarne, K. R. Gray, R. Tarasofsky (eds), The Oxford Handbook of International Climate Change Law, 2016, p. 713.

¹⁶⁸³ Taking into consideration the non-binding character of the 2020 RES target and its poor enforcement legal scholars have already assumed that the achievement of the 2020 RES target by the RF is highly improbable. See, International Finance Corporation (IFC), Renewable Energy Policy in Russia, Waking the Green Giant, "Green" Paper for Discussion, 2011.// < <https://www.ifc.org/wps/wcm/connect/bf9fff0049718eba8bcaaf849537832d/PublicationRussiaRR-EP-CreenGiant-2011-11.pdf?MOD=AJPERES>>, last viewed 17 February 2017; S.V. Kozlov (C.B. Козлов), Renewable Energy in Russia and Germany: Present State and Future Prospects of the Legal Framework (*Возобновляемая Энергетика в России и Германии: Состояние и Перспективы Правового Регулирования*), Legal Bulletin of Young Scientists (Юридический Вестник Молодых Ученых), 2015, 1, p. 33; A. Korppoo, M. Gutbrod, S. Sitnikov, Russian Law on Climate Change, in C. P. Carlarne, K. R. Gray, R. Tarasofsky (eds), The Oxford Handbook of International Climate Change Law, 2016, p. 713.

¹⁶⁸⁴ RF Government, No 1853p-P8, State Coordination Program, Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, Biotechnology for Forest Sector, p. 78.

¹⁶⁸⁵ A.A. Martynyuk, Forest Resource Potential for Bioenergy Goals in the Russian Federation, Current Issues of the RF Forest Sector, 37, 2013.// < <http://cyberleninka.ru/article/n/potentsial-lesnyh-resursov-dlya-tseley-bioenergetiki-v-rossiyskoy-federatsii>>, last viewed 18 February 2017.

¹⁶⁸⁶ A.A. Martynyuk, Forest Resource Potential for Bioenergy Goals in the Russian Federation, Current Issues of the RF Forest Sector, 37, 2013.// < <http://cyberleninka.ru/article/n/potentsial-lesnyh-resursov-dlya-tseley-bioenergetiki-v-rossiyskoy-federatsii>>, last viewed 18 February 2017. See also, E. Martinot, Renewable Energy in Russia: Markets, Developments and Technology Transfer, Renewable and Sustainable Energy Reviews, 3, 1999, pp. 49-75; IEA, Renewable Energy in Russia, from Potential to Reality, 2004.// < <https://www.iea.org/media/translations/russian/RenewRussian2003.pdf>>, last viewed 18 February 2017.

rather slowly (i.e. a two-fold increase in the period from 2010 up until 2030 (increasing from 32 million cubic meters to 75 million cubic meters).¹⁶⁸⁷ The national market will be the prime consumer of wood biomass for energy purposes. Limited export is foreseen only for pellets and will originate from those regions with the necessary transportation and economic conditions.¹⁶⁸⁸

The environmental concerns associated with wood biomass as RES in the RF relate more to its low actual consumption. On the one hand, its potential to contribute to climate change mitigation remains untapped; on the other hand, there are environmental concerns associated with sustainable and “efficient disposal of forestry waste”.¹⁶⁸⁹ Thus, for instance, experts point out that forest residue accumulation on the ground may lead to increased fire hazards (especially on peat lands), forest degradation, reduction of forests’ regeneration capacity, insect and disease problems, etc.¹⁶⁹⁰

6.3.2.2. National Measures on the Promotion of Forest Biomass as RES.

One of the few national measures on the promotion of forest biomass as RES in the RF is the 2012 State Coordination Program on “Biotechnology Development for the Period up until 2020”.¹⁶⁹¹ As such, the Program is a strategic document, adopted with the major aim “to bring Russia to the leading positions in the development of biotechnology, including [...] bioenergy”.¹⁶⁹² A broad definition of

¹⁶⁸⁷ FAO, The Russian Federation Forest Sector, Outlook Study to 2030, 2012, p. 12. // < <http://www.fao.org/docrep/016/i3020e/i3020e00.pdf>>, last viewed 17 February 2017.

¹⁶⁸⁸ FAO, The Russian Federation Forest Sector, Outlook Study to 2030, 2012, p. 51. // < <http://www.fao.org/docrep/016/i3020e/i3020e00.pdf>>, last viewed 17 February 2017.

¹⁶⁸⁹ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, Forest Bioenergy Production, p. 37. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹⁰ T.L. Bezrukova, M.S. Soloponov, A.V. Kolomytsev, Environmental Problems in Forestry and Wood Industry. // < <https://www.scienceforum.ru/2014/pdf/2792.pdf>>, last viewed 23 March 2017; Wood-prom, Environmental Problems of Forest Industry.// < http://wood-prom.ru/analitika/14086_ekologicheskie-problemy-lesnoy-promyshlennosti>, last viewed 23 March 2017; RF, Government of the RF, Decree of the RF Government № 417, (*Постановление Правительства РФ от 30 Июня 2007*), Forest Fire Safety Rules (*Об Утверждении Правил Пожарной Безопасности в Лесах*), 30 June 2007.

¹⁶⁹¹ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹² RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, Aim of the Program. // <

the term “bioenergy”, provided by the Program, i.e. as a sphere of “industrial activity, which meets anthropogenic demands for energy, based on sustainable utilization of natural resources”, encompasses also “wood bioenergy” (i.e. biofuel pellet production, electric and heat energy production, using biofuel, manufacturing and delivery of equipment for biofuel production and combustion).¹⁶⁹³ According to the Program “in the RF the bioenergy sector has not been adequately developed to meet current demands of world economy and environmental requirements.”¹⁶⁹⁴ Therefore, the Program provides a strategic vision for the bioenergy sector development. It is expected that the development of bioenergy sector will lead “to an increase in the production of electric and heat energy from cheap resources and provide an efficient disposal of forestry waste”.¹⁶⁹⁵ By 2020 the implementation of the Program should, result, *inter alia*, in the “appearance of new available sources of energy due to the development of bioenergy industry [... and] in the environmental sphere, the development of efficient methods for elimination of pollutants and reduction of adverse human impacts on the environment”.¹⁶⁹⁶

One more measure, adopted in order to stimulate the use of renewable forest biomass resources for energy purposes in the RF, is the “Plan of Measures on Creating Enabling Environment for Forest Biomass Utilization for Heating and Electrical Power Generation” in 2013.¹⁶⁹⁷ The Plan outlines 12 action requests to

http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹³ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, p. 57. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹⁴ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹⁵ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, Biofuel Production Based on Wood Waste, p. 24. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹⁶ RF Government, No 1853p-P8, State Coordination Program, for the Development of Biotechnology in the Russian Federation until 2020, 24 April 2012, Expected Results of the Program Implementation. // < http://owwz.de/fileadmin/Biotechnologie/Information_Biotech/BIO2020_Programme_full.pdf >, last viewed 18 February 2017.

¹⁶⁹⁷ RF Government, Order of the RF Government № 3028п-П9, (*Указ Правительства РФ*), Plan of Measures on Creating Enabling Environment for Forest Biomass Utilization for Heating and Electricity Energy Production (*План Мероприятий по Созданию Благоприятных Условий для*

various federal ministries and governmental agencies (mostly to the RF Ministry of Energy, RF Ministry of Natural Resources and Environment, RF Ministry of Economic Development, and the Federal Forestry Agency). Following the adoption of the Plan the RF government established a working group in order to develop a set of measures on the promotion and use of renewable forest resources for energy purposes.¹⁶⁹⁸ The working group has been assigned a task of an ad-hoc consultation forum that provides expertise in connection with the development of forest biomass related measures in the framework of various national policies.¹⁶⁹⁹

6.3.2.3. Interim Conclusions: how to Incorporate Forest Biomass into the RF Legal Framework on Climate?

RES contribute to climate change mitigation and help protect the environment (e.g. through a more efficient utilization of available resources). The fact that the national 2020 RES target is not legally binding, and, furthermore, that the legal framework, adopted to support the target, is rather fragmented represents a major regulatory gap under the RF climate law and policy. Thus, the first recommendation, in the light of the research, is to advance a consolidated framework for RES promotion and use.

When drafting the act on the promotion of RES use for energy purposes, it is important to reconsider the definition of “energy from renewable sources” and tailor it taking into consideration forest-specific objectives. The current definition of the term “energy from renewable sources” is provided by the “Federal Electricity Law”.¹⁷⁰⁰ It states that “energy from renewable sources means solar energy, wind energy, hydropower (including wastewater power), excluding the cases when such energy is used in pumped storage electric power stations, tide and wave energy [...], geothermal energy [...], biomass, including plants, which

Использования Возобновляемых Древесных Источников для Производства Тепловой и Электрической Энергии), 31 May 2013.

¹⁶⁹⁸ RF, Execution of the RF President’s Orders, Wood Biomass Utilization for the Purpose of Industrial and Household Energy Supply. // < <http://kremlin.ru/acts/assignments/execution/49106> >, last viewed 18 February 2017.

¹⁶⁹⁹ Working Group in Order to Develop a Set of Measures on the Promotion and Use of Renewable Forest Resources for Energy Purposes. // < http://www.infobio.ru/sites/default/files/sostav_1.pdf >, last viewed 30 March 2017.

¹⁷⁰⁰ RF, Federal Law (Федеральный Закон) № 35-FZ, 26 March 2003, On Electricity Power Industry (Об Электроэнергетике), as amended 28 December 2016.

are specially grown for energy purposes, including, trees, industrial and consumption waste, except for the waste, produced in the process of using hydrocarbons and hydrocarbon fuels, biogas, landfill gas, and gas, co-produced at coal mines".¹⁷⁰¹ Thus, forest biomass, including plants and trees, falls under the current definition. However, the law does not define the term "biomass" and more specifically "forest biomass". In the coming years in order to stimulate sustainable biomass production and consumption, providing definitions for the terms may become a useful exercise. Furthermore, in the context of the research, it is suggested to make distinctions, whether the fractions of the biomass, used for energy purposes, should be biodegradable or non-biodegradable. The distinction contributes to addressing sustainability concerns associated with the use of roundwood and "whole trees" from forests for energy purposes.¹⁷⁰²

The availability of forest biomass in the country is significant. However, under the current fragmented regulatory framework the potential of the available forest biomass as RES is underutilized. The existing national measures on the promotion of forest biomass as RES are of declarative character and can hardly be expected to increase wood biomass utilization for energy purposes in the coming years. In the light of the research, it may be suggested to reconsider the existing national measures on the promotion of RES so, as to further promote the use of available wood biomass resources for energy purposes.¹⁷⁰³

¹⁷⁰¹ RF, Federal Law (Федеральный Закон) № 35-FZ, 26 March 2003, On Electricity Power Industry (Об Электроэнергетике), as amended 28 December 2016, art. 3.

¹⁷⁰² Thus, for instance, the recent "Black Book on Bioenergy" points out to a case of the "Vyborg Factory" in the North-West of Russia. According to the book, the factory produces the largest share of pellets in the RF. The factory itself relies on gas for energy purposes. The wood pellets, produced by the factory are sold for domestic heating and to the European markets. The main source of the raw material for the pellets is roundwood and whole trees from the forests of the nearby Leningrad and Pskov oblasts as well as other regions. This implies sustainability issues, such as increased logging and biodiversity loss, burning of whole trees and inefficient utilization of resources, etc. See, BirdLife International, *The Black Book of Bioenergy, Good Intentions Gone Bad, 8 Cases from Around the World that Unmask the Culprits behind the Carbon Con of Bioenergy*, November, 2016. // < <http://www.birdlife.org/europe-and-central-asia/black-book>>, last viewed 17 February 2017.

¹⁷⁰³ For further information on the State support schemes for the production of energy from RES, please see A. E. Kopylov (А.Е. Копылов), *Status and Prospects of Developing Legislative and Regulatory Frameworks for Russia's System Supporting Renewable Energy Sources (Состояние и Перспективы Развития Законодательной и Нормативной Базы Российской Системы Поддержки ВИЭ)*, *Energy Law (Энергетическое Право)*, 2015, 2; K.V. Papenov, A. N. Kazantseva, *State Support for Renewable Energy Resources (Государственная Поддержка Развития Альтернативной Энергетики)*, *Entrepreneurship Law (Предпринимательское Право)*, 2, 2016; A.E. Kopylov, *the RES Support Schemes in the RF: Status of the Legislation and*

6.4. Forests under Climate Law and Policy Governing Sink Projects.

The UNFCCC outlines commitments of parties to mitigate climate change and includes references to the LULUCF sector.¹⁷⁰⁴ Following the UNFCCC, the Kyoto Protocol incorporates LULUCF activities as a method for the committed industrialized countries to perform GHGs emission reduction commitments.¹⁷⁰⁵ To provide compliance methods, the Kyoto Protocol adopted three flexible mechanisms.¹⁷⁰⁶ Two mechanisms are relevant for the current research purposes, i.e. the Clean Development Mechanism (CDM) and the Joint Implementation Mechanism (JI). CDM allows industrialized countries to invest in forestry projects, hosted in developing countries, and to purchase cheaper (in comparison to other sectors) certified emission reductions (CERs).¹⁷⁰⁷ Meanwhile, the developing countries can benefit by receiving finance and/or advanced technologies from the investing countries, which fulfils the other goal of the CDM flexible mechanism – to assist sustainable development¹⁷⁰⁸ in developing countries.¹⁷⁰⁹ Under the umbrella of JI flexible mechanism, an Annex I Party can implement projects that increase removals by sinks in another Annex I country. Similar to the CDM flexible mechanism, JI forestry projects generate

Regulatory Framework (Состояние Действующего Законодательства и Нормативного Регулирования в Сфере Поддержки ВИЭ в РФ), On the Road to Russia's Sustainable Development (На Пути к Устойчивому Развитию России), 68, 2014, p. 54.

¹⁷⁰⁴ For more information, please see section 3.3. "Forest Regulation under the International Climate Change Regime" chapter 3 "Forests under the International Climate Change Regime" of the current research.

¹⁷⁰⁵ KP to the UNFCCC, adopted 11 December 1997, in force 16th February 2005, art. 3.

¹⁷⁰⁶ For more information, please see section 3.3. "Forest Regulation under the International Climate Change Regime" chapter 3 "Forests under the International Climate Change Regime" of the current research.

¹⁷⁰⁷ KP to the UNFCCC, adopted 11 December 1997, in force 16th February 2005, art. 12, para 3 (b).

¹⁷⁰⁸ There is no consensus on the definition and the content of sustainable development. Nevertheless, while sustainable development is an elusive goal, it is also a widely accepted legal principle of international and, in many instances, national environmental law. According to the most often quoted definition, sustainable development means development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development is typically divided into ecological, economic, social and cultural sustainability, which sometimes go hand in hand, yet, sometimes collide. While ecological sustainability cannot always be distinguished separated from other aspects of sustainability, it is the basis for other forms of sustainability. See, World Commission on Environment and Development, Our Common Future, Report of the World Commission on Environment and Development. // < <http://www.un-documents.net/our-common-future.pdf> >, last viewed 16 March 2017.

¹⁷⁰⁹ KP to the UNFCCC, adopted 11 December 1997, in force 16th February 2005, art. 12, para 2.

Emission Reduction Units (ERUs), which can be used by Annex I party to meet its commitments.

Whereas the EU MS have actively participated in the CDM forestry projects (31 projects), the JI forestry projects have not gained the same popularity among the EU MS (i.e. currently there is only one JI LULUCF project, namely "Romania Afforestation of Degraded Agricultural Land Project", which is carried out in Romania). In contrast, the RF did not participate in the CDM mechanism. The country has hosted two out of three in total JI forestry projects currently registered under the international climate change regime. This section investigates the implementation of forestry CDM projects with participation of EU MS (6.4.1.) and the implementation of JI forestry projects, hosted by the RF (6.4.2.). The section answers the following question: what is the significance of climate law and policy, governing CDM and JI sink projects, for forest regulation?

6.4.1. Environmental Sustainability under the CDM Forestry Projects.

EU MS have actively taken part in the CDM Afforestation¹⁷¹⁰/Reforestation¹⁷¹¹ (A/R) projects as "Parties, other than Host Parties", i.e. acting as investors or buyers of the CER units.¹⁷¹² A/R refer to tree planting activities on lands without forests for at least 50 years or lands, which used to be forests before 1989. This section of the research investigates how forest sustainability is safeguarded under the CDM forestry projects (the focus is on the environmental aspect).¹⁷¹³

Currently, the sustainability assessment of CDM projects is conducted at the second stage of the CDM Project Cycle procedure, which guides and monitors

¹⁷¹⁰ Afforestation – is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. See, UNFCCC, 16/CMP.1, Annex, para. 1.

¹⁷¹¹ Reforestation – is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. See, UNFCCC, 16/CMP.1, Annex, para. 1.

¹⁷¹² See, UNFCCC, Project Search, Afforestation and Reforestation. // <<https://cdm.unfccc.int/Projects/projsearch.html>>, last viewed 22 February 2017.

¹⁷¹³ UNFCCC, Rules and Reference, Tools, Sustainable Development Tool.// <<http://cdm.unfccc.int/Reference/tools/index.html>>, last viewed 22 February 2017. The three pillars are also adopted in the Forest Principles. For more information on the "Forest Principles" please see subsection 4.2.2. "The Forest Principles", section 4.2. "International Forest Regulation", chapter IV "International Forest Regulation and Climate Change".

the implementation of all CDM projects, including forestry project.¹⁷¹⁴ Under the CDM rules, it is obligatory for CDM projects to pass the host developing country's assessment on whether the project assists sustainable development. In addition, some projects voluntarily make use of international private forest certification schemes to ensure forest sustainability in the context of international sustainability criteria and practices.¹⁷¹⁵ Besides, in 2014 the CDM Executive Board (CDM EB) approved the International Sustainability Assessment Tool.

The first subsection of the present section considers a CDM project cycle and major project actors. This is necessary in order to understand how sustainability issues are assessed under the CDM forestry projects (6.4.1.1.). The second subsection evaluates the current CDM forestry projects sustainability assessment regulation (6.4.1.2.). It is obligatory for a project to pass the host developing country's assessment (a), some projects voluntarily make use of international private forest certification (b), and, furthermore, projects may use the international sustainability assessment tool (c). The consideration reveals a number of challenges associated with each of the currently available CDM forestry projects sustainability assessments. Subsection three describes five CDM projects with the EU MS participation. The five projects are selected out of the total 31 CDM forestry projects with the EU MS participating in order to provide the most vivid illustration of the forest-related sustainability risks for the purpose of the research (6.4.1.3.). Subsection four analyses the Project Design Documents (PDD)¹⁷¹⁶ of the selected for the purpose of the research CDM forestry projects. Only those CDM forestry projects with participation of one or more EU MS as investing countries have been selected for the purpose of the research (6.4.1.4.). Finally, some recommendations on how to enhance

¹⁷¹⁴ For more information about the CDM Project Cycle, see <<https://cdm.unfccc.int/Projects/diagram.html>>, last viewed 25 May 2017.

¹⁷¹⁵ For more information see subsection "b" "CDM Forestry Projects Sustainability under Private Forest Certification Schemes" of the subsection 6.4.1.2. "Current CDM Forestry Projects Sustainability Assessment Regulation" of the current section 6.4.1. "Environmental Sustainability under the CDM Forestry Projects".

¹⁷¹⁶ A PDD is a key document in the validation and registration of a CDM project activity. It is one of the three documents required for CDM project to be registered, along with the validation report from the designated operational entity (DOE) and the letter of approval from the designated national authority (DNA).

environmental sustainability of CDM forestry projects from the perspective of EU MS are put forward (6.4.1.5).

6.4.1.1. CDM Project Cycle and Major Project Actors.

Understanding how sustainability issues are assessed under the CDM forestry project rules requires, first, understanding of the CDM project cycle and its major actors. The UNFCCC and its Kyoto Protocol lay down only general principles of the CDM rules. Further regulations are decided at the COP and CMP meetings. Practical and technical issues, including most standards, methodologies and guidelines are elaborated upon by the CDM Executive Board (CDM EB).¹⁷¹⁷ According to the CDM rules, projects are assessed by various monitoring entities at national and international levels at different stages of a CDM project cycle. Project actors have various tasks according to the assessment criteria at different stages. In its essence, the CDM project cycle represents a monitoring procedure and also a guidance for project actors to follow.¹⁷¹⁸

In general in a CDM project there are five groups of major actors. Firstly, host countries. These are developing countries that host the GHG reducing activity and, in the vein of this, receive financial and/or advanced technologies from investing countries. The second group are investors or buyers of CERs. These are public or private entities from Annex I countries. The investors aim to pay a lower price for the same amount of GHG emission reductions that would have otherwise be produced in their home countries (to achieve GHG emission reductions cost-effectively). Thirdly, a "project developer". This is a public or a private entity with professional knowledge in drafting a PDD and, furthermore, in promoting, managing and representing a CDM project.¹⁷¹⁹ The fourth group - are landowners of the project (they are also referred to under the broader term

¹⁷¹⁷ UNFCCC, Decision 3/CMP.1, Modalities and Procedures for a CDM as defined in art. 12 of the Kyoto Protocol, para 5. C. Executive Board.// < <https://cdm.unfccc.int/Reference/COPMOP/08a01.pdf>>, last viewed 23 February 2017.

¹⁷¹⁸ UNFCCC, CDM Project Cycle. // < <https://cdm.unfccc.int/Projects/diagram.html>>, last viewed 23 February 2017; UNFCCC, Afforestation and Reforestation Projects under the CDM, A Reference Manual, 2013, p. 12.

¹⁷¹⁹ World Bank, BioCarbon Fund Experience: Insights from Afforestation and Reforestation Clean Development Mechanism Projects, 2011, p. 140. // http://siteresources.worldbank.org/EXTCARBONFINANCE/Resources/BioCarbon_InsightsARCDM_Final.pdf, last viewed 24 February 2017.

“stakeholders”, i.e. a broader group of “public and private entities, affected or likely to be affected by the CDM project activity”.¹⁷²⁰ Their identities vary and depend on the national land-use laws. Actors of the first four groups are regarded as “project participants”.¹⁷²¹ The fifth group includes international and national monitoring entities, which govern the performance of CDM projects.

For all CDM projects, including the A/R CDM projects, in order to obtain CERs there are seven stages in the CDM project cycle and one additional stage of transferring the CERs to investors. The seven project stages include: (1) project design, (2) national approval, (3) validation, (4) registration, (5) monitoring, (6) verification and (7) issuance.¹⁷²²

(1) At the project design stage, a PDD is developed by a project developer. The PDD template is provided by the CDM EB. A developed PDD demonstrates detailed information about the CDM project activity, which is to be undertaken, in accordance with the CDM rules and requirements.¹⁷²³ The PDD is a key document in the CDM validation and registration process. It is the basis to apply for approvals and verification. (2) The second stage in the CDM project cycle is the National Approval, where the project documents, including the PDD, are assessed at the national level by a Designated National Authority (DNA) with the task of assessing whether a project contribute to sustainable development.¹⁷²⁴ (3) At the third stage, i.e. validation, the PDD is evaluated against the CDM requirements by a Designated Operational Entity (DOE).¹⁷²⁵ The DOEs are either

¹⁷²⁰ UNFCCC, CDM, Glossary Terms, Stakeholders.// < https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf>, last viewed 26 May 2017.

¹⁷²¹ UNFCCC, CDM, Glossary Terms.// < https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf>, last viewed 23 February 2017.

¹⁷²² UNFCCC, CDM Project Cycle. // < <https://cdm.unfccc.int/Projects/diagram.html>>, last viewed 23 February 2017; UNFCCC, Afforestation and Reforestation CDM project activities.// https://cdm.unfccc.int/Projects/pac/pac_ar.html, last viewed 23 February 2017.

¹⁷²³ There are in total five types of PDD templates for different project types. Two of the templates are specific templates for A/R project activities: (1) Afforestation and reforestation project activities (CDM-AR-PDD); and (2) Small-scale afforestation and reforestation project activities (CDM-SSC-AR-PDD). See, UNFCCC, A/R CDM Project Activities. // https://cdm.unfccc.int/Projects/pac/pac_ar.html, last viewed 24 February 2017.

¹⁷²⁴ It is elaborated further in the section 6.4.1.3. “Current CDM Forestry Projects Sustainability Assessment Regulation”, subsection “a”, “Host Country’s Regulatory Sustainability Assessment in the CDM Project Cycle” of the current research.

¹⁷²⁵ UNFCCC, CDM Validation and Verification Standard, Version 7.0. // https://cdm.unfccc.int/filestorage/e/x/t/extfile-20140624190848446-reg_stan01.pdf/reg_stan01.pdf?t=Rm58b2x2aHN1fDChSY_HQRNFmq1gSKnbby09, last viewed 24 February 2017.

domestic legal entities or international organizations, acting as auditors, accredited by the CDM EB for CDM projects of specific sectors.¹⁷²⁶ The DOEs have contractual relationship with project developers. If a DOE is in favor of a project, the project proceeds to stage four, i.e. registration. (4) During the registration stage the CDM EB and also interested local stakeholders review the project against the CDM requirements.¹⁷²⁷ (5) Once a registered project has been implemented by the project participants the project proceeds to its fifth stage. At the stage of "monitoring" the project participants monitor the implementation of the project against the approved methodology in the PDD. (6) At stage six, i.e. verification, the DOE verifies and certifies the emission reductions or removals achieved by the project. (7) At stage seven a project successfully verified by the DOE receives the issuance of CERs from the CDM EB.

It may be summarized that there are three monitoring entities, which are involved into the CDM project governance: (a) at stage two a project is assessed against national laws by national entities (i.e. the DNAs of the host country and the investing countries); at the following stages the project is assessed by international entities (b) Designated Operational Entity (DOE) and (c) CDM EB against internationally binding CDM requirements. For the purpose of the research, it is important to highlight that the CDM requirements serve, primarily, the ultimate objective of the UNFCCC regime and, therefore, focus on reducing GHG emissions. The requirements towards the CDM projects are designed to ensure real, measurable and verifiable emission reductions. The requirements are mainly about producing credible emission reductions, rather than assessing the project's sustainability *per se* and, in particular, forest sustainability under the projects. The following sections of the part show that it is legally arranged that the host country has the power to assess whether a CDM project contributes to sustainable development, yet, the forest-related environmental aspects are not sufficiently dealt with.

¹⁷²⁶ UNFCCC, CDM, Governance, DOE. // <https://cdm.unfccc.int/DOE/index.html>, last viewed 24 February 2017.

¹⁷²⁷ UNFCCC, Afforestation and Reforestation Projects under the CDM, A Reference Manual, 2013, pp. 14-19.

6.4.1.2. Current CDM Forestry Projects Sustainability Assessment Regulation.

Under the CDM rules, it is obligatory for CDM projects to pass the host developing country's assessment on whether the project assists sustainable development (1).¹⁷²⁸ In addition, some projects voluntarily make use of international private forest certification schemes to ensure forest sustainability in the context of international sustainability criteria and practices (2). In 2014 the CDM Executive Board (CDM EB) approved the International Sustainability Assessment Tool (3).¹⁷²⁹ The Tool assists in elaboration of a CDM's project co-benefits for sustainable development from social, economic and environmental perspectives. The use of the tool is entirely voluntary. The following subsections of the research discusses these three sustainability assessments in more detail.

a. Host Country's Regulatory Sustainability Assessment in the CDM Project Cycle.

At the second stage of the CDM Project Cycle, i.e. National Approval, the project undergoes an evaluation by the DNAs of the Parties involved in the project.¹⁷³⁰ Only once a positive statement in a letter of approval is granted, a project can move to the following stage of the CDM Project Cycle. The countries involved in a CDM project usually include one developing country (which hosts the project)

¹⁷²⁸ "The designated national authority (DNA) of a Party involved in a proposed CDM project activity shall issue a statement including the following: - The country has ratified the Kyoto Protocol. - The approval of voluntary participation in the proposed CDM project activity. - Host Parties: statement that the proposed CDM project activity contributes to sustainable development". See, UNFCCC, CDM, Executive Board, 16 Report, Annex 6, Clarification on Elements of Written Approval. // <<https://cdm.unfccc.int/EB/016/eb16repan6.pdf>>, last viewed 22 February 2017.

¹⁷²⁹ UNFCCC, Rules and Reference, Tools, Sustainable Development Tool.// <<http://cdm.unfccc.int/Reference/tools/index.html>>, last viewed 22 February 2017. The three pillars are also adopted in the Forest Principles. See also, Carbon Market Watch News, New Sustainable Development Tool Is A Small Step Forward.// < <http://carbonmarketwatch.org/cdm-board-launches-sustainable-development-tool/>>, last viewed 22 February 2017.

¹⁷³⁰ A DNA is granted responsibility by a Party to authorize and approve participation in CDM projects. Establishment of a DNA is one of the requirements for participation by a Party in the CDM. The main task of the DNA is to assess potential CDM projects to determine whether they will assist the host country in achieving its sustainable development goals, and to provide a letter of approval to project participants in CDM projects. This letter of approval must confirm that the project activity contributes to sustainable development in the country, that the country has ratified the Kyoto Protocol, and that participation in CDM is voluntary. It is then submitted to CDM Executive Board to support the registration of the project. See, UNFCCC, CDM, Designated National Authorities. // <<https://cdm.unfccc.int/DNA/index.html>>, last viewed 24 February 2017.

and at least one developed country (which invests or purchases CERs from the project).

During the evaluation of projects against the CDM requirements the tasks of the DNAs of the investing parties and the tasks of the hosting parties vary. The DNA of an investing country, if it approves the project and the participation of its domestic participant, issues a Letter of Approval, indicating that the investing country has (1) ratified the Kyoto Protocol and (2) that the participation of the domestic participant is voluntary.¹⁷³¹ As for the hosting countries, their national authorities assess not only the voluntary participation and the Kyoto ratification, but also the fact "that the proposed CDM project activity contributes to sustainable development".¹⁷³² A letter of approval from a host country indicates that (1) the host country has ratified the Kyoto Protocol, (2) the participation in the proposed CDM project activity is voluntary, and (3) it confirms the contribution of the proposed project to sustainable development in the host country.¹⁷³³

In order to acquire a Letter of Approval from the involved (i.e. developing and/or developed) countries, a project participant has to comply with relevant national requirements of each involved country. The regulatory framework of the CDM prescribes merely what issues must be stated in the Letter of Approval. Therefore, in practice, the national authorities of the involved countries have discretion in specifying their national requirements for the CDM projects. Thus, the host countries may conduct their national assessment to their national laws and can assess other issues, i.e. those, which are not required by the CDM regulatory framework. In practice, the national approval procedures have evolved diversely in different countries.¹⁷³⁴ And, "as DNAs decide on sustainable

¹⁷³¹ UNFCCC, CDM EB, 16 Report, Clarification on Elements of a Written Approval, 1.

¹⁷³² UNFCCC, CDM EB, 16 Report, Clarification on Elements of a Written Approval, 1 para. 3.

¹⁷³³ UNFCCC, CDM EB, 16 Report, Clarification on Elements of a Written Approval, 1.

