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BESHA, Richard; HUYBRECHTS, Liesbeth & Kombe, Wilbard (2024) Co-designing with scarcity in self- organised urban environments: a case of Shekilango commercial street in Sinza, Dar es Salaam - Tanzania. In: Codesign-international Journal of Cocreation in Design and the Arts, 20 (4), p. 781-797.

DOI: 10.1080/15710882.2024.2377976
Handle: http://hdl.handle.net/1942/44257

Co-Designing with Scarcity in Self-organised Urban Environments: A Case of Shekilango Commercial Street in Sinza, Dar es Salaam – Tanzania.

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Word count:

6,553 words excluding title, author details, abstract and key words.

ABSTRACT

This article reflects on how co-design processes in self-organised planned neighbourhoods can benefit from taking more consciously into account different views on defining and designing with scarcity. In a four year PhD study on self-organised design processes in spatial planning of commercial streets, it was observed that scarcity is often defined as a condition defined by an insufficiency of resources. This limited view leads to unidirectional urban planning processes, insufficiently responding to very diverse experiences of scarcity in African cities. The PhD study developed a design anthropological approach by engaging in daily co-working interactions with plot owners and tenants to enable a deeper understanding of their everyday urban realities and thus what is scarce. Differently from some reported co-design trajectories with organisations and authorities in western contexts, residents often do not have the means or time to engage in intensive participatory design trajectories. Therefore, we see a need for more attention for co-designing methods and tools that tap into the social and physical assets and related experiences of scarcity already present in daily life. Such methods and tools can be flexibly employed by the vast actors in their self-organised planning processes in urban Africa where scarcity is a major concern.

Key words: self-organisation, co-design, participatory design, commercial street, scarcity, livelihood assets.

1. Introduction

This paper is a plea for more carefully understanding experiences of scarcity, instead of "solving" them in co-design processes. This paper argues that a more diverse understanding of co-designing with and for scarcity as produced by diverse actors, enables to better shape a co-design approach that serves sharing of power between these different actors in urban planning processes in African contexts. We argue that collaborative design processes require a negotiation on diverse ways of dealing with scarcity (Huybrechts, Benesch and Geib, 2017).

The need to study co-designing with and for scarcity, emerges from our work in the global south where urban informality is paramount, and where it is often everyday actors' social assets that lead to co-design of spatial value and co-shaping urban realities (Chien, 2017); more than governmental institutions. Since forms of participation intersect in many directions in such contexts, in diverse spatial and timescales, during a four year PhD trajectory on self-organised spatial planning of commercial streets in Africa, we investigated these dynamics between more institution-driven participation processes and self-organised participatory processes (Saad-Sulonen et al, 2018). The first, mainly led or initiated by institutions (mostly public governments and NGOs) (Huybrechts, Benesch and Geib, 2017) and the latter driven by local actors such as residents, businesses, non-for-profit organizations in key decision making through collective and collaborative action (Van Meerkerk, 2013).

To develop this reflection, this paper builds on an in-depth case study of a popular commercial street in Sinza, Dar es Salaam, that was subject of a road expansion initiated by the authorities. It insufficiently tapped into the rich 45 year-old self-organised planning experience of the residents. The movement of cars and pedestrians was prioritised at the expense of self-organised initiatives, based on different experiences of scarcity. The paper will explore how, over a period of time, both institutionally planned and self-organised urban environments, in their daily approaches to scarcity, can benefit some human and more-than-human actors, but also overrule others. It has analysed how interventions by both institutions and everyday actors can rebalance these power relations. In our final discussion we will make some suggestions on how co-designing with scarcity can more carefully tap into social assets of everyday actors, while taking into account the politics of decision-making in participation in African cities.

2. Key concepts: Scarcity in Self-organised Participatory Design

The study context of this research that urged us to take scarcity seriously as a concept in co-design, are African cities. Simone (2010) argues that African cities are often analysed as cities that "lack" something,

and that have deficiencies. This understanding results from the fact that government-driven spatial developments, despite their good intentions, fall short in understanding and overcoming scarcity in self-organised urban environments mostly triggered by livelihood needs. To set up co-design processes, there is thus a challenge - as Simone (2010) argues - to not define the cities based on a narrow interpretation of scarcity, but rather investigate the abundant experience in the people, institutions, built environment and social practices that collaboratively design liveable environments with scarcity.

2.1 Co-design of and with scarcity

According to Iossifova (2013), scarcity is defined by an insufficiency of resources that people can flourish in. When defining a dialectic pair of scarcity and abundance, Iossifova criticises that it might be implied that scarcity must be hidden or vanquished to obtain abundance. Iossifova further stresses that scarcity is regionally differentiated encompassing cultural, social and economic conditions. What appears scarce in one community may be abundant in another. Abundance is defined as a condition in which a resource is considered infinitely available in a given system. In our studied contexts, this could be the vast availability of physical and social resources creatively put in place by residents. Scarcity, in this sense may not necessarily be a lacking condition that requires interventions, instead, it is something to work with rather than that to escape from in order to relate it actively to what is already considered abundant.

Co-design or Participatory Design (PD) aim for a collaborative decision-making process in which diverse actors' values are incorporated in the design and outcome in which the traditional tension between what is and what could be is tackled by discussing future use and future alternatives (Van der Veldeg and Mortberg, 2014). According to Bratteteig and Wagner (2014), PD needs to expand beyond organising the design process and working as a multidisciplinary team. Rather, these approaches should address the most difficult aspect; acknowledging actors' equally different and valuable experiences. Bratteteig and Wagner (2014) argue that "making" in PD is a process which is not straightforward and involves creating choices, selecting among them, concretising choices, evaluating the choices and the design result, and this in an iterative process until the desired results are met. This process requires openness towards participation of diverse actors in which multiplicity of options are explored collaboratively to reach decisions. This enables an understanding and practicing of PD with attention to its politics, which has been argued for in a previous edition of this Co-design journal (Huybrechts & Teli, 2018).

