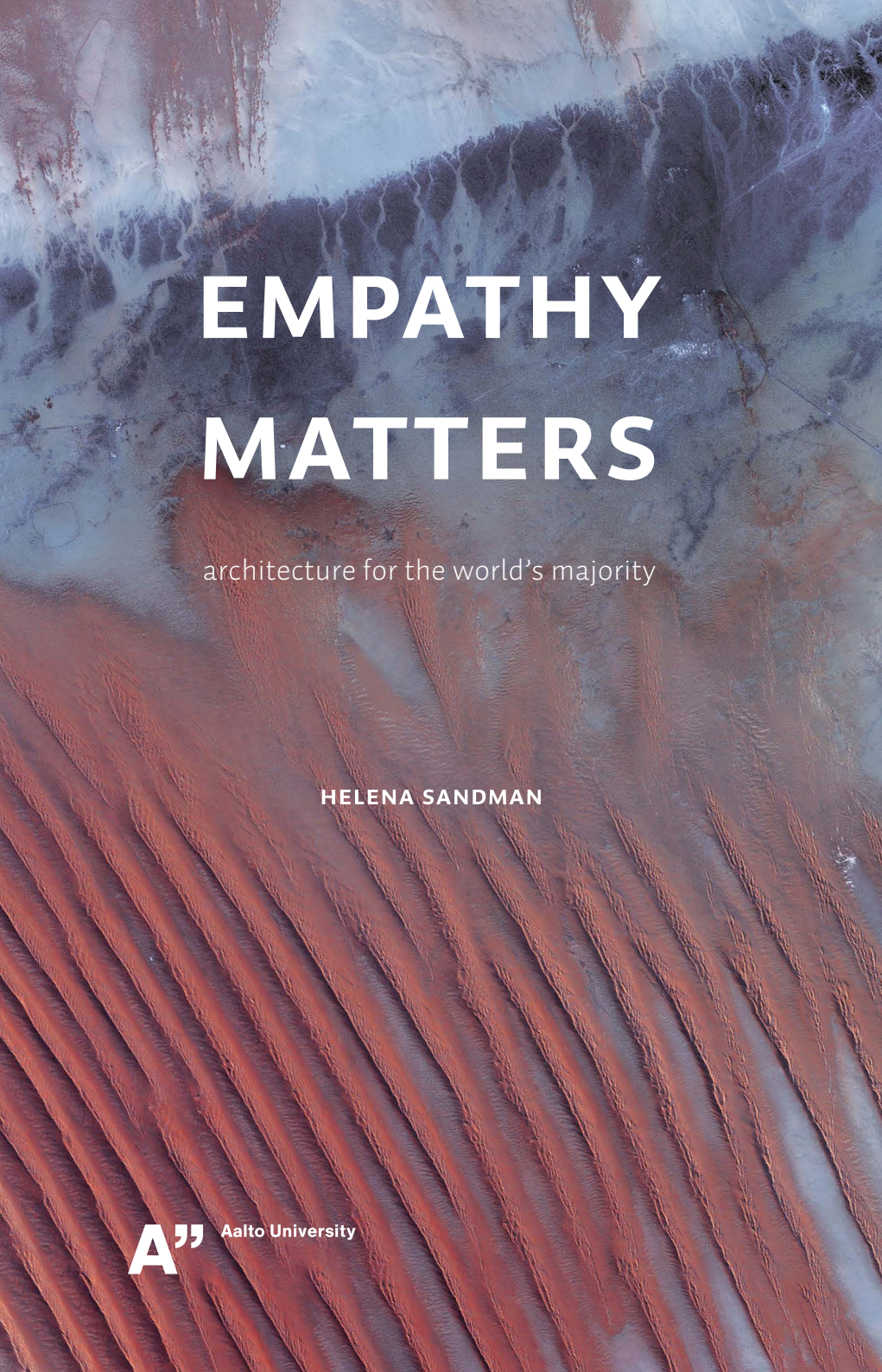

# EMPATHY MATTERS

architecture for the world's majority

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*Figure 1. Ng'ambo, Zanzibar, Tanzania, 2015.*

**ABSTRACT**

Co-design aims to bring designers and end users together to improve the quality of design projects. Enhancing proximity between these actors is valuable in low- to middle-income countries, where the social distances between them often prevail due to imbalances in, for instance, socioeconomic power, education levels, gender, or geographic origin. This can lead to challenges in collaborative design processes. While participatory work in both design and architecture has a long tradition in the Global North, there is considerably less literature published about such approaches applied in the Global South. Additionally, there is less systematised or visible inhabitant or user engagement in practice and often less capacity for it due to the time constraints of both the participants and the professionals, particularly in the case of formal architect-led projects. As a response, this thesis examines how the different actors can be brought closer to each other and how this proximity can enhance horizontal co-design that aspires to achieve equality. Furthermore, collaboration between actors in the design process can support the local and socio-cultural rootedness of a project.