¹⁷³⁴ Australia Carbon Expo, CDM Project Opportunities, Current Status and Trends and Project Development in Papua New Guinea, 2012; L. R. Chaparro M., DNA Structure and CDM Project Approval Process in Five Latin American Countries: Argentina, Brazil, Chile, Mexico, and Peru, CDM Investment Newsletter, 2, 2006. // < <https://www.numarkassoc.com/res/CDM.pdf> >, last viewed 24 February 2017.

development criteria based on their national development priorities, there is a large variation in the way and detail in which these criteria are defined”.¹⁷³⁵

With regards to the challenges, associated with safeguarding sustainability of CDM forestry projects by host countries, scholars have already commented that the assessment criteria of the host countries may be too broad, “too ambitious” and poorly enforced;¹⁷³⁶ “most approved projects put the economic attraction as a priority”¹⁷³⁷ (e. g. sustainable forest plantations bring lower returns and less carbon storage in the short term compared with industrial “exotic” tree plantations); host countries intentionally dilute their sustainability assessments to attract more foreign investors;¹⁷³⁸ “absence of ex-post monitoring mechanism during or after the implementation of the forest carbon projects”,¹⁷³⁹ and the lack of transparency during the sustainability assessments (e.g. the sustainability criteria, which are being used by an expert team are not accessible).¹⁷⁴⁰

¹⁷³⁵ R. Tewari, Mapping of Criteria, set by DNAs to Assess Sustainable Development Benefits of CDM Projects, CDM Policy Dialogue, 2012.

¹⁷³⁶ L. Schneider, Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement, *Oko Institute for Applied Ecology*, 2007, p. 10. // < http://d2ouvy59p0dg6k.cloudfront.net/downloads/oeko_institut_2007___is_the_cdm_fulfilling_its_environmental_and_sustainable_developme.pdf >, last viewed 24 February 2017.

¹⁷³⁷ L. Schneider, Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement, *Oko Institute for Applied Ecology*, 2007, p. 46. // < http://d2ouvy59p0dg6k.cloudfront.net/downloads/oeko_institut_2007___is_the_cdm_fulfilling_its_environmental_and_sustainable_developme.pdf >, last viewed 24 February 2017.

¹⁷³⁸ L. Tacconi, Decentralization, forests and livelihoods: Theory and Narrative, *Global Environmental Change*, 17, 3, p. 344; J. Fehse, Forest Carbon and Other Ecosystem Services, Synergies between the Rio Conventions, in D. Freestone, *Climate Change and Forests: Emerging Policy and Market Opportunities*, p.60.1.

¹⁷³⁹ Thus, at the 69th meeting of the CDM EB it was recommended that a host country should be able to withdraw its Letter of Approval if a project is proven to have a harmful impact on sustainable development. For instance, an environmental group asked to withdraw the approval of a CDM project at Barro Blanco (Panama), because of its severe negative impacts on biodiversity and questioning the accuracy of the environmental impact assessment, which had been conducted. However, the CDM regulatory framework does not contain international ex-post sanctions or punishments on the CDM projects for sustainable issues. The CDM EB expressed the view that suspension of the Letter of Approval is up to each of the relevant parties of the project, and it is not for the Board to control or comment on. See, CDM Policy Dialogue, *Climate Change, Carbon Markets and the CDM: A Call to Action*, 2012, Executive Summary, p. 6, para. 6.4.; A. Vorner, O. Sogandares, Press Release, UN’s Offsetting Project Barro Blanco Hampers Panama Peace-Talks, *Carbon Market Watch*, 15 March, 2012; UNFCCC, *FCCC/KP/CMP/2012/3 (Part I)*, paras. 101; UNFCCC, *Withdrawal or Suspension of Letters of Approval: Fourteenth Meeting of the CDM DNA Forum*, 2012, p. 3.

¹⁷⁴⁰ R. Tewari, Mapping of Criteria set by DNAs to Assess Sustainable Development Benefits of CDM Projects, 2012, p. 32.

As for the international entities, they do not conduct substantial reviews on the projects' design and, more specifically, on the implementation of sustainability issues. The CDM regulatory framework does not contain detailed requirements for the sustainability of projects. Thus, according to the CDM rules, the PDD is only required to demonstrate analysis of environmental impacts and socio-economic impacts. If the host country requests the project stakeholder to conduct an environmental impact assessment, the project developer has to conduct such assessment.¹⁷⁴¹ As for the international entities, they only confirm, by means of a document review, whether the project participants have undertaken an analysis of environmental impacts and whether the analysis is present in the PDD.¹⁷⁴² Thus, the international entities do not assess whether the analysis or the assessment is accurate, sufficient or credible. As follows, under the current CDM rules only the host countries have the authority and responsibility to assess the sustainability of a CDM (forestry) project in the CDM Project Cycle.

b. CDM Forestry Projects Sustainability under Private Forest Certification Schemes.

Private forestry certification is a voluntary tool. Originally, forest certification was introduced as an instrument to address concerns of deforestation and forest degradation and to promote the maintenance of biological diversity, especially in the tropics.¹⁷⁴³ Traditionally, forest certification schemes are used to provide standards and monitoring instruments for forest management and wood industries. In CDM forestry projects through the private forest certification schemes, project developers may prove the sustainability of the projects, the generated CERs and wood products to the host countries, investors and wood product consumers. The project participants may voluntarily choose a certifying entity and pay for the assessment services.¹⁷⁴⁴ The assessing entities are mostly NGOs. Once contracted, a private institution gains authority for decision-making,

¹⁷⁴¹ UNFCCC, CDM Validation and Verification Manual, CDM EB 55 Report, Annex I, p. 26, paras 130 - 133.

¹⁷⁴² UNFCCC, CDM Validation and Verification Manual, CDM EB 55 Report, Annex I, p. 26, para 132.

¹⁷⁴³ E. Rametsteiner, M. Smula, Forest Certification – an Instrument to Promote Sustainable Forest Managements, *Journal of Environmental Management*, 67, 2003, pp. 87-98.

¹⁷⁴⁴ S. Subak, Forest Certification Eligibility as a Screen for CDM Sinks Projects, *Climate Policy*, 2, 2002, p. 335.

setting criteria, monitoring and verification.¹⁷⁴⁵ Certification from a credible certification entity proves the projects' sustainability to the host countries, investors and consumers of wood products.

There are a number of challenges associated with private certification schemes also relevant for ensuring sustainability of A/R CDM projects. First of all, the assessing target is also the buyer, who pays for the assessing service. Therefore, the assessing entity may diminish the assessing quality to attract more clients (i.e. "race to the bottom"). Such a "race to the bottom" is more likely to happen in a highly competitive market.¹⁷⁴⁶ Second challenge is the lack of supervision. The private certification schemes are not legally constrained by an authority or sanctions. Thus, a fault is not easily detected and does not immediately lead to sanctions. Finally, private certification schemes are claimed to be "technocratic" and "standardized". It is often challenging to provide for assessment of cultural and intrinsic values.¹⁷⁴⁷

c. Ensuring CDM Forestry Projects Sustainability under the CDM Voluntary Tool for Describing Sustainable Development Co-Benefits.

At the 70th session of the CDM EB meeting a voluntary tool for describing sustainable development co-benefits (SDC) was approved by the board.¹⁷⁴⁸ The tool was developed under the decisions of the CMP 7 that highlighted the co-benefits of CDM projects on a voluntary basis and maintained the host countries authority of defining their sustainable development criteria.¹⁷⁴⁹ Primary users of the tool are project participants and coordinating or managing entities, which may request access to the tool from the CDM tool's webpage or download a Word version as an alternative from the same page.¹⁷⁵⁰ The tool can be used at

¹⁷⁴⁵ T.M. Smith, M. Fischlein, Rival Private Governance Networks: Competing to Define the Rules of Sustainability Performance, *Global Environmental Change*, 20, 2010, p. 511.

¹⁷⁴⁶ L. Schneider, *Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement*, *Oko Institute for Applied Ecology*, 2007, pp. 5-6.

¹⁷⁴⁷ I. Melo, E. Turnhout, B. Arts, *Integrating Multiple Benefits in Market-Based Climate Mitigation Schemes: The Case of the Climate, Community and Biodiversity Certification Scheme*, *Environmental Science and Policy*, 35, 2014, p. 49 – 50.

¹⁷⁴⁸ UNFCCC, CDM EB, *Seventieth Meeting Report*, 2012, para 82.

¹⁷⁴⁹ UNFCCC, Decision 8/CMP7, *Further Guidance Relating to the CDM*, FCCC/KP/CMP/2011/10/Add.2. para. 5, p. 6.

¹⁷⁵⁰ UNFCCC, CDM, Tools. // < <https://cdm.unfccc.int/Reference/tools/index.html> >, last viewed 01 March 2017.

any time in the lifetime of a CDM project and may include an update in case the co-benefits change. In its essence, the tool reflects a project's co-benefits in sustainable development in social, economic and environmental aspects.¹⁷⁵¹ As far as the environment is concerned, the tool assesses a project's benefits in improving air, land, water, and natural resources conservation, including biodiversity. The social impacts indicators include, employment, health, and safety, education and welfare. Under the economic section, business growth, energy, technology transfer and national economic independence are selected as indicators. Based on the three aspects of Sustainable Development, the tool uses a taxonomy of 12 sustainable development criteria and 70 indicators. From the data input to the tool a sustainable development co-benefit report is generated and made public on the CDM website.

There are a number of challenges associated with the Tool.¹⁷⁵² First of all, the application of the tool is voluntary. Thus, as of November, 2016 there were only 37 SDC reports on the UNFCCC website.¹⁷⁵³ Secondly, the accessibility of the tool is limited to project participants and project coordinating or managing entities. The tool does not mention local stakeholder consultation. However, guidance for the local stakeholders consultation is considered as "a core element to ensure that a project activity is beneficial to sustainable development priorities and does not have negative impacts".¹⁷⁵⁴ Thirdly, there are no requirements to verify and/or monitor the declared co-benefits. Fourthly, the tool does not contain safeguards against negative impacts (e.g. from an investor's perspective, the avoidance of negative impacts may be viewed as a key priority in mitigating financial and reputational risks¹⁷⁵⁵).

¹⁷⁵¹ UNFCCC, CDM Sustainable Development Co-Benefits Tool. // < <http://cdmcobenefits.unfccc.int/Pages/SD-Tool.aspx> >, last viewed 25 February 2017.

¹⁷⁵² K. H. Olsen, Ch. Arens, Fl. Mersmann, Learning from CDM SD Tool Experience for Article 6.4. of the Paris Agreement, Climate Policy, 2017; K. H. Olsen, CDM Sustainable Development CO-Benefits Indicators, Measuring the Future We Want – An International Conference on Indicators for Inclusive Green Economy/Green Growth Policies, UNEP, December, 2012; Carbon Market Watch, The CDM Sustainable Development Tool: Why Highlighting Will not Deliver, Newsletter, 20, 2012.

¹⁷⁵³ K. H. Olsen, Ch. Arens, Fl. Mersmann, Learning from CDM SD Tool Experience for Article 6.4. of the Paris Agreement, Climate Policy, 2017, p. 3.

¹⁷⁵⁴ K. H. Olsen, Ch. Arens, Fl. Mersmann, Learning from CDM SD Tool Experience for Article 6.4. of the Paris Agreement, Climate Policy, 2017, p. 5.

¹⁷⁵⁵ K. H. Olsen, Ch. Arens, Fl. Mersmann, Learning from CDM SD Tool Experience for Article 6.4. of the Paris Agreement, Climate Policy, 2017, p. 4.

6.4.1.3. CDM Forestry Projects and the EU MS: Case Studies.

Among the 66 A/R CDM projects currently registered under the UNFCCC regime, 31 projects are carried out with the participation of one or more EU MS (e.g. Belgium, Finland, France, Italy, Ireland, Luxemburg, Netherlands, Spain, Sweden, United Kingdom).¹⁷⁵⁶ All of the 31 A/R CDM projects aim to contribute to climate change mitigation through increasing carbon sequestration by forest “sinks”.¹⁷⁵⁷ Out of the 31 projects in total, 20 CDM forestry projects achieve their main objective through the establishment of fast growing forest plantations with the introduction of “non-native” and “exotic tree species” to the host countries. The following provides a brief description of some CDM A/R projects with the EU MS participation, that represent very obvious examples for the needs of the research.¹⁷⁵⁸

a. Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin (China/ Italy and Spain).

The project envisages reforestation with various tree species, including eucalyptus kind, of 4 000 ha of degraded land in two counties of Guangxi, China.¹⁷⁵⁹ “Eucalyptus was chosen for the project area [...] due to the fact that it can generate a significant amount of CERs in the early stage of the crediting period, compared to other species that grow relatively slow in the first several years”.¹⁷⁶⁰ The project is seen as “testing the ground”, where participants are “learning by doing”.¹⁷⁶¹ In particular, project investors are testing the technical

¹⁷⁵⁶ See, UNFCCC, Project Search, Afforestation and Reforestation Projects. // < <https://cdm.unfccc.int/Projects/projsearch.html> >, last viewed 22 February 2017.

¹⁷⁵⁷ The investigation of the CDM forestry projects with the EU MS participation was conducted for the purpose of the research. See, Appendix 2 to the current research, CDM Forestry Projects with the Participation of the EU MS, Overview.

¹⁷⁵⁸ The text of the summaries is largely taken from the Project Design Documents of the projects. However, the text has been shortened and somewhat edited for the purpose of the research. For more details please refer to the UNFCCC website. See, UNFCCC, Project Search. // <https://cdm.unfccc.int/Projects/projsearch.html>, last viewed 27 February 2017.

¹⁷⁵⁹ UNFCCC, CDM, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, PDD.// < <http://cdm.unfccc.int/filestorage/H/5/2/H52180I0ZWU4CTWLPLKEIETBIODYED.1/PDD-final.pdf?t=OTV8b2x6ZnFkDCMLWt4qmbvamERs8A6rcoS> >, last viewed 26 February 2017.

¹⁷⁶⁰ UNFCCC, CDM, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, PDD, p. 13.// < <http://cdm.unfccc.int/filestorage/H/5/2/H52180I0ZWU4CTWLPLKEIETBIODYED.1/PDD-final.pdf?t=OTV8b2x6ZnFkDCMLWt4qmbvamERs8A6rcoS> >, last viewed 26 February 2017.

¹⁷⁶¹ UNFCCC, CDM, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, PDD, p. 39.// < <http://cdm.unfccc.int/filestorage/H/5/2/H52180I0ZWU4CTWLPLKEIETBIODYED.1/PDD-final.pdf?t=OTV8b2x6ZnFkDCMLWt4qmbvamERs8A6rcoS> >, last viewed 26 February 2017.

and methodological challenges to achieve “credible carbon sequestration” while “pilot[ing] the viability of enhancing the livelihoods of people and natural environment”.¹⁷⁶² The plantations are described in the project as “virtual cash crop” for the local people who will profit both from harvesting the trees at the end of the commitment period and from selling the carbon credits.¹⁷⁶³

b. Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil (Brazil/ the Netherlands).

The projects foresees the establishment of plantations as renewable sources of energy for industrial needs. The project is expected to result in a two-fold benefit to climate: (1) generation of carbon stocks and GHG removals by sinks additional to those that would have occurred in the absence of such plantations and (2) use of sustainable sources of biomass in place of fossil fuels and non-renewable biomass to reduce GHG emissions in one of Brazil’s major industrial sector, i.e. iron and steel industry.¹⁷⁶⁴ “The project plantations are implemented with hybrid clones of Eucalyptus [...]. The choice of species is aimed at achieving the highest productivity of sustainable biomass in order to accomplish self-sufficiency of charcoal consumption [...]”.¹⁷⁶⁵

c. The International Small Group and Tree Planting Program (India/United Kingdom).

The project is a reforestation project. Among the main tree species planted under the project are native species and Eucalyptus species.¹⁷⁶⁶ The project is viewed as delivering “new “virtual” cash crop for the participants, who gain all the direct benefits of growing trees and also receive quarterly cash stipends based on the GHG benefits created by their efforts”.¹⁷⁶⁷ “The participants benefit

¹⁷⁶² UNFCCC, CDM, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, PDD, A.2. p. 2. // <<http://cdm.unfccc.int/filestorage/H/5/2/H52180I0ZWU4CTWLPLKEIETBIODYED.1/PDD-final.pdf?t=OTV8b2x6ZnFkfdCMLWt4qmbvamERs8A6rcoS>>, last viewed 26 February 2017.

¹⁷⁶³ UNFCCC, CDM, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, PDD, A.2. p. 2.

¹⁷⁶⁴ UNFCCC, CDM, Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil, PDD, 2009, p. 2.

¹⁷⁶⁵ UNFCCC, CDM, Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil, PDD, 2009, p. 12.

¹⁷⁶⁶ UNFCCC, CDM, The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India, PDD, 21 September, 2009, p. 1.

¹⁷⁶⁷ UNFCCC, CDM, The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India, PDD. 21 September, 2009, p. 1.

from a new income source, the sale of carbon credits that result from the sequestration of carbon from the atmosphere in the biomass of the trees and soil".¹⁷⁶⁸

d. Ibi Batéké Degraded Savannah Afforestation Project for Fuelwood Production (Democratic Republic of Congo/France).

The project envisages establishment of various types of forest plantations, based on local and exotic species (including Eucalyptus species). The specific objectives of the project are as follows: (1) to sequester CO₂ through fast growing forest plantations, (2) to supply the capital with charcoal; (3) to reduce soil erosion and water loss; (4) reduce degradation and deforestation of remaining forest galleries, (5) to alleviate poverty through the introduction of long term income enhancement mechanisms for local communities.¹⁷⁶⁹ The native tree species have been selected for the following reasons: (1) their high growth rates, (2) they were encountered during botanical survey, (3) they have been identified as interesting by and for local populations, (3) they grow well in savannas, (4) some of them can produce high quality timber.¹⁷⁷⁰ The exotic tree species have been selected for the project area, based on four characteristics: (1) high yields, (2) very important use in tropical plantations and absence of contamination risk beyond the project area, (3) ability to source and trace genetic material, (4) known performance of exotic species.¹⁷⁷¹

e. Argos CO₂ Offset Project through Reforestation Activities for Commercial Use (Republic of Columbia/ United Kingdom).

The proposed project activity consists of the reforestation for commercial purposes (local and international markets) of 2 754 ha with teak (*Tectona grandis*) plantations.¹⁷⁷² The project is expected to generate an increase in

¹⁷⁶⁸ UNFCCC, CDM, The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India, 21, PDD, September, 2009, p. 1.

¹⁷⁶⁹ UNFCCC, CDM, Project Search, Ibi Batéké Degraded Savannah Afforestation Project for Fuelwood Production, PDD, p. 2.

¹⁷⁷⁰ UNFCCC, CDM, The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India, PDD, 21 September, 2009, p. 11.

¹⁷⁷¹ UNFCCC, CDM, Project Search, Ibi Batéké Degraded Savannah Afforestation Project for Fuelwood Production, PDD, p. 12.

¹⁷⁷² UNFCCC, CDM Projects, Argos CO₂ Offset Project through Reforestation Activities for Commercial Use, PDD, p. 2.

existing carbon stocks and GHG removal through sinks.¹⁷⁷³ The species selected for the project is teak. It is one of the main woods in the world, an exotic species with high economic potential for the Tropical areas of America and widely renowned for its clear color, excellent fiber and high durability. Teak originates from Southeast Asia (India, Myanmar, Thailand and adapted in Java).¹⁷⁷⁴

6.4.1.4. CDM Forestry Projects and EU MS: Evaluation.

Generally the CDM forestry projects with the EU MS participating envisage the establishment of forest plantations, i.e. a forest model, which has already been critically described by the research for its negative environmental impacts (e.g. disruption of groundwater flows, reduction of biodiversity, degradation of soils, etc.)¹⁷⁷⁵ In spite of such forest planting scheme, the revised PDDs generally highlight that the CDM forestry projects will enhance biodiversity, contribute to combatting soil erosion, and improve water infiltration. Yet, often the documents fail to explain how the projects will guarantee the realization of such environmental benefits. More specifically with regards to safeguarding environmental sustainability of forests, among the total reviewed 31 CDM PDDs, only 6 documents refer to (yet, do not explicitly state the adoption of) private forest certification schemes (namely, Forest Stewardship Council (FSC))¹⁷⁷⁶

¹⁷⁷³ UNFCCC, CDM Projects, Argos CO₂ Offset Project through Reforestation Activities for Commercial Use, PDD, p. 2.

¹⁷⁷⁴ UNFCCC, CDM Projects, Argos CO₂ Offset Project through Reforestation Activities for Commercial Use, PDD, p. 64.

¹⁷⁷⁵ For more information please see subsection 2.2.3.2. "Types of Forests: Primary Forest, Secondary Forest, Planted Forest, Tree Plantations", section 2.2. "Global Forests: General Background", chapter 2. "Climate Change and Forests: Scientific Background for International Regulation".

¹⁷⁷⁶ The FSC is governed by members including environmental NGOs such as WWF and Greenpeace, business and social organizations, companies and individuals. The ultimate objective of the FSC is to develop "environmentally responsible, socially beneficial and economically viable" forest management. See, FSC, official webpage.// < <https://ic.fsc.org/en/what-is-fsc/governance>>, last viewed 28 February 2017.

and/or Climate, Community and Biodiversity Standard (CCB)¹⁷⁷⁷ as a means to ensure sustainability of forests.¹⁷⁷⁸

The information in the PDD of the revised A/R CDM projects suggests that project developers are inclined to select tree species that can quickly generate timber and carbon credits, rather than selecting slow-growth trees that can produce (environmental) benefits in the longer term. In most cases, i.e. 20 out of 31 projects, “non-native”, “exotic” and/or “introduced” tree species are being planted under the A/R CDM projects (e.g. *Eucalyptus*, *Acacia sp.*, *Tectonia grandis*).¹⁷⁷⁹ Such tree plantations are often given preference by host countries, in comparison to native tree plantations, because the “exotic” plantations are more economically profitable and generate quicker carbon capture. Thus, the reasons for the selection of “non-native” tree species include: “high growth rates”,¹⁷⁸⁰ ability to generate “significant amount of CERs in the early stage of

¹⁷⁷⁷ The CCB is provided by the Climate, Community and Biodiversity Alliance (CCBA). The Alliance is a partnership of several NGOs, advised by three international tropical forest research institutions (namely, the Centro Agronomico Tropical de Investigacion y Ensanansa (CATIE), The World Agroforestry Center (ICRAF) and the Center for International Forestry Research (CIFOR). The CCB evaluates land management projects (design and implementation) based on three elements: climate change mitigation, support to local communities socio-economic benefits and biodiversity conservation. See, CCBA, Climate Community and Biodiversity Standards. // < <http://www.climate-standards.org/ccb-standards/>>, last viewed 28 February 2017.

¹⁷⁷⁸ Please note that the adoption of a certification standard does not guarantee *per se* the development of an environmentally sustainable project. Yet, may be considered as one among other means to ensure forest sustainability under CDM forestry projects.

¹⁷⁷⁹ Among the most popular “introduced” tree species under the A/R CDM projects are *Eucalyptus* - tree species. These trees are planted under 13 out of 20 CDM A/R projects with the EU MS participation, which introduce “non-native” and “exotic” species into developing countries. *Eucalyptus* trees have desirable properties for climate plantations, including rapid growth rates and high wood density (i.e. high CO₂ absorption rate and storage capacity). *Eucalyptus* tree species also provide for valuable timber resources, good fuel wood, and oils for pharmaceutical preparations. However, the genus *Eucalyptus* is only native to Australia and Indonesia¹⁷⁷⁹ and arguably, if planted elsewhere, these trees can inspire negative environmental impacts including enormous water consumption and sustainability risks (e.g. “green deserts”; some native species respond negatively and go extinct in the presence of *Eucalyptus*; in the long term *Eucalyptus* trees show lower ecological benefits in comparison to native species, etc.). For the scientific understanding of the environmental effects of *eucalyptus* tree species see, J. A. Stanturf, et al, *Eucalyptus* beyond its Native Range: Environmental Issues in Exotic Bioenergy Plantations, *International Journal of Forestry Research*, 2013.// < <https://www.hindawi.com/journals/ijfr/2013/463030/> >, last viewed 26 February 2017; K. K. Sangha, R. K. Jalota, Value of Ecological Services of Exotic *Eucalyptus tereticornis* and Native *Dalbergia sissoo* Tree Plantations of North-Western India, *Conservation and Society*, 3, 1, 2005, p. 92; Greenpeace, Protecting China’s Forests, the Secret behind the Fast Growth of *Eucalyptus*. //< <http://www.greenpeace.org/eastasia/campaigns/forests/work/protecting-china-forests/>>, last viewed 26 February 2017.

¹⁷⁸⁰ UNFCCC, Project Search, Ibi Bateke Degraded Savannah Afforestation Project for Fuelwood Production, Project Design Document, pp. 1-3.

the crediting period”,¹⁷⁸¹ “achieving the highest productivity of biomass”,¹⁷⁸² “exotic species provide for high economic potential”,¹⁷⁸³ “production of high quality timber”,¹⁷⁸⁴ “provision of additional income and to promote livelihoods of resource poor farmers through carbon revenues”,¹⁷⁸⁵ and “market acceptance”¹⁷⁸⁶ of the timber. Yet, in the long run projects, promoting the growth of exotic species, which grow faster in comparison to the local varieties, and sequester more carbon, can lead to the neglect of indigenous tree species and can have long-term environmental consequences.¹⁷⁸⁷ In particular, monoculture plantations, which use only one tree species, can lead to adverse effects on plant and animal biodiversity.¹⁷⁸⁸

As follows, the main objective of the CDM forestry projects (i.e. to contribute to climate change mitigation through increasing carbon sequestration by sinks) is often being achieved through the establishment of fast growing tree plantations with the introduction of “non-native” and “exotic tree species” to the host countries. Often, host countries refer to the “economic attractiveness” as a reason for the selection of a certain tree species to be planted under the project. Indeed, the CDM mechanism is also seen as a sustainable development tool bringing economic profits to underdeveloped countries and, as such, the focus on the economic attractiveness contributes to the goal of CDM – to assist sustainable development. Yet, the mere focus on “economic attractiveness” without a broader consideration of other forest values and if not integrated with other values, e.g. biodiversity, may have long-term environmental consequences. In a similar line, the focus on the major objective of the

¹⁷⁸¹ UNFCCC, Project Search, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin, Project Design Document, pp. 1-3.

¹⁷⁸² UNFCCC, Project Search, Reforestation as Renewable Sources of Wood Supplies for Industrial Use in Brazil, pp. 1-3.

¹⁷⁸³ UNFCCC, Project Search, Argos CO₂ Offset Project through Reforestation Activities for Commercial Use, pp. 1-3.

¹⁷⁸⁴ UNFCCC, Project Search, Ibi Bateke Degraded Savannah Afforestation Project for Fuelwood Production, Project Design Document, pp. 1-3.

¹⁷⁸⁵ UNFCCC, Project Search, , Project Design Document, Improving Rural Livelihoods through Carbon Sequestration by Adopting Environment Friendly Technology based Agroforestry Practices, pp. 1-3.

¹⁷⁸⁶ UNFCCC, Project Search, Southern Nicaragua CDM Reforestation Project, Project Design Document, pp. 1-3.

¹⁷⁸⁷ P. Cullet, A. Patricia Kameri-Mbote, Joint Implementation and Forestry Projects: Conceptual and Operational Fallacies, *International Affairs*, 1998, 74, 2, p. 406.

¹⁷⁸⁸ I. Sagemuller, Forest Sinks under the United Nations Framework Convention on Climate Change and the Kyoto Protocol, Opportunity or Risk for Biodiversity?, *Columbia Journal of Environmental Law*, 31, 2, 2006, pp. 197-198.

projects, i.e. carbon sequestration, and the limited consideration of a broader environmental context puts the projects at risk of causing environmental harm (for instance, in terms of biodiversity conservation). In the light of the research, safeguarding environmental sustainability under the CDM forestry projects requires further attention from policy-makers.

6.4.1.5. Interim Conclusions: How to Enhance Environmental Sustainability of CDM Forestry Projects?

The research illustrated that the major objective of the forestry CDM projects with the EU MS participation as investing countries is often being achieved through the establishment of fast growing forest plantations with the introduction of “non-native” and “exotic tree species” to the host countries. The focus on the major objective (i.e. carbon sequestration) and the limited consideration of a broader environmental context puts the forestry projects at risk of causing environmental harm (e.g. in terms of biological diversity). The research evaluated the current regulatory framework for CDM forestry projects sustainability assessment (i.e. the host developing country’s assessment, private forest certification schemes and the International Sustainability Assessment Tool) and identified challenges associated with safeguarding environmental sustainability under the CDM forestry projects.

Previously, scholars have already suggested to promote CDM forestry projects’ environmental sustainability in developing countries from an international regulatory approach perspective.¹⁷⁸⁹ However, developing countries have been refusing international intervention on sustainability issues, arguing that applying international standards could impinge on their sovereignty.¹⁷⁹⁰ In the 2014 CDM validation and verification standards the authority is still left with the host countries, who request the project participants to conduct an environmental

¹⁷⁸⁹ See, H. van Asselt, *the Fragmentation of Global Climate Governance, Consequences and Management of Regime Interactions*, 2014; M. Ma, T. Haapanen, R.B. Singh, and R. Hietala, *Integrating Ecological Restoration into CDM Forestry Projects*, *Environmental Science and Policy*, 2013; A. Muller, *How to Make the CDM Mechanism Sustainable – the Potential of Rent Extraction*, *Energy Policy*, 35, 2007; K. H. Olsen, J. Fenhann, *Sustainable Development Benefits of CDM Projects: A new Methodology for Sustainability Assessment Based on Text Analysis of the PDD Submitted for Validation*, *Energy Policy*, 36, 2008.

¹⁷⁹⁰ C. Figueres, *Sectoral CDM: Opening the CDM to the Yet Unrealized Goal of Sustainable Development*, *McGill International Journal of Sustainable Development Law and Policy*, 2, 2006, p. 5, p. 11.

assessment and who eventually consider the significance of the impacts.¹⁷⁹¹ There are also scholars who, in order to address the challenges that exist in the current regulatory and voluntary sustainability assessment schemes for CDM forestry projects, favor national level regulation (with the focus on developing countries) in order to enhance CDM forestry projects' environmental sustainability in developing countries.¹⁷⁹² Thus, scholars suggest that for the protection of forest ecosystem services, national law is the best level for rule-making and criteria setting with international guidance as a supplementary source. However, the capacity and financial resources of developing countries for criteria setting and enforcement may still be problematic and inadequate.

In the light of the research, one way to ensure sustainability of the CDM forestry projects could be for the EU MS investing countries to execute an environmental¹⁷⁹³ sustainability assessment of CDM forestry projects at the National Approval stage of the CDM project cycle. The sustainability assessment under such an approach could become a mandatory requirement for the domestic project investors in investing countries. As of now, the investing countries have full authority in regulating their own national approval procedure and in deciding whether and under which conditions a domestic investor can obtain a Letter of Approval. The EU MS investing countries can employ already existing assessing practices to design their national sustainability assessments for CDM forest projects. For instance, the European Commission has already required that individual and public projects and programs co-financed by the EU

¹⁷⁹¹ UNFCCC, CDM, Validation and Verification Standard, 2014. // <https://cdm.unfccc.int/public_inputs/2014/ps_vvs_pcp/index.html>, last viewed 26 February 2017.

¹⁷⁹² J. Fehse, Forest Carbon and Other Ecosystem Services, Synergies between the Rio Conventions, in D. Freestone, Climate Change and Forests: Emerging Policy and Market Opportunities, 2008; Y. Zhang, S. Ulgiati, X. Dong, and D. Pfahler, Using Ecological Criteria to Develop CDM Projects in Zhifanggou Valley, Loess Plateau, China, Agriculture, Ecosystems and Environment, 141, 3-4, 2011.