Designing with different experiences of scarcity addresses politics and can relate to both material and more immaterial aspects of scarcity, such as time. Iossifova (2013) argues that the idea is working with what one has; making more out of less by reducing the use of resources and working with what is already there rather than adding more. To make such an approach sufficient, Till (2009) argues that one has to listen and be fully alert to understand the productive value of design with scarcity. He underlines that scarcity enables us as designers to think beyond the object, beyond adding stuff and endless growth. Next to scarcity in relation to "stuff", Co-design scholars have also reported on scarcity of time as a hindrance for reaching the goals of mutual learning in co-design. Further, a tension between reaching a certain sensitivity, depth and degree of participation, and time efficient research is also reported (Kraff & Jernsand, 2023; Polk, 2015). Singh, Sah & Simkhada (2023) and Jagtap (2022) discuss many barriers of doing co-design in contexts dealing with scarcity, such as a lack of co-design skills, resources, trust (often because of previous bad experiences of communities with different agencies), literacy, gender, connection between project-aims and needs and time.

According to Winschiers-Theophilus et al. (2010), an underlying misconception of PD and participant roles lead to disregarding the local values and underestimating the context's complexity, such as the pluriversal experiences of scarcity. In an effort to modernise the contexts in which people live in the name of continuous progress (Tsing 2017) - instead of closely looking at the infrastructure and enhancing what exists - authorities and professionals disrupt the spontaneous settings and affect urban environments. In line with Vasquez (2012), we aim to investigate how to approach modernity from a decolonial

perspective, moving away from anthropocentrism that places humans above the Earth, and Eurocentrism that centers the West in the now of history and here of geography. Therefore, in contexts of scarcity, Jagtap (2022) urges that co-design enables people to contribute towards design activities and impact decisions to avoid only the perceptions (of scarcity) by a few prioritised actors. The collaborative aspects of the process and related outcomes can enhance the acceptance and adoption of co-designed propositions. Jagtap (2022) indicates that the most novel approaches to co-design with scarcity involve those that focus on generating value through interaction *between* resource-constrained people. Therefore, future research can gain deeper understanding of how resource-constrained people co-create value through various interactions within *their own* community and in that way inform practitioners such as researchers, companies and NGOs in their co-design processes.

2.2 Self-organised co-design processes and scarcity

In response to the above conclusion, we would like to investigate how we can start from the self-organised practices of residents and their self-organised ways of communicating this with each other and policy to come to another perspective of scarcity. Gielen et al. (2017) and Van Meerkerk (2013) define self-organisation as a result of citizen's intuitive actions that result from discomfort, irritation or fear and the emergence of governance structures that involve local stakeholders such as residents, businesses, non-for-profit organisations in key decision making through collaborative action. Owens (2014) reiterates that urban space provided by African states does not always take into account such dynamics. According to Edjabe and Pieterse (2011), cities such as Johannesburg, Lagos and Kinshasa, which follow top-bottom spatial development approaches that aim at serving the elite, pose questions on the relevant model and benchmark for Africa. Winschiers-Theophilus et al. (2010) urges that authorities approach PD in planning from the already present traditions instead of projecting western practices. Therefore it is relevant to study self-organised practices in urban environments and to investigate approaches that enable to capture such practices and bring them into dialogue with governmental practices. Our research shows that there are local initiatives developed by residents as creative ways to relate to what is scarce in their physical environment for their livelihood activities. Figure 1 below shows that these often differ from what the state conceives as scarce.

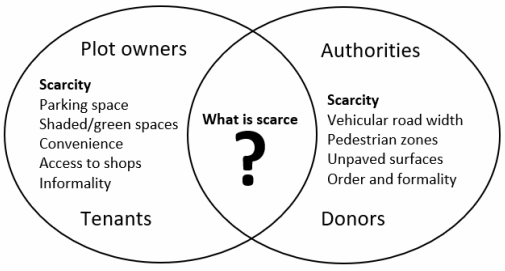

Fig. 1: Scarcity as defined by residents and authorities. (Source: author, 2023).

The residents deal on a daily basis with scarcity through social networks they build over time. They create an environment with capabilities, material (infrastructure and environment) and social resources (a network of actors of mutual support) as livelihood assets which through diverse activities, become a means of living (Chambers and Conway, 1992). As such, we have observed particularly these social assets of the community: activities such as obtaining information, mobilising and making demands for rights and services to the state take place. These aspects that residents self-organise to retain are livelihood assets (defined by DfID, 2011; Moser,1998) that PD processes should integrate in urban developments.

Engaging with these social assets informs future co-design approaches. For instance, the networks built over time and the urban environment put into place can be a basis for formulating tools for actors' interaction and interventions to the already built environment. In addressing future practices for overcoming water scarcity, Varma et al. (2021) lay out processes by proposing mind maps, group sketching, storytelling and brainstorming sessions for participants to openly share their ideas. However, as Jagtap (2022) underlines, when lacking resources, some methods such as prototypes or pictographic media can become challenging. Therefore, investigating alternative ways of using assets of a community become more important. However, making use of these assets may require compensation for the time and effort these people invest in co-design activities. Also, the authors indicate that in such contexts, concrete examples and explanations (rather than abstract discussions) provided through co-design activities are more effective. This concreteness is supported by social embeddedness, using local language, experience, training and feedback.

Jagtap (2022) expresses a great need for studies that reveal how actors have been involved in such contexts and from which "source" they are involved, being it as researchers, NGOs, local or multinational enterprises, because their knowledge, capabilities, networks, and intentions in co-design differ. For example, as is the case in this particular research, co-design sessions initiated by researchers are typically aimed at addressing some academic objectives. Also, the articulation of what is expected from and how people involved evaluated the co-design outcomes are stressed as being important in this type of co-design research (Jagtap, 2022). This is what we aim to achieve by sharing our study.