In this thesis, I understand the concept of *design* broadly, so that it also encompasses architectural practices. As an architect engaged in spatial design, I see the different forms of design activities as closely related, with the potential for mutual learning. Theoretically, the disciplines of design and architecture have distinctive discourses on participatory engagement and empathy. Thus, I aim to bring these perspectives into a dialogue.

This is doctoral research by publication – a compilation thesis – consisting of five published papers and an introduction or "*kappa*", which consists of six chapters. Three of the papers are peer-reviewed journal articles, one is a peer-reviewed book chapter, and one is a journal article that is not peer-reviewed. The introduction binds the papers together and explains the background, theoretical framing, research design, cases, results, and contributions.

Empirically, this practice-led research through design builds upon findings from architectural design projects conducted in Tanzania and India. In this thesis, I study in-depth the design process of two projects: a housing proposal for a community threatened by eviction in Zanzibar, Tanzania, and a maternity ward for women delivering in low- to middle-income settings that was designed for Zanzibar, Tanzania, and Odisha, India. In the design projects, I employed collaborative design methods in working with the future inhabitants and users of the buildings. The results of these collaborative works influenced the design. However, I have achieved the results of this thesis through reflection on the co-design throughout the design and research process. Moreover, I have combined literature reviews with insights gained when retrospectively revisiting the two design processes. The results constitute reflection, recollection and understanding of the design processes and the relationship between myself (the architect) and the inhabitants. Hence, the physical outputs of the designs are not part of the research result.

My research presents evidence of the significance of empathy in the design process. In the two design projects, I identified the benefits of empathising during the different stages of the design process. Thus, I argue for the adoption of an empathic approach that guides the design process from the beginning, throughout the project, and beyond. Designers can empathise both from a distance and when being closely immersed with the end-users. These understandings result in the presentation of three registers of empathy: *empathy from a distance*, *engaging empathy* and *empathy in depth*. My analyses of these registers indicate that there is no need to exclude one or another register. They can all be combined to complement each other or utilised in different circumstances when one of them might be more appropriate than another. Through the presentation of the registers, this research draws attention to the potential offered by empathic engagement and supports designers and architects in becoming aware of their empathic abilities.

My main conclusion is that utilising the whole spectra of the resulting registers of empathy enhances the proximity between actors and thus horizontality within the design process. Additionally, from a theoretical point of view, these registers of empathy clarify and reconnect the divergent interpretations of the concept of empathy in the fields of design and architecture. Moreover, employing the registers can have a wider value, not only for practice in both fields but also for research within and across these fields. In conclusion, this thesis supports the argument that empathy matters in design — it is a profound ability that we need to cherish. Moreover, potentially, and as a suggestion for further research, designing with empathy produces spaces that encourage empathic encounters.

## PUBLICATIONS AND AUTHOR CONTRIBUTIONS

Paper I
Hollmén, S., Reuter, J., & Sandman, H. (2018). Equality quality: Architectural planning for underprivileged groups. *Architectural Research in Finland*, 2(1), 29–35.

I wrote Paper I with Saija Hollmén and Jenni Reuter, my colleagues in practice for the last 25 years. We together wrote the paper based on earlier drafts and mutual discussions that also sometimes included the architect and critic, Dr. Rasmus Wærn. Whereas Jenni Reuter gave a keynote speech on the same topic, I was responsible for handling the amendments suggested by the editors.

Paper II
Sandman, H., Levänen, J., & Savela, N. (2018). Using empathic design as a tool for urban sustainability in low-resource settings. *Sustainability*, 10(2493).