¹⁷⁹³ Please note, due to the focus of the current research on the environmental aspects, the social aspects are not mentioned.

have to comply with the Environmental Impact Assessment (EIA)¹⁷⁹⁴ and Strategic Environmental Assessment (SEA) Directives.¹⁷⁹⁵

Focusing the sustainability assessment with the EU MS could provide for several advantages in comparison to the current state of affairs, including: (1) the approach could avoid the challenges of negotiating international unified sustainability criteria; (2) the approach could be a national level legal procedure tailored to each particular forestry project (i.e. this could provide for a more in-depth consideration of specific environmental characteristics of a particular CDM forestry project); (3) the approach could become an additional sustainability assessment (i.e. to the host country's regulatory sustainability assessment) without infringing the sovereignty of developing states; (4) arguably, in comparison to the developing states, the EU MS may have a more advanced experience in environmental regulation, provision of transparent environmental information, and progressive technologies and science to facilitate implementation of forest sustainability issues under the A/R CDM projects.

The fact, that there is a risk of potentially negative environmental effects resulting from the CDM forestry projects with the EU MS participation inspires recourse to the precautionary principle.¹⁷⁹⁶ The principle aims to help law and policy makers to reach decisions in cases where scientists are uncertain as to the potential environmental impacts of a given activity.¹⁷⁹⁷ The European Commission elaborated a "Communication on the Precautionary Principle" in

¹⁷⁹⁴ E.C., Environmental Impact Assessment. // < <http://ec.europa.eu/environment/eia/eia-legalcontext.htm>>, last viewed 01 March 2017; European Parliament and the Council of the European Union, Directive 2011/92/EU of 13 December 2011 on the Assessment of the Effects of Certain Public and Private Projects on the Environment, OJ L 26/1.

¹⁷⁹⁵ E.C., Strategic Environmental Assessment. // < <http://ec.europa.eu/environment/eia/sea-legalcontext.htm>>, last viewed 01 March 2017. European Parliament and the Council of the European Union, Directive 2001/42/EC of 27 June 2001 On the Assessment of the Effects of Certain Plans and Programs on the Environment, OJ L 197/30.

¹⁷⁹⁶ European Commission, Communication from the Commission on the Precautionary Principle, COM (2000) 1 Final, Brussels 2 February 2000. The objective of the precautionary principle is to avoid potential risks. The principle of precaution may justify action to prevent environmental damage in some cases even though the causal link cannot be clearly established on the basis of available scientific evidence. For more information on the precautionary principle, see J. H. Jans, H. H.B. Vedder, *European Environmental Law, After Lisbon*, 4th edition, 2012, pp. 47-51.

¹⁷⁹⁷ A. Trowborst, *Prevention, Precaution, Logic and Law: The Relationship between the Precautionary Principle and the Preventative Principle in International Law and Associated Questions*, *Erasmus Law Review*, 2, 2, 2009, pp. 105-127.

February 2000.¹⁷⁹⁸ This Communication lays out the EU's approach to the application and interpretation of the precautionary principle. The Communication points out that under the precautionary principle, human, animal and plant health are protected in their own rights.¹⁷⁹⁹ That opens a window of opportunity to deploy the precautionary principle for the regulation of potential environmental threats emanating from forestry activities under the CDM forestry projects with the EU MS participating.

One more way to address the challenges that exist in the current regulatory and voluntary sustainability schemes for the CDM forestry projects is to make a more extensive use of private forest certification schemes. In comparison to the international CDM rules, private forest certification schemes may perform better for issues such as ex-post monitoring and compensation plans for local forest-dependent communities.

6.4.2. Environmental Sustainability under the JI LULUCF Projects in the RF.

A JI LULUCF project is "a measure, operation or action based on a LULUCF activity aimed at enhancing anthropogenic removals by sinks of GHGs".¹⁸⁰⁰ The list of LULUCF activities, eligible for JI projects, is set out by the Kyoto Protocol: afforestation, reforestation, deforestation, revegetation, forest management, cropland management and grazing land management.¹⁸⁰¹ Currently, there are three in total JI LULUCF projects, which are registered under the international climate change regime.¹⁸⁰² Two LULUCF projects are "afforestation projects" (Russia and Romania), afforestation being "the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural

¹⁷⁹⁸ European Commission, Communication from the Commission on the Precautionary Principle, COM (2000) 1 Final, Brussels 2 February 2000.

¹⁷⁹⁹ European Commission, Communication from the Commission on the Precautionary Principle, COM (2000) 1 Final, Brussels 2 February 2000, para 3, page 9.

¹⁸⁰⁰ UNFCCC, Glossary of JI Terms, Version 03, Project, LULUCF. // <https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

¹⁸⁰¹ Kyoto Protocol, adopted 11 December 1997, in force 16 February 2005, art. 3, paras (3) and (4).

¹⁸⁰² UNFCCC, JI, Project Overview, LULUCF Projects. //<http://ji.unfccc.int/JI_Projects/ProjectInfo.html>, last viewed 04 March 2017.

seed sources”.¹⁸⁰³ One JI LULUCF project is a “forest management project” (Russia), forest management being “a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner”.¹⁸⁰⁴ The RF is a “host party” (a “host party” is a party, on the territory of which the JI project is physically located¹⁸⁰⁵) to two JI LULUCF projects.

Although JI (forestry) projects are not required explicitly to assist host countries with achieving their sustainable development goals, they still have to fit within the ambit of sustainable development. Thus, according to art. 2 of the UNFCCC the concept of sustainable development must be integrated into any action taken to implement its provisions.¹⁸⁰⁶ The Kyoto Protocol further exhorts Annex B parties, in fulfilling their obligations, to minimize social, environmental and economic impacts.¹⁸⁰⁷ However, as of now, it is not clear what does the concept mean in the context of JI. Part of sustainable development is SFM. As some legal scholars put it, SFM “is one of the numerous means to pursue sustainable development comprehensively”.¹⁸⁰⁸ In the context of JI forestry projects, SFM implies “a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner”.¹⁸⁰⁹

This section aims to analyze how environmental sustainability is safeguarded under the JI forestry projects, implemented in the RF. First, the subsection provides a description of the two JI forestry projects, implemented in Russia (6.4.2.1.). Secondly, the subsection evaluates the description of the projects (6.4.2.2.). Thirdly, the subsection considers the JI project cycle and its major

¹⁸⁰³ UNFCCC, Glossary of JI Terms, Version 03, Afforestation. // < https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

¹⁸⁰⁴ UNFCCC, Glossary of JI Terms, Version 03, Forest Management. // < https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

¹⁸⁰⁵ UNFCCC, Glossary of JI Terms, Version 03, host party. // < https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

¹⁸⁰⁶ UNFCCC, adopted 9 May 1992, in force 21 March 1994, art. 2.

¹⁸⁰⁷ Kyoto Protocol, adopted 11 December 1997, in force 16 February 2005, art. 2.3. and 3.14.

¹⁸⁰⁸ M. Pappila, Russian Forest Regulation and the Integration of Sustainable Forest Management, in S. Nysten – Haarla, *The Changing Governance of Renewable Natural Resources in Northwest Russia*, 2016, p. 57.

¹⁸⁰⁹ UNFCCC, Glossary of JI Terms, Version 03, Forest Management. // < https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

actors (6.4.2.3.). Fourthly, the current JI forestry projects assessment regulation in the RF is investigated (6.4.2.4.). Fifthly, the subsection studies how JI forestry projects are assessed under the national EIA regulation (6.4.2.5.). Sixthly, the subsection considers the national SFM criteria and indicators in the context of JI forestry projects (6.4.2.6.). Finally, the findings of the section are brought together and some concluding remarks on how to enhance the environmental sustainability of JI forestry projects in the RF are put forward (6.4.2.7.).

6.4.2.1. JI Forestry Projects and the RF: Case Studies.

The RF hosts two LULUCF projects, namely, the “Carbon Sequestration via Afforestation in Siberian Settlements” project, aimed at sequestration of CO₂ via creation of new forest (carbon-absorbing forest planting),¹⁸¹⁰ and the “Bikin Tiger Carbon” JI project, providing for the permanent protection of otherwise logged “Bikin” Forests.¹⁸¹¹ In the following is a brief summary of the JI LULUCF projects carried out on the territory of the RF. The text of the summaries is taken from the Project Design Documents (PDD) of the projects.¹⁸¹² The text has been shortened and edited for the purpose of the research.

a. Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation (Track 1).

The project is devoted to activities on protection and management of the afforested degraded agricultural land in Zalesovo District (Altai Krai of the RF). The project activities are “natural afforestation” by birch,¹⁸¹³ forest protection and management measures (“creation of forest fire-prevention strips, periodic visual monitoring of the project territory, cooperation with forest enterprises”,

¹⁸¹⁰ UNFCCC, Joint Implementation, Project Overview.// < <http://ji.unfccc.int/JIITLProject/DB/C9ZB53AG7OLV4GMY60UHS5C1PO19IZ/details>>, last viewed 06 February 2017.

¹⁸¹¹ UNFCCC, Joint Implementation, Project Overview.// < <http://ji.unfccc.int/JIITLProject/DB/51OUYN5N2G1IVQT2J2QT0NVY5T67CX/details>>, last viewed 06 February 2017.

¹⁸¹² PDD – is the main technical document of a project. It contains sections on project description, a methodology with respect to the baseline and the additionality assessment, monitoring plan, consideration of environmental and social impacts, information on consultation with stakeholders. UNFCCC, JI LULUCF PDD form. // < http://ji.unfccc.int/Ref/Documents/JI_LULUCF_PDD_form.pdf>, last viewed 06 March 2017.

¹⁸¹³ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 20, p. 51.

“additional attraction of the automobiles and tractors for forest protection in the project territory”, “cooperation with the local community”).¹⁸¹⁴ The project covers 9 489, 37 ha of land that under national law has the status of “non-forested area”.¹⁸¹⁵ However, the project land areas are consistent with the term “Kyoto forests” (as determined by CMP 16/CMP.1; specifically, the land corresponds to the requirement of the land area over 0, 005 – 1 ha with the tree coverage 10-30 percent of which is able to reach minimum height of 2-5 metres in maturing period) and, therefore, the project areas can be treated as “forests”.¹⁸¹⁶ The project is the first “creation of forest lands on non-forest territories for carbon sequestration in the RF”.¹⁸¹⁷ As these lands remain “non-forest lands” under national law (i.e. agricultural lands), these lands do not need forest management measures such as growing, treatment, and cut of wood.¹⁸¹⁸ Forest management activities on non-forest lands are not regulated by any national legal norms.¹⁸¹⁹ Project objectives are: reduction of the anthropogenic burden on the environment and impacts of global climate change on Altai region through increase of the afforested areas and, subsequently, increase of CO2 sequestration from the atmosphere; (2) development of the algorithms for estimation of the carbon absorption in forest ecosystems on the local level, and through that, implementation of the JI project activities corresponding to art. 6 of Kyoto Protocol; (3) development of the mechanisms for active management and protection of the forest areas, not included in the State Forest Fund. Without revenues from ERUs sale the project would have not been implemented as it would have not been “commercially viable”.¹⁸²⁰ Consultations with

¹⁸¹⁴ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 2.

¹⁸¹⁵ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 2.

¹⁸¹⁶ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 15.

¹⁸¹⁷ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 23.

¹⁸¹⁸ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 20.

¹⁸¹⁹ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 19.

¹⁸²⁰ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 5.

stakeholders on the project activity is not carried out because this is not a requirement of the Russian legislation.¹⁸²¹

b. Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest in Primorye Russia (Track 2).

The JI project qualifies as “Forest Management”; the project involves a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner.¹⁸²² The Tribal Commune Tiger (TCT), an economic interest group formed by the local tribe of the Russian ethnic group of Udege people, has leased the Bikin Nut Harvesting Zone (NHZ) and riparian zone of Bikin river concession from the Forest Department of Primorsky krai. This allows TCT to protect its area of living from any logging activities and thereby ensures the integrity of forest and carbon stocks in the project area. The project setup foresees: (1) the protection of the project area from any logging operations as well as the conservation of the existing forest carbon stocks; (2) the assessment of the development of forest carbon stocks under (a) baseline scenario (i.e. logging) and (b) the protection of the project area from logging; (3) the calculation of the difference of carbon stocks of baseline and project scenarios; (4) the generation of ERUs; (5) the ERUs shall be sold in the international emission trading market allowing the TCT in the midterm to pay the annual concession fees and all necessary conservation measures related to the management plan of the concession. The project forest area sums up to a total area of 461 154 ha.¹⁸²³ The project area is a pristine forest, which has not been commercially logged so far¹⁸²⁴ (i.e. the project comprises only native tree species). The project area is a unique ecosystem (on a regional and global scale) being home to at least 12 endangered species (i.e. listed as vulnerable, endangered or critically endangered in the International Union for Conservation

¹⁸²¹ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 56.

¹⁸²² UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 2.

¹⁸²³ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 2.

¹⁸²⁴ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 2.

of Nature (IUCN) Red List Book).¹⁸²⁵ The project is one of the last outstanding examples of a large, still intact and species rich natural Korean Pine Broadleaved forest in the Amur Region. The proposed project features a CCB voluntary component. The CCB is a quality standard for climate forest projects, which ensures that CCB projects feature positive social, and environmental impacts.¹⁸²⁶

6.4.2.2. JI Forestry Projects and the RF: Evaluation.

The description of the first project, i.e. the “Carbon Sequestration via Afforestation in Siberian Settlements” project, illustrates that the project follows the path, similar to most CDM forestry projects. The project contributes to climate change mitigation through promotion, protection and management of a monoculture birch - tree stand. Although it is specified in the PDD, that the project will result in “significant sequestration of carbon dioxide from the atmosphere and substantial improvement of the environmental situation in Zalesovo district and Altai Kray, including climate change mitigation and adaptation, increased biodiversity, watershed protection, reduction of soil erosion, reduction of risks of forest fires in the neighborhood with local villages and towns, etc. and improvement of the quality of life, creation of new jobs for local population”, except for climate change mitigation, the PDD does not explain how the project will guarantee the realization of the enumerated environmental benefits. According to the PDD, the project is based on afforestation and forest management activities. These activities imply a system of practices for stewardship and use of forests aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of forests in a sustainable manner.¹⁸²⁷ Yet, it is unclear, how the project safeguards the environmental sustainability of forests. In particular, with regard to forest management under the project, the PDD declares that the protected tree stand remains on “agricultural lands” and, therefore, the project’s tree stand “does not need forest management measures”.¹⁸²⁸ According to the PDD, the project activities are

¹⁸²⁵ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 7.

¹⁸²⁶ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 7.

¹⁸²⁷ UNFCCC, Glossary of JI Terms, Version 03, Forest Management. // < https://ji.unfccc.int/Ref/Documents/Glossary_JI_terms.pdf>, last viewed 04 March 2017.

¹⁸²⁸ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 20.

aimed, primarily, at the sequestration of CO₂.¹⁸²⁹ No private forest certification scheme has been applied to provide for forest management sustainability standards.

The description of the second JI LULUCF project, carried out in the RF, namely the "Bikin Tiger Carbon" project, illustrates that the project, on the one hand, contributes to GHG emission reductions, and, on the other hand, works, as well, for the benefit of local livelihoods, promotes environmental sustainability of forests, and contributes to conservation of biodiversity. The project is even considered as a "lighthouse project", which may provide a lesson for the scoping of a future LULUCF projects under the international climate change regime.¹⁸³⁰ The project envisages protection and management of "pristine" forests. According to the project's PDD the forests under the project represent "unique" ecosystems (i.e. a habitat for "critically endangered" species and an intact and species-rich natural forest with a complex tree composition and structure) and have high commercial value. Without the protection under the JI project the forest would have been logged and the logging would have led to subsequent negative environmental impacts (e.g. on forest biodiversity).

As follows, the main objective of the JI forestry projects (i.e. to contribute to climate change mitigation through increasing carbon sequestration by sinks) is currently being achieved in the RF through two different approaches. On the one hand, it is the establishment of monoculture tree stands and a limited consideration of a broader environmental context, which also puts the project at risk of causing environmental harm (e.g. in terms of forest biodiversity conservation). On the other hand, it is the protection and management of biodiversity rich "pristine" forests, i.e. a "lighthouse" approach, which may provide a lesson for the scoping of future forestry projects under the international climate change regime. The fact that both approaches are possible under the current JI forestry rules inspires legal concerns as to how environmental sustainability is safeguarded under the CDM forestry projects.

¹⁸²⁹ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 2.

¹⁸³⁰ Federal Ministry for Environment, Nature Conservation and Nuclear Safety, Ministry of Economic Development of the RF, WWF, et al, Bikin Tiger Carbon Project, Russia Far East. // <http://www.gfa-group.de/595988/TigerPaper_engl.pdf>, last viewed 06 March 2017.

6.4.2.3. “Track 1” and “Track 2” JI LULUCF Project Cycles and Major Actors.

In order to understand how environmental sustainability is considered under the JI LULUCF project rules, it is important to understand, firstly, the JI project cycle and its major actors. The international rules for JI provide for two sets of JI procedures, referred to as “Track 1” and “Track 2”.¹⁸³¹ Whether a host country may use “Track 1” and/or “Track 2” procedure depends on the extent to which the host country meets the eligibility criteria under the Article 17 of the Kyoto Protocol: (1) is a Party to the Kyoto Protocol; (2) Party’s assigned amount has been calculated and recorded; (3) it has in place a national system for estimation of anthropogenic GHG emissions; (4) it has in place a national registry; (5) it has submitted the most recent required inventory of its GHG emissions to the UNFCCC; and (6) it submits the supplementary information on the assigned amount to the UNFCCC.¹⁸³² A host country may use “Track 2” provided it meets at least the eligibility criteria set out in (1), (2), and (4). If the host country meets all the eligibility criteria, then it can choose whether to use “Track 1” or “Track 2”.

JI “Track 1” is often considered to be a “simplified” procedure,¹⁸³³ which allows a country to determine JI project proposals, verify emission reductions and issue ERUs without the international oversight of the Joint Implementation Supervisory Committee (JISC). Under “Track 1” a country is free to establish its own JI procedures. JI “Track 2” involves international oversight by the JISC over the determination of JI projects, the verification of emission reduction and the issuance of ERUs. Independent auditors, accredited by the JISC, i.e. the Accredited Independent Entities (AIE), determine whether a candidate JI project meets the requirements, as set out in the Kyoto Protocol as well as the relevant JI guidelines, and verify the emission reductions. As an oversight body, the JISC can request a review of the determination of a JI project or of the verification of

¹⁸³¹ UNFCCC, KP, Decision 9/CMP.1, Guidelines for the Implementation of Art. 6 of the Kyoto Protocol.

¹⁸³² UNFCCC, KP, Decision 9/CMP.1, Guidelines for the Implementation of Art. 6 of the Kyoto Protocol.

¹⁸³³ I. Shishlov, V. Bellassen, B. Leguet, Joint Implementation: A Frontier Mechanism within the Borders of an Emission Cap, *Climate Report*, 33, 2012, p. 6. // < <https://hal.archives-ouvertes.fr/hal-01168452/document> >, last viewed 07 March 2017.

emission reductions, thus adding an extra layer of international examination. "Track 2" approach resembles CDM project cycle, where projects must be examined and the emissions reduced or sequestered verified by an independent entity before any transaction can occur.

There are five primary actors involved in JI projects. The first (1), is the project participant, whose primary responsibility is the development and implementation of JI projects in accordance with the guidelines and procedures of the host country. The second (2), is the host country Party, in particular, the Focal Designated Point (FDP) that is responsible for the verification of the emissions reduced, determination of the additionality of those emissions, and issuance of the ERUs. The third (3), is the investor country Party, where the ERUs are transferred. The fourth (4), is an Accredited Independent Entity (AIE, "Track 2"), which is responsible for determining whether the proposed project meets the requirements specified in the JI guidelines and verifies the emission reductions accruing from the project. A "determination" occurs when the PDD is reviewed to ensure the project meets the JI guidelines. The fifth (5) is the JISC. Under "Track 2" the JISC sets rules and procedures, oversees the project cycle and performs the accreditation and supervision of the AIE

In order to obtain ERUs there are six stages in the JI project cycle. The project stages include (1) project design; (2) determination of a project; (3) registration; (4) implementation and monitoring; (5) verification of emission reductions; and (6) issuance and transfer of emission reductions. Provided that a host country meets all the eligibility criteria, the country is allowed to develop its own procedures, i.e. "Track 1" approach. There is no requirement for any international or independent body to be involved in the approval of the project or verification of the GHG emissions reductions. Following verification of GHG emissions, the host country can issue and transfer the agreed amount of ERUs without recourse to any international body for approval.

If a host country does not fulfil all the eligibility criteria, or fulfils all the criteria, but chooses the "Track 2" approach, then "Track 2" procedures apply. In this situation, a host country is still entitled to introduce its own procedures in

respect of the approval of the project and the issuance of ERUs. However unlike "Track 1", those regulations will be subject to, and must be consistent with, the rules of JISC. In particular, (1) the host country must apply the baseline, additionality and monitoring procedures, specified by the JISC; (2) the project is validated by an AIE, accredited by the JISC; (3) the GHG emissions reductions are verified by an AIE. The JISC has the right to review the decision of an AIE in respect of validation of the project or verification of GHG emissions reductions. However, the JISC is not the equivalent of the CDM Executive Board and the right is discretionary. After projects are approved and the GHG emissions reductions have been verified under "Track 2" process, the host countries are then able to issue and transfer ERUs.

For the purpose of the research it is possible to summarize that, depending on the track chosen, there are three monitoring entities which are involved into the JI project governance: (1) the host country Party, primarily the Focal Designated Point (FDP) that is responsible for the verification of the emissions reduced and determination of the additionality of those emissions; and for "Track 2" (2) an AIE and (3) the JISC, which assess the projects against the international JI requirements. It is important to highlight that, similar to the CDM project rules, the JI international rules serve primarily the ultimate objective of the UNFCCC regime and, therefore, focus on reducing GHG emissions. There are no explicit guidelines on safeguarding the environmental co-benefits of JI projects. Furthermore, unlike the CDM, JI projects are not required explicitly to assist host countries with achieving their sustainable development goals, and, thus, the JI projects do not have to be assessed, based on any sustainable development criteria.

6.4.2.4. Current JI Forestry Projects Assessment Regulation in the RF.

Both JI forestry projects, implemented in the RF have undergone the national assessment procedures laid down by the 2011 RF Government Decree "On Measures for Implementation of Article 6 of the Kyoto Protocol to the UNFCCC"

(RF JI Decree).¹⁸³⁴ According to the RF JI Decree there are two major national assessments of JI projects before their implementation.

The first assessment takes place when an application for a project is considered by the Joint Stock Company (JSC) "Sberbank of Russia", i.e. the Russian operator of carbon units. The assessment is a formal procedure to review the application, to gauge project's eligibility for classification as JI projects (projects implemented in accordance with Article 6 of the Kyoto Protocol) and to consider whether the application corresponds to the list of the relevant documents, enumerated in the RF JI Decree (e.g. a PDD, a determination report, an investment declaration and other supporting documents, paras 6-9). If the application corresponds to the formal requirements, the JSC "Sberbank of Russia" issues a protocol of approval and submits it to the Russian FDP, i.e. the RF Ministry of Economic Development (RF MED).

The second assessment of a JI project takes place when the RF MED considers the application. According to the Decree, the RF MED can either approve a JI project or refuse its approval "for a number of reasons including man-made and natural risks for realization of a project" (para. 13). Yet, neither the reasons, nor the criteria for such a refusal are explicitly defined by the RF JI Decree. Thus, in terms of legal certainty, the competence to approve or refuse a JI project is very widely defined. After the approval procedure, the RF MED must inform the RF Ministry of Natural Resources and Environment on the approval (or a refusal to approve) of a project (para. 14). Approved applications are registered in the JI registry, maintained by the JSC "Sberbank of Russia" (para. 15). The project proceeds to the fourth stage of the JI project cycle, i.e. implementation and monitoring stage.

The 2011 RF JI Decree establishes an obligation for the project investor (i.e. a Russian legal entity, which carries out the project (para 2) to monitor implementation of a project. According to the Decree, an investor must annually

¹⁸³⁴ RF Government, Decree of the RF Government № 780 (*Постановление Правительства РФ № 780*), On Measures for Implementation of Article 6 of the Kyoto Protocol to the UNFCCC (О Мерах по Реализации Статьи 6 Киотского Протокола к Рамочной Конвенции ООН об Изменении Климата), 15 September 2011, as amended 29 June 2013.

submit a report on the implementation of the project to the RF Ministry of Natural Resources and Environment and the JSC "Sberbank of Russia" (para 21). The report must contain: (a) description of the project activities according to the project's PDD; (b) information on the GHG reductions achieved; (c) verification attest from an AIE on the GHG reductions achieved by the project; and (d) information on the implemented activities according to the investment declaration¹⁸³⁵ of the project (para 21). The RF Ministry of Natural Resources and Environment assesses the report against the international guidelines for JI projects, the project's PDD, the project's investment declaration and other relevant requirements (para 22). If the report does not satisfy the requirements, the RF Ministry of Natural Resources and Environment requests the investor to eliminate the discrepancies. Should the discrepancies remain for the following reporting period, the Ministry of Natural Resources and Environment is entitled to request the MED to terminate the decision on the approval of a project. However, as some critics note, "the grounds for such a request appear ambiguous";¹⁸³⁶ they are not explicitly defined by the 2011 RF JI Decree.

As follows, under the 2011 JI Decree only the Russian operator of carbon units, i.e. the JSC "Sberbank Russia", and the RF MED have the authority and responsibility to assess the JI (forestry) projects during the JI project cycle. Yet, the Decree does not prescribe to consider the environmental sustainability and/or environmental effects of a JI project during the assessments. As for the RF Ministry of Natural Resources and Environment, it evaluates only the implementation report, once a JI project is already being carried out. However, the criteria for such evaluation are not explicitly defined by the Decree and, therefore, the legal certainty is low, it is unclear whether and how the environmental sustainability of JI forestry projects is considered under the assessment of implementation reports.

¹⁸³⁵ "Investment declarations" have to be submitted together with the project documentation when applying for registration. A declaration is a statement of the project's investor to use the revenues from the sales of ERUs either by reinvesting them into energy efficiency and/or into other environmental projects. See, RF Government, Decree of the RF Government № 780 (*Постановление Правительства РФ № 780*), On Measures for Implementation of Article 6 of the Kyoto Protocol to the UNFCCC (О Мерах по Реализации Статьи 6 Киотского Протокола к Рамочной Конвенции ООН об Изменении Климата), 15 September 2011, as amended 29 June 2013.

¹⁸³⁶ S. Sitnikov, M. Gutbrod, New Procedure for JI Projects in Russia, *Climate Change Russia*. // < <http://www.lexology.com/library/document.aspx?g=7c901ac7-7269-4a58-a14a-3e1e9dbda7f4> >, last viewed 09 March 2017.

6.4.2.5. JI Forestry Projects and the RF Regulation on EIA.

The 2011 RF JI Decree provides that a PDD for a JI project must be prepared in accordance to the relevant international requirements (para. 2). According to the international guidelines, each PDD must include documentation on the analysis of the environmental impacts of the LULUCF projects, in accordance with the procedures as determined by the host countries.¹⁸³⁷ If environmental impacts are considered significant by the project participants or the host party, an environmental impact assessment (EIA) must be undertaken in accordance with the procedures as required by the host Party.¹⁸³⁸

The RF legislation establishes a mandatory EIA procedure for planned economic and other activities that can have direct or indirect impact on the environment.¹⁸³⁹ The objective of the RF EIA procedure is to "prevent or mitigate the impact of an activity on the environment and the associated with it social, economic and other consequences".¹⁸⁴⁰ The RF EIA includes the preparation of EIA materials and the state expertize of the EIA materials. During the EIA process, project developer considers project's alternatives and provides the public with free access to the materials on the EIA process, as well as offering participation in discussion of the results at each stage of the EIA process. The concrete stages of the Russian EIA process as well as the requirements towards the EIA materials are stated out in the Regulation on the Assessment of

¹⁸³⁷ UNFCCC, JISC, Guidelines for Users of the JI LULUCF PDD Form, Version 04, Section F., Environmental Impacts, F.1.

¹⁸³⁸ UNFCCC, JISC, Guidelines for Users of the JI LULUCF PDD Form, Version 04, Section F., Environmental Impacts, F.2.

¹⁸³⁹ RF, Constitution of the RF, art. 42.// < <http://www.constitution.ru/en/10003000-03.htm>>, last viewed 03 March 2017; RF, Federal Law «On Environmental Protection» № 7- FZ (Федеральный Закон «Об Охране Окружающей Среды» № 7-ФЗ от 10 января 2002), 10 January 2002, art. 32; RF, Federal Law «On Ecological Expertise» № 174 – FZ, (Федеральный Закон «Об Экологической Экспертизе» № 174 – ФЗ от 23 Ноября 1995), 23 November 1995; RF, Order of State Ecology Committee of the RF «On the Assessment of Environmental Impact» (Приказ Госкомэкологи РФ «Об Утверждении Положения об Оценке Воздействия Намечаемой Хозяйственной и иной Деятельности на Окружающую Среду в РФ» от 16 мая 2000 № 372), 16 May 2000.

¹⁸⁴⁰ RF, Order of State Ecology Committee of the RF «On the Assessment of Environmental Impact» № 372, (Приказ Госкомэкологи РФ «Об Утверждении Положения об Оценке Воздействия Намечаемой Хозяйственной и иной Деятельности на Окружающую Среду в РФ» от 16 мая 2000 № 372), 16 May 2000, I. General Provisions, art. 1.2.

Environmental Impact approved by the Order of the State Ecology Committee of the RF (RF EIA Regulation).¹⁸⁴¹

The EIA Regulation legalizes the EIA process only for the projects that are subjected to the State Ecological Expertize (SEE).¹⁸⁴² The ecological expertise is intended to establish correlation between the documents and/or documents substantiating planned economic and other activities in connection with the implementation of ecological expertise's object and environmental requirements established by technical regulations and the environmental legislation, in order to prevent the negative impact of such activities on the environment.¹⁸⁴³ The list of the SEE projects is stipulated by the Federal Law on SEE, including: project documentation of state programs, which are likely to have impacts on the environment; project documentation of technical specifications for new equipment, technology, the use of which may have environmental impact; materials of comprehensive ecological investigation of areas/territories for giving these territories legal status of the protected natural areas of Federal or Regional significance; materials of licenses justification for performing certain types of activities, which have a negative impact on the environment and licensing of which is carried out in accordance with the Federal Law "On Licensing Certain Types of Activities" № 128-FZ; projects planned to be realized on the continental shelf, in the exclusive economic zone, territorial sea and contiguous zone of the RF as well as on the protected natural areas of the federal, regional or local significance; projects connected with location and neutralization of dangerous waste.¹⁸⁴⁴ As follows, according to the list of the projects, that require the EIA, the JI LULUCF projects cannot be considered as subject to the Russian EIA.¹⁸⁴⁵

¹⁸⁴¹ RF, Order of State Ecology Committee of the RF «On the Assessment of Environmental Impact» № 372, (*Приказ Госкомэкологи РФ «Об Утверждении Положения об Оценке Воздействия Намечаемой Хозяйственной и иной Деятельности на Окружающую Среду в РФ» от 16 мая 2000 № 372*), 16 May 2000.