3. Study context

This article focuses particularly on the sustainable co-design of commercial streets in Tanzania. According to Kironde (2006), a regulatory framework is a vital tool for controlling the quality of spatial development, such as for instance its contribution to livable and sustainable development. However, it should remain in dialogue with self-organised developments since land use control measures in such contexts remain mainly controlling, outdated, inflexible, rigid and reactive (Majale, 2002 and Mwiga, 2011). However, this dialogue is challenged with a lack of financial means and a spread out context. As a result, the set-up of institution-driven planning processes are rare. In addition to that, when these institution-driven planning processes are started up, according to Layson and Nankai (2015), not only are community involvement guidelines unclear, their emphasis is mainly on public hearing and consultation that demand little time and means, leaving out the inhabitants (who plan their environment) in decision making.

In response, this research aims to illuminate the contributions of the very vivid self-organised participatory planning practices to spatial planning. The self-organised, nonconform implementations of rules stipulated in the regulatory framework are a response to the rigidity of land use control that might not address the immediate needs of urban dwellers (Kironde, 2015). The alternative self-organised initiatives create settlements that reflect people's needs, social processes in the production of space, social values and lived experiences. (Benson and Hamiduddin, 2017). Therefore, this research articulates a need for institutional and self-organised activities to interact with a mode of planning with a more varied and inclusive decision-making process that scrutinises relevant and irrelevant regulations. (Gehl, 2010).

Based on studies in urban Africa, one of the steps towards doing so is acknowledging the various actors and the roles they play in urban development (Edjabe and Pieterse, 2011). Instead of using this knowledge to manage these actors or providing them with technical answers, their relational qualities and their interdependencies can be understood and mobilised (Huybrechts, Devisch & Tassinari, 2022). To enable these insights and building upon the plea by Jagtap (2022) for in-depth accounts of co-design cases, this research uses a case-study approach. Significant generalisations can result from a single case since they can be explanatory, exploratory and descriptive (Yin, 2014).

The study focuses on Shekilango Road; a popular commercial street in Sinza, Dar es Salaam. Carriageway widths on the surfaced roads were to be kept at a minimum for future widening (Transport and Urban Projects Department, 1974). Over time, livelihood pressures, rapid urbanisation and minimal care for the road were a trigger for local initiatives to overcome scarcity of urban space and parking. The street had to play an urban recreational role as formerly provided open spaces were gradually encroached due to abandonment (Vedasto and Mrema 2013). Local businesses and plot owners needed more parking space, shaded spaces for sitting and convenience for their customers. Over time, these scarcities were overcome through self-organisation.

Later, authorities and donors planned to expand roads with an agenda on scarcity. Qualitative mobility was their perceived major scarcity to tackle. This led to road expansion, introduction of pedestrian zones and more paved surfaces, affecting the self-organised qualities already put in place.

4. Methodology

The case study research was framed in an academic PhD research by a Tanzanian researcher and architect with the help of 21 research assistance between September 2019 and September 2022 as a co-design process shaped as a design anthropological approach. This approach has historically been used by researchers and practitioners to explore the political dimension of daily life contexts by representing the diversity of voices through design. It grew from the seventies to support a phenomenological design model from how people engage with the everyday world rather than discussing it from a utilitarian spatial order from above. It foregrounded the reflection on the practice of design as equal to its objects and products and addressed a transitional future by negotiating the relationship between the past, the present and the future (Gunn, Otto & Smith, 2013). We embraced design anthropology's quality of using a projective design language to unveil spatial potential and quality of a specific situation in a tangible way for a multidisciplinary group of people to reflect on (Hunt, 2011). We employed in-depth interviews, photo ethnographic observations in combination with design-based methods such as cartographic visualisation (de Weijer, Cleempoel, and Heynen, 2014). The design-based methods supported us to enhance participation of the different actors in collaboratively visualising, reflecting and taking action on the different design steps in the process.

The design anthropological approach which enabled a deeper understanding of the case study, involved the researchers getting engaged as shop workers, customers and passers-by prior to, during and after the expansion. Through engaging with and observing how the respondents interacted with neighbours, customers and authorities, a deeper understanding of the social assets was obtained, necessary for supporting self-organised practices. Interviews with authorities and residents were conducted for understanding power relations in the production of space. In response to the demands of co-design approaches in contexts with a lack of resources, we rewarded the time dedicated by the participants in the context, by co-working in their shops, supporting their everyday activities, while observing, interviewing and mapping.

A total of 39 commercial plots within the Sinza Shekilango road were studied in which key actors: 10 owners, 43 tenants and 25 informal business operators were interviewed in Swahili language. The researchers also mapped conflicts that arose from the authority driven approach. Measurements and photographs of spatial elements and ongoing activities around and within the plot were taken. Interviews were conducted with officials from the local government, and the Ministry of Lands, Housing and Human Settlements Development (MLHHSD), consultants of the road expansion and agencies that oversee urban and rural road development.

5. Field observations

Here we discuss co-design initiatives, key actors and their capabilities and PD opportunities and gaps that were observed in the interaction amongst actors and the self-organised environment that is generated. We will structure this analysis, using Bratteteig and Wagner's (2014) scheme of creating choices, selecting among them, concretising choices, evaluating the choices and the design result.

5.1 Creating and selection of choices: the conception of the co-design process

The typical plot development depicts spatial development patterns for solving residents' livelihoods needs. For over forty years, residents gradually created spaces while authorities gave a blind eye. What was scarce was obtained through self-organised initiatives. In the process, rental houses, commercial spaces, green outdoor public spaces and parking spaces were creatively achieved. In this particular context, we have found out that scarcity (that which lacks) is self-answered in the form of physical (e.g. sitting space under the trees for shade) and non-physical resources (e.g. networks of self-builders/designers).

5.1.1 Overcoming scarcity and safeguarding abundance through self-organisation

A plot owner started construction of his house in the 1970's and shifted from business to business until 2000's. According to the owner, the dominance of boutique spaces in the area that developed because of a lack of shops for the growing housing development in the environment, necessitated adapting the same type of development on his plot.

This example illustrates the typical street development pattern and how the road gradually transformed into a popular commercial street. Scarcity is experienced in financial resources and design tools to collaborate amongst each actor. Also, people experience the lack of well-defined boundaries between amenities and dedicated parking spaces for people who pass by to shop or for deliveries as a challenge. These seem to be more challenging to collaboratively address.