I wrote Paper II with Jarkko Levänen and Nina Savela, who were my colleagues in the New Global research group at the time. In the ideation phase, Sara Lindeman also took part as the leader of the research group. Further, we relied on several people and data sources: Nina Savela gathered the data for the housing case in Namibia during work on her master's thesis; the data for the Tanzanian housing case come from Sara Lindeman's and Tim Ndezi's publications and my own experiences while visiting the place, whereas the data for the Chilean case came solely from the literature. Jarkko Levänen contributed to the paper with his knowledge of sustainability and research experience. Notwithstanding, I am the first author of the paper and was in charge of corresponding with the editors and handling the improvements in the review process.

Paper III
Sandman, H. (2020). Shouldn't all architecture be designed with empathy? A case of affordable-housing design in Zanzibar. *Architectural Research in Finland*, 4(1), 36–56. The paper has been accepted for publication.

I am the sole author of Paper III.

Paper IV
Sandman, H. & Suomela M. (2020). Probing for resilience: Exploring design with empathy in Zanzibar. In A. N. Martins, M. Fayazi, F. Kikano, & L. Hobeica (Eds.), *Enhancing disaster preparedness: From humanitarian architecture to community resilience*, (pp. 149–165). Amsterdam: Elsevier.

I wrote Paper IV with Miia Suomela, who was writing her master's thesis in architecture on the topic of resilience under my supervision at the time. The paper was based on a presentation I gave at a conference. I carried out the ideation and structure of the paper as well as the probing in Ng'ambo and wrote the section covering the Ng'ambo project, while Miia Suomela executed the design probing in Chuini as part of the work with her master's thesis and wrote the section about Chuini. We collaborated on the other sections, corresponded with the editor of the chapter, and handled the enhancements in the review process together. Nevertheless, I am the first author of the paper.

Paper V
Sandman, H., Meguid, T., & Levänen, J. (2020). Unboxing empathy: Reflecting on architectural design for maternal health. *CoDesign*. doi:10.1080/15710882.2020.1833935

I wrote Paper V with Tarek Meguid and Jarkko Levänen. Tarek Meguid was based in Zanzibar as a head obstetrician in the Mnazi Moja hospital while we conducted the background research for the maternity-ward project. He contributed to this paper with his long-term experience in the state of maternity wards and maternal health in Africa. On the other hand, Jarkko Levänen was my colleague in the New Global research group, designed the study with me, contributed to the more general sections of the paper and followed and commented on the paper along the process. Nonetheless, I am the first author of it.

*Figure 2. Women's Center in Rufisque, Senegal, 2001. Hollmén Reuter Sandman Architects. Photo Juha Ilonen.*

## PREFACE

"The world we make in turn makes us, inscribing how we are being and becoming with others." (Akama, 2015, p. 267)

As the design researcher Yoko Akama states in the quotation above, what I conceive as an architect has significance for other people. In other words, when I design a space meant for people to inhabit, the quality of the design process as well as the quality of the built space affect the users of the space and myself.

I have been professionally involved as an architect in projects in low- to middle-income countries since my graduate studies in the 1990s. Through my work with my colleagues, Saija Hollmén and Jenni Reuter, and with the non-governmental organisation (NGO) Ukumbi that I co-founded with them in 2007, I have had the opportunity to design small public buildings in Senegal (Fig. 2), Egypt and Tanzania. Additionally, my experience has taken me to Rwanda, Malawi, India, Cambodia and Vietnam for other architectural design projects and teaching. All the projects have focused on sustainable architectural solutions through engagement with the people who would use the buildings and who have often belonged to vulnerable groups of the society, such as unemployed women in Senegal, children of the garbage collector community in Cairo, orphans, or victims of domestic violence in Tanzania. However, in several of these projects, the process of participatory design was complex and difficult and did not generally reach the level of horizontal collaboration and profoundness that I had hoped for. This motivated me to dive deeper into the matter of *co-design* and to study the *social distance,* that is, the psychological and sometimes physical distance between the architects and the future dwellers, and to assess the potential for reducing it.

Eight years ago, I was part of a group of architects writing the Laufen Manifesto for a Humane Design Culture, initiated by the architect, Anna Heringer. We had the intention, through the manifesto, to "awaken our profession to multiply our efforts to improve the ecological, social, and aesthetic quality of the built environment" (Heringer et al., 2013, p. 1). We also wanted to develop more effective design strategies to cope with future population growth on a global scale in a sustainable way (Heringer et al., 2013). The process of writing together as a means of promoting sustainable development and change also opened my eyes to the possibility of personally contributing in this way.