¹⁸⁴² Please note, that the SEE process can be Federal or Regional. On the regional level the SEE is conducted by regional authorities. The SEE on the Federal level is conducted by the Federal Service for Supervision of Natural Resource Usage ("Rosprirodnadzor") and its regional Departments.

¹⁸⁴³ RF, Federal Law «On Ecological Expertise» № 174 – FZ, (*Федеральный Закон «Об Экологической Экспертизе» № 174 – ФЗ от 23 Ноября 1995*), 23 November 1995, art. 1.

¹⁸⁴⁴ RF, Federal Law «On Ecological Expertise» № 174 – FZ, (*Федеральный Закон «Об Экологической Экспертизе» № 174 – ФЗ от 23 Ноября 1995*), 23 November 1995, art. 11.

¹⁸⁴⁵ In comparison, the EU EIA Directive (2011/92/EU) applies to a wide range of defined public and private projects, which are defined in Annexes I and II of the Directive. The LULUCF forestry projects (may) fall under the category "Initial afforestation and deforestation for the purposes of

This also implies no specific national requirements for stakeholder procedures for the JI LULUCF project activities.

Thus, for instance, the “Bikin Tiger Carbon Project” PDD states that “The JI LULUCF project type is not referred to under the national EIA procedure (neither at the federal nor at the regional level). Therefore, no EIA is required for the project at hand.”¹⁸⁴⁶ The forestry JI project did not undergo the Russian EIA procedure. In other words, neither the impacts of the project’s activities on the environment were scrutinized, nor the forestry activities were tested against the environmental requirements established by national environmental legislation and technical regulations by national authorities. Arguably, on a voluntary basis environmental sustainability has been addressed through the stakeholders consultations.¹⁸⁴⁷ According to the PDD “the RF EIA legislation does not stipulate/require specific stakeholder procedures for the proposed project activity”.¹⁸⁴⁸ Therefore, the project follows “an inherent stakeholder consultation approach”, i.e. the TCT¹⁸⁴⁹ conducts frequent community meetings. During these meetings all strategic decisions related to the community, including the proposed project activities, are discussed.¹⁸⁵⁰ According to the PDD “the project design and its implementation is closely coordinated with local community, TCT

conversion to another type of land use”. The category is listed in Annex II of the Directive, for which the national authorities have to decide whether an EIA is needed. Among the three in total JI LULUCF projects, which are registered under the international climate change regime, one JI LULUCF project is carried out in Romania. The project “Romania Afforestation of Degraded Agricultural Land” envisages the “afforestation of 6,728 ha of state-owned degraded agricultural lowlands in the southwest and southeast of the Romanian Plain and the ecological reconstruction of part of the Lower Danube floodplain through the planting of native species”. With regard to the EIA, according to the project’s PDD, “all afforestation projects in Romania are subject to review by the local environmental agency at the pre-feasibility study stage”.¹⁸⁴⁵ Yet, in cases where the EU host party has not legislated an EIA procedure, no EIA will be undertaken with regard to forest projects.

¹⁸⁴⁶ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 126.

¹⁸⁴⁷ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, pp. 127-131.

¹⁸⁴⁸ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 127.

¹⁸⁴⁹ Tribal Commune Tiger (TCT), an economic interest group formed by the local tribe of the Russian ethnic group of Udege people. The TCT has leased the Bikin Nut Harvesting Zone (NHZ) and riparian zone of the Bikin river concession from the Forest Department of Primorsky krai (Primorye).

¹⁸⁵⁰ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 127.

and WWF Russia (Amur Brunch)¹⁸⁵¹ and the local stakeholders “express a positive view on the project as a whole, highlighting the importance of long-term conservation for traditional forest-use without clear cuttings”.¹⁸⁵²

Furthermore, the environmental sustainability of the project is voluntarily ensured through a private certification scheme. The project features a Climate, Community and Biodiversity (CCB) component.¹⁸⁵³ The CCB is a quality standard for climate projects, which ensures that the JI project performs positive social and environmental impacts. The most recent CCBA review of the “Bikin Tiger Carbon Project” (including the review of its PDD, the interviews with stakeholders and factual verification of the relevant references) determines that the project meets all the relevant requirements of the CCB standards.¹⁸⁵⁴ This means that a sustainability assessment indicating the project’s potential interests and risks at social and environmental aspects was performed under the CCB standard. However, in contrast to a regulatory sustainability assessment under a national EIA, the CCB standard is applied on a voluntary basis. It is the project developer who decides to hire an independent entity to perform a sustainability assessment, indicating the project’s potential interests and risks at social and environmental aspects.

As for the PDD of the “Carbon Sequestration via Afforestation in Siberian Settlements” JI project, in a similar line it states that “the project activities do not fall under the “Regulations for the EIA (planned commercial and other activities in the Russian Federation)”, approved by Order of the State Ecology Committee № 372 of May 16, 2000. The main goal of the project is voluntary absorption of GHG emissions (CO₂) from the atmosphere, which means that the

¹⁸⁵¹ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 127.

¹⁸⁵² UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 129.

¹⁸⁵³ UNFCCC, JI, Project Overview, Bikin Tiger Carbon Project – Permanent Protection of Otherwise Logged Bikin Forest, in Primorye Russia, PDD, p. 7. See also, CCBA, Climate Community and Biodiversity Standards. // < <http://www.climate-standards.org/ccb-standards/>>, last viewed 28 February 2017; CCB, Climate Community and Biodiversity Standards, < <http://www.climate-standards.org/2012/01/12/bikin-tiger-carbon-project/>>, last viewed 17 March 2017.

¹⁸⁵⁴ CCB, Climate Community and Biodiversity Standards, Validation Report, 2013.// < https://s3.amazonaws.com/CCBA/Projects/Bikin_Tiger_Carbon_project/Validation-Report_CCBA_Bikin.pdf >, last viewed 17 March 2017.

project cannot harm the environment and, on the contrary, it helps to reduce pollutant emissions".¹⁸⁵⁵ However, the mere fact that the project contributes to the reduction of pollutant emissions, does not *per se* exclude the potential to cause other (unintended) negative environmental impacts, including, for instance, biodiversity depletion and/or forest degradation. The project developer chose not to apply a private forestry certification scheme in order to ensure the environmental sustainability of a project. Furthermore, no consultations with local stakeholders have taken place.¹⁸⁵⁶ It may be suggested that, in the case of the "Carbon Sequestration via Afforestation in Siberian Settlements" JI project, the national EIA procedure could have provided a useful exercise in order to determine the impact of monoculture tree stands (e.g. in this project the only one tree species planted and managed are birch tree species) on the local plant and animal biodiversity. Besides, an EIA could have become a useful tool in order to determine whether the management practices under the JI forestry projects comply with the national requirements for SFM. Furthermore, the EIA could also provide information, whether the JI project in place corresponds to the (environmental) needs of the local stakeholders.

6.4.2.6. JI Forestry Projects and the RF Regulation on SFM.

According to the main forestry law of the RF, i.e. the RF Forest Code, the principle of SFM is one of the fundamental principles of national forest legislation and any enactments governing forest relations.¹⁸⁵⁷ The principle is also enshrined in many strategic forest policy documents, including such as the "Forest Sector Development Strategy for the period up until 2020"¹⁸⁵⁸ and the

¹⁸⁵⁵ UNFCCC, JI, Project Overview, Carbon Sequestration via Afforestation in Siberian Settlements, Russian Federation, PDD, p. 55, Section F, Environmental Impacts.

¹⁸⁵⁶ Although the participation of local stakeholders provides guarantees that the project is contributing to the country's sustainable development, under the JI international guidelines consultations with local stakeholders does not appear as an obligatory requirement. It is implied that consultation with local stakeholders is already insured by the publication of PDD online by the UNFCCC Secretariat, and, therefore, public consultation is not required at the local level. However, in the case of JI LULUCF project "Carbon Sequestration via Afforestation in Siberian Settlements", which did not undergo the national EIA procedure, the consultation with local stakeholders at the local level did not appear *de facto*.

¹⁸⁵⁷ RF, Federal Law № 200- FL, RF Forestry Code, (*Лесной Кодекс РФ, № 200-ФЗ от 04 Декабря 2006*), 04 December 2006, art. 1. For more information on the principle see, Т. У. Оленина (Т. Ю. Оленина), Legal Aspects of Sustainable Forest Management (*Правовые Аспекты Устойчивого Управления Лесами*), Russian Justice (*Российская Юстиция*), 1, 2016, pp. 25-28.

¹⁸⁵⁸ RF, RF Ministry of Industry and Trade, Order № 248, RF Ministry of Agriculture, Order № 482, On Forest Sector Development Strategy («Об Утверждении Стратегии Развития Лесного Комплекса»), 31 October 2008.

State Program on “Forestry Sector Development for the period from 2013 up until 2020” (i.e. “SFM, its multiple-purpose, continuous, and non-depleting use must become a strategically important task at all stages of the forestry sector development”).¹⁸⁵⁹

The definition of the SFM concept is provided by the 1998 Order of the Federal Forest Service (RF SFM Order).¹⁸⁶⁰ As such, the Order is an “instructive document at the federal level [adopted] in order to coordinate activities within the forest management system and its related fields”.¹⁸⁶¹ The main objective of the document is “to provide for the foundational conditions, which ensure the fulfilment of the international obligations on forests, that the RF has assumed by ratifying the United Nations Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC), as well as decisions of the United Nations Conference on Environment and Development (UNCED), concerning the SFM (i.e. Forest Principles and Agenda 21) and the 1997 Special Session of the UN General Assembly that have outlined the tasks of different countries governments in providing for a sustainable development of all kinds of forests in order to meet requirements of present and future human generations. The document is based on the outcomes of the “Forest Europe” process for European forests and the “Montreal Process” for temperate and boreal forests of the World”.¹⁸⁶²

¹⁸⁵⁹RF, Government Decree of the Russian Federation № 2593-R, On Approval of the RF State Program “Forestry Sector Development for the Period from 2013 up until 2020” (Об Утверждении Государственной Программы Российской Федерации «Развитие Лесного Хозяйства на 2013 – 2020 годы»), 28 December 2012.

¹⁸⁶⁰ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998. For more information on SFM in the RF, please see, T. Y. Olenina (Т. Ю. Оленина), *Legal Aspects of Sustainable Forest Management (Правовые Аспекты Устойчивого Управления Лесами)*, Russian Justice (Российская Юстиция), 1, 2016, pp. 25-28; M. Pappila, Russian Forest Regulation and the Integration of Sustainable Forest Management, in S. Nysten – Haarla, *The Changing Governance of Renewable Natural Resources in Northwest Russia*, 2016; L. G. Klyukanova, Sustainable Forest Management as the Fundamental Principle of Forestry Management in the Russian Federation. // <<http://cyberleninka.ru/article/n/ustoychivoe-upravlenie-lesami-kak-osnovnoy-printsip-vedeniya-lesnogo-hozyaystva-v-rossiyskoy-federatsii>>, last viewed 17 March 2017; J. Levin, Russian Forest Laws – Scant Protection during Troubled Times, *Ecology Law Quarterly*, 19, 4, 1992.

¹⁸⁶¹ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 3.

¹⁸⁶² RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5

The RF SFM Order defines SFM as “a purposeful, long-term, economically beneficial relationship between men and forest ecosystems [...] SFM involves multiple-purpose, continuous and non-depleting use of forest resources, forest functions and forest services, including those, which have economic value (e.g. timber production, NWFP, etc.) and also those, which have no economic value (e.g. the impact of forests on people’s spiritual health or preservation of historic traditions)”.¹⁸⁶³ The same Order adopts criteria and indicators approach, which allows to identify national progress towards SFM. According to the Order, the SFM criteria and indicators “on the one hand, represent a working tool for forest management, which must be updated on a frequent basis; on the other hand, they represent a control mechanism for the SFM system”.¹⁸⁶⁴ In the context of the Order, a criterion is a strategic direction for forestry activities by which SFM may be assessed and controlled.¹⁸⁶⁵ Each criterion is described through its strategic objectives, key elements and indicators. An indicator is a qualitative and quantitative variables that help to measure and/or describe each SFM criterion.¹⁸⁶⁶ The list of criteria for SFM in the RF contain: (1) Maintenance and conservation of productive capacity of forests (9 indicators); (2) Maintenance of acceptable health and vitality of forests (4 indicators); (3) Maintenance and conservation of protective functions of forests (4 indicators); (4) Maintenance and conservation of biological diversity of forests and their contribution to global carbon cycle (7 indicators); (5) Maintenance of socio-economic forest functions (7 indicators); (6) Forest policy instruments in order to ensure SFM (5

Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 3.

¹⁸⁶³ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 4, p. 5.

¹⁸⁶⁴ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 4;

¹⁸⁶⁵ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 5.

¹⁸⁶⁶ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 6.

indicators).¹⁸⁶⁷ Thus, for instance, the fourth criterion, i.e. "Maintenance and conservation of biological diversity of forests and their contribution to global carbon cycle" envisages four strategic objectives: (1) conservation (fully or partially) of habitats for animal and plant species; (2) sustainment of forest biodiversity; (3) creation of optimal environment for pollination of plants, seed propagation, movement of animals; (4) accumulation of woody biomass and dead wood.¹⁸⁶⁸ The key elements of the criterion include, *inter alia*, the sustainment of the biological diversity of forests (e.g. the optimal variety of tree species in forests and the optimal variety of the age of trees in forests) and conservation of those biological species, which are under the risk of extinction.¹⁸⁶⁹

Although the SFM criteria and indicators are originally designed "for substantiating the forest policy of the RF",¹⁸⁷⁰ and, as such, are not directly applicable to the JI forestry projects, the criteria and indicator approach may become a useful tool in order to assess the progress towards SFM under the JI forestry projects. Thus, for instance, under the EIA procedure, the SFM criteria and indicators could become a useful tool in order to determine whether the forestry management practices under the JI LULUCF projects comply with the national requirements for SFM.

6.4.2.7. Interim Conclusions: How to Enhance Environmental Sustainability of JI Forestry Projects in the RF?

This section analyzed JI forestry projects sustainability with a focus on the regulation for the assessment of environmental sustainability at the national

¹⁸⁶⁷ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, pp. 7 - 17.

¹⁸⁶⁸ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 12.

¹⁸⁶⁹ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 12.

¹⁸⁷⁰ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 3.

approval stage. Firstly, the section investigated the PDDs of the two JI forestry projects, implemented in the RF. Whereas the "Bikin Tiger Carbon" project contributes to GHG emission reductions through the protection and management of "pristine" forests, i.e. the unique ecosystems, intact and species rich forests; the "Carbon Sequestration via Afforestation in Siberian Settlements" project envisages human-induced promotion of a monoculture birch-tree stand. The fact that monoculture tree-stands may imply environmental sustainability risks, including adverse effects on plant and animal biodiversity, has been previously discussed by the research.¹⁸⁷¹

Secondly, in order to understand how environmental sustainability is considered under the JI forestry projects, the section analyzed the JI project cycle and its major actors. It was established, that the JI international rules serve primarily the ultimate objective of the UNFCCC regime and, therefore, focus on safeguarding GHG emissions reductions. The international requirements are designed to ensure real, measurable and verifiable emission reductions. There are no explicit international guidelines on safeguarding the environmental co-benefits of JI projects. As JI projects are not required explicitly to assist host countries with achieving their sustainable development goals, the JI projects do not have to be assessed, based on any sustainable development criteria.

Thirdly, the section looked at how the environmental sustainability of the forestry projects is safeguarded under the national JI assessment procedure, established by the RF JI Decree. It was concluded that the environmental sustainability of the JI forestry projects is not sufficiently considered by the national authorities (i.e. the JSC "Sberbank of Russia" and the RF MED) at the project's approval stage. As for the RF Ministry of Natural Resources and Environment, it evaluates a project's implementation report when a JI project is already being carried out. The criteria for such evaluation are not explicitly defined by the RF JI Decree and, therefore, the legal certainty is low as to

¹⁸⁷¹ Please see, subsection 6.4.1.1., "EU MS and Forestry CDM Projects: Case Studies", section 6.4., "Forests under Climate Law and Policy Governing Sink Projects", chapter VI, "Evaluation of Interactions at the Implementation Level (the EU and the RF): does Compliance with the International Climate Change Regime lead to (new) Conflicts with regard to Forest Regulation?", of the current research.

whether and how the environmental sustainability of JI forestry projects is considered by national authorities under the assessment of the reports.

Fourthly, the section looked at the national requirements on the EIA procedure. Although the RF national legislation establishes a mandatory EIA procedure for planned economic and other activities that can have direct or indirect impact on the environment, the JI LULUCF projects are currently not subjects to the Russian EIA. None of the two JI forestry projects, implemented in Russia, are assessed under the national EIA procedure. Whereas in case of the "Bikin Tiger Carbon Project", arguably, the environmental sustainability is voluntarily ensured through the CCB quality standard and, furthermore, the project was designed and implemented in close coordination with public, i.e. local community, TCT and WWF Russia (Amur Branch); in case of the "Carbon Sequestration via Afforestation in Siberian Settlements" project no sustainability assessment (i.e. neither the national EIA, nor a private voluntary certification scheme, nor a consultation with stakeholders) has been conducted. Finally, the subsection reviewed the national requirements for SFM. Although the national SFM criteria and indicators are originally designed "for substantiating the forest policy of the RF",¹⁸⁷² and, as such, are not directly applicable to the JI forestry projects, the criteria and indicator approach may be a useful tool to assess the progress towards SFM under the JI forestry projects.

In order to enhance JI forestry projects sustainability the research recommends to include JI LULUCF projects into the list of projects that are subject to the RF SEE (introduce amendments to art. 11 of the Federal Law on SEE¹⁸⁷³). This legalizes the EIA process for the JI LULUCF projects, and allows for consideration of the impact of a forestry activities under a JI project on the environment at the project development stage. The national authorities (e.g. the RF Ministry of Natural Resources and Environment and its Federal Forest Agency) would be able to test the forestry activities under the JI LULUCF projects against the

¹⁸⁷² RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 3.

¹⁸⁷³ RF, Federal Law «On Ecological Expertise» № 174 – FZ, (Федеральный Закон «Об Экологической Экспертизе» № 174 – ФЗ от 23 Ноября 1995), 23 November 1995, art. 11.

environmental requirements, established by the relative requirements of national environmental law and policy.

With regard to the environmental sustainability of JI forestry projects, in particular, the research recommends to test activities under the JI forestry projects against the national SFM criteria and indicators.¹⁸⁷⁴ They provide a “control mechanism”¹⁸⁷⁵ to measure whether the activities under the projects contribute to SFM. Yet, a remark needs to be made that in their current form the criteria and indicators under the RF SFM Order have become obsolete. Since the adoption of the RF SFM Order in 1998 not only the RF forest law and policy have undergone substantial changes (e.g. in 2006 a new Forest Code was adopted), but also the general RF environmental law and policy have been substantially altered. Besides the “Forest Europe” process and the “Montreal Process” have evolved and the SFM concept, as well as the relevant criteria and indicators have been revised. Furthermore, the understanding and the content of the concept of “sustainable development” at the international level has been revised. Following the changes at the national, regional and international levels, the RF definition of SFM, relevant criteria and indicators require revision. Thus, for instance, the definition of SFM under the 1998 SFM Order as a “purposeful, long-term and economically beneficial relation between men and forest ecosystems [...]” needs to be reconsidered in order to take into account all the three aspects of SFM (i.e. economic, environmental and social) on an equal footing.

6.5. Interim Conclusions: Evaluation of Forest-related Interactions under the International Climate Change Regime at the Implementation Level (Perspectives from the EU and the RF).

This part brings the findings of the chapter together. First, the findings of the chapter with regards to the implementation of the international climate change regime by the EU and the RF are summarized (6.5.1.) and the three cases of

¹⁸⁷⁴ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998.

¹⁸⁷⁵ RF, Order of the Federal Forest Service № 21, On Approval of the RF Criteria and Indicators of Sustainable Forest Management (Приказ Федерального Агентства Лесного Хозяйства от 5 Февраля 1998 года № 21 «Об Утверждении Критериев и Индикаторов Устойчивого Управления Лесами РФ»), 5 February 1998, p. 5.

forest-related implementation under the international climate change regime are highlighted. The first is the case of forest-related implementation under the (sub) national climate law and policy on the LULUCF sector (6.5.1.1). The second is the case of forest-related implementation under the (sub) national climate law and policy on RES (6.5.1.2.). The third is the case of forest-related implementation under the climate law and policy on forest sinks (6.5.1.3.). Finally, the part provides some concluding remarks on the lessons learnt from the forest-related implementation of the international climate change regime and the way forward for the international forest regulation (6.5.2.).

6.5.1. Forest-related Implementation under the International Climate Change Regime (Perspectives from the EU and the RF).

The duties and obligations under the international climate change regime are deliberately expressed in vague terms, thus, granting States Parties a wide margin of interpretation in the adoption of measures in order to pursue the regime's ultimate objective ("stabilization of GHG concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference with the climate system"). A number of climate law and policy measures, adopted by the EU and the RF in order to meet their international climate commitments, involve and/or affect forests. The present chapter has investigated the forest-related implementation of the international climate change regime by the EU and the RF. In particular, the chapter aimed at answering the following questions – what are the consequences of the forest-related interactions under the international climate change regime at the implementation level? Whether and if yes then how compliance with the international climate change regime leads to (new conflicting) interactions with regards to forest regulation in (sub) national environmental law and policy? What regularly gaps is it possible to detect at the implementation level?

In order to answer the research questions, as a first step, the chapter evaluates the implementation of the international climate change regime by the EU and the RF. Both, the EU and the RF, are Annex I parties to the UNFCCC. For these parties there are three main sets of obligations, created under the international climate change regime, namely: MRV obligations; Emission Limitation and

Reduction Commitments; and Eligibility requirements as a precondition for the participation of Annex I parties in the flexible mechanisms under the Kyoto Protocol (i.e. JI, CDM, ETS). Both, the EU and the RF, have adopted various legislative measures aimed at the fulfillment of the obligations, created by the international climate change regime. Specific legislation has been adopted regarding compliance with the MRV obligations and the eligibility requirements. As for the limitation and reduction commitments, the EU and the RF have adopted various pieces of legislation aimed at the reduction of their GHG emissions (i.e. measures on GHG emission reductions, measures on energy efficiency and renewable energy sources).

As for the EU, its climate law and policy represents an aggregate of both binding and non-binding measures, which contribute to combatting global warming and its consequences. The EU climate action includes measures on GHG emission reductions, measures on energy efficiency and renewable energy sources. There is a clear trend towards harmonizing and integrating the EU climate and energy policies – from the early fragmented mix of various legislative acts towards binding GHG emission targets and an EU-wide system of GHG emission trading scheme at present. In particular, the trend is obvious if to consider a longer period from the first indicative climate rules at the beginning of 1990s towards binding GHG targets and a EU-wide system of GHG emission trading after 2000.

In contrast to the EU, the Russian climate law and policy is rather fragmented and often lags behind the actual needs to protect climate. The focused climate policies, like the RF Climate Doctrine and its Implementation Plan are of declarative character and can hardly be expected to deliver significant mitigation and adaptation outcomes. Their task has rather been to establish the general trend of the country's approach to climate law and policy. As of now, the national accounting rules for GHG emissions, as one of the key tools for reducing GHG emissions, are still under development and are only envisaged to be finalized by 2020. The synergetic climate law and policy, e.g. focusing on the energy sector and/or on the promotion of the renewable energy sources, in theory, could be expected to deliver more emission reductions over time. Yet, the declarative character of the climate targets and, furthermore, the fact that

the law and policy framework, adopted to support the targets, is rather fragmented, undermine the tasks in hand. Besides, the climate - related synergies, although generally recognized, require further research and revision in order to fully realize their climate-related potential.

As a second step, the chapter has evaluated the forest-related implementation of the international climate change regime by the EU and the RF. Thus, in order to comply with their international climate commitments, both, the EU and the RF have adopted various pieces of legislation, which in the short and long term directly and indirectly affect forests. Among these are the laws and policies aimed at the integration of the LULUCF sector into (sub)national climate law and policy, instruments on the promotion of the use of RES, and, in particular, the use of wood biomass resources for energy purposes. Furthermore, in order to meet their international emission limitation and reduction commitments both, the EU and the RF, have participated in the Kyoto flexibility mechanisms, which incorporate forestry activities as a method to perform GHG emission reductions. Whereas the EU MS have actively taken part in the CDM A/R projects, the RF has hosted two out of the three JI forestry projects, currently registered under the international climate change regime.

6.5.1.1. Forests under Climate Law and Policy on the LULUCF Sector.

The research has evaluated the integration of the LULUCF sector into (sub) national climate law and policy. The current governance framework of the LULUCF sector comes mostly from the international climate change regime and is agreed upon through the relevant COP/MOP decisions. Accounting of removals and emissions in the LULUCF sector depends to a large extent on the specific technical guidance, developed for the implementation of the Kyoto Protocol, and largely builds on the IPCC guidelines. Similarly to the Kyoto Protocol, the Paris Agreement requires all Parties to report information on their LULUCF emissions and removals, yet, in comparison to the Kyoto Protocol, the Agreement does not contain a single harmonized set of legally binding accounting rules and does not specify how emissions and removals from the LULUCF sector are to be counted towards national reduction targets. Parties are not bound by one stringent international set of standards. The absence of the international governance

allows countries to develop the LULUCF sector governance best responding to their needs. Better use of this opportunity could also provide additional benefits for forests, such as, for instance, forest protection and/or (forest) biodiversity conservation (synergetic interactions). Yet, the research illustrates that neither the EU, nor the RF have up until now employed this opportunity.

The EU accounting rules on GHG emissions and removals, resulting from activities relating to the LULUCF sector, were incorporated into the EU climate legislation in 2013 by the LULUCF Decision (Decision 529/2013/EU). As of now, the LULUCF rules, laid down by the Decision, play no part in the EU's binding GHG reduction target for 2020 (i.e. the contribution from the LULUCF sector is not currently being accounted for towards meeting the EU 2020 GHG emission reduction target). In July, 2016, the European Commission proposed a Regulation regarding the inclusion of GHG emissions and removals from the LULUCF sector into the EU 2030 climate and energy framework.¹⁸⁷⁶ In the light of the research, the legislative proposal is viewed as an important step, addressing the regulatory gap with regard to the LULUCF sector's contribution into the EU efforts on climate change mitigation. Whereas up until now the EU climate law and policy have only established accounting rules for GHG emissions and removals from the LULUCF sector, the proposed 2016 LULUCF Regulation sets down an explicit "no debit rule": every MS must ensure that, during the periods from 2021 until 2025 and from 2026 until 2030, the total GHG emissions accounted for in all the LULUCF sector land accounting categories combined do not exceed the total GHG removals. In particular, for forests, this may bring additional benefits, implying that the MS have to compensate for all deforestation either by equivalent afforestation or by improving sustainable management of existing forests. However, the primary objective of the accounting rules under the 2016 LULUCF Proposal remains "to safeguard carbon". In particular, with regard to forests, these rules do not safeguard forest functions and services other, than carbon-related forest functions and services. The research has illustrated how under the proposed accounting rules the EU MS

¹⁸⁷⁶ European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Inclusion of GHG Emissions and Removals from LULUCF into 2030 Climate and Energy Framework and Amending Regulation 525/2013 of the European Parliament and the Council on a Mechanism for Monitoring and Reporting GHG Emissions and Other Information Relevant to Climate Change, COM (2016), 479 Final, 2016/0230 (COD).

could increase harvesting in their old growth forests, as long as they increase the number of tree plantations. In this case, although the total carbon balance may be neutral, the impact on forest biodiversity could be detrimental.

As for the RF, at the time of writing the research the general legal framework to provide for the national accounting rules on GHG emissions is still in its developmental phase and is only envisaged to be finalized by 2020. The national legislative framework on the LULUCF sector governance has not yet emerged. Thus, it is, yet unclear, how the input from the LULUCF sector is to be accounted for under the national climate law and policy? and, furthermore, how the input of the LULUCF sector is to be integrated under the national climate target on GHG emissions reductions? According to the 2015 Developmental Concept on the National MRV System for GHG Emissions the methodological guidance and rules for the GHG emissions accounting from the LULUCF sector are expected during the period from 2017 until 2018.

In the light of the research, it is possible to suggest some recommendations on how to include the LULUCF sector into the RF legal framework on climate. Thus, an important issue to be considered when drafting national policy on the LULUCF sector accounting rules is the design of flexibility options between the LULUCF sector and other sectors of the national economy (i.e. the design of options on the possible exchange of removal units, credits, or debits, between or within the sectors, other than LULUCF. In other words, whether the current carbon sink in the LULUCF sector, represented mostly by forests, will be used to offset "fossil fuel" emissions). The research suggests that the "hybrid flexibility" approach, taken by the EU (e.g. when the flexibility is allowed within the sectors of LULUCF and the agricultural sector under the ESD), could provide an example where, on the one hand, mitigation actions both in the agricultural sector under the ESD and in the LULUCF sector are incentivized, and, on the other hand, the ambition to reduce emissions in the other sectors of economy is not diminished. However, as of now, it seems that the RF may favor an "unlimited flexibility" approach (i.e. when the LULUCF sector, which represents a net sink for GHG emissions, could be used to offset emissions from non-LULUCF sectors). The side effect of such an approach is that it risks shifting the focus of environmental policy from

an ecological-social reasoning (e.g. combatting climate change, protection of existing sinks in forests and enhancing the mitigation potential of the sector) to economic reasoning (e.g. commodification of forests, prioritization of their economic values). If adopted, it may allow meeting emission reduction requirements without significant mitigation action, i.e. through (e.g. by buying or trading) carbon sequestered in forests, while still carrying out activities, which are emitting (fossil fuels) GHGs in other sectors of national economy. Should this be the case, it may put additional pressure on forests to provide for carbon sequestration (e.g. by promotion of fast-growing carbon absorbing forest plantations), also putting at risk other forest functions and services, such as, for instance, biodiversity conservation. Furthermore, the overall environmental ambition of the national climate target to provide for the “the GHG emissions reduction at the level not exceeding 75 percent of the GHG emissions in 1990 by 2020”¹⁸⁷⁷ may be undermined.

6.5.1.2. Forests under Climate Law and Policy on RES.

The international climate change regime encourages the use and development of renewable energy production. The increasing use of RES contributes to climate change mitigation through, *inter alia*, the reduction of GHG emissions. However, the regulations, promoting greater use of renewable energy under the climate law and policy framework, if not sufficiently covering other sustainability concerns, and not following the integrated approach, may also lead to environmental sustainability risks for forests (e.g. expansion and intensification of forest management practices, weakening forests’ capacity to sequester and store carbon, diminishing forests’ resilience to climate change; putting at risk forest biodiversity; leading to deterioration of water- and soil-protection forest functions; etc.).

Thus, in the EU an important role in stimulating renewable energy, use until 2020 plays the 2009 RES Directive.¹⁸⁷⁸ When the EU set out its policy for the promotion of renewable energy in 2009, the RES Directive set very ambitious

¹⁸⁷⁷ RF, RF President Order No 752, (Указ Президента РФ от 30 сентября 2013), About GHG Emissions Reduction, (О Сокращении Выбросов Парниковых Газов), 30 September 2014.

¹⁸⁷⁸ E.P. and the Council, Directive 2009/28/EC on the Promotion of the Use of Energy from RES and Amending and Subsequently Repealing Directive 2001/77/EC and 2003/30/EC, 23 April 2009, O.J. L 140/16.