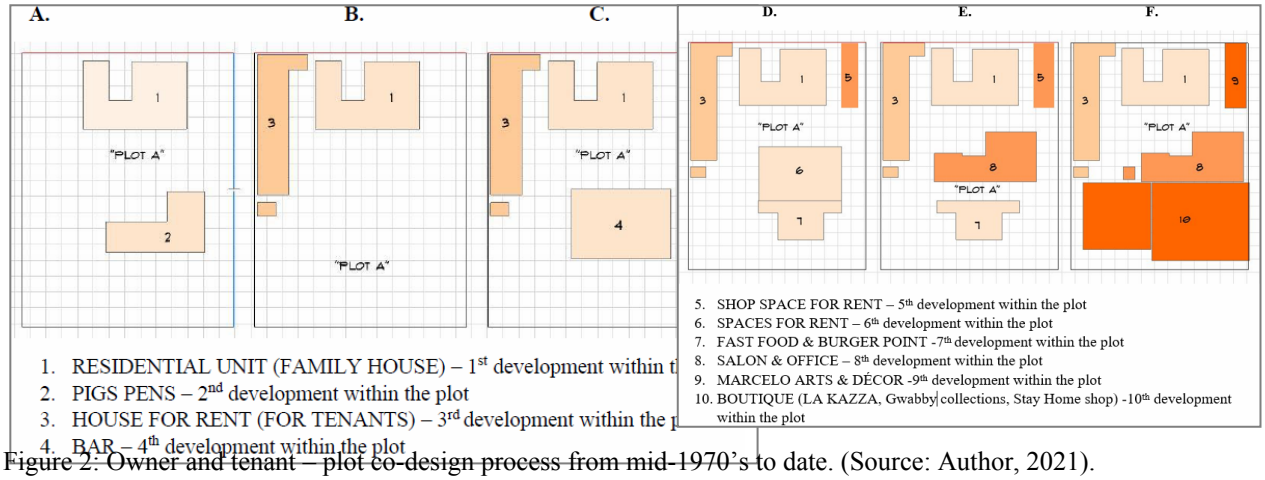

Figure 2: Owner and tenant – plot co-design process from mid-1970's to date. (Source: Author, 2021).

We must also understand how abundance stimulated self-organised initiatives. There is an enormous richness in terms of shop display qualities, covered public meeting spaces (verandas) and co-created outdoor amenities such as parking spaces and of useful interrelations amongst tenants/plot owners who on a daily basis co-design their environment as shown in figure 2.

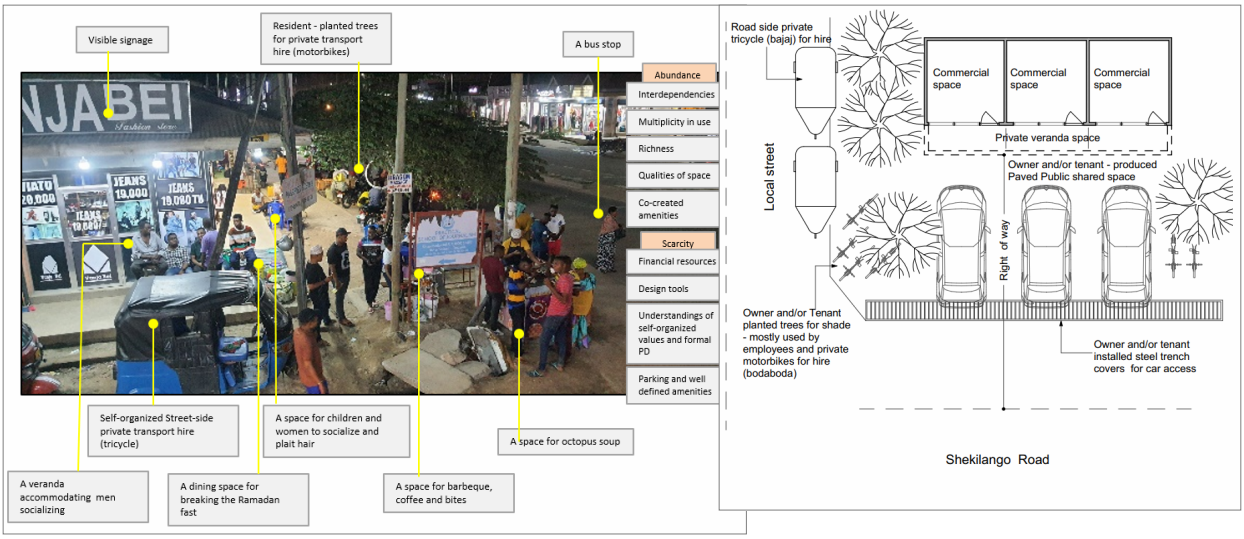

Figure 3: (a) A self-organised environment displaying abundance and scarcity and; (b) Self-organised and co-created amenities that reflect abundance. (Source: author, 2023).

Thus, what appeared scarce in the form of rental houses and retail spaces, green spaces, outdoor spaces, public and private parking spaces (figure 3) due to limited state involvement, began to slowly take shape. Residents already achieved spaces that authorities could have tapped into.

5.1.2 Networks, collaborative dynamics and institution-influenced limitations

The main actors who co-designed the road, are active in local collaborative dynamics through design and construction-supervision arrangements amongst the owner, tenant and professionals (architects, planners, constructors). Some spaces are mainly designed by the owner and co-designed by a professional; others are professional-designed and co-designed by the same or other professionals; again, others are solely owner-designed and some are co-designed by a combination of the three actors. In some cases, the government is involved, or as co-designer with the owners, tenants and professionals.

We provide an account of how owners and tenants work together.

> Under-provision of amenities necessitates co-designing the street by owners and tenants to overcome this scarcity. A respondent who is a tenant and a clothing boutique owner in the Sinza Mori area, had a 14-year lease agreement with the plot owner. She was given full responsibility to oversee design and construction of a retail space that could support her business. This sharing of responsibility gives tenants autonomy in the developments and unburdens the owners. This co-designing process is possible as building permits are seldom used. State-driven interventions often neglect these informal contributions in creating thriving commercial streets, that they are not supporting because of lack of people and means to follow up.