Shortly after, I got the opportunity to join the New Global interdisciplinary research project and group established by Sara Lindeman, a specialist in inclusive business and my teaching partner for many years. New Global invited me to map my own research journey within the topic of the project: co-creating a sustainable future globally through multi-stakeholder innovations in the Global South in co-creation with *the bottom of the pyramid* (Prahalad & Hart, 2002) — the majority population of the world in terms of socio-economic status (New Global, 2019). Hence, the starting point for my research was set by my long-term experience of practice in low- to middle-income countries, lecturing and teaching student groups in these settings, and the broad global and transdisciplinary sustainability perspective of the New Global project and the other members of the group. Within the context of New Global I had the privilege of working with the projects in Tanzania and India, which became part of this thesis. In conclusion, I chose the path of exploring socio-cultural sustainability and inhabitant engagement, narrowing it down by testing particular participatory methods and ultimately examining the role of empathy as part of the design process.

After a long journey, I have now reached my destination with the completion of this thesis, in which I propose an empathic approach that brings actors closer to each other and thus supports locally rooted socio-culturally sustainable design results. I am aware that my exploration covers only a limited part of the territory of socio-cultural sustainability and empathy in design in low- to middle-income countries and that my destination is only one stop on the path. Therefore, I am relieved that other people are on similar journeys, exploring related but different areas on other paths. This territory is proving highly topical nowadays, amid the COVID-19 pandemic, the rising sea levels and the active fires caused by climate change, and more displaced people globally due to conflicts or disaster than ever before. Consequently, I believe that designers and architects need greater awareness of sustainability and a more empathic attitude in their work in order to enhance their actions.

*Figure 3. Today, 55% of the world population live in urban areas (The World Bank Data, 2020). Dar es Salaam, Tanzania, 2014.*

## 1 MOTIVATION

How can we, as architects and designers, contribute to making this world a better place? Like the architect Anupama Kundoo (2018), I am concerned about the major challenges of rapid urbanisation, climate change and people's unsustainable living conditions. My particular interest lies in the way these challenges are met in cities of low- to middle-income countries[1] — inhabited by the majority of the world's population — where the development of the built environment often seems to create more problems than it solves. Regarding the current state of the world, with the human race exceeding the planetary boundaries (Rockström, 2015), we architects need to expand our capabilities in order for us to be useful where we are needed the most.

In Chapter 1, I explain my societal, professional and research motivation for this work. This section also forms the foundation and theoretical background for the study. It crosses multiple disciplines through the common ground of the social and cultural aspects of architecture and design in low- to middle-income countries. From a societal point of view, socio-cultural sustainability has not always been equally acknowledged compared to the environmental or economic dimensions of sustainability. This sector of sustainability is relevant in the contexts that bear the most urgent need for solutions to sustainability challenges: fast-growing urban areas in low- to middle-income countries. However, in these countries, professional architects are scarce, and those active in the field have considerable responsibilities that might force them to limit their contribution to socio-cultural sustainability. Therefore, there is a need to support architects active in these settings with practical and time-effective solutions and work methods that incorporate these aspects of sustainability.

Architects[2] can to a considerable extent embrace the incorporation of socio-cultural sustainability through collaborative design activities between professionals, with other stakeholders, and with inhabitants or community members. Nevertheless, for multiple potential reasons this is not always easy. For instance, the practising architect in low- to middle-income countries often needs to respond to the challenges of *social distance* when engaging inhabitants in the design process. Originally, the term social distance was established by the sociologist Robert E. Park (1924) as an attempt to measure the degree of intimacy in social relations (Park, 1924). Park and his contemporaneous sociologist Emory S. Bogardus (1925), who presented a social distance scale for its measurement, often refer to ethnicity and class. However, while these are still prevailing reasons for social distance, they are not the only ones. Here, I refer to social distance as the distance between the architect and the inhabitants and other actors, as well as to the distances within a particular group of people.