RES targets and stimulated a significant increase in the share of renewable energy in the EU. The research illustrates how the RES Directive may lead also to sustainability risks for forests (e.g. "biomass for bioenergy production can negatively affect forest biodiversity and carbon stocks through direct and indirect land use change (deforestation) and unsustainable forest management (due to the excessive removal of raw material)").¹⁸⁷⁹ Although the 2009 RES Directive introduced "the most comprehensive and advanced binding sustainability scheme of its kind anywhere in the world", it did not, however, include sustainability requirements for solid biomass, including, wood biomass.

The 2016 Proposal for a RES Directive (Recast),¹⁸⁸⁰ attempts to address the regulatory gap with regards to the sustainability requirements for solid biomass, including, wood biomass. In particular, the Directive extends sustainability and GHG emission saving criteria to include also "biomass fuels". In relation to "forest biomass" the Proposal introduces a "forest biomass" specific sustainability criterion and a new "LULUCF" requirement. However, if the Proposal is adopted in its current form, it is uncertain that the criteria will deliver much to minimize the risk of using unsustainable forest biomass for energy purposes. Thus, not only a significant share of "biomass fuels" (i.e. those used in small biomass-based installations) is exempt from the requirement to comply with the sustainability and GHG emission saving criteria, but also, for the biomass that falls under the compliance requirement, the proposed forest biomass sustainability criterion and the "LULUCF requirement" establish rather weak safeguards. Thus, the safeguards ensure "forest biomass" sustainability and GHG emission saving performance through relying on compliance with the applicable national and/or (sub) national laws (e.g. instead of introducing comprehensive environmental (and social) criteria for forest biomass *per se*). In addition, it is, yet, unclear, what kind of "operational evidence" will justify compliance with the proposed sustainability criterion and the "LULUCF requirement" for forest biomass.

¹⁸⁷⁹ E.C., Commission SWD, State of Play on the Sustainability of Solid and Gaseous Biomass used for Electricity, Heating and Cooling in the EU, SWD (2014), 259 Final, 28 July 2014, p. 11.

¹⁸⁸⁰ European Commission, Proposal for a Directive of the European Parliament on the Promotion of the Use of Energy from Renewable Sources (Recast), COM (2016), 767 Final, 2016/0382 (COD), 30 November, 2016.

Furthermore, it needs to be highlighted that the 2016 Proposal for a RES Directive (Refit) introduces even a more ambitious target for the share of energy from renewable sources in the Union's gross final consumption (e.g. in comparison to the 2009 RES Directive). This means that in the coming years the demand for forest biomass, as the main renewable energy resource, will continue to grow. However, there are limits to the extent to which forest biomass can be used sustainably: although forest biomass is a renewable resource and can replenish with the passage of time, it is not infinite. The renewal rates for raw materials, used for the production of wood biomass are rather long (several decades or even longer). If the rate at which forest biomass is consumed exceeds its renewal rates, sustainability may no longer be ensured. In its present form the 2016 Proposal does not counter the increasing demand for forest biomass (on the contrary, indirectly it does completely the opposite (e.g. *inter alia*, by establishing direct and indirect support schemes for the promotion of the use of energy from renewable sources, such as subsidies, investment aid, tax exemptions or reductions, etc.). However, as the rates of wood biomass consumption for energy purposes continue to grow, it might become necessary to either set a "cap" on (i.e. limit) the amount of wood biomass, used to meet the 2030 RES target, and/or establish "a preferential clause" in order to ensure that the limited sustainable forest resources are used (only) in cases, where no other renewable energy alternative exists.

In comparison to the EU, the sustainability risks associated with the use of wood biomass for energy purposes in the RF are of different origin. Whereas in the EU the environmental concern is that the climate regulations, promoting greater use of renewable energy without sufficiently covering forest-related sustainability concerns, may cause a rapid growth in the (unsustainable) use of forest resources, in the RF the situation is reverse. The potential for the use of wood biomass resources for energy purposes is plentiful in the country. However, under the current fragmented regulatory framework on RES, this potential is underutilized. The environmental concerns associated with the low actual forest biomass consumption for energy purposes relate more to the challenge of sustainable and efficient disposal of forestry waste. Current national measures on the promotion of forest biomass as RES are of declarative character and can

hardly be expected to increase wood biomass consumption for energy purposes in the coming years. Consequently, in order to address the environmental concerns associated with the low forest biomass consumption it is important to reconsider the existing national measures on the promotion of RES so, as to further promote the use of wood biomass resources for energy purposes. Attention needs to be paid so, that the national regulations, promoting renewables, cover as well sufficiently the associated sustainability concerns and follow an integrated approach.

6.5.1.3. Forests under Climate Law and Policy Governing Sink Projects.

Finally, under the CDM and JI afforestation and reforestation guidelines the international climate change regime allows for the implementation of forestry projects that increase removals by sinks. The research evaluates the implementation of the forest-related flexibility mechanisms by the EU and the RF.

The EU MS have actively taken part in the CDM A/R projects acting as investors or buyers of the CER units (i.e. the EU MS have participated in 31 out of the 66 A/R CDM projects currently registered under the international climate change regime). The research investigates the PDDs of the CDM A/R projects with the participation of EU MS and establishes that the main objective of the projects, i.e. to contribute to climate change mitigation, is often being achieved through the establishment of fast growing tree plantations with introduction of "non-native" and "exotic tree species" to the developing countries. A tree plantation - is a forest model, which is critically described by the research for its negative environmental impacts (disruption of groundwater flows, reduction of biodiversity, degradation of soils, etc.). The focus on the major objective of the projects, i.e. carbon sequestration, and the limited consideration of a broader environmental context puts the A/R CDM projects at risk of causing environmental harm (for instance, in terms of forest biodiversity conservation). The current CDM forest project requirements serve, primarily, the ultimate objective of the UNFCCC regime and, therefore, focus on reducing GHG emissions. The forest-related environmental aspects are not sufficiently dealt with under the CDM forest project requirements.

There is an obligation for CDM projects to pass the host developing country's assessment on whether the project assists sustainable development. Yet, the assessment criteria of the host countries may be too broad, too ambitious and poorly enforced, some projects put the economic attraction as a priority (e.g. sustainable forest planting bring lower returns and less carbon storage in the short term, compared with industrial "exotic" tree plantations). Host countries may also intentionally dilute their sustainability assessments to attract more foreign investors. Often there is also a lack of transparency during the sustainability assessments (e.g. the sustainability criteria, which are being used by an expert team are not accessible). As for the international entities, they do not conduct substantial reviews on the project's design and, more specifically, on the implementation of environmental sustainability issues. Few CDM forestry projects voluntarily make use of the international private forest certification schemes to ensure forest sustainability in the context of international sustainability criteria and practices. However, there are a number of challenges, associated with private certification, which are also relevant for ensuring sustainability of forestry CDM projects. Thus, the assessing target is also the buyer, who pays for the assessing service. Therefore, the assessing entity may diminish the assessing quality to attract more clients. One more challenge, is the lack of supervision. The private certification schemes are not legally constrained by an authority or sanctions. Thus, a fault is not easily detected and does not immediately lead to sanctions. In 2014, the CDM Executive Board also approved the International Sustainability Assessment Tool. It assists in elaboration of a CDM's project co-benefits for sustainable development from social, economic and environmental perspectives. The application of the tool is entirely voluntary. As of now, there are no requirements in the tool to verify and/or monitor the declared environmental co-benefits.

As for the RF, the country has hosted two JI forestry projects. Whereas the "Bikin Tiger Carbon" project contributes to GHG emission reductions through the protection and management of "pristine" forests, i.e. the unique ecosystems, intact and species rich forests, the "Carbon Sequestration via Afforestation in Siberian Settlements" project envisages human-induced promotion of a

monoculture birch-tree stand. The fact that both approaches towards “forest sinks” are possible under the current JI forestry rules inspires legal concerns as to how forest environmental sustainability is safeguarded under the CDM forestry project rules. The research establishes that currently there are no explicit international guidelines on safeguarding the environmental co-benefits of JI LULUCF projects. The international requirements for such projects are designed primarily to ensure real, measurable and verifiable emission reductions.

As for the RF assessment procedure under the current RF JI Decree, the environmental sustainability is not considered by national authorities (i.e. the JSC “Sberbank of Russia” and the RF MED). Furthermore, although the RF national legislation establishes a mandatory EIA procedure for planned economic and other activities that can have direct and/or indirect impact on the environment, the JI LULUCF projects are currently not subjected to the Russian EIA procedure. In order to enhance forest sustainability under the JI forestry projects the research recommends to include JI LULUCF projects into the list of projects that are subject to the national SEE procedure. This legalizes the EIA process for the JI LULUCF projects and ensures that national authorities (e.g. the RF Ministry of Natural Resources and Environment and the RF Federal Forestry Agency) can test JI LULUCF projects against the environmental requirements, established by the relative requirements of national environmental law and policy (e.g. the SFM criteria and indicators).

6.5.2. Forest-related Interactions under the International Climate Change Regime at the Implementation Level: Lessons Learnt and a Way Forward.

To conclude, the present chapter evaluated the forest-related measures, which have been implemented by the EU and the RF in order to comply with their international climate obligations. The chapter has illustrated how the (sub) national means to pursue the aims and duties under the international climate change regime may initiate conflicting interactions at the phase, involving the implementation of obligations derived from the international climate change regime into (sub) national environmental law. More specifically, the chapter

illustrated how the prioritization of the ultimate objective of the regime, i.e. “stabilization of GHG concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference with the climate system” and the narrow focus on the climate-related forest values (e.g. carbon sink and sources and/or wood as an alternative RES to fossil fuels) may take place at the expense of other forest values (e.g. conservation of forest biodiversity) and lead to (unintended) negative environmental impacts on forests (e.g. intensification and expansion of (unsustainable) forest management practices, decline in the protective functions of forests, biodiversity concerns, etc.).

Since the international climate change regime does not *per se* prescribe neither the destruction of primary (biodiversity rich) forests, nor growing wood in (fast growing, species poor, monoculture) plantations, nor expanding (unsustainable) forests management practices in order to produce more wood biomass as RES, the contradiction between the international climate change regime and forest regulation is a conflict of implementation. Thus, although the conflict is “rooted” in the international regime, it realizes its potential in the phase, involving the implementation of international obligations into (sub) national environmental law.

The main failure of the international climate change regime in regards to conflicts with forest regulation is the remaining lack of incentives to maintain primary forests, to establish sinks and achieve climate protection objectives according to binding and explicit guidelines of sustainable forestry. The international climate change regime does not (yet) provide for an effective strategy to include the forest-specific objectives and concerns into its regulations so as to avoid such implementation measures that achieve climate objectives by damaging forests.

In international law explicit and binding international rules that give guidance on sustainable forestry are lacking. As a consequence, tensions between other forest-related treaties (e.g. the Ramsar Convention, the World Heritage Convention, the CITES, and the CBD) at the implementation phase cannot be excluded either. The insecurity that exists in regard to a consolidated

implementation of the international forest-related treaties makes a decision on environmental priorities concerning their implementation a matter of political discretion and hampers systematic forest-related synergies. Such synergies between forest-related treaties, however, are essential to prevent further conflicts of implementation and to streamline international regulation on forests to eventually establish a coherent network of international forest law. Even though forest-related treaties do not collide directly at the international level, and their objectives and obligations are well compatible, the fact that they all concern forests calls for a formal recognition of their interrelation and the respective coordination in order to enhance the effectiveness of the international forest regulation. This, in turn will result in enhanced contribution of forests towards the ultimate objective of the international climate change regime.

Chapter VII: Conclusions: Overall Evaluation and Recommendations.

The thesis has investigated the forest-related interactions between the international climate change regime and the international forest regime. Forest regulation is at the intersection of the two international environmental regimes, playing a crucial role in tackling the twin problems of climate change, on the one hand, and deforestation and forest degradation, on the other. Up until now, the multitude of the international efforts has failed to provide for an adequate protection of the world's forests. In this regard, for some legal scholars, the emerging forest regulation under the UNFCCC regime seems to provide a promising avenue, as the regime has "a much stronger political support than the UNFF"¹⁸⁸¹ and it could deliver significant financial incentives for countries to implement forestry projects and to protect their forests (in particular, for the developing countries, where the largest share of deforestation and forest degradation is currently taking place). However, the forest-related instruments, developed to address the climate change problem, depending on their design elements, may also have a ripple effect, leading to the varying, not always beneficial, impacts on forests.

7.1. Forests under the Selected International Environmental Law.

The forest-related instruments under the international climate change regime, namely, the LULUCF reporting and accounting, the REDD + mechanism, and the forest-related flexibility mechanisms, i.e. the JI and the CDM mechanisms, capture forests through the prism of the ultimate objective of the international climate change regime, i.e. "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system", putting at the forefront the climate related forest values, services and functions (e.g. carbon sink and sources and/or wood as an alternative RES to fossil fuels). Even though the Parties to the UNFCCC, the Kyoto Protocol and the Paris Agreement might be aware of the negative impacts that forest related instruments might have for other forest functions, the protection of these forest functions is not the primary intension under the UNFCCC regime and, thus, remains subordinated to its ultimate objective.

¹⁸⁸¹ R. Maguire, *Global Forest Governance, Legal Concepts and Policy Trends*, 2013, p. 176.

In a similar line to the UNFCCC regime, each of the investigated forest-related treaties and their associated environmental regimes, i.e. the Ramsar Convention, the CITES, the WHC, and the CBD, although with different scopes, subject matter, type of norms and methodological approaches, clearly regulate one or more forest value(s), function(s), and/or service(s). Although these treaties have not been created to apply to forests directly, they may be interpreted *ex post* to address certain aspects of forests, their functions and services within the framework of a treaty's specific goals and objectives. The characteristic feature of all the analyzed treaties is that they lack explicit references with regard to forests in their substantive provisions. Most references to the underlying causes of deforestation and forest degradation, the concept of SFM, forest protection and conservation, can be found in the "soft" or "secondary" law of the treaties, i.e. COP decisions or guidelines, which have weak or unclear status under international law (and, perhaps, do not create the necessary obligations for States to act accordingly). Furthermore, similar to the UNFCCC regime, each treaty regime facilitates the prioritization of specific forest functions through the prism of its ultimate objective and within the framework of each respective treaty.

Forests are the core area of concern and activity for the international political processes, investigated in the thesis, namely, Chapter 11 of Agenda 21, the Forest Principles, the UNFF and the UN Forest Instrument. The Chapter 11 of Agenda 21 addresses the issue of deforestation and establishes it on the international political agenda. The 1992 Forest Principles initiate and support a holistic approach to the international forest regulation. Together these two international political processes brought about the UNFF, an intergovernmental forest policy forum. In its turn, the UNFF, led to the adoption by the UN General Assembly of the UN Forest Instrument as a Resolution, summarizing and establishing a general consensus with regard to common objectives and principles on forests. Together the international forest processes provide for the fundamental cornerstone for the international forest regulation. These instruments promote the need to equitable support and put into effect the social, economic, cultural and spiritual interests in forests, thus, recognizing the multifunctional character of forests. Furthermore, these instruments provide

substance for the SFM concept. Additionally, these instruments address the underlying threats to forests, and by doing so, allow for the development of forest-specific responses to counter these threats.

As follows, at the international level, it is possible to distinguish two sets of norms and norm-creation processes regarding forest regulation. On the one hand, there are the international political processes, established, primarily, for the purpose of developing norms for the international regulation of all forests, the outcomes of which directly aimed at forests, but lack legal obligation (i.e. Chapter 11 of Agenda 21, Forest Principles, the 2007 UN Forest Instrument, and the UNFF process). On the other hand, there are the legally – binding norms of international law that have a bearing on forests, but which are not specific to forests and their management (i.e. the UNFCCC, the Paris Agreement, the Ramsar, the WHC, the CITES, and the CBD). Although all these processes have been created largely independently from and parallel to one another, they do not operate in entire isolation from one another. Operating in the same policy domain, i.e. regulating forests, they overlap and interact with one another.

7.2. Forest-related Interactions at the International Level.

By applying the concept of “fragmentation” as an analytical framework, it is possible to investigate the interactions between the forest related instruments. The interacting elements (i.e. what interacts?) include norms, objectives, approaches, principles, concepts, obligations, tools and measures. Beyond the rather “textual” interactions, i.e. the interactions stemming from the texts of the treaties, interactions result from the activities and outputs of relevant institutions and decisions of COPs. Furthermore, interacting elements also include party memberships. In the context of the international forest regulation, there are also soft and hard law interactions. Interactions lead to conflictive, synergetic or neutral outcomes. The effects of interactions may materialize directly at the international level, but also emerge in a later phase, for instance, as a “conflict of implementation” (i.e. conflicting interactions, which arise at the implementation phase of compatible environmental treaty obligations). Additionally, it is possible to identify gaps, which have been entirely overlooked

and/or due to the absence of enabling possibility have not been addressed by treaty actors.

The common meaning associated with fragmentation in international law is “the process or state of breaking or being broken into fragments”. This understanding of fragmentation does not neatly fit to describe the fragmentation within the international forest regime. The very notion of “breaking” or “fragments” suggests that there once was, there still is, or there will be something that is “whole” and/or “complete”. In the case of the international regulation, however, there is no single nucleus-source from which the multiple forest-related instruments have developed. Some instruments were created to apply specifically to forests; others – have not been created to apply directly to forests, yet, apply to forests by means of ex post treaty interpretation; furthermore, there are decisions, resolutions and recommendations of treaty organs, which have been created to regulate forests specifically, but nevertheless are subordinated to the overall objective of a particular environmental treaty regime. The international forest regulation emerges from several sources at different speeds and in different directions. Thus, in this case the “whole” needs not to be viewed as some form of absolute unity with a clear normative hierarchy, but rather as a sum of its fragmenting parts, which require equitable implementation.

At the international level the “soft” and “hard” forest law interact. Thus, the essential forest specific regulatory content is scattered among the instruments of different legal nature, i.e. non-legally binding – soft law instruments, and legally-binding international treaties – the international hard law. In the light of the research, the soft law nature of a forest instrument is not immediately equated with its ineffectiveness. However, the classification of an instrument as “hard law” and “soft law” necessarily leads to a difference in terms of States’ compliance with the instrument. Thus, formally, the fundamental principles and objectives for forest-specific regulation at the international level remain “soft” (non-enforceable). The forest-related hard law complements the international forest soft law by providing for the coverage of particular forest functions and

related interests in forests within the scope of each particular treaty and treaty infrastructure.

As for the forest-related treaties, i.e. the UNFCCC, the Paris Agreement, the Ramsar Convention, the WHC, the CITES and the CBD, they are well compatible at the international level. The treaties are legally binding in nature. They provide for sustainable utilization and management of particular forest functions and services and, therefore, contribute to the international regulation of forests. Yet, when taken together, these treaties do not form a comprehensive and uniform whole. Each treaty and the associated regime is constructed to pursue its particular environmental objective(s). Each objective characterizes the forest-related obligations, established by each particular forest-related treaty in order to pursue its own objectives, and may initiate conflicting interactions with another forest related-agreement in a phase of its implementation. With regards to forests the objectives of the treaties' regimes vary from protection of forests and their functions as carbon sinks and sources (e.g. the UNFCCC); to protection of forested wetlands (the Ramsar Convention); to protection of forests for their outstanding universal value (the WHC); to preventing trade in endangered forest species, i.e. protection of certain tree species (and forest dwelling species, the CITES); and to the conservation of forest biodiversity (the CBD). As of now, there is no indication of how these objectives with regard to forests need to be achieved simultaneously.

Each investigated forest-related treaty lacks forest specificity: no fundamental forest-related objectives, principles and concepts (e.g. as they put forward by the forest-specific international political processes). The implementation of forest-specific regulation under these treaties is subordinated in each case to the overall objective of each particular treaty. The forest-related treaties, despite their legally binding nature, are fragmented and incomplete for the regulation of forests, in particular in the face of the changing climate (e.g. the lack of acknowledgement of the global public interest in forests (e.g. climate protection function), lack of forest-specific provisions on forests adaptation to climate change impacts, no reference to the SFM concept in the texts of the investigated forest-related treaties, lack of equal acknowledgement of all forest functions and

services). Therefore the forest-specific implementation of these treaties may be significantly impeded and subordinated to the implementation for the achievement of the overall treaty objective(s). This creates a major regulatory gap with regard to the forest specific implementation of these environmental agreements.

7.3. Forest-related Interactions under the International Climate Change Regime at the Implementation Level.

In order to investigate the interactions of the international environmental regimes with regard to forest regulation at the implementation level the research has examined the forest-related implementation of the international climate change regime. The duties and obligations, including those, related to forests, under the UNFCCC regime are deliberately expressed in vague terms, thus, granting States Parties a wide margin of interpretation in the adoption of measures in order to pursue the regime's ultimate objective, i.e. "stabilization of GHG concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference". This leads to a situation, where the implementation of the UNFCCC regime may disregard the forest-specific objectives and concerns at the implementation level by prioritizing the ultimate objective of the regime over forest-specific objectives and concerns.

7.3.1. Conflicting Interactions: the Case of REDD +.

One example of the conflicting interactions of the international environmental regimes with regard to forest regulation at the implementation level is the implementation of the REDD + activities under the international climate change regime and the associated forest-biodiversity tradeoffs. Thus, afforestation activities under the REDD + mechanism may have negative environmental impacts on forest biodiversity by replacing biodiversity-rich non-forested landscapes with biodiversity-poor forest plantations. In comparison to primary forests, forest plantations are often criticized because they are species poor and do not perform the same core forest functions as primary forests (e.g. conservation of biodiversity, do not provide the same returns of NWFP, less resistant to climate change and pest attacks, etc.), degrading water and soil resources. As of now, this issue of the forest-biodiversity tradeoffs, associated

with the implementation of REDD + activities under the UNFCCC, i.e. the overlap with the CBD and the international forest law, has only been partially addressed by the UNFCCC COP under the REDD + safeguards. The CBD and the UNFCCC, however, view forests from different perspectives. While the CBD is concerned with forests as a part of biodiversity and a home for biodiversity, the UNFCCC views forests, primarily as carbon sinks, reservoirs and sources of GHG emissions. Despite these different views towards forest regulation, both, the UNFCCC and the CBD address issues of forest management to a certain degree, and when implementing REDD + forest-related activities, Parties to both conventions are faced with implementation conflicts, as the focus on maximizing carbon sequestration may have negative impacts on biodiversity conservation.

7.3.2. Conflicting Interactions: the Case of CDM.

In a similar line, the implementation of the CDM and JI forest projects under the international climate change regime may also inspire conflicting interactions between the environmental regimes with regard to forest regulation. The research investigated 31 CDM forestry projects with the EU MS participation. The major objective of the investigated forestry CDM projects, i.e. carbon sequestration, is often being achieved through the establishment of fast growing forest plantations, i.e. a forest model, which has already been critically described by the research for its negative environmental impacts (e.g. disruption of groundwater flows, reduction of biodiversity, degradation of soils, etc.). The focus on the major objective of the project, and only limited consideration of a broader environmental context puts the CDM forestry projects at risk of causing environmental harm (for instance, in terms of biodiversity conservation). Under the current CDM rules the forest-related environmental aspects are not sufficiently dealt with.

The current CDM requirements serve, primarily, the ultimate objective of the UNFCCC regime and, therefore, focus on reducing GHG emissions. There is an obligation for CDM projects to pass the host developing country's assessment on whether the project assists sustainable development. Yet, the assessment criteria of host countries are often too broad, too ambitious and poorly enforced, and some projects put the economic attraction as a priority (e.g. sustainable

forest planting bring lower returns and less carbon storage in the short term, compared with industrial “exotic” tree plantations). Some host countries also intentionally dilute their sustainability assessments to attract more foreign investors. Often there is also a lack of transparency during the sustainability assessments (e. g. the sustainability criteria, which are being used by an expert team are not accessible). As for the international entities, they do not conduct substantial reviews on the project’s design and, more specifically, on the implementation of environmental sustainability issues.

Few CDM forestry projects voluntarily make use of the international private forest certification schemes to ensure forest sustainability in the context of international sustainability criteria and practices. However, there are a number of challenges, associated with private certification, which are also relevant for ensuring sustainability of forestry CDM projects. Thus, the assessing target is also the buyer, who pays for the assessing service. Therefore, the assessing entity may diminish the assessing quality to attract more clients. One more challenge, is the lack of supervision. The private certification schemes are not legally constrained by an authority or sanctions. Thus, a fault is not easily detected and does not immediately lead to sanctions.

In 2014 the CDM Executive Board also approved the International Sustainability Assessment Tool. It assists in elaboration of a CDM’s project co-benefits for sustainable development from social, economic and environmental perspectives. Yet, the application of the tool is entirely voluntary. Furthermore, as of now, there are no requirements in the tool to verify and/or monitor the declared environmental co-benefits.

7.3.3. Conflicting Interactions: the Case of JI.

Similar to the CDM rules under the international climate change regime the international JI rules serve primarily the ultimate objective of the UNFCCC regime, and, therefore, primarily focus on reducing GHG emissions. There are no explicit guidelines on safeguarding environmental co-benefits of JI projects. Furthermore, unlike the CDM, JI projects are not required explicitly to assist host countries with achieving their sustainable development goals, and, thus, the JI

projects do not have to be assessed, based on any sustainable development criteria. Thus, for instance, the “Carbon Sequestration via Afforestation in Siberian Settlements” JI forestry project, implemented on the territory of the RF, allows for the protection and management of monoculture tree stands, which under the national forest law are not even considered as “forest” and have the status of “non-forested area”. At the national level forest sustainability issues are not considered under the RF JI assessment procedure. Furthermore, although the national legislation establishes a mandatory EIA procedure for planned economic and other activities that can have direct or indirect impact on the environment, the forestry JI projects are currently not subject to the Russian EIA.

7.3.4. Conflicting Interactions: the Case of LULUCF Accounting.

One more example under the international climate change regime where the conflicting interactions with regard to forest regulation manifest themselves at the implementation level is the implementation of the international framework on the LULUCF sector governance. The current accounting of removals and emissions in the LULUCF sector depends to a large extent on the specific technical guidance, developed by COP/MOP decisions for the implementation of the Kyoto Protocol, and largely builds on the IPCC guidelines. In comparison to the Kyoto Protocol, the Paris Agreement does not contain a single harmonized set of legally binding accounting rules and does not specify how emissions and removals from the LULUCF sector are to be counted towards national reduction targets. The absence of the international governance allows countries to develop the LULUCF sector governance best responding to their needs. In the absence of the international governance countries may use the opportunity in order to develop the LULUCF sector governance best responding to the (sub) national needs could also provide additional benefits, such as, for instance forest and forest biodiversity conservation (i. e. synergetic interactions).

In the light of the research, the implementation experience on the LULUCF sector governance by the EU is of particular significance. The EU accounting rules on GHG emissions and removals, resulting from activities relating to the LULUCF sector, were incorporated into the EU climate legislation in 2013 by the

LULUCF Decision (Decision 529/2013/EU). As of now, the LULUCF rules, laid down by the Decision, play no part in the EU's binding GHG reduction target for 2020 (i.e. the contribution from the LULUCF sector is not currently being accounted for towards meeting the EU 2020 GHG emission reduction target). In July, 2016 the EU Commission proposed a regulation regarding the inclusion of GHG emissions and removals from the LULUCF sector into the EU 2030 climate and energy framework. The proposed 2016 LULUCF Regulation sets down an explicit "no debit rule": every MS must ensure that during the period from 2021 until 2025 and from 2026 until 2030, the total GHG emissions accounted for in all the LULUCF sector land accounting categories combined do not exceed the total GHG removals. In particular, for forests this may bring additional benefits, implying that the MS have to compensate all deforestation either by equivalent afforestation or by improving sustainable management of existing forests. However, the primary objective of the accounting rules under the 2016 LULUCF Proposal remains "to safeguard carbon". In particular, with regard to forests, these rules do not safeguard forest functions and services other, than carbon-related forest functions and services. The research has illustrated how under the proposed accounting rules the EU MS could increase harvesting in their old growth forests, as long as they increase the number of tree plantations. In this case, although the total carbon balance may be neutral, the impact on the biodiversity may be detrimental.

7.3.5. Conflicting Interactions: the Case of Wood as RES Regulation.

Finally, conflicting interactions with regard to forest regulation at the implementation level can emerge when regulating forests under the legal framework for the purpose of climate change mitigation through promoting a greater use of renewable energy. The utilization of renewable energy sources contributes to climate change mitigation through, *inter alia*, the reduction of GHG emissions. Yet, if the regulations, promoting renewable energy sources do not sufficiently cover other environmental sustainability concerns, if they are not following an integrated approach, and are not complemented with associated additional regulations, they may as well result in (unintended) negative environmental impact, as for instance, causing a rapid growth in the

(unsustainable) use of wood for energy purposes. In this regard, the experience of the EU is of particular significance for the purpose of the research.

When the EU set out its policy for the promotion of renewable energy in 2009, the RES Directive set very ambitious RES targets and stimulated, required through the national targets, a significant increase in the share of renewable energy in the EU. The research has illustrated how the increased demand for wood biomass, the largest contributor of renewable energy to the EU energy system, implies sustainability risks for forests (e.g. forest degradation due to excessive removal of raw material, unsustainable forest management, deforestation). Although the 2009 RED Directive introduced “the most comprehensive and advanced binding sustainability scheme of its kind anywhere in the world”, it did not, however, include sustainability requirements for solid biomass, in particular for biomass derived from forests. As a step forward, the EU 2016 Proposal for a RES Directive (Recast) attempts to close the regulatory gap and extends the sustainability and GHG emission saving criteria to include also “biomass fuels” and, in particular, “forest biomass”. However, if the Proposal is adopted in the current form, it is uncertain that the criteria will deliver much to minimize the risk of using unsustainable forest biomass for energy purposes (e.g. a significant share of “biomass fuels” is exempt from the requirements to comply with the sustainability and GHG emission saving criteria, weak sustainability criteria, uncertainty with the operational evidence as to justify compliance with the proposed sustainability criterion and the LULUCF requirement for forest biomass).

7.4. Forests under the International Climate Change Regime: Implementation Conflicts.

The examples of forest-related implementation of the UNFCCC regime into (sub) national law illustrate how the prioritization of the ultimate objective of the regime, i.e. “stabilization of GHG concentrations in the atmosphere at a level that would avoid dangerous anthropogenic interference with the climate system” and the narrow focus on the climate-related forest values (e.g. carbon sink and sources and/or wood as an alternative RES to fossil fuels) may disregard the forest-specific objectives and concerns at the implementation level and lead to

(unintended) negative environmental impacts on forests (e.g. intensification and expansion of (unsustainable) forest management practices, forest degradation and decline in the protective functions of forests, etc.). Since the international climate change regime does not *per se* prescribe neither the destruction of primary (biodiversity rich) forests, nor growing wood in (fast growing, species poor, monoculture) plantations, nor expanding (unsustainable) forest management practices in order to produce more wood biomass as RES, the contradiction between the international climate change regime and forest regulation is a conflict of implementation. Although the conflict is rooted in the international regime, it realizes its potential in the phase, involving the implementation of international obligations into (sub) national environmental law.

The main failure of the international climate change regime with regards to conflicting interactions with forest regulation is the remaining lack of incentives to maintain primary forests, to establish sinks and achieve the climate protective objectives according to binding and explicit guidelines of sustainable forestry. The international climate change regime does not (yet) provide for an effective strategy to include the forest specific objective and concerns into its regulations so as to avoid such implementation measures that achieve climate objectives by damaging forests. In the international environmental law explicit and binding international rules that give guidance on sustainable forestry are lacking. As a consequence, tensions between other forest-related treaties (e.g. the Ramsar Convention, the WHC, the CITES and the CBD) at the implementation phase cannot be excluded either.