After a while, also governmental actors started to act in these co-design processes.

> In an interview, the Kinondoni Municipal council project manager explained how the donor; the World Bank had prioritised mobility through Dar es Salaam's neighbourhoods, because they conceived mobility as the most important "scarcity", the limits of vehicles moving quickly from one place to another. Alongside mobility, streets were to be modernised by making them tarmacked and paved, conceived from a genuine concern with accessibility for pedestrians.

From interviews and observations, it became clear that from the institution-driven intervention, even though the road expansion was necessary as it connected two trunk roads and improved mobility, it diminished the self-organised public outdoor spaces and vegetation features and created "grey" modernistic urban spaces as shown in figure 4 and figure 7. The expansion posed threats to co-designed livelihoods, such as sociable public outdoor spaces and green zones. We noted that after the state and donor-driven road expansion, residents have experienced scarcity of shaded spaces provided by trees. Newly installed curb stones for demarcating pedestrian walkways, blocked access to shops by cars and disrupted the spontaneous parking system that existed prior to upgrading. Residents' improvisations in the form of encroachments have disrupted mobility thereby affecting movement of both abled and vulnerable groups. This is a state and donor-influenced limitation that resulted from one-sidedly interpreting what is scarce along the street. Those responsible for planning urban space did not investigate a good balance between diverse conceptions of scarcity, such as the *vehicular movement* and *a supportive built environment for human and more-than-human actors in in the commercial street*.

Fig. 4(a): A section of Shekilango Road in 2015 prior to the road expansion and in 2022 after the expansion and; 4(b):Resident-self-organised parking and outdoor spaces in 2019 and the government influenced design in 2022. Source: (Google earth, 2022 and; author 2019 and 2022).

According to the local government leaders, after announcements using loudspeakers on moving vehicles, inhabitants were informed of the upgrading scheme of the road in 8 (eight) meetings. Dar es Salaam Metropolitan Development Program (DMDP) and social experts of the contractor and Municipal Council representatives attended the meetings. The main agenda of the meetings captured in figure 5, was to introduce the project to inhabitants. Interviews revealed that residents were neither shown the drawings nor given details of the upgrading scheme during the meetings. Archival records of minutes of one of the meetings revealed that residents saw it necessary to see the proposal before its implementation so they could give their inputs.

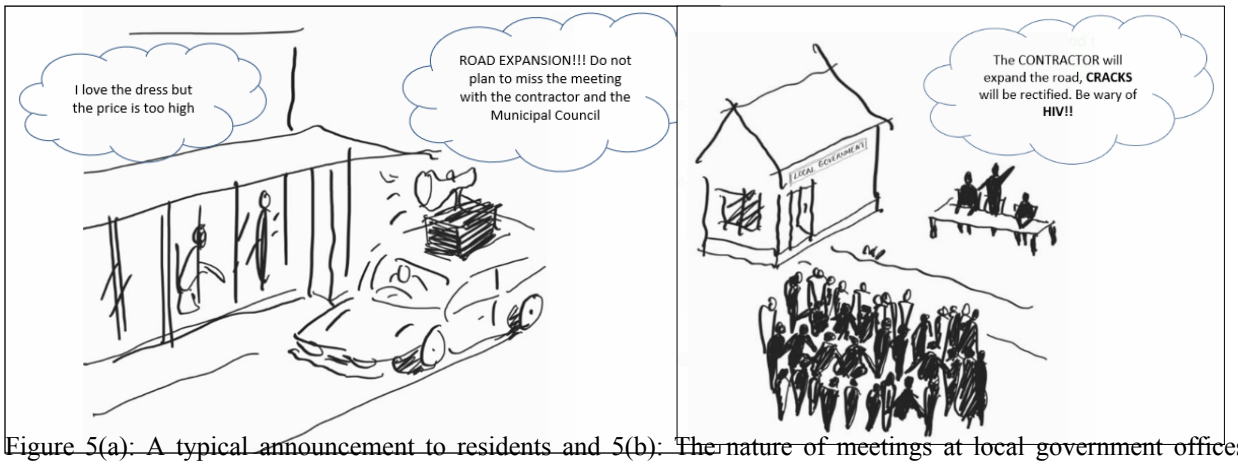

Figure 5(a): A typical announcement to residents and 5(b): The nature of meetings at local government offices.

(Source: Author, 2023).

5.2 Concretising choices: during the roadworks

The scarcity the residents now perceived in meeting space and parking space, led to self-organised removal of newly installed curb stones, redesigning and rebuilding of the road and walkways. Quickly, the curb stones and raised walkways began to be encroached by verandas and vehicles, due to reduced parking space, posing mobility challenges for pedestrians and vehicles as movement became considerably disrupted. Figure 6 shows a pedestrian path taken over by a shop like they used to before, blocking it for people passing through.

Figure 6: Residents occupy and block a newly installed paved and raised walkway while a pedestrian walks on the tarmacked road. (Source: author, 2023).

Fig. 7(a): Self-organised spaces with a space for human and non-human actors in 2019 and 7(b) A "grey" donor driven intervention in 2021. (Source: author, 2019 and 2021).

Residents have strong informally created networks for discussing mutual interests, problems and strategies. For instance, according to entrepreneur 1, and entrepreneur 2, there exists no formal organisation for residents. However, they may meet informally through social media or via phone conversations to discuss matters of concern.

When only a bus stop was provided in front of their commercial spaces, these respondents organised themselves through entrepreneur 2 as a skilled communicator. A letter and confrontation with authorities led to provision of a new parking space. Participant 3, a truck driver at the Kijiweni area and participant 4, a tenant and owner of Kids Fashion empire, also wrote to authorities to negotiate on parking space. According to the respondents, the process was not a straightforward formal procedure but it worked. Thus individual owners having the capacity to effect change and willingness by authorities to act in favour of residents suggest that earlier co-design sessions prior to reaching decisions can bring similar results.