7.5. Legal Means to Manage the Consequences of the Forest-related Interactions at the International Level.

As the conflicting potential of the international forest-related treaties lies not in the pure "normative" conflict, but is rather associated with their competing underlying forest values and the overall environmental objectives, the traditional tools of international law for the management of treaty interactions (i.e. conflict avoidance and conflict resolution tools) are not suitable in the case of "international forest regime". The traditional tools of international law for the

management of treaty interactions are hierarchy oriented, implying there is a need to prioritize one norm over the other. In the case of the forest-related interactions it is not, however, the question of which norm or which regime should prevail, if any. It is rather a question of how to safeguard the overall implementation of the international forest regulation simultaneously. Besides, the international tools of international law to manage treaty interactions are based on or linked to the law of treaties and, therefore, may neglect the complex structure of the "international forest regime", which consists of more than only legally-binding sources.

For the cases where it is not the pure legal conflict of norms, but rather the divergence of values and rationales that lead to conflictive interactions, international law has provided tools such as institutional cooperation and coordination. In the context of international forest regulation these tools have been widely acknowledged, and, yet, not used appropriately. Thus, for instance, recognizing the various interactions with regard to forest regulation the various forest-related regimes have envisaged specific forms of cooperation. In some cases, specific forums have been established for MEA secretariats, allowing for a more structural discussion about the overlaps. The prime example being, perhaps, the CPF, which seeks to foster collaboration between the 14 organizations that "have substantial programs on forests", including the secretariats of several environmental regimes. The members of the CPF have different agendas, mandates, priorities, work plans and governing bodies, which often result in varying levels of commitment, duplication and insufficient uptake of joint outputs. As an informal, flexible and voluntary arrangement of partners that share a common goal, the CPF could contribute significantly to fostering collaboration between the organizations, and, yet, partially due to the lack of an effective working modality, partially due to the lack of common programming and expectations up until now the CPF has not fulfilled its mandate in respect of enhancing cooperation and coordination among its members. The work and the weaknesses of the CPF illustrate the potential for further cooperation and coordination in international forest-related matters. On the other hand, it also signals of the much effort required in order to put cooperation and coordination instruments in the international forest context to practice.

In the coming years the international forest-related initiatives will persist, leading to the increasing complexity of the forest-related interactions. Meeting the challenges of the international forest regulation requires embracing of its complexity. As J. Rayner puts it, the available international forest initiatives are full of real potential, and, yet, they “[...] require a more effective approach to coordination if they are ultimately to improve forest conditions and livelihoods as well as achieve their own goals”.¹⁸⁸² Even though the international environmental regimes, available for forest regulation may not collide directly at the international level and are well compatible, the fact that they all concern forests calls for a formal recognition of their interrelation and the respective coordination in order to enhance the effectiveness of the international forest regulation.

7.6. International Coordination Convention on Forests.

In the light of the research, in comparison to other options (e.g. “clustering”, the integration and harmonization of forest instruments under the UNFF, a “traditional treaty”) an international coordination convention on forests holds a promising potential as a tool to manage interactions between the forest-related instruments.¹⁸⁸³ The concept of international coordination explicitly seeks not to create a hierarchy or to grant itself priority over other relevant international treaties of the same issue area, but to address the mutual supportive supportive implementation of relevant agreements in the light of a common theme.¹⁸⁸⁴ Drawing on the substance of international non-legally binding instruments on forests, the coordination convention could provide for the fundamental principles and general objectives for forest regulation. It could commit its parties to compliance with a focus on forest-specific features, while simultaneously implementing the forest-related treaties. Although the Coordination Convention

¹⁸⁸² J. Rayner, et al, *Embracing Complexity: Meeting the Challenges of International Forest Governance*, 2010, p. 16.

¹⁸⁸³ For more information see, section 5.4.1. “International Forest Coordination Convention”, part 5.4. “Evaluation of Forest-related Interations between Environmetnal Regimes at the International Level: Promoting Cooperation and Coordination”, chapter V “Evaluation of Forest-related Interactions between the Environmental Regimes at the International Level” of the current thesis.

¹⁸⁸⁴ For more information see, section 5.3.1. “Cooperation and Coordination”, part 5.3. “Fragmentation of Intenrational Forest Regulation”, chapter V “Evaluation of Forest-related Interactions between the Environmental Regimes at the International Level” of the current thesis.

on Forests could act as an independent instrument that ties parties to its own provisions it could as well intervene in the relation of other forest-related treaties as and when required.

The experience of the Forest Europe process and its attempts to adopt the Legally Binding Agreement on Forests in Europe (LBA on Forests in Europe, Appendix 1) may be used to draw the basis of an international forest coordination convention.

The draft of the LBA on Forests in Europe builds on such international forest-related instruments as: the Agenda 21, the 2007 UN Forest Instrument; the decisions taken under the CBD, the UNFCCC, the Ramsar Convention as well as in other global and regional instruments relevant to forests. The negotiating parties agreed upon the key forest-related terms and definitions, including, among others: sustainable forest management, forest ecosystem services, and even forests.

The objectives of the LBA's draft focus on forest-specific objectives (art. 2 "Objectives"). Such a focus may ensure that forest issues do not fall behind for the benefit of the ultimate environmental treaty objectives of international forest-related treaties.

Art. 4. 2 (a) provides the criteria for SFM as a legally binding framework for international and/or national policy development on forests and their management. Article 3 (a) stipulates that when implementing the Convention "each party is responsible for the SFM on its own territory and for the development and implementation of its related policies, adequate to its respective national conditions and needs, while recognizing the shared interests and responsibilities concerning forests". Hence, the draft convention recognizes that although forests are a national resource, forests also have significance beyond a State.

Arts 5-11 are far reaching articles on forest resources and their contribution to global carbon cycles (art. 5); forest health and vitality (art. 6); productive

functions of forests (art. 7); forest biodiversity (art. 8); protective functions of forests (art. 9); socio – economic functions of forests (art. 10); and monitoring and reporting (art. 11). In particular, art. 6 (b) provides that parties “shall have in place or adopt legislative, administrative or other policy measures to adapt forest management practices to changing climatic conditions, including by measures for strengthening the adaptive capacity of forests and for reducing forests vulnerability”.

The draft text of the Convention, rather than being new or even primary, focuses on its additional character to the existing international forest regulation. The coordinating character of the convention is provided for in the preamble to the draft, thus, submitting the interpretation of the Convention as a whole to this coordinating character. Parties recognize “the need to establish a legally binding agreement to ensure or reinforce sustainable forest management, ensure multifunctionality of forests, avoid fragmentation of forest related policies and to complement and promote existing international, regional and subregional agreements, cooperation and initiatives to this end”. One of the explicit objectives of the Convention is “to provide a framework for fostering national actions and international cooperation”. Additionally, art 3 (f) stipulates that “this convention is intended to re-inforce and strengthen the implementation of sustainable forest management in a way that is mutually supportive with existing rights and obligations under other multilateral agreements relevant to this Convention”. Furthermore, art. 4 (d) provides that “while implementing the provisions contained in this Convention and in order to promote sustainable forest management [the Parties shall] strengthen and enhance international, regional and cross-border cooperation as well as coordination to foster coherence and avoid duplication of or overlap with the work of relevant international agreements.”

Indeed, at the international level a forest cooperation convention may be subject to various challenges. For instance, as any other international agreement, it may require substantial resources (e.g. time, money) for its negotiations. Arguably, the fact that it builds on the already existing forest-related instruments may reduce the required effort significantly. Consensus building may become one

more challenging issue. Yet, as the coordination convention builds on the existing forest-related treaties, and their forest-related substantive provisions, the consensus on the treaties to be coordinated might be more easily achieved (i.e. limited substance to further consent on, e.g. consensus may be needed in order to agree on how to implement the existing forest-related substance in a mutually supportive way). Furthermore, state membership might also be a critical issue with regard to international forest coordination convention. Ideally, membership to the coordination convention and the membership in all coordinated agreements should be congruent. One more critical issue is the implementation of the coordination convention. The particular design of a compliance mechanism is critical. The Draft of the LBA on Forests in Europe (even though (yet) not formally adopted) illustrates that it is generally possible to reach an agreement on a coordinating tool for forest regulation. The Draft may be suggested as a useful model for an international coordination convention on forests.

7.7. Conclusions and Outlook.

Up until now a specific forest law has not (yet) been developed. Due to their multiple functions, forests are subsumed for regulation to under a variety of international environmental regimes (e.g. UNFCCC, CBD, the Ramsar, the WHC, etc.). Their forest-specific implementation may be significantly impeded and subordinated to the implementation for the achievement of other environmental objectives. The insecurity that exists with regard to a consolidated implementation of the international forest-related regimes makes a decision on environmental priorities concerning their implementation a matter of political discretion and hampers systematic forest-related synergies. Such synergies between forest-related treaties, however, are essential to prevent further conflicts of implementation, to address the existing gaps and to streamline international regulation on forests to, eventually, establish a coherent network of international forest law. Even though the investigated by the present research environmental regimes do not collide directly with regards to forest regulation at the international level and are well compatible, the fact that they all concern forests calls for a formal recognition of their interrelation and the respective

coordination in order to enhance the effectiveness of the international forest regulation. Building on the already existing forest consensus (without digging too deep into substantive national matters) an international coordination convention on forests might provide a needed momentum in order to prevent further conflicting interactions, address the existing gaps, and enhance synergies with regard to the international forest regulation.

Bibliography

I. Treaties

1. Charter of the United Nations, adopted 26 June 1945, in force 24 October 1945;
2. Convention for the Protection of the World Cultural and Natural Heritage, adopted 16 November 1972, in force 17 December 1975;
3. Convention on Biological Diversity, adopted 5 June 1992, in force 29 December 1993;
4. Convention on International Trade in Endangered Species of Wild Fauna and Flora, adopted 3 March 1973, in force 1 July 1975;
5. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, adopted 2 February 1971, in force 21 December 1975;
6. Convention to Combat Desertification, adopted 17 June 1994, in force December 1996;
7. Doha Amendment to the Kyoto Protocol, adopted 8 December 2012;
8. International Plant Protection Convention, adopted 6 December 1951, in force 3 April 1952;
9. International Tropical Timber Agreement, adopted 18 November 1983, entered into force 1 April 1985;
10. International Tropical Timber Agreement, adopted 26 January 1994, provisionally entered into force 01 January 1997;
11. International Tropical Timber Agreement, adopted 27 January 2006, in force 7 December 2011;
12. International Treaty on Plant Genetic Resources for Food and Agriculture, adopted 3 November 2001, in force 29 June 2004;
13. Kyoto Protocol to the United Nations Framework Convention on Climate Change, adopted 11 December 1997, in force 16 February 2005;
14. Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, adopted 29 October 2010, in force 12 October 2014;
15. Paris Agreement, adopted 12 December 2015, entry into force 04 November 2016;

16. Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, adopted 2 February 1971, in force 21 December 1975;
17. United Nations Convention to Combat Desertification, adopted 17 June 1994, in force 26 September 1996;
18. United Nations Framework Convention on Climate Change, adopted 9 May 1992, in force 21 March 1994;
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II. Non-Legally Binding Agreements

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2. Copenhagen Accord, adopted 18 December 2009;
3. Declaration of the United Nations Conference on the Human Environment, Stockholm, 16 June 1972;
4. Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted 14 June 1992;
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VII. Articles

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Appendix I. Draft Negotiating Text, LBA on Forests Europe

INC4 Draft Negotiating Text as at 8 November 2013, 23:00hrs Annex F
[European Forest Convention (EU)] / [Forest Convention (UA, GA, KZ, BY, CH,
RU)] / [Convention on Forests (RU, CH, KG)] ¹⁸⁸⁵

Preamble**The Parties to this Convention,**

Recognizing that forests provide multiple economic, social, cultural and environmental benefits and opportunities for future development, and emphasizing that forests and sustainable forest management play a vital role in achieving sustainable development and the internationally agreed development goals, inter alia by contributing to a green economy, climate change mitigation and adaptation, providing renewable raw material, energy supply, biodiversity, water and soil protection and other ecosystem services, the protection of society against natural hazards, as well as contributing to job creation, innovation entrepreneurship, social equity and gender equality, (agreed ad ref.)

Being aware that the increasing and changing multiple needs of society related to forests and forest land, including wood materials and energy, as well as the changing environment and climate, which put at risk the health, biodiversity, vitality, resilience and productivity of forests as well as their role in combating desertification, and hence their multiple economic, social and environmental benefits, demand new strategic, comprehensive and consistent approaches, (agreed ad ref.)

Emphasizing that sustainable forest management is a key component of integrated land-use policies and management, and being convinced about the need for stronger cooperation, synergies and greater coherence in forest-related policy-making, including in rural development, food security, water, soil protection, energy, urban planning, biological diversity and climate change, (agreed ad ref.)

¹⁸⁸⁵ Text that has not been agreed and where further consideration is required is shown in square brackets. Round brackets are used for notes.

Recognizing the importance of secure property and tenure rights, transparency and measures to enable and encourage stakeholder participation and dialogue in development and implementation of sustainable forest management, and the need to take measures to improve understanding and exchange of information with stakeholders, (agreed ad ref.)

Recognizing the importance of good governance and forest law enforcement, as well as efficient measures to eliminate illegal harvesting of timber and associated trade and to promote sustainable consumption and production, (agreed ad ref.)

Reaffirming all the principles of the Rio Declaration on Environment and Development, inter alia, Principle 2 that declares that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and development policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction, and also reaffirming our commitment to fully implement this Declaration, Agenda 21, the Programme for the Further Implementation of Agenda 21, the Plan of Implementation of the World Summit on Sustainable Development (Johannesburg Declaration on Sustainable Development and the Plan of Implementation), and outcome document of the United Nations Conference on Sustainable Development entitled "The Future We Want" (Rio +20), (agreed ad ref.)

Recalling the United Nations Declaration on the Rights of Indigenous Peoples and acknowledging its relevance in the context of implementing this Convention, (agreed ad ref.)

Reaffirming our commitments to achieve the internationally agreed development goals including the Millennium Development Goals and our respective commitments to other relevant internationally agreed goals in the economic, social and environmental fields, including the Aichi Biodiversity Targets of the

Convention on Biological Diversity and the climate change commitments, (agreed ad ref.)

Recalling the Non-Legally Binding Instrument on All Types of Forests and the Four Global Objectives on Forests therein; and recognizing the importance of international cooperation and of sustainable forest management as a dynamic concept in implementing the decisions taken under the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, as well as in other global and regional instruments relevant to forests, (agreed ad ref.)

Recalling the vision, goals, declarations, resolutions and decisions made by FOREST EUROPE (Ministerial Conference on the Protection of Forests in Europe), and the achievements in their implementation, including in developing and applying tools and guidelines for sustainable forest management, (agreed ad ref.)

Recognizing the need to establish a legally binding agreement to ensure or reinforce sustainable forest management, ensure multifunctionality of forests, avoid fragmentation of forest related policies and to complement and promote existing international, regional and subregional agreements, cooperation and initiatives to this end, (agreed ad ref.)

Have agreed as follows:

Article 1. Terms and definitions

For the purpose of this Convention:

(a) "Forest": each Party in each national territory is entitled to apply its own definition of forests in its national forest legislation. For the purpose of this Convention, "forest" means an area of land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is

predominantly under agricultural or urban land use. If a Party chooses to apply its own forest definition, for the purpose of this Convention, the Party shall provide the definition in writing to the Secretariat; (agreed ad ref.)

(b) "Sustainable forest management" means the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems; (agreed ad ref.)

(c) "Criteria for sustainable forest management" characterize or define the essential elements or set of conditions or processes by which sustainable forest management may be assessed; (agreed ad ref.)

(d) "Forest ecosystem services" means the benefits people obtain from forest ecosystems. These include provisioning, regulating, cultural and supporting services; (agreed ad ref.)

(e) "Goods" means materials which people create or derive from ecosystem services and are tangible and transportable; (agreed ad ref.)

(f) "National forest programme" means a comprehensive policy framework aiming at further improvement of sustainable forest management and the contribution to sustainable development, and based on the principles of being a participatory, holistic, intersectoral and iterative process of policy planning, implementation, monitoring and evaluation at the national and/or subnational level; (agreed ad ref.)

(g) "Forest fragmentation" [[refers to]means (Legal Group - LG)](UA) any process that results in the conversion of continuous forest into patches of forest separated by nonforest lands; (agreed ad ref.)

(h) "Forest degradation" means changes which adversely affect the structure or function of forests in the long term and thereby lower their capacity to provide a broad range of forest ecosystem services and goods derived from them; (agreed ad ref.)

(i) "Forest restoration" means management measures applied, inter alia, in degraded forests which aim to recover their functions, structure and biodiversity, as well as natural processes of regeneration in these forests; (agreed ad ref.)

(j) "Illegal harvesting" means harvesting that is in contravention of applicable legislation in the country of harvest; (agreed ad ref.)

(k) "Regional economic integration organization" means an organization constituted by sovereign States of a given region, to which its member States have transferred competence in respect of matters governed by this Convention and which has been duly authorized, in accordance with its internal procedures, to sign, ratify, accept, approve or accede to it. (agreed ad ref.)

Article 2. Objective

The objective of this Convention is:

(a) To reinforce and strengthen the implementation of sustainable forest management and to ensure multifunctionality of forests and the long-term provision of a broad range of forest ecosystem services and goods derived from them; (agreed ad ref.)

(b) To enhance the role of forests and forestry in contributing to solving global challenges; (agreed ad ref.)

(c) To provide a framework for fostering national actions and international cooperation; (agreed ad ref.)

(d) To maintain, protect, restore and enhance forests, their health, productivity, biodiversity, vitality and resilience to threats and natural hazards, and their capacity to adapt to climate change as well as their role in combating desertification; (agreed ad ref.)

(e) To ensure that forests contribute effectively to sustainable development, livelihoods and the well-being of society by providing economic, environmental, cultural and social benefits at all levels. (agreed ad ref.)

Article 3. Principles

When implementing this Convention, Parties shall respect the following principles: (agreed ad ref.)

(a) Each Party is responsible for the sustainable forest management on its own territory and for the development and implementation of its related policies, adequate to its respective national conditions and needs, while recognizing the shared interests and responsibilities concerning forests; (agreed ad ref.)

(b) Good governance and enabling conditions for sustainable forest management, including clear and secure land tenure and ownership rights, stable and effective

policies and institutions, adequate legislation, transparency, gender equality and a sound knowledge base, and a balance among economic, social and environmental aspects; (agreed ad ref.)

(c) Active participation of forest owners and other stakeholders in developing and implementing policies and open and flexible dialogue at all levels; (agreed ad ref.)

(d) Cross-sectoral cooperation and coordination with different bodies at all levels and adequate consideration of sustainable forest management in the development of sectoral policies; (agreed ad ref.)

(e) Sustainable forest management contributes to the sustainable development of Parties; (agreed ad ref.)

(f) This Convention is intended to re-inforce and strengthen the implementation of sustainable forest management in a way that is mutually supportive with existing rights and obligations under other multilateral agreements relevant to this Convention. (agreed ad ref.)

Article 4. General provisions

1. To achieve the objective of this Convention, Parties shall take measures to ensure that sustainable forest management as defined in Article 1, paragraph (b), be implemented taking into account their specific forest conditions and national priorities. (agreed ad ref.)

2. In particular, Parties shall: (agreed ad ref.)

(a) Use the following criteria for sustainable forest management as a guiding framework for policy development on forests and their management:

i. Maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles;

ii. Maintenance of forest ecosystems' health and vitality;

iii. Maintenance and encouragement of productive functions of forests (wood and non-wood);

iv. Maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems;

v. Maintenance, conservation and appropriate enhancement of protective functions in forest management (notably soil and water);

vi. Maintenance of other socio-economic functions and conditions. (agreed ad ref.)

(b) Develop, implement and update national forest programmes or equivalents as a tool for achieving the objectives and implementing the obligations of this Convention at the national level, taking into account the principles of national forest programmes as laid down in the Annex to Vienna Resolution 1¹⁸⁸⁶ or any further elaborations on the principles as agreed by the Conference of the Parties, in particular for enabling participation of stakeholders in development and implementation of forest policies; (agreed ad ref.)

(c) Maintain and/or strengthen enabling conditions for long-term economic viability of sustainable forest management through, inter alia, investments and innovation; (agreed ad ref.)

(d) While implementing the provisions contained in this Convention and in order to promote sustainable forest management, strengthen and enhance international, regional and cross-border cooperation, as well as coordination to foster coherence and avoid duplication of or overlap with the work of relevant international agreements. (agreed ad ref.)

Article 5. Forest resources and their contribution to global carbon cycles.

Parties shall have in place or adopt legislative, administrative or other policy measures to:

(a) Maintain or enhance forest resources and the capacity of forests and forest products to act as carbon sinks and reservoirs, substitution of non-renewable materials and energy, and to contribute to a low carbon emission economy; (agreed ad ref.)

(b) Reduce forest fragmentation and any negative impacts thereof where they occur, inter alia through a balanced approach in land-use planning and measures

¹⁸⁸⁶ Vienna Resolution 1, Strengthen synergies for sustainable forest management in Europe through cross-sectoral co-operation and national forest programmes, adopted by the Fourth Ministerial Conference on the Protection of Forests in Europe, held in Vienna, Austria, 28-30 April 2003.

to enhance connectivity, through forest restoration, reforestation, afforestation, and/or other relevant measures. (agreed ad ref.)

Article 6. Forest health and vitality

Parties shall have in place or adopt legislative, administrative or other policy measures to:

(a) Maintain and enhance health and vitality and the protective and productive potential of forests and forest soils to provide a broad range of forest ecosystem services and goods derived from them; and implement measures to increase the resilience of forests to natural hazards, to strengthen the role of forests in combating desertification and to address human-induced threats to forests; (agreed ad ref.)

(b) Monitor, prevent and combat forest pests, diseases and fires, including in the context of climate change, and to cooperate with other Parties where it is appropriate; (agreed ad ref.)

(c) Adapt forest management practices to changing climatic conditions, including by measures for strengthening the adaptive capacity of forests and for reducing forests' vulnerability. (agreed ad ref.)

Article 7. Productive functions of forests

Parties shall have in place or adopt legislative, administrative or other policy measures to:

(a) Aim to enhance the use of wood from sustainably managed forests, inter alia its use as a substitute for non-renewable materials and energy sources, as well as use of nontimber forest products; (agreed ad ref.)

(b) At regional, subregional and national levels, eliminate illegal harvesting of timber and associated trade and to ensure or strengthen forest law enforcement, in support of sustainable forest management; (agreed ad ref.)

(c) Integrate the use of sustainably produced forest products into relevant measures for sustainable consumption and production, while promoting fair treatment of forest products. (agreed ad ref.)

Article 8. Forest biodiversity

Parties shall have in place or adopt legislative, administrative or other policy measures to:

- (a) Protect, restore and, where appropriate, increase forest biodiversity at all levels through its effective and efficient integration in sustainable forest management with the aim to halt biodiversity loss and to contribute to reducing forest degradation; (agreed ad ref.)
- (b) Maintain or further develop networks or systems of representative protected forest areas and to apply forest management practices appropriate to the purpose and category of the protected areas; (agreed ad ref.)
- (c) Further the conservation of endemic and threatened species in forests and to prevent and mitigate the negative impacts of those invasive alien species that threaten forest ecosystems. (agreed ad ref.)

Article 9. Protective functions of forests

Parties shall have in place or adopt legislative, administrative or other policy measures to:

- (a) Maintain, enhance or restore protective functions of forests, such as water and soil protection, as well as to contribute, inter alia, to the prevention of natural hazards and combating desertification; (agreed ad ref.)
- (b) Enhance the protection of groundwater and surface water resources through appropriate forest management practices, inter alia, through afforestation and, if applicable, in the framework of integrated basin management, including through cross-border cooperation, as deemed appropriate; (agreed ad ref.)
- (c) Support the protective functions of forests by identifying and compiling relevant information for awareness-raising, decision-making and strengthening inter-sectoral cooperation. (agreed ad ref.)

Article 10. Socio-economic functions of forests

Parties shall have in place or adopt legislative, administrative or other policy measures to:

- (a) Ensure that social and cultural benefits from forests, including recreation, human health and well-being, the preservation and promotion of the forest-related historic cultural heritage and gender equality, are taken into account in sustainable forest management; (agreed ad ref.)

(b) Broaden and diversify the financial basis for sustainable forest management by taking into account the values of forest ecosystem services, in particular their regulating, cultural and supporting services, in national forest programmes or equivalents and facilitate the development and implementation of measures and innovative financing instruments, such as payments for ecosystem services, as appropriate; (agreed ad ref.)

(c) Aim to increase the contribution of forests to sustainable development, and, in particular, to rural development, livelihoods and employment, ensuring healthy and safe work places according to international labour standards and taking into account gender equality; (agreed ad ref.)

(d) Improve the use of scientific and traditional forest-related knowledge in policy development, decision-making and innovation, and to promote training and education in sustainable forest management; (agreed ad ref.)

(e) Facilitate communication between policy-makers and all stakeholders, including forest owners and managers, practitioners, the scientific community and nongovernmental organizations, in order to improve policy development and implementation and to increase awareness of sustainable forest management. (agreed ad ref.)

Article 11. Monitoring and reporting

1. Parties shall monitor and analyse or assess on a regular basis the status and development of their forests, and analyse or assess the progress in implementation of sustainable forest management, using the criteria for sustainable forest management referred to in paragraph 2 (a) of Article 4 of this Convention and indicators established by the Conference of the Parties. (agreed ad ref.)

2. Parties shall report, through the Secretariat, to the Conference of the Parties on a periodic basis as determined by the Conference of the Parties:

(a) Information on the measures it has taken to implement this Convention;

(b) Information on the status and development of their forests and progress in implementation of sustainable forest management, using the criteria and indicators for sustainable forest management referred to in paragraph 1 of this Article and using, as far as applicable, reports used for the regular Global Forest Resources Assessment of the Food and Agriculture Organization of the United

Nations; as well as ensure that such information is available to the public within their national territory.

Article 12. Conference of the Parties

1. A Conference of the Parties is hereby established.
2. The Conference of the Parties, as the supreme body of this Convention, shall keep under regular review the implementation of this Convention. To this end, it shall:
 - (a) Take, within its mandate, the decisions necessary to promote the effective implementation of this Convention;
 - (b) Periodically examine the obligations of the Parties and the institutional arrangements under this Convention, including the compliance mechanism in the light of the objective of this Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge;
 - (c) Recommend future actions needed to enhance implementation, including developing guidelines, tools and guidance;
 - (d) Promote and facilitate the exchange of information on measures adopted by the Parties for and experience gained in implementing sustainable forest management;
 - (e) Establish, at its first session, a programme of work and review it at each ordinary session;
 - (f) Cooperate, where appropriate, with relevant international organizations, processes and intergovernmental and non-governmental bodies and organizations;
 - (g) Establish such subsidiary bodies as are deemed necessary for the implementation of this Convention;
 - (h) Consider reports and recommendations submitted by its subsidiary bodies and provide guidance to them; and
 - (i) Consider and, where appropriate, recommend and/or undertake any additional action within the framework of this Convention that may be required for the achievement of the objective of this Convention.
3. The Conference of the Parties shall, at its first session, adopt by consensus the rules of procedure for itself and any of its subsidiary bodies and financial

arrangements governing the entire Convention, including those necessary for the functioning of the Secretariat.

4. The first session of the Conference of the Parties shall be convened [by the Head[s] of xxx (CH) and shall take place] not later than one year after the date of entry into force of the Convention. Ordinary sessions of the Conference of the Parties shall be held every third year unless otherwise decided by it. However, the second session shall be held not later than two years after the first.

5. Extraordinary sessions of the Conference of the Parties shall be held at such other times as may be deemed necessary by the Conference, or at the written request of any Party, provided that, within six months of the request being communicated to the Parties by the secretariat, it is supported by at least one-third of the Parties.

6. The United Nations, its specialized agencies and the International Atomic Energy Agency, as well as any State or regional economic integration organization which is a member thereof or an observer thereto not a Party to this Convention may be represented at sessions of the Conference of the Parties as observers. Any other [governmental](UA,RU) intergovernmental or non-governmental organization, body or agency, that is qualified in matters of this Convention and has informed the Secretariat of its wish to be represented at a session of the Conference of the Parties as an observer, may be admitted [unless at least [one-third] of the Parties present object] / [on a non-objective basis (RU, RS)] / [on a non-objective basis (EU, CH, NO)]. The admission and participation of observers shall be subject to the Rules of Procedure adopted by the Conference of the Parties.

Article 13. Right to vote

1. Except as provided for in paragraph 2 in this Article, each Party to this Convention shall have one vote.

2. [Regional economic integration organizations, on matters within their competence, shall exercise their right to vote with a number of votes equal to the number of their member States [present in the session (UA, RU, CH, NO, IS, TR, RS)] (EU) which are Parties to this Convention. Such organizations shall not exercise their right to vote if their member States exercise theirs, and vice versa.]

Article 14. Secretariat

1. A Secretariat is hereby established.
2. [The secretariat functions for this Convention shall be performed by [FAO, UNECE, UNEP and EFI (EU)] / [UNECE (RU)] / [UNECE, FAO and UNEP (CH)] / [FAO in cooperation with UNECE and UNEP (NO)] unless the Conference of the Parties decides by consensus to entrust the secretariat functions to one or more other [competent (CH)] international or intergovernmental organizations. (EU). [The heads of UNECE, FAO and UNEP shall set out details of their work-sharing arrangements in a memorandum of understanding to be adopted and subsequently reviewed on a regular basis by the Conference of the Parties (CH)]]
3. The functions of the Secretariat shall be:
 - (a) To make arrangements for sessions of the Conference of the Parties and its subsidiary bodies established under this Convention and to provide them with services as required;
 - (b) To compile, transmit and make available reports pursuant to Article 11 of this Convention;
 - (c) To facilitate assistance to the Parties, on request, in the compilation and communication of information required in accordance with the provisions of this Convention;
 - (d) To report on its activities to the Conference of the Parties;
 - (e) To cooperate, as appropriate, with relevant international organizations, processes and intergovernmental and non-governmental bodies and organizations, including in particular the secretariats of agreements relevant to this Convention;
 - (f) To enter, under the overall guidance of the Conference of the Parties, into such administrative and contractual arrangements as may be required for the effective discharge of its functions; and
 - (g) To perform the other secretariat functions specified in this Convention and such other functions as may be determined by the Conference of the Parties.
4. [[The Conference of the Parties, at its first session, shall make arrangements [for the functioning of the secretariat] / [for the effective discharge of the functions of the secretariat (EU, NO)] / [The Conference of the Parties, at its

first session, shall make arrangements for the functioning of the secretariat [in a cost-effective manner (EU) (CH, RU)]] (CH, RU, UA, RS, KZ) .