5.3 Evaluating the choices: After the roadworks

According to the representative of the consultant of the Shekilango road upgrading scheme, architects, sociologists and citizens were not involved prior to approving the drawings. In some of the proposals, improvements to the designs were in the form of afterthoughts as there was not enough analysis of the already self-organised initiatives and everyday life of the residents.

Without formal participatory processes, consultants and the road agencies adjusted the scheme to the existing situation to meet the needs of the residents. This is what is termed "participatory result" (Bratteteig and Wagner, 2014). A more conscious set-up of a co-design process, taking into account the self-organised co-design dynamics around scarcity from the start could have more carefully ensured the inclusion of values, needs and requirements of each actor.

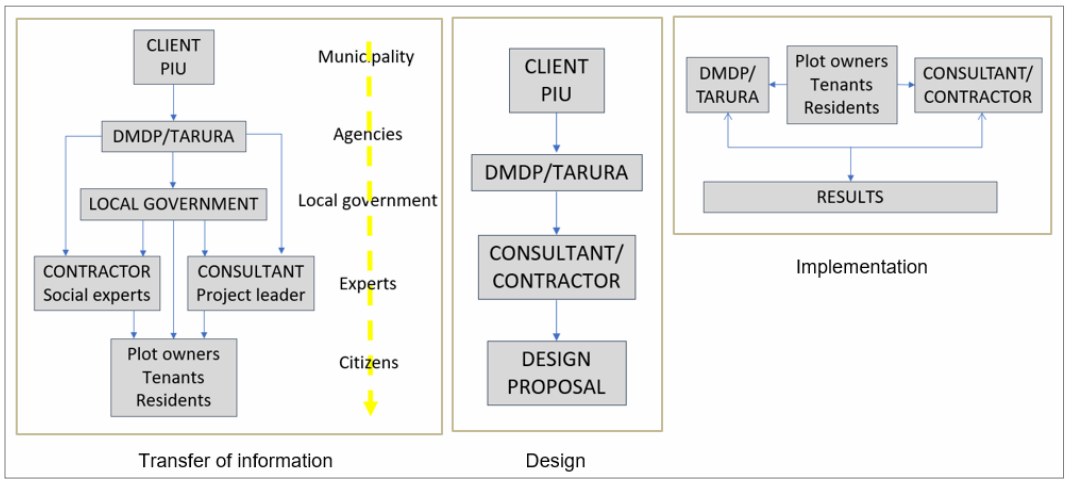

Figure 8: Actor interactions. (Source: author, 2022).

From figure 8, we can read that information is transferred from the municipal council to inhabitants through agencies and the local government in which residents are merely receivers. During the design stage, the municipality, agencies and the consultant/contractor are involved and produce design proposals. During implementation, inhabitants (through local government-formed committees) spontaneously interact with the consultant and the contractor to solve conflicts. After the expansion, inhabitants interact with the local government before meeting with road agencies for conflict mediation. According to the local government, each month, two meetings are to be held but are seldom held due to financial scarcity. This makes it difficult to carry out conventional participatory meetings in such a context and calls for a careful addressing of what is scarce from both the perspective of the residents and of the responsible governments needing to carry out the co-design processes.

According to the consultant of the project, HP – Gauff in association with NIMETA Consult (T) LTD, the planning scheme that they had imagined for the street had to become flexible as they (engineers only), didn't consider many dimensions into the project including accessibility, the importance of public outdoor space or parking space. The process of intervening by the residents was a result of participatory work they self-organised through their networks as a reaction to the state and donor-influenced design proposals which had other scarcity assumptions of the built environment.

6. Discussion: towards alternative co-design approaches

No matter how good the intention, donors and authorities miss their aim when what they perceive as scarce for residents is not placed in relation with the scarcity residents experience in urban realities. However, residents' contributions geared towards addressing what is – according to them – scarce in their livelihood activities should also not be romanticised. Our observations on residents' claiming of parking spaces after the expansion, at the expense of, and encroaching shaded public and pedestrian spaces, further diminished the space for more vulnerable and human and more-than-human actors. Prioritising vehicles over pedestrians and public space, pays too little regard to sustainable use of space for all actors; human and non-human.

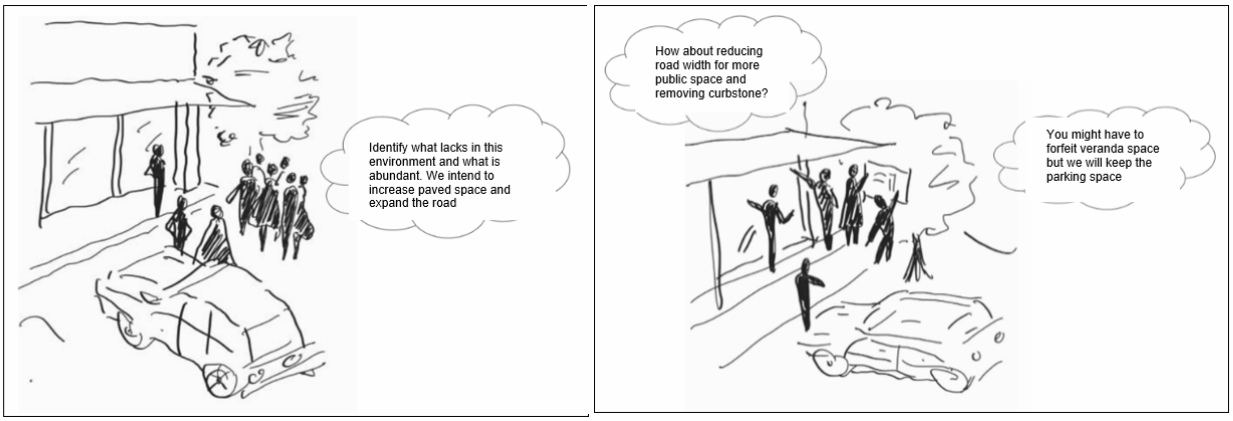

Figure 9: Possible onsite participatory scenarios to identify scarce resources, designing and testing proposals and negotiating on the results. (Source: author,2023).