Article 15. Compliance

1. Each Party shall take all appropriate measures within its competence to ensure compliance with this Convention and any measures in effect pursuant to it.
2. In accordance with the procedure established by the Conference of the Parties the Secretariat, drawing on the necessary technical expertise, shall review, analyse, compile and report on the information submitted by Parties according to paragraph 2(b) of Article 11.
3. Each Party shall have the opportunity to consider the reports submitted by other Parties, pursuant to paragraph 2 of Article 11, and to seek clarification of such reports, in accordance with procedures developed by the Conference of the Parties.
4. A Compliance Committee to monitor and promote compliance and address cases of noncompliance with the provisions of this Convention is hereby established. The Committee shall be facilitative, non-confrontational, transparent, cooperative and recommendatory in nature. The Committee:
 - (a) Shall consist of nine members comprising both legal and technical experts relevant to sustainable forest management, nominated by Parties and elected by [consensus by (RU, UA)] (EU, NO, CH) the Conference of the Parties on the basis of equitable geographical representation and with due consideration given to gender balance, and be subject to periodic rotation. Members shall serve in their personal capacity and in the best interests of this Convention;
 - (b) Shall review periodically compliance by the Parties with the reporting requirements of this Convention;
 - (c) Shall conduct regular reviews of each Party's compliance with this Convention based on its reports as compiled by the Secretariat;
 - (d) Shall consider any question of compliance with this Convention that it becomes aware of unless it considers the issue to be manifestly ill-founded or de minimis. It shall consider such questions on the basis of:
 - i. National reports and reporting requirements under paragraph 2 of Article 11 referred to it by the Secretariat;

- ii. Written submissions from any Party; or
 - iii. Requests from the Conference of the Parties, including those based on the outcome of the review process as referred to in paragraphs 2 and 3 of this Article;
- (e) May provide advice and facilitate assistance to individual Parties and groups of Parties in order to facilitate their implementation of and/or compliance with this Convention on their request;
 - (f) Shall report regularly to the Conference of the Parties on all aspects of its work;
 - (g) May consider and bring to the attention of the Conference of the Parties systemic or general issues related to compliance of interest to all Parties;
 - (h) After consultation with the Party concerned, shall make recommendations for consideration to the Conference of the Parties or Parties found to be in noncompliance, as it considers appropriate;
 - (i) Shall make its reports available to the public;
 - (j) [In carrying out its functions the Committee may consider any credible and relevant information. (CH, NO, RU)] / [In carrying out its functions the Committee may consider any information it deems credible and relevant (EU, CH, NO, IS)].

5. The Conference of the Parties shall at its first session elect the first members of the Committee and adopt further terms of reference and rules of procedure for the Committee [by consensus (CH)] / [by consensus (RU, UA)]; [the Committee may suggest further developments [of its rules of procedure (CH)] / [of its terms of reference (CH)] and submit them to the Conference of the Parties for adoption] (CH).

Article 16. Settlement of disputes

1. If a dispute arises between two or more Parties about the interpretation or application of this Convention, the Parties concerned shall seek a solution through consultation, negotiation or any other peaceful means of dispute settlement of their own choice, with a view to reaching a mutually satisfactory solution as soon as possible.
2. When ratifying, accepting, approving or acceding to this Convention, or at any time thereafter, a Party which is not a regional economic integration

organization may declare in writing to the Depositary that, in respect of a dispute not resolved in accordance with paragraph 1 of this Article, it recognizes one or both of the following means of dispute settlement as compulsory in relation to any Party accepting the same obligation:

- (a) Submission of the dispute to the International Court of Justice; and/or
- (b) Arbitration in accordance with the procedure set out in Annex A on arbitration,

A Party which is a regional economic integration organization may make a declaration with like effect in relation to arbitration in accordance with the procedures referred to in subparagraph (b) of this paragraph.

3. If the parties to the dispute have accepted both means of dispute settlement referred to in paragraph 2 of this Article, the dispute may be submitted only to the International Court of Justice, unless the parties agree otherwise.

4. A declaration made under paragraph 2 of this Article shall remain in force until it expires in accordance with its terms or until three months after written notice of its revocation has been deposited with the Depositary.

5. Expiry of a declaration, a notice of revocation or a new declaration shall not in any way affect proceedings pending before the International Court of Justice or the arbitral tribunal, unless the parties to the dispute otherwise agree.

6. If the parties to a dispute have not accepted the same means of dispute settlement pursuant to paragraph 2 of this Article and if they have not been able to settle their dispute through the means in paragraph 1 of this Article within twelve months following notification by one party to another that a dispute exists between them, the dispute shall be submitted to conciliation, at the request of any of the parties to the dispute. Procedures related to conciliation shall be as set out in Annex B to this Convention.

Article 17. Amendments to the Convention

1. At any time after the entry into force of this Convention, any Party may propose amendments to it.

2. The proposed amendment shall be considered and adopted by the Conference of the Parties.

3. The text of any proposed amendment shall be submitted in writing to the Secretariat, who shall communicate it to all Parties and signatories to this

Convention at least six months before the session of the Conference of the Parties at which it is proposed for adoption. The Secretariat shall also communicate the proposed amendment for information to the Depositary.

4. The Parties shall make every effort to reach agreement on any proposed amendment to this Convention by consensus. If all efforts at consensus have been exhausted, and no agreement reached, the amendment shall, as a last resort, be adopted by a three-fourths majority vote of the Parties present and voting at the meeting.

5. The amendments adopted in accordance with paragraph 4 of this Article shall be communicated by the Secretariat to the Depositary, who shall send them to all Parties for ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Depositary.

6. An amendment shall enter into force for those Parties which have ratified, approved or accepted it on the ninetieth day after the date of deposit with the Depositary of an instrument of ratification, acceptance or approval by at least three-fourths of the number of Parties to this Convention, that were Parties at the time at which the amendment was adopted by the Conference of the Parties. Thereafter, the amendment shall enter into force for any other Party on the ninetieth day after the receipt by the Depositary of that Party's instrument of ratification, acceptance or approval of the amendment.

7. For the purposes of this Article, "Parties present and voting" means Parties present and casting an affirmative or negative vote.

8. After the entry into force of an amendment to this Convention, any new Party to this Convention shall become a Party to this Convention as amended.

Article 18. Adoption and amendment of annexes to the Convention

1. Annexes to this Convention shall constitute an integral part thereof and, unless expressly provided otherwise, a reference to this Convention constitutes at the same time a reference to any annexes thereto. Annexes shall be restricted to scientific, technical, procedural or administrative matters.

2. Annexes to this Convention and amendments thereto shall be proposed and adopted in accordance with the procedure set forth in Article 17.

3. An annex or an amendment to an annex that has been adopted in accordance with paragraph 2 of this Article shall enter into force for those Parties that have

accepted it twelve months after the date of the communication by the Depositary to all Parties of its adoption.

4. If the adoption of an annex or an amendment to an annex involves an amendment to this Convention, that annex or amendment to an annex shall not enter into force until such time as the amendment to this Convention enters into force.

Article 19. Protocols

1. The Parties may at any session of the Conference of the Parties adopt protocols to this Convention.

2. The text of any proposed protocol shall be communicated to the Parties by the Secretariat at least six months before such a session.

3. The requirements for the entry into force of any protocol shall be established by that instrument.

4. Only Parties to this Convention may be Parties to a protocol to this Convention.

5. Decisions under any protocol shall be taken only by the Parties to the protocol concerned.

Article 20. Signature

1. [This Convention shall be open for signature by States and regional economic integration organizations [listed] (EU) / [as specified] in Annex C](UA). (NO)

2. [Any other State, not referred to in paragraph 1 above, that is a Member of the United Nations or of any of its specialized agencies or of the International Atomic Energy Agency or a Party to the Statute of the International Court of Justice, may sign the Convention. (NO)] (linked to UN umbrella issue and Title)

1-2alt. [The Convention shall be open for signature by all States which are members of the United Nations or of any of its specialized agencies or of the International Atomic Energy Agency or a Party to the Statute of the International Court of Justice and by regional economic integration organizations (CH,RU,RS, UA)] (NO)

1-2alt.bis. [The Convention shall be open for signature by States, members of the Economic Commission for Europe as well as States having consultative status with the Economic Commission for Europe pursuant to paragraph 8 of

Economic and Social Council Resolution 36/IV of 28. March 1947, and by regional economic integration organizations constituted by sovereign States, members of the Economic Commission for Europe to which their member States have transferred competence over matters governed by this Convention including the competence to enter into treaties in respect of these matters. (CH)] (EU, NO)

3. This Convention shall be open for signature at <location> from <date> to <date>.

Article 21. Ratification, acceptance, approval or accession

1. [This Convention shall be subject to ratification, acceptance [or] (CH) approval [or accession (CH)] by the [Signatories] (CH) / [by States and regional economic integration organizations referred to in Article 21 (CH)].] (EU)

2. [[After entry into force (CH)] It shall be open for accession [as from <date when Convention is no longer open for signature>] (CH) by any [other (CH)] State or regional economic integration organization [referred to in Article 21 that has not signed this Convention] (CH). Instruments of ratification, acceptance, approval or accession shall be deposited with the Depository.] (EU)

3. [Any regional economic integration organization which becomes a Party to this Convention without any of its member States being a Party shall be bound by all the obligations under this Convention. In the case of such organizations, one or more of whose member States is a Party to this Convention, [the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under this Convention. In such cases,] the organization and the member States shall not be entitled to exercise rights under this Convention concurrently. (CH)]

3.alt [In the case of any regional economic integration organization which becomes a Party to this Convention, such organization and its member States shall decide on their respective responsibilities for the performance of their obligations under this Convention. In such cases, the organization and the member States shall not be entitled to exercise rights under this Convention concurrently. (EU, UA, NO)]

4. In their instruments of ratification, acceptance, approval or accession, regional economic integration organizations shall declare the extent of their

competence with respect to the matters governed by this Convention. These organizations shall also inform the Depositary, who shall in turn inform the Parties, of any substantial modification in the extent of their competence.

Article 22. Entry into force

1. [[This Convention shall enter into force on the ninetieth day after the date of deposit of the < [35th (UA, EU)] / [33rd (NO)] > instrument of ratification, acceptance, approval or accession [from States listed in Annex C] (EU).]

[1.alt This Convention shall enter into force on the ninetieth day after the date of deposit of the 20th instrument of ratification, acceptance, approval or accession from States referred to in Article 21 of which not more than 15 States belong to the same regional economic integration organization.] (NO, EU)

2. [For each State or regional economic integration organization that ratifies, accepts or approves this Convention or accedes thereto after the deposit of the <xth [35th (UA)]> instrument of ratification, acceptance, approval or accession [from States listed in A[a]nnex x (EU)], this Convention shall enter into force on the ninetieth day after the date of deposit by such State or regional economic integration organization of its instrument of ratification, acceptance, approval or accession.]

[2.alt For each State or regional economic integration organization that ratifies, accepts or approves this Convention or accedes thereto after its entry into force, this Convention shall enter into force on the ninetieth day after the date of deposit by such State or regional economic integration organization of its instrument of ratification, acceptance, approval or accession.] (IS, RU)

3. For the purposes of paragraphs 1 and 2 of this Article, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by member States of that organization.]

Article 23. Reservations

No reservations may be made to this Convention.

Article 24. Withdrawal

1. At any time after three years from the date on which this Convention has entered into force for a Party, that Party may withdraw from this Convention by giving written notification to the Depositary.
2. Any such withdrawal shall take effect upon expiry of one year from the date of receipt by the Depositary of the notification of withdrawal, or on such later date as may be specified in the notification of withdrawal.
3. Any Party that withdraws from this Convention shall be considered as also having withdrawn from any protocol to which it is a Party.

Article 25. Termination

This Convention shall be terminated if and when, as the result of withdrawals, the number of Parties drops below [xx] / [20 (UA)], [or if all Parties belong to the same regional economic integration organization (CH)] (EU) unless the remaining Parties unanimously decide otherwise.

Article 26. Depositary

The [FAO Director-General of the Food and Agriculture Organization of the United Nations (EU, NO, TR, GA, AZ, AL)] / [Secretary-General of the United Nations (RU, UA, KZ, CH, KG, RS, BY, LI, AM)] shall act as the Depositary of this Convention and of protocols adopted in accordance with Article 19.

Article 27. Authentic texts

The original of this Convention, of which the <English, French, Russian, xxx> texts are equally authentic, shall be deposited with the Depositary.

IN WITNESS WHEREOF the undersigned, being duly authorised to that effect, have signed this Convention.

DONE at xxx <date>.

ANNEX A ARBITRATION

Article 1

1. A Party may initiate recourse to arbitration in accordance with Article ...¹⁸⁸⁷ of this Convention by written notification addressed to the other party to the dispute. The notification shall be accompanied by a statement of the claim,

¹⁸⁸⁷ Put a cross-reference to the Article of the Convention governing settlement of disputes.

together with any supporting documents, and shall state the subject matter for arbitration including, in particular, the articles of this Convention the interpretation or application of which are at issue.

2. The claimant party shall notify the Secretariat that the parties are referring a dispute to arbitration pursuant to Article...¹⁸⁸⁸. The notification shall state the subject matter of arbitration and include, in particular, the Articles of this Convention the interpretation or application of which are at issue. The Secretariat shall forward the information thus received to all Parties to this Convention.

Article 2

1. In disputes between two Parties, the arbitral tribunal shall consist of three members. Each of the parties to the dispute shall appoint an arbitrator and the two arbitrators so appointed shall designate by common agreement the third arbitrator who shall be the President of the tribunal. The latter shall not be a national of one of the parties to the dispute, nor have his or her usual place of residence in the territory of one of these parties, nor be employed by any of them, nor have dealt with the case in any other capacity.

2. In disputes between more than two Parties, parties in the same interest shall appoint one arbitrator jointly by agreement.

3. Any vacancy shall be filled in the manner prescribed for the initial appointment.

4. If the parties do not agree on the subject matter of the dispute before the President of the tribunal is designated, the arbitral tribunal shall determine the subject matter.

Article 3

1. If one of the parties to the dispute does not appoint an arbitrator within two months of receipt of the request, the other party may inform the [...] ¹⁸⁸⁹ who shall make the designation within a further two-month period.

¹⁸⁸⁸ Put a cross-reference to the Article of the Convention governing settlement of disputes.

¹⁸⁸⁹ Reference to be made to an eminent independent person taking into account, if appropriate, the organization invited to host the convention. For example: the Secretary General of the United Nations, the Director-General of the Food and Agriculture Organization of the United Nations, the Executive Secretary of the Economic Commission for Europe or the President of the International Court of Justice.

2. If the President of the arbitral tribunal has not been designated within two months of the appointment of the second arbitrator, the [...] ¹⁸⁹⁰ shall, at the request of a party to the dispute, designate the President within a further two-month period.

Article 4

The arbitral tribunal shall render its decisions in accordance with the provisions of this Convention and international law.

Article 5

Unless the parties to the dispute otherwise agree, the arbitral tribunal shall determine its own rules of procedure.

Article 6

The arbitral tribunal may, at the request of one of the parties to the dispute, recommend essential interim measures of protection.

Article 7

The parties to the dispute shall facilitate the work of the arbitral tribunal and, in particular, using all means at their disposal, shall:

- (a) Provide it with all relevant documents, information and facilities; and
- (b) Enable it, when necessary, to call witnesses or experts and receive their evidence.

Article 8

The parties to the dispute and the arbitrators are under an obligation to protect the confidentiality of any information they receive in confidence during the proceedings of the arbitral tribunal.

Article 9

¹⁸⁹⁰ Reference to be made to an eminent independent person taking into account, if appropriate, the organization invited to host the convention. For example: the Secretary General of the United Nations, the Director-General of the Food and Agriculture Organization of the United Nations, the Executive Secretary of the Economic Commission for Europe or the President of the International Court of Justice.

Unless the arbitral tribunal determines otherwise because of the particular circumstances of the case, the costs of the tribunal shall be borne by the parties to the dispute in equal shares. The tribunal shall keep a record of all its costs, and shall furnish a final statement thereof to the parties to the dispute.

Article 10

Any Party to this Convention that has an interest of a legal nature in the subject matter of the dispute which may be affected by the decision in the case may, with the consent of the tribunal, obtain further information and intervene in the proceedings.

Article 11

The arbitral tribunal may hear and determine counterclaims arising directly out of the subject matter of the dispute.

Article 12

The decisions of the arbitral tribunal, both on procedure and on substance, shall be taken by a majority vote of its members.

Article 13

If one of the parties to the dispute does not appear before the arbitral tribunal or fails to defend its case, the other party may request the tribunal to continue the proceedings and to make its award. Absence of a party or a failure of a party to defend its case shall not constitute a bar to the proceedings. Before rendering its final decision, the arbitral tribunal must satisfy itself that the claim is well founded in fact and law.

Article 14

The arbitral tribunal shall render its final decision within five months of the date on which it is fully constituted, unless it finds it necessary to extend the time limit for a period which should not exceed five more months.

Article 15

The final decision of the arbitral tribunal shall be confined to the subject matter of the dispute and shall state the reasons on which it is based. It shall contain the names of the members who have participated and the date of the final decision. Any member of the tribunal may attach a separate or dissenting opinion to the final decision.

Article 16

The award shall be binding on the parties to the dispute. The interpretation of this Convention given by the award shall also be binding upon a party intervening under Article 10 of this Annex insofar as it relates to matters in respect of which that party intervened. It shall be without appeal unless the parties to the dispute have agreed in advance to an appellate procedure.

Article 17

Any controversy which may arise between those bound by the final decision in accordance with Article 16 of this Annex, as regards the interpretation or manner of implementation of that decision may be submitted by either party for decision to the arbitral tribunal which rendered it.

ANNEX B CONCILIATION

Article 1

1. A request by a party to a dispute to establish a conciliation commission in consequence of paragraph 6 of Article 16¹⁸⁹¹ of this Convention shall be addressed in writing to the other party to the dispute and notified to the Secretariat. The Secretariat shall forthwith inform all Parties to this Convention accordingly.

2. The conciliation commission shall, unless the parties to the dispute otherwise agree, be composed of three members, one appointed by each party concerned and a President chosen jointly by those members.

Article 2

¹⁸⁹¹ Id.

In disputes between more than two Parties, parties in the same interest shall appoint one member of the commission jointly by agreement.

Article 3

If one of the parties to the dispute does not appoint a conciliator within two months of the date of receipt by the Secretariat of the written request referred to in Article 1 of this Annex, the [...] ¹⁸⁹² shall, upon request by the other party, make the appointment within a further two-month period.

Article 4

If the President of the conciliation commission has not been chosen within two months of the two members of the commission being appointed, the [...] ¹⁸⁹³ shall, upon request by a party, designate the President within a further two-month period.

Article 5

1. The conciliation commission shall, unless the parties to the dispute otherwise agree, determine its own procedure.
2. The parties and members of the commission are under an obligation to protect the confidentiality of any information they receive in confidence during the proceedings of the commission.
3. The parties to the dispute shall cooperate with the conciliation commission.

Article 6

The conciliation commission shall take its decisions by a majority vote of its members.

Article 7

¹⁸⁹² Reference to be made to an eminent independent person taking into account, if appropriate, the organization invited to host the convention. For example: the Secretary General of the United Nations, the Director General of the Food and Agriculture Organization of the United Nations, the Executive Secretary of the Economic Commission for Europe or the President of the International Court of Justice.

¹⁸⁹³ Id.

The conciliation commission shall render a report with recommendations for resolution of the dispute within twelve months of being established, which the parties to the dispute shall consider in good faith.

Article 8

Any disagreement as to whether the conciliation commission has competence to consider a matter referred to it shall be decided by the commission.

Article 9

The costs of the conciliation commission shall be borne by the parties to the dispute in equal shares unless otherwise agreed by them. The commission shall keep the record of all its costs and shall furnish a final statement thereof to the parties.

[Annex C List of States and regional economic integration organization(s)]

**Appendix II. CDM Forestry Projects with the Participation of the EU MS,
Overview.**

CDM Forestry Projects with the Participation of the EU MS, Overview

	Title // Participants	Objective	Activity	Species
1.	China// Italy Spain Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin < https://cdm.unfccc.int/filestorage/H/5/2/H52180I0ZWU4CTWLPLKEIETBIODYED.1/PDD-final.pdf?t=ek18b20wenBkfDAfEM3EQIuzrnoZKAEPQAN9 >	<u>The specific project objectives include:</u> (1) To sequester CO2 through forest restoration in small watershed areas and test and pilot how reforestation activities generate high-quality emission reductions in greenhouse gases that can be measured, monitored and verified; (2) To enhance biodiversity conservation by increasing the connectivity of forests adjacent to nature reserves; (3) To improve soil and water erosion control; (4) To generate income for local communities.	To achieve the objectives, the following A/R CDM project activity is proposed: (1) Establishing 2,000 ha of multiple-use forests in Huanjiang County of Guangxi (2) Establishing 2,000 ha of multiple-use forests on sites with severe soil and water erosion in Cangwu County of Guangxi.	All species are native to the area except eucalyptus. Eucalyptus was chosen for the project area at the request of local communities who prefer it due to the fact that it can generate a significant amount of CERs in the early stage of the crediting period, compared to other species that grow relatively slow in the first several years.
2.	Moldova// The Netherlands Moldova Soil	The Moldova Soil Conservation Project implemented as an AR CDM project proposes to achieve <u>multiple objectives</u> of (1) restoring productivity of degraded	The AR CDM project activity promotes sustainable development of the Republic of	involving native and naturalized locally

	<p>Conservation Project https://cdm.unfccc.int/filestorage/V/Z/E/VZEK0N4IQ85G9YUTAR3WCP10MHJDSL/Revised%20PDD%20-%20Clean.pdf?t=dGp8b20xMDZmfDC7N5G11ZDP2-s0xnijeQ3p</p>	<p>lands, (2) enhancing forest product supplies to local communities and (3) promoting actual net GHG removals by sinks.</p> <p>The project area covers degraded lands in the northern, central and southern regions of the country. In the absence of restorative action, these lands are expected to degrade further and continue to be the major sources of GHG emissions.</p> <p>The incentive in the form of revenue from sale of certified emission reduction credits (CERs) from afforestation/reforestation activities under the CDM has served as catalyst for the project</p>	<p>Moldova. It is implemented over 20,289.91 ha of degraded lands.</p> <p>The project covers degraded lands eligible for undertaking afforestation and reforestation activities.</p> <p>The project proposes to restore the productivity of several categories of degraded lands such as degraded pastures, glades and abandoned arable lands through AR activities involving native and naturalized locally adaptive species.</p> <p>The activities undertaken under the project include: site preparation, nursery management, planting stock development, planting, protection, and management of plantations. The species for planting are selected</p>	<p>adaptive species.</p> <p>A 5.3. The species composition of the project is remarkably diverse and contributes to several objectives that are central to the restoration of site productivity. The tree and shrub species are effective in restoring degraded lands and in meeting community needs and in improving biodiversity are given preference.</p>
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			based on suitability to soil and climate and adaptability to the sites.	
3.	<p>Republic of Bolivia// Belgium</p> <p>CARBON SEQUESTRATION THROUGH REFORESTATION IN THE BOLIVIAN TROPICS BY SMALLHOLDERS OF "The Federación de Comunidades Agropecuarias de Rurrenabaque (FECAR)"</p> <p>< https://cdm.unfccc.int/fil_estorage/D/M/P/DMP6NK2ZFUOSAWJQTBYR18CG5X0E3H/PDD.pdf?t=cUF8b20xMHc0fDDzTRXrYrUe qoOVz3iv-ZpH></p>	<p>The purpose of the proposed small-scale A/R CDM project activity (hereinafter the 'proposed activity') is to <u>reforest a portion of the land</u> owned by 137 farmers and 3 communal areas covering an area of 247 ha and the implementation of 70 ha of silvipastoral systems on land of the same farmers.</p> <p>The proposed activity adds to sustainable development by introducing an integrated farming system aiming at efficient land use practices on the entire farm, considering current and future needs of the farmer family. Sustainable crop and timber production will generate income in the short, mid, and long term.</p>		<p>Tree species selection for specific sites is based on site evaluations. Tree selection depends on proven suitability for the specific site conditions and purposes of the trees species in the (agro) forestry systems (timber production, shade, soil improvement, etc). <u>Principally native species will be used.</u></p> <p>Only <u>native</u> tree species will be planted, <u>except for</u> the <i>Tectona grandis</i>, which will be planted only on a small</p>

4.	<p>Uganda/ Government of Italy</p> <p>Uganda Nile Basin Reforestation Project No 3</p> <p>< https://cdm.unfccc.int/filestorage/h/5/QBR9KNST75FZL6PX8YWA2V01OG4UJC.pdf/TestPDFFile.pdf?t=dnN8b20xMXywFDB-luTwHwVTVG9D106KUFsl ></p>	<p>The small-scale CDM A/R project is part of a project cluster of 5 similar <u>projects aiming to provide a new financing mechanism to overcome the current barriers to establish timber plantations in Uganda and to allow communities to benefit from the CDM.</u></p>	<p>In total the project activities cover an area of <u>341.9 ha</u> within Rwoho Central Forest Reserve (NFA planting area: 319.2 (93 %), community planting area: 22.7 ha (7 %). The Reserve covers in total an area of 9,100 ha. Based on conservative estimates, with a 22 years rotation cycle for all tree species, <u>the project will produce 29,795 tCO₂-e by 2012.</u></p>	<p>scale.</p> <p>Within the project 341.9 ha of timber plantations will be established. Pine and mixed <u>native tree</u> species plantations will be established in a block design in degraded grassland areas.</p>
5.	<p>Republic of Albania/ Italy</p> <p>Assisted Natural Regeneration of Degraded Land in Albania</p> <p>< https://cdm.unfccc.int/filestorage/R/K/J/RKJTHBGFSA5P2YCX3W8I6EQV104LZM/PDD.pdf?t=TmZ8b20xMmU1fDBIvgKy5szR8rUTRohrLfKm ></p>	<p>Land degradation has been identified as a major issue for Albania. <u>It is planned to undertake the reforestation of degraded lands,</u> by assisting the natural regeneration of vegetation that would result in improved biomass accumulation on degraded lands, reduced soil degradation, improved water quality, conservation of biodiversity and translates into improvement in the livelihoods of poor rural households,.</p>	<p>The reforestation activities will cover 6272.36 ha ha distributed over five regions, in 24 communes that are among the poorest in the country, with a median poverty rate of 42%. Almost two-thirds of the communes rank in the lowest third of the poverty distribution as measured by "percent poor families".</p>	<p>The project has the components of assisted natural regeneration (the whole project area of 6,316.7 ha) and supplementary planting in a sub-set of 3,264.20 ha. <u>In the project areas species to be planted are native broadleaf</u></p>

				<u>and coniferous species as well as naturalized broadleaf species.</u>
6.	<p>India// United Kingdom</p> <p>The International Small Group and Tree Planting Program (TIST), Tamil Nadu, India</p> <p>< https://cdm.unfccc.int/storage/U/M/S/UMS239OWCDFKVAB5QETJPHRX671LI/PDD.pdf?t=dF18b20xMzNzfDD7wX5_RVD_t-PYeGxCvNAX></p>	<p><u>accomplishing GhG sequestration through tree planting, creating a potential long-term income stream, and developing sustainable environments and livelihoods.</u> Replication of TIST in India began in June 2002. Currently over 5,000 TIST participants in over 800 Small Groups are registered in the TIST program in Northern Tamil Nadu, India and are working to break their local cycle of deforestation, drought and famine. The trees are already beginning to reduce erosion, stabilize and enrich the soil, and will soon be providing shade. In the future, they will provide other benefits, including edible fruits and nuts, medicines, windbreaks, firewood and timber.</p>	<p>This PDD is for a reforestation project and applies to 111 of the Small Groups, 1,200 members, 175 project areas and 106 ha.</p>	<p>The main species planted are Casuarina equisetifolia, Eucalyptus grandis and Tectona grandis.</p>
7.	<p>Chile// United Kingdom</p> <p>Nerquihue Small-Scale CDM Afforestation Project using Mycorrhizal Inoculation in Chile</p> <p>< https://cdm.unfccc.int/storage/9/0/U/90UM2RZBP1WHYE8NJ6IFKGVAC></p>	<p>The purpose of the proposed activity is to afforest a portion of the Nerquihue lands located in Region VI of Central Chile.</p>	<p>This project represents the carbon sequestration from lands afforested at the Nerquihue project site. In 2003 approximately 268,225 Pinus radiata seedlings were planted on 214.6 hectares of land owned by Sociedad Agrícola Ne</p>	<p>Native</p>

	T735S/PDD.pdf?t=NVI8b20xNWc1fDCCmjBF7gsw hFkjm-Wi6g6 >			
8.	<p>Brazil// The Netherlands Reforestation as Renewable Source of Wood Supplies for Industrial Use in Brazil</p> <p>< https://cdm.unfccc.int/fil estorage/R/N/4/RN4YPQ1628K03HCISXFDEZJLVWATBO/PDD.pdf?t=REh8b20xNjRnfDBvRvmO5ThXTrXDtrsfUSnb></p>	<p>The establishment of plantations as a renewable source of energy for industrial needs is expected to result in a twofold benefit to the climate: (i) generation of carbon stocks and GHG removals by sinks additional to those that would occur in the absence of such plantations, and (ii) use of sustainable sources of biomass in place of fossil fuels and non-renewable biomass to reduce GHG emission in one of Brazil's major industrial sector, i.e. the iron and steel industry.</p> <p>The proposed A/R CDM project activity relies on sustainable production practices and advanced plantation technology developed by the project entity. The plantations are managed using sustainable management practices under the Forestry Stewardship Council certification or other certified quality management systems.</p>	<p>The establishment of plantations to supply renewable biomass within the scope of this A/R project activity started in 2000. They cover an area of 11 711.37 hectares.</p>	<p>Eucalyptus spp: The project plantations are implemented with hybrid clones of Eucalyptus urophylla, Eucalyptus Grandis and Eucalyptus camaldulensis. The choice of species is aimed at achieving the highest productivity of sustainable biomass in order to accomplish self-sufficiency of charcoal consumption in the project's pig iron mill demanding the smaller land possible.</p>

				Therefore, mainly Eucalyptus Urograndis hybrid cloned sprouts are used in the establishment of the project plantations.
9.	<p>China/Spain</p> <p>Reforestation on Degraded Lands in Northwest Guangxi</p> <p>< https://cdm.unfccc.int/filestorage/N/C/Y/NCY49V0GZ6SRHJXOALM8WQIUBDEFPT/PDD.pdf?t=T0x8b20xNmK1fDCh2-dbBzRtGaqjHD5owgfp></p>	<p>Both the operating entity (Longlin Forestry Development Company Ltd.) and local farmers hold a view that the proposed A/R CDM project activity, through the above-mentioned activities, <u>will contribute to poverty alleviation and environment improvement (biodiversity conservation and soil erosion control)</u>, thus contribute to sustainable development, specifically,,: <u>(1) control soil and water erosion and land degradation in the selected project areas;</u> <u>(2) enhance biodiversity conservation by increasing forest cover and nature habitat connectivity;</u> <u>(3) generate income for the local farmers and promote the local community development.</u></p> <p>The project will be designed to satisfy CCB Standards (Climate, Community and Biodiversity Project Design Standards) and to be eligible for the CCB certification. The innovation required in designing a project with CCB standards should result in the</p>	<p>The proposed A/R CDM project activity will establish 8671.3 ha of multiple-purposes forests on degraded lands in Longlin, Tianlin and Lingyun Counties of Guangxi Zhuang Autonomous Region in China.</p>	<p>Major species and reforestation models include 1185.1 ha of masson pine (Pinus massoniana), 863.2 ha of Chinese fir (Cunninghamia lanceolata), 3112.1ha of Shiny-bark birch (Betula luminifera), 121.4 ha of Choerospondias axillaries, 929ha of masson pine and Schima (Schima wallichii) mix</p>

		delivery of multiple climate, biodiversity and community benefits.		forest, 408.7 ha of masson pine and Sweetgum (Liquidambar formosana) mixed forest, 1403.5 ha of eucalyptus and 648.3 ha of Flous (Taiwania flous). It is expected that the proposed A/R CDM project activity will produce 1,746,158 tCO ₂ -e of tCERs at an annual average of 87,308 tCO ₂ -e over the first 20-year crediting period starting in 2008
10	Republic of Columbia// United Kingdom Argos CO ₂ Offset Project, through reforestation activities for commercial use.	The project is expected to generate an increase in existing carbon stocks and GHG removal through sinks that are additional to the changes that would have occurred in the absence of the project activity. This will be achieved through the implementation of changes in actual land use (from cattle raising to reforestation) with a commercial	The proposed project activity consists of the reforestation for commercial purposes (local and international markets) of 2,754 ha of managed or unmanaged lands	The species selected for the project is teak (characteristics of the plant are mentioned as follows: Tectona Grandis L. F is