Therefore, co-design approaches inspired by self-organised practices should be explored while addressing the politics of participation. Power relations between actors need to be given due consideration both in institution and everyday co-design activities. When authorities' and donors' power is downplayed to pave way for timely negotiations with residents on spatial development, more delicate interventions (figure 9) that fill in the gaps left with self-organised processes for overcoming scarcity, can be enabled. Also, in a well self-organised environment, co-design can contribute to ensuring more democratic processes that pay attention to qualitative public and open space, by connecting the self-organised experiences of actors to the needs of more-than-human actors.

Alternative co-design approaches should thus be created to more consciously deal with scarcity in planning practice. On the one hand, professionals can tap into the social assets of residents (Jagtap, 2022) who have the capacity to self-implement design proposals in order to understand the potentials they have created over time and thus what is at stake prior to reaching design decisions. On the other hand, providing the tools, methods and capabilities to actors on-site for understanding the politics of space can enhance the quality of co-design processes in environments that deal with scarcity. While most participatory methods and tools are oriented at enabling a close dialogue between institutional actors and professionals with residents, we see a great need for methods and tools that can motivate and support residents - as initiators of most urban planning (co-)design processes - to use their social assets to initiate a closer dialogue with authorities. This could enable a more thought-through planning process in favour of businesses, proper housing, public space and transport that supports different types of people, nature elements and animals. With the help of methods and tools that nurture social assets, informed by professional spatial standards, residents can be assisted to avoid challenges such as ventilation and lighting.

In this particular case context, given the busyness of tenants and landowners due to the nature of livelihood activities, having participants engaged in processes through methods such as storytelling and group sketching (Varma et al, 2020), can be time consuming and may not address deeply enough their assets on the ground. Our approach - co-designing while co-working with shop-owners, tenants and their clients experiencing their environment was a case example of a method that can be used to not only capture inhabitants' assets and lifeworlds, but also to give some time back to the participants who already live and work with scarce means and time.

7. Conclusion

This paper has contributed to existing co-design discourse by deepening and expanding the notion of 'co-designing with scarcity', since a unidirectional understanding of designing for scarcity has led to misinterpretations on how we should design for and with African cities. The design anthropological approach has enabled a deep understanding of everyday urban realities and how residents self-organised themselves to overcome scarcity and reach desired results. This self-organised way of dealing with scarcity was answered by a rigid state and donor driven proposal that offered a unidirectional answer to a unidirectional understanding of scarcity. This, over time, was answered by self-organised resident driven interventions meant for achieving results that were in line with their livelihood needs and a more pluriversal understanding of scarcity.

The findings in this paper suggest that when authorities and professionals are dealing with self-organised urban environments, the PD approach should start from, tap into and further elaborate on self-organised co-design processes, leading to more pluriverse understandings and practices of co-designing with scarcity. This can be done by studying the everyday ways of designing, building and occupying the spaces and the knowledge on the vast actors involved. This - as this study wanted to contribute to - can be a starting point towards formulating approaches, methods and tools that support residents' actions and contributions. As discussed by Theophilus et al (2010), PD should start from the traditions that are already present to provide ways for starting a dialogue on how the urban planning processes can contribute to the livelihoods of all actors: plants, animals, young and old, residents and passers-by. This context, where design outcomes result from overcoming scarcity, calls for approaches that enable on-site identification of scarce resources, on-site design and testing proposals and negotiating results.

Differently from many reported co-design trajectories with organisations and authorities in Western contexts, institutions and residents dealing with scarcity on an everyday basis do not have the means or time to engage in intensive co-design trajectories. Therefore, there is a need for more attention in the field to co-design instruments and tools that non-professionals can flexibly employ in their self-organised planning processes. This research mainly shows that skilled communicators and strong social networks are important resources for discussing and resolving anticipated conflicts that result from inadequately analysing scarcity or blindly copying universal standards into existing urban developments. It proposes that co-design approaches play a role in enabling everyday actors and institutions to connect and inspire each other and trigger them to tap into each other's experiences of scarcity and abundance. Further research into this potential is vital in creating urban developments that balance the needs of each key actor in the specific context of African cities.

Disclosure statement

No potential conflict of interest was reported by the authors

References

Benson, M. and Hamiduddin, I. 2017. Self-Build Homes. UCL Press London.

Bratteteig, T. and I. Wagner. 2014. Disentangling Participation: Power and Decision Makin in Participatory Design. Springer International Publishing. Switzerland. DOI 10.1007/978-3-319-06163-4.

Chambers, R. and Conway, G. 1992. Sustainable Rural Livelihoods: Practical Concepts for the 21ST Century. Brighton: Institute of Development Studies, University of Sussex. (IDS discussion paper; no. 296.).

Chien, K. 2017. Entrepreneurialising Urban Informality: Transforming governance of informal settlements in Taipei. Urban Studies Journal. Pages 1-17.

de Weijer M., Cleempoel, K. and Heynen H. 2014. Positioning Research and Design in Academia and Practice. A Contribution to a Continuing Debate. Design Issues, 30, 2, 17-29, doi: 10.1162/DESI_a_00259.

DfID. 2011. Vulnerability Context. In Sustainable Livelihoods Guidance Sheets.

Edjabe, N. and Pieterse, E. 2011. African Cities Reader II: Mobilities and Fixture. Chimurenga and the African Centre for Cities, South Africa.

Gehl, J. 2010. Cities for People. Island Press. Washington D.C. In: Carlotta von Schönfeld, K., Bertolini, L. 2017. Urban streets: Epitomes of planning challenges and opportunities at the interface of public space and mobility. Cities: The International Journal of Urban Policy and Planning. Issue 68. 48-55.

Gielen, P. and Lijster, T. 2017. Art and civil action. Cultural organisations in the European civil domain. Visual Ethnography. 6. 21-47. 10.12835/ve2017.2-0085.

Gunn, W., Otto, T. & Smith, R.C. Eds. 2013. Design Anthropology. Theory and Practice. Bloomsbury Academic, London.