	<p>< https://cdm.unfccc.int/filestorage/A/D/3/AD3JR8F1W6C0E2Y945S7VZGPHIKTNU/PDD.pdf?t=RjV8b20xNnZkfDBbIZ45W1rMO5IFmbDO88YP></p>	<p>activity that has not been developed in the region</p> <p>Harvesting Project operations are developed in compliance with the project sponsor's quality control and assurance system, certified as ISO 9001. Although the reforestation companies <u>have not requested ISO 9001 certification</u>, the same structure, documentation and operational procedures (for reforestation operations, as well as for related social and environmental aspects implemented for this project activity in order to assure adequate registration and monitoring</p>	<p>commonly known as teak in English. <u>It is one of the main woods in the world, an exotic species with high economic potential for the Tropical areas of America and widely renowned</u> for its clear color, excellent fiber and high durability. Teak originated in Southeast Asia (India, Myanmar, Thailand and adapted in Java). It has become established in the tropical areas of Asia, Africa, Latin America and the Caribbean (Costa Rica, Colombia,</p>
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				Ecuador, El Salvador, Puerto Rico, Panama, Trinidad and Tobago and Venezuela)
11	<p>Congo/France</p> <p>Ibi Batéké degraded savannah afforestation project for fuelwood production (Democratic Republic of Congo)</p> <p>< ">https://cdm.unfccc.int/fil_estorage/W/7/L/W7L68O2CZVBST9J0D15FK3APIYEHNR/PDD.pdf?t=REd8b20xN2JmfDDeEemnCSR07ecq-zSvlsd-></p>	<p>The specific objectives of the project are as follows:</p> <ul style="list-style-type: none"> • sequester CO2 through fast growing forest plantations on savannah grassland with occasional scattered shrubs (please refer to section A5 for a detailed technical description of plantation establishment) ; • supply the capital city of Kinshasa (8-10 million inhabitants) with charcoal through sustainable fuelwood production ; • reduce soil erosion and water loss through runoff; • reduce degradation and deforestation of remaining forest galleries ; • alleviate poverty through the introduction of long term income enhancement mechanisms for local communities. 	<p>To achieve these objectives, the A/R CDM project activity envisages establishing various types of forest plantation based on the four following silvicultural models: 1. Plots to be harvested : Acacia sp, Eucalyptus sp. and Pinus sp. intercropped with cassava (3106.33 ha); 2. Plots not to be harvested: mixture of local and exotic species intercropped with cassava (465.60 ha); 3. Plots not to be harvested: various local and exotic species (421.80 ha); 4. Enhancement of natural regeneration through fire control (232.80 ha)</p>	<p>These (native) species have been selected for the following reasons: • their high growth rates; • they were encountered during the botanical surveying of the existing river margin forest; • they have been identified as interesting by and for local populations; • they grow well in savannahs and produce numerous sprouts after the passage of fires; • some of</p>

			<p>them can produce high quality timber.</p> <p>The following exotic species will also be used: (Eucalyptus)•</p> <p>The selected exotic species have been tried and tested for over 20 years around the project area, therefore extensive knowledge and feedback is available from Pointe Noire in Congo or Mampu in DRC. They are characterised by: High yields ; Very important use in tropical plantations and absence of contamination</p>
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				<p>risk beyond project area¹⁰</p> <p>Ability to source and trace genetic material from project start and master vegetative propagation in the nursery;</p> <p>Performances are known and have been evaluated in DRC as part of project design for the majority of exotic species.</p>
12	<p>India// Italy, Luxemburg</p> <p>Improving Rural Livelihoods Through Carbon Sequestration By Adopting Environment Friendly Technology based Agroforestry Practices</p> <p>< https://cdm.unfccc.int/fil</p>	<p>The participation of small and marginal farmers representing indigenous communities and their organization as part of the CDM A/R makes this project unique in contributing to their land use choice, improvement of livelihood opportunities and in promoting their capacity to organize and implement climate change mitigation initiatives. The specific objectives of the project include:</p> <ul style="list-style-type: none"> • To pilot reforestation activities for generating high-quality greenhouse gas removals by sinks that can 	<p>The project implements reforestation on 1607.7 ha of land belonging to 1590 farmers in the states of Andhra Pradesh and Orissa.</p>	<p>Eucalyptus (12*, see below)</p>

	<p>estorage/H/2/O/H2OVT4UEGD90PM5CIKSY7136QNZRWL/PDD.pdf?t=YVB8b20xOGFjfDBJdNvKgSmhdPPnmIPmliJv></p>	<p>be measured, monitored and verified; • To develop plantation and agro forestry models, which can provide multiple benefits to farmers in terms of timber, firewood and non-wood forest products; • To provide additional income and to promote livelihoods of resource poor farmers through carbon revenues. • To reforest degraded lands to control soil and water erosion and reclaim lands. • To reduce the dependence of industry on natural forests thereby conserving biodiversity.</p>		
13	<p>India// Kingdom of Spain</p> <p>India: Himachal Pradesh Reforestation Project – Improving Livelihoods and Watersheds</p> <p>< https://cdm.unfccc.int/filestorage/9/V/C/9VCJZUYISFKHMA2E4QRTXO56D3LG87/PDD.pdf?t=Z0I8b20xN3B2fDBEc17cLsOvIbx7fdzUuxPr></p>	<p>The four guiding principles of the project are: (i) adoption of native and locally preferred tree species for reforestation, (ii) involvement of the local GPs and small and marginal farmers in reforestation activities that will strengthen the ongoing watershed interventions, (iii) facilitation of technical, financial and capacity development support from MHWDP to reforestation activities, and iv) distribution of carbon revenue to the village community (Gram Panahayats and farmers). The major objectives of the project are: - improvement of the productive potential of the degraded land or watershed catchment areas and enhance biomass production and carbon stocks in degraded lands, and - improvement of livelihoods and incomes of rural households residing in the selected watersheds of MHWDP, using socially inclusive and institutionally and environmentally</p>	<p>The project is spread over an area of 222,951 ha and covers the catchment for major rivers of Northern India - Ravi, Beas and Sutlej.</p>	<p>The criteria used for selecting tree species included; - species native to the location - suitability of species to soil type, slope and altitude - rate of growth of biomass - potential to meet the biomass requirement of communities - need for biodiversity conservation</p>

		sustainable approaches.		
14.	<p>Uganda// Sweden Kachung Forest Project: Afforestation on Degraded Lands</p> <p>< <a cdm.unfccc.int="" filestorage="" href="https://cdm.unfccc.int/filestorage/i/h/L4OHPVQ0XF62S853WCAJBZIK7MN1YD.pdf/08_KachungAR_PDD_08_CLEAN_Approved.pdf?t=a0h8b20xOTc0fDC9AjDCCYXsBTSDi1sHEdb6></p> </td> <td> <p>The overall objective of the A/R CDM activity is to contribute to mitigating climate change while meeting the growing demand for quality wood products from well managed plantation forests and contributing to sustainable environmental management, community development and poverty alleviation in Uganda</p> <p>This is a requirement by FSC and since Kachung is certified under the FSC, this demonstrates that the project is in compliance with this condition<sup>39</sup>
KFP is also being developed to achieve FSC certification so management procedures will be in place to monitor the use of different types of fertilizers.</p> </td> <td> <p>The project activity will establish and manage exotic and indigenous afforestation on approximately 2,099 ha of degraded grass and shrubland.</p> <p><u>Research on the performance of trees suitable for commercial plantations in Uganda is limited with only a small variety of species being well researched.</u></p> </td> <td> <p>The species to be planted are Pinus caribaea, Eucalyptus grandis, Eucalyptus.</p> <p>Mostly Exotic Hardwood/softwood tree species.</p> </td> </tr> <tr> <td>15.</td> <td> <p>Nicaragua// Italy (and others)
Southern Nicaragua CDM Reforestation Project
<https://cdm.unfccc.int/filestorage/K/P/I/KPIYCU1VJ2SWL6R4Q7B9EHF8TMOAD0/PDD_SSCAR_Nicaragua%20Version%20Nov%2030%202010.pdf?t=UUh8b3FwdDFpfDDFv9u7MjFs1ufaaz33P-cY></p>	<p>The objectives of this project is to contribute to the sustainable development of Nicaragua through reforestation to generate sustainable wood supplies to reduce pressure on natural forests and to serve as carbon sink. The project contributes to alleviate poverty in one of the poorest countries of Central America.</p> <p>The project obtained certification in accordance with the criteria laid out by the Forestry Stewardship Council (FSC)¹ in</p>	<p>The project consists in the reforestation of 813 ha of former pasture land with teak and native wood species in Southern Nicaragua.</p>	<p>Teak has been selected as the predominant species because the behaviour of this species in reforestations is well known and growth rates as well as market acceptance can be predicted with a</p>

		2007.		<p>reasonable grade of security. Although teak originates from Asia, it has been planted in Latin America under similar conditions since the beginning of the 20th Century. Teak is proven not to be an invasive species</p> <p>Randall, R. (2003). "Rob Randall's Big Weed list." from http://tncweeds.ucdavis.edu/biglist.html.</p>
16.	Colombia// Spain Forestry Project in Strategic Ecological Areas of the Colombian Caribbean Savannas	<p>The proposed project activity is expected to lead to net anthropogenic GHG removals by sinks of about 66'652 t CO2 per year.</p> <p>All the plantations forming part of the project area have been managed using SF Management practices under the Forestry Stewardship Council (FSC) certification</p>	The proposed A/R CDM project activity consists in the reforestation of 18,600 ha of grassland used as managed and unmanaged pastures in various municipalities	<p>Eucalyptus – introduced species.</p> <p>Tree species were selected based on:</p> <ul style="list-style-type: none"> • availability of

	<p>< https://cdm.unfccc.int/filestorage/Z/F/6/ZF63HV7C5UJXRDSAYKG1OPEMN9WI4Q/PDD.pdf?t=aEd8b20xOXMyfDBGhYJeGRKKCXzVLw68cpKO></p>			<p>vegetal material</p> <ul style="list-style-type: none"> • adaptation of the species to the ecological conditions of the project area • suitability for technical wood processing, mainly board production, • established national (and international) markets
17.	<p>Colombia// Ireland, Spain</p> <p>Commercial reforestation on lands dedicated to extensive cattle grazing activities in the region of Magdalena Bajo Seco</p> <p>< https://cdm.unfccc.int/filestorage/6/5/K4AC7ZMQ6U0DRYFNBWEOIH3L95TJGV.pdf/06_ColombiaAR_PDD_09.pdf?t=N2F8b20xYTUxfDC6K_BH1XTQKI3sVLhOBuU6></p>	<p>The reforestation project in Magdalena Bajo aims at stopping (deforestation and low productivity of traditional cattle) and reversing this situation through:</p> <ul style="list-style-type: none"> • The most optimal use of the land traditionally devoted to extensive livestock in the Magdalena Bajo, through higher cattle densities per surface unit in order to release areas for the establishment of commercial forest stands. Thus, the local economy, based on cattle grazing activities, will not be hardly affected and will generate additional income from forest activities. This principle is to avoid potential leakage from the displacement of cattle by maintaining the same number of animals respect to the reference scenario. <p>The reforestation on private lands dedicated</p>	<p>The proposed A/R CDM project activity consists in the reforestation of 3 137,32 1 ha of land traditionally devoted to extensive cattle grazing in the North of Colombia, department of Magdalena, in six municipalities located along the Magdalena River.</p>	<p>Eucalyptus</p> <p>Five species for the A/R CMD project activities have been selected, Bombacopsis quinata (Ceiba roja) and Tabebuia rosea (Roble) for native species, and Gmelina arborea (Melina), Tectona grandis</p>

		to extensive cattle grazing activities, located on municipalities along the Magdalena River margin. The reforestation program of which 3,137.32ha will be under A/R CDM project activities will be implemented as:		(Teca) and Eucalyptus tereticornis (Eucalipto) for exotic species. These are selected for their results in the ecological conditions of the region, availability of vegetal material and genetic quality, forest technological knowledge, and for their local (national and international) economic potential.
18.	Kenya//Italy, Luxemburg.... Aberdare Range/ Mt. Kenya Small Scale Reforestation Initiative Kamae-Kipipiri Small Scale A/R Project <	The purpose of the proposed activity is to reforest environmentally sensitive lands in the catchment areas of the Tana River within the Aberdare and Mt. Kenya Reserve Forests.	In 2007 and 2008 the Aberdare Range / Mt. Kenya Small Scale Reforestation Initiative will reforest 1649 hectares of degraded forest lands in the Aberdare Range and Mt. Kenya Regions. Lands chosen are in the	The starting point for matching species is the natural vegetation of an area. Considering the goal of the GBM is to restore

	https://cdm.unfccc.int/filestorage/Q/E/H/QEHLPO87592BZ0VXM3IAF1YJCKR6TN/PDD_Kamae-Kipipiri_ver.04.2?t=Wjl8b20xYjFqfDCwB6RIIQ0VqPpKZbv4d46e		catchment areas of the Tana River within the Aberdare and Mt. Kenya Reserve Forests (gazetted). They will be reforested using a mix of fast, medium and slow growing indigenous species.	natural forests, indigenous tree species of Mt. Kenya and the Aberdares will be planted.
19.	<p>Uganda// Italy, Spain, Luxembourg, France</p> <p>Uganda Nile Basin Reforestation Project No 5</p> <p>< https://cdm.unfccc.int/filestorage/7/8/A/78AXDR4NSPY95L0JKW1F6HUBQOITEG/PDD%20No.5?t=OFV8b20xYmdwfdCxBubQ1HAzBiQcskYFhur </p>	is part of a project cluster of 5 similar projects aiming to provide a new financing mechanism to overcome the current barriers to establish timber plantations in Uganda and to allow communities to benefit from the CDM. In total the project activities cover an area of 487.6 ha	Within the project 487.6 ha of timber plantations would be established	All tree species used in the reforestation activities are proven in the area and not known to be invasive.
20.	<p>Uganda// Italy, Spain, Lux, France</p> <p>Uganda Nile Basin Reforestation Project No 1</p> <p><</p>	The small-scale CDM A/R project, implemented by the National Forestry Authority (NFA) in cooperation with communities, is part of a project cluster of 5 similar projects aiming to provide a new financing mechanism to overcome the current barriers to establish timber plantations in Uganda and to allow	In total the project activities cover an area of 468 ha within Rwoho Central Forest Reserve (NFA planting area: 402.4 ha (86 %), community planting area: 65.6 ha (14 %).	Native. Pinus caribaea seed will be purchased from seed orchards in Queensland, Australia, Brazil

	https://cdm.unfccc.int/filestorage/M/8/I/M8I2QXKRB3U1WJ9TSH0OF4L6NDVZA5/PDD.pdf?t=S2J8b20xYnNtfDBd6OAYdqUluH8EANvmyaEr	communities to benefit from the CDM.	The Reserve covers in total an area of 9,100 ha. Based on conservative estimates, with a 22 years rotation cycle for all tree species, the project will produce 15,178 tCO ₂ -e by 2012. In section A.4.1.2 a map is showing the location of the project activities	or S. Africa.
21.	Uganda// Italy Uganda Nile Basin Reforestation Project No 2 < https://cdm.unfccc.int/filestorage/B/8/F/B8FGE90SMYVTN3DKQ2L14CJZUHIXWO/PDD.pdf?t=Zk58b20xYnpufDDQU39V7RfOSd6E1qVsaixE			
22.	Uganda// Italy Uganda Nile Basin Reforestation Project No 4 <>			

23.	<p>Kenya// Canada, Italy, Luxembourg</p> <p>Aberdare Range / Mt. Kenya Small Scale Reforestation Initiative Kirimara-Kithithina Small Scale A/R Project</p> <p>< https://cdm.unfccc.int/filestorage/5/H/2/5H2VLI89413SFPXUQGCJBNE7K6OWYA/PDD_Kirimara-Kithithina_ver.05?t=NU58b20xYzNifDDUBhn9zZ2Pjr2xdHNx-MyE ></p>			
24.	<p>Chile//Switzerland, Ireland, Spain</p> <p>Securitization and Carbon Sinks Project</p> <p>< https://cdm.unfccc.int/filestorage/P/0/E/P0ESTYZJFRA94NW7H1CKL8BUXMD53G/PDD%20SIF.pdf?t=Z2J8b20xY2V3fDA4pmtmoOQcK0elOoqA1Dus ></p>	<p>The reforested lands are forecasted to sequester over 1 million tCO₂e by 2013 and more than 2 million tCO₂e by 2024.</p> <p>The A/R CDM project's goals are to:</p> <ul style="list-style-type: none"> • Promote reforestation in the country; • Provide an alternative, productive land-use opportunity for small landowners; • Implement an innovative benefit-sharing scheme with landowners; • Support small landowners in converting part of their landholdings into planted forests, thus allowing them to retain their property rights; • Reverse and control soil erosion and degradation through planting; • 	<p>The A/R CDM project proposes to bring about the reforestation and sustainable management of 2,917 hectares of marginal and degraded lands known as —Secano Interiorll (interior dryland area) in Regions VII and VIII of Chile.</p>	<p>Introduced species</p> <p>An additional 1,561.4 hectares of eucalyptus have been planted under a pulpwood regime with a rotation age of 12 to 14 years. Eucalyptus globulus (Blue</p>

		<p>Enhance biodiversity values as well as the livelihood of local landholders; and • Sequester carbon dioxide from the atmosphere. In addition to the project's objectives, this AR/CDM project was expected to be a replicable experience that would favor a larger number of small- and medium-sized landowners in Central Chile.</p> <p>It promotes the sustainable management of forests generated under the project, because the companies involved in the project conform to PEFC (Program for the Endorsement of Forest Certification) and FSC (Forest Stewardship Council) guidelines;</p> <p>In addition, the project activity is managed by the Program for the Endorsement Forestry Certification (PEFC) certified companies, which implies that very stringent environmental requirements, especially with regards to endangered flora and fauna species, must be complied with.¹⁴</p> <p>The proposed A/R CDM project activity will rely on sustainable production practices and advanced plantation technology developed by participating companies. Plantations in the project area will be managed through the use of sustainable management practices. These plantations are certified</p>		<p>gum) is a fast-growing broadleaf species but less hardy than Radiata pine, and it requires better soils. At the beginning, blue gum timber was used as mine posts. Since then, it has been used as peeled logs for veneer and as raw material for short-fiber pulp and paper.</p>
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		<p>since the participating companies have their own holdings certified under Chilean Sustainable Forest Management Scheme (CERTFOR) and Forestry Stewardship Council (FSC) certification schemes. Because these schemes extend the certification to plantations administered and/or managed by certified companies, they use forest management procedures established in the principles and criteria of sustainable forest management in the plantations under the project.</p>		
25.	<p>Senegal// France</p> <p>Oceanium mangrove restoration project</p> <p>< ">https://cdm.unfccc.int/fil_estorage/S/G/T/SGTHNK_OI4XW0RAQB8MFPU752J_VL1C3/PDD_SENEGAL_1_20312_final.pdf?t=dGd8b20xY3NjfDC3qXEHis4PyyCyyMnORMC_></p>	<p>Carbon dioxide will be removed from the atmosphere and stored in carbon pools within the project boundary through the photosynthesis of the planted trees.</p> <p>Danone finances the project through the "DANONE FUND for NATURE". The "DANONE FUND for NATURE" is co-managed through a partnership established between Danone, the Ramsar Convention on Wetlands and the International Union for Conservation of Nature (IUCN) with an interest in promoting wetlands all over the world. IUCN is supporting the project activities at a scientific level, while the Ramsar Convention is using the project activities as a pilot to promote wetlands environmental services in the framework of Climate Change mitigation. This partnership also addresses poverty alleviation with a special</p>	<p>The proposed small scale A/R CDM project activity plans to establish over the period 2008 - 2009 1,700 ha of mangrove plantations on currently degraded wetlands in the Sine Saloum and Casamance deltas, Senegal.</p> <p><u>The proposed project will establish a total of 1,700 ha of plantations and remove 81,132.86 tCO₂e during the first crediting period.</u> The plantation will improve ecological conditions and mangrove productivity</p>	<p>The project area will only be reforested with Rhizophora mangle. Local name: "palétuvier rouge" (red mangrove). R. mangle is a native mangrove species that occurs naturally in surroundings of the project area. The species was selected taking into account both its</p>

		<p>focus on poor communities depending on natural resources. Thus, the project is organized around conservation, restoration and sustainable management of ecosystems.</p> <p>Purpose of the proposed project activity To restore degraded wetlands and to improve productivity and environmental condition through reforestation, restoring ecological, economic and social services of a significant part of degraded Senegalese mangroves. To mitigate Climate Change by the removal of GHG through biomass growth. To reduce poverty of the local communities through employment creation in the short-term and the improvement of sustainable collection of mangrove products in the mid-term.</p>	(fish, shellfish, oyster and crab); no thinning and harvesting activities are planned.	characteristics and the ecological conditions of the area.
26.	<p>Costa Rica// Can// Italy</p> <p>Carbon Sequestration in Small and Medium Farms in the Brunca Region, Costa Rica (COOPEAGRI Project)</p> <p>< https://cdm.unfccc.int/filestorage/e/y/GVF1L4SX006MJ935WAUREBDHCIK</p>	The project is expected to generate a total net anthropogenic GHG removal of approximately 176,050 t of CO ₂ -e in a period of 20 years, or 8,803 t of CO ₂ -e per year.	As part of the proposed A/R CDM project activity, farmers associated with COOPEAGRI will introduce forestry activities in their privately owned farms. The A/R CDM project will have a total area of 892.42 ha distributed over three activities -	The reforestation activities will be made with native species, such as: Amarillon (Terminalia amazonica), Pilon (Hieronyma alchorneoides),

	<p>8NZ.pdf/PDD%20Coopegri.pdf?t=ZW98b20xZXI2fDA4PuXyx3GVt86LnLsDwzWB ></p>		<p>agroforestry systems, assisted natural regeneration and forest plantations (see Table 1).</p>	<p>and Cedro amargo (Cedrela odorata), etc, and nonnative species, such as: Melina (Gmelina arborea) and Teak (Tectona grandis), and Eucalipto (Eucalyptus deglupta).</p> <p>Eucalyptus deglupta¹⁹ (Deglupta): is a fast growing tree that may reach 35 to 60 m height and 50 to 200 cm DBH. This species grows well in deep and slightly acid soils, as long as they are not compacted and they do not have drainage problems.</p>
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				Phosphorus and calcium levels higher to 8 ppm and 5 meq/100 g of soil, favor this species growth. The wood of <i>E. deglupta</i> is used in construction in general, boat floors and the finishing of small vessels. It is also used in heavy construction, cabinetmaking and joinery. It is also used as transmission poles; rustic construction, fences, firewood, pulpwood, agglomerate boards and charcoal.
27.	Moldova - Spain Moldova Community	The purpose of the project activity is to create new community forests on the area of 8,468.84 ha by means of reforestation of		Non-native/ native The fast

	Forestry Development Project < https://cdm.unfccc.int/filestorage/j/k/ARZXTB4JLQU36S0NHVVGKIFOY7981D.pdf/PDD.pdf?t=V0t8b20xZmtmfDCLD2vDzDsKKN6y-xoQjYSc >	degraded lands, application of agro-forestry practices, creation of forest protection belts, that will enhance GHG removals by sinks, improve forest and pastoral resources at local and regional level, provide wood to the local population, and contribute to local and regional sustainable development.		growing locally adapted species have also been successful in meeting the rural fuelwood needs from degraded lands.
28.	Uganda – UK Namwasa Central Forest Reserve Reforestation Initiative < https://cdm.unfccc.int/filestorage/e/_/6UEX8RPCDFGWA1HJLQ5BN7IOMSZ2VK.pdf/7949%20PDD.pdf?t=N0t8b20xZnFtfDCv2k7Xi-Rbo60Q31wB1-_b >	Aside from generating long-term, additional greenhouse gas reductions, the Namwasa initiative fully integrates New Forest Company 's approach to responsible community engagement and environmentally responsible management practices. Through a licensing agreement, NFC has committed to a minimum 50 years of forestry activities in the reserve, with operations certified to the Forest Stewardship Council's™ (FSC) ten principles. NFC was certified to FSC in May of 2009. 1 The company plants trees and harvests timber destined for sawlog production, pole treatment and other value-added wood products. The first trees were planted in March of 2006. NFC is a subsidiary of New Forests Company Holdings Limited (NFCH).	The carbon programme comprises 2,481.5 hectares of eligible land.	The plantation is comprised primarily of the species Pinus caribaea, and Eucalyptus grandis, with smaller amounts of Pinus oocarpa, and Eucalyptus urophylla. 410 hectares of high conservation value forest, protected for natural regeneration purposes so as to promote biodiversity

				<p>conservation and watershed enhancement, are located within the boundaries of the reserve.</p> <p>The Namwasa Reforestation Initiative is based on the growth of two exotic species – pine and eucalyptus – specially chosen for their suitability to the climatic and soil conditions typical to the reserve, as well as for their productive capacity. The species promote the rapid enhancement of forest produce, and the timber output of the CFR, one of the</p>
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				mainstay objectives of the NFA's mandate for CFR management.
29.	<p>Niger// Spain</p> <p>Niger Acacia Senegal Plantation Project</p> <p>< https://cdm.unfccc.int/filestorage/p/a/2/PA2YD5498URFOHE0BJ63VN7ZMGCQIX/Untitled%20%28uploaded%2031%20Jul%2013%2010%3A30%3A14%29.pdf?t=VGd8b20xZzI3fDAkfOI5FsPUEPS5ziNdq5c- ></p>	<p>This first Nigerien A/R CDM project activity (Niger Acacia Senegal Plantation Project, NASPP hereafter), <u>aims to restore deforested and highly degraded land in the Sudano-Sahelian zone of the Republic of Niger by empowering rural communities to adopt sustainable agro-forestry practices by establishing plantations using native species Acacia senegalensis (Acacia Senegal)</u>. This project represents the first effort in Niger to establish Acacia Senegal plantations on a large scale in regions where dry forests are unable to regenerate by natural means. The sale of emission reduction credits from the carbon sequestered in plantations will make the project more viable by providing an additional revenue stream that will supplement income from the sale of Arabic from the acacia tree.</p>	<p>A total of about 8,472 ha of Acacia plantations will be developed under the project, which is expected to produce around 4,600 tons of Arabic gum each year at full capacity and sequester about 135,770 tCO₂e by 2012 and over 313,008 tCO₂e by 2017 i.e. an annual average GHG emission reduction of 24,957 tCO₂e.</p>	<p>Acacia Senegal is very resistant to drought; it grows in areas with 100 to 800-mm rainfall per year, preferably 300 to 400 mm, and a period of drought from 8 to 11 months (MAYDELL VON, 1983). On fine textured soils in higher rainfall areas of the South Sahelian and North Sudanese eco-zones, it may also occur on shallow soils and duripan lithosoils. The tolerance to pH is quite broad:</p>

				5-8. Acacia senegal generates powerful and deep rooting system which favors run off and water erosion, particularly during stormy rainfall events.
30.	Brazil/Can, Italy, Luxembrg AES Tiete Afforestation/reforestation Project in the State of Sao Paolo < https://cdm.unfccc.int/filestorage/L/C/4/LC4A0MO1F67U3IHPX2TZ9YJRNSW5ED/PDD%20v.3%20d.d.%2019.10.2009?t=cXR8b20xZ2w3fDAIcbCirPVUTOWXrkU4Siqa >	The project activity plans to reforest up to 13,939 hectares of riparian areas currently occupied by unmanaged grassland along the banks of ten hydropower reservoirs in the State of São Paulo with native forest species The objectives of the project activity are to: • Restore the structure, function, and ecosystem services of riparian forests located along the borders of ten hydropower reservoirs; • Enhance the biodiversity of degraded riparian areas, and contribute to the creation of ecological connectivity along the rivers; • Increase carbon sequestration in riparian forests; • Improve water recharge in the reservoirs and control soil and water erosion; • Contribute to stop and reverse land degradation processes in the State of São		Native project activity will utilize a mix of 80 (eighty) to 126 (one hundred twenty-six) native tree and shrub species.

		Paulo, with special focus on riparian ecosystems; and, • Provide employment and recreational opportunities for local residents in the vicinity of the reservoirs		
31.	Ephiopia//Canada Humbo Ethiopia Assisted Natural Regeneration Project < https://cdm.unfccc.int/filestorage/W/5/7/W57JTA RN2IZCOHG09DYVMS1XF8Q4LK/PDD.pdf?t=TUI8b20xMmIzfDD8IVppv5cFso smN7VnSWCS >	The proposed afforestation / reforestation activity, the Humbo Assisted Regeneration project, involves the restoration of indigenous tree species in a mountainous region of South Western Ethiopia. The project contributes to climate change mitigation objectives by contributing to the GHG removals by sinks through assisted natural regeneration project.	To achieve these goals, this project seeks to undertake the following activities: • Restoration of approximately 2728 hectares of biodiverse natural forest in the Humbo Woreda, using indigenous and naturalized species.	Include Eucalyptus

(12*, Eucalyptus). *Eucalyptus* spp *Eucalyptus* is a fast growing species and belongs to the Myrtaceae family. It reaches a maximum height of 75 ft. However, the average height ranges from 25 to 75 ft. It is evergreen hardy species, predominantly blooms in winter and tolerates cold weather. Considering the dry climate and frequent drought recurrences, this species is preferred in the project because of its high drought tolerance. It also grows under a wide range of climate and soil conditions and well adapted to the semi-arid conditions of the project area. Furthermore, JKPL has tailored some of the clonal *Eucalyptus* to better grow under such conditions. The wood is used to meet the needs of small timber, fuelwood, construction and pulp production. The widely used species of *Eucalyptus* include: *E. grandis*, *E. camaldulensis*, and *E. tereticornis*. Hybridization from *Eucalyptus tereticornis* & *E. camaldulensis* has taken place in the R&D areas of JKPL. Seeds collected from those hybrid plants developed in the R&D facilities are used for plantation activities. As regards to *Eucalyptus* clone, coppice from the aforesaid hybrid plants are collected from the R&D areas and planted in the root trainer blocks with appropriate concentration of systematic fungicides & insecticides. Once the roots & shoots of the plants develop, the plants are transferred to hardening chambers where they are kept for 30 days. Subsequently, the hardened plants are moved to the open UNFCCC/CNUCC CDM – Executive Board PROJECT DESIGN DOCUMENT FORM FOR AFFORESTATION AND REFORESTATION PROJECT ACTIVITIES (CDM-AR-PDD) - Version 04 11/146 Nurseries from where they are transported to the planting sites. It is used as small timber, support poles in construction and in the production of pulp and paper production.