Huybrechts, L., Benesch, H. & Geib, J. 2017. Institutioning: Participatory Design, Co-Design and the public realm, CoDesign, 13:3, 148-159, DOI: 10.1080/15710882.2017.1355006.

Huybrechts, L., Devisch, O. and Tassinari V. 2022. Re-framing the Politics of Design. Public Space.

Huybrechts, L. and Teli M. 2020. The Politics of Co Design. CoDesign, 16:1, 12, DOI: 10.1080/15710882.2020.1728150.

Hunt. J. 2011. Prototyping the Social: Temporality and Speculative Futures at the Intersection of Design and Culture. 33-44. In: Alison Clark. Design Anthropology.bSpringer, Vienna.

Iossifova, D. (Ed.) .2013. SCIBE. Scarcity and Creativity in the Built Environment. The Bank of Ideas. http://www.scarcity.is.

Jagtap, S. Codesign in resource-limited societies: theoretical perspectives, inputs, outputs and influencing factors. Res Eng Des. 2022;2022(1):1–21. https:// doi. org/ 10. 1007/ S00163- 022- 00384-1.

Kironde, J.M.L. 2006. The Regulatory Framework, Unplanned Development and Urban Poverty: Findings from Dar es Salaam, Tanzania. Land Use Policy, 23, 460-472. In: Mwiga, B.G., (2011). Evaluating the Effectiveness of Regulatory Framework in Providing Planned Land in Urban Areas: A Case of Dar es Salaam City 20,000 Plots Project, Tanzania. Ensched, The Netherlands.

Kironde, J.M.L. 2015. Good Governance, Efficiency and the Provision of Planned Land for Orderly Development in African Cities: The Case of the 20,000 Planned Land Plots Project in Dar es Salaam, Tanzania. Current Urban Studies, 3, 348-367.

Kraff, H. and Jernsand, E. 2023 Time as an issue of power in participatory design, in Holmlid, S., Rodrigues, V., Westin, C., Krogh, P. G., Mäkelä, M., Svanaes, D., Wikberg-Nilsson, Å (eds.), Nordes 2023: This Space Intentionally Left Blank, 12-14 June, Linköping University, Norrköping, Sweden. https://doi.org/10.21606/nordes.2023.70.

Layson, P.L. and X. Nankai. 2015. Public Participation and Satisfaction in Urban Regeneration Projects in Tanzania: The Case of Kariakoo, Dar es Salaam. Urban, Planning and Transport Research. 3. 68-87.

Majale, M. 2002. Towards Pro-poor Regulatory Guidelines for Urban Upgrading: A Review of Papers Presented at the International Workshop on Regulatory Guidelines for Urban Upgrading, Bouton On-Dunsmore, United Kingdom. Practical Action.

Van der Velden, M. and Mortberg, C. 2014. Participatory Design and Design for Values. DOI: 10.1007/978-94-007-6994-6_33-1.

Moser, C. 1998. 'The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies'. World Development 26 (2).

Mwiga, B.G. 2011. Evaluating the Effectiveness of Regulatory Framework in Providing Planned Land in Urban Areas: A Case of Dar es Salaam City 20,000 Plots Project, Tanzania. Ensched, The Netherlands.

Owens, K.E. 2014. Negotiating the City: Urban Development in Tanzania, A published PhD dissertation, University of Michigan.

Polk, M. 2015. Transdisciplinary co-production:Designing and testing a transdisciplinary research framework for societal problem solving. Futures65, pp. 110–122.

Simone, A. 2010. The Social Infrastructures of City Life in Contemporary Africa.

Saad-Sulonen, J., Eva Eriksson, Kim Halskov, Helena Karasti & John Vines. 2018. Unfolding participation over time: temporal lenses in participatory design. CoDesign. 14:1, 4-16, DOI: 10.1080/15710882.2018.1426773.

Singh, D.R., Sah, R.K., Simkhada, B. et al. 2023. Potentials and challenges of using co-design in health services research in low- and middle-income countries. glob health res policy 8, 5. https://doi.org/10.1186/s41256-023-00290-6.

Till, J. 2009. Architecture Depends. : MIT Press, . p 150. http://site.ebrary.com/id/10273927?ppg=150

Theophilus, H.W, S.C. Kuria, , G.K. Kapuire, N.J. Bidwell and E. Blake. 2010. Being Participated: A Community Approach. In Proceedings of the 11th Biennial Participatory Design Conference (PDC '10). Association for Computing Machinery, New York, NY, USA, 1–10. DOI:https://doi.org/10.1145/1900441.1900443.

Transport and Urban Projects Department. 1974. Tanzania Appraisal of National Sites and Services Project. Report No. 337a – TA.

Tsing, A. L. 2017. The Mushroom at the End of the World. Princeton University Press.

Varma, D.S., Nandanan, K., PC, V.R., Soundharajan, B., Pérez, M.L., Sidharth, K.A. and Ramesh, M.V. 2021. Participatory Design Approach to Address Water Crisis in the Village of Karkatta, Jharkhand, India. Technological Forecasting and Social Change, 172, p.121002.

Van Meerkerk, I., B. Boonstra, and J. Edelenbos. 2013. Self-Organisation in Urban Regeneration: A Two-Case Comparative Research, European Planning Studies, 21:10, 1630-1652.

Vázquez, R. 2012. Towards a Decolonial Critique of Modernity: Buen Vivir, Relationality and the Task of Listening. Raúl Fornet- Betancourt (ed.), Capital, Poverty, Development, Denktraditionen im Dialog:Studien zur Befreiung und interkulturalität, Vol 33, Wissenschaftsverlag Mainz: Aachen pp 241-252.

Vedasto, R.V. and Mrema, L.K. 2013. Architectural Perspectives on Informalisation of Formal Settlements: Case of Sinza Neighborhood in Dar es Salaam. Online Journal of Social Sciences Research. Volume 2, Issue 6, pp 151-172.

Yin, R. 2014. Case Study Research: Design and Methods (5th ed.). Thousand Oaks, CA: Sage Publications, Inc.