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1 84% of the world's population live in low and middle-income countries, according to the World Bank (2020) classification. I have chosen, in this introduction, to mainly use the concept of *low- to middle-income countries* to define the places where I work. This is based on the classification of countries into four categories: low income, lower-middle-income, upper-middle-income and high income (World Bank, 2020). In this regard, Tanzania, one of the countries where I have been practising, is classified as a lower middle-income country with an average daily salary of 3–11 USD/day (based on average GNI per capita of USD 1036–4045). Furthermore, according to the statisticians Hans Rosling, Ola Rosling and Anna Rosling Rönnlund (2018), the countries should be classified on four income levels, where levels 1–3 include people with an average daily salary of 1–32 USD/day — these are the settings where the majority of the world, six out of seven billion people, reside. I am aware that the classification according to income levels does not fully explain the places, settings and communities that I refer to because all the aspects do not relate to income. Nevertheless, in the contexts that I refer to, development happens fast; sustainability challenges need urgent attention; many people lack the access to education beyond primary school; people are frequently in vulnerable positions without agency due to societal structures; and hierarchies or inequality in the society can hinder the possibilities for horizontal collaborative design activities.
This definition is unfortunately not used in the papers included in this thesis because they were written before this introduction in which I decided to use the World Bank classification. Additionally, the vocabulary was sometimes delineated by earlier texts written by my co-authors.

2 Regarding the differentiation of the disciplines of *design* and *architecture*, I agree with the architect Jilly Traganou (2009) who proposes that there is a continuum from daily products, service design and interiors to bigger spatial structures. In this introduction I alternate between the terms *architect* and *designer* because the literature originates in both disciplines. Furthermore, I am always addressing both architects and designers. I refer to myself as an architect, although I see architecture as one form of design. The projects used as case studies are architectural design projects in which I employed collaborative and participatory design methodologies.

There are situations in which the architect might come from a different level of society than the inhabitants due to the privilege of education, or from another geographical location, or may speak another language. Additionally, there might be a social distance between the participants that originate, for instance, in the hierarchies of the society, differences in income levels, educational opportunities, power structures, cultural/language barriers, or gender inequality (Messeter, Claassen, & Finnan, 2012). Intersecting inequalities as part of the design process are discussed and responded to in, for instance, the discourse of design justice that "focuses on the ways that design reproduces, is reproduced by, and/or challenges the matrix of domination (white supremacy, heteropatriarchy, capitalism, and settler colonialism)…" and "aims to ensure a more equitable distribution of design's benefits and burdens" (Costanza-Chock, 2021, p. 340). The dilemma of intersecting inequalities is originally and further theorised in gender and culture studies in terms of concepts such as *intersectionality*, that "investigates how intersecting power relations influence social relations across diverse societies as well as individual experiences in everyday life" (Hill Collins & Bilge, 2020, p.2). The relationships between different categories of people, like race, class, gender, ethnicity or age are interrelated and mutually shape one another in diverse ways over time (Hill Collins & Bilge, 2020). Likewise, in human-centred design discourse, Mikael Johnson proposes that the relational distances can be caused by stagnant boundaries between inherently different groups. However, more often it is contingent, shifting, and relative, and, thus, can shift over time (Johnson, 2013).

Consequently, within the time frame of a design project, there is the potential for actors who are part of the project to mutually shape each other. Thus, respectful and conscious engaging activities can have an improving effect on the relationship between participants. To enhance this, architects can take the role of a facilitator or sometimes a mediator, if that is required. To facilitate collaborative design processes, architects can learn from design, namely with the multiple methods and tools developed within the discipline in recent decades.

The collaborative approaches documented within the design discipline have mainly been developed for design in the contexts of companies and with *users*[3] in the Global North. Nevertheless, architects employing them in the Global South have the opportunity to develop them further, particularly regarding the consequences of the social distances between actors and with the purpose of reaching *horizontality* in the design process. By horizontality, I mean here an ideal and pursuit of a condition in which architects and future dwellers can perceive a proximity to each other and collaborate — work together towards a common goal — to create something new, despite the inevitable distance between the architects and the people they are designing for. The differences and asymmetries between groups of people and individuals cannot be entirely resolved, yet we can identify alignments, and aspire towards an egalitarian relation. In a collaborative process, the benefits seldom are symmetrical, but we can try to distribute the benefits equally. I hypothesise that a collaboration striving for horizontal proximity also enhances the *rootedness* of the design. By this, I mean that a project is rooted in the local culture and thus becomes meaningful to its dwellers and they can feel ownership of the project when it is ready. As studies on collaborative approaches in architectural design for low- to middle-income countries are scarce there is the potential for me to build new theory that could contribute to both architecture and other design works with the endeavour of improving equality in the design process in these regions.

## 1.1 SOCIAL SUSTAINABILITY IN LOW- TO MIDDLE-INCOME COUNTRIES

"Too many people worldwide subsist in undeserving living conditions, and their ranks are growing by the day" (Heringer et al., 2013, p. 1). Moreover, it is estimated that in 2050 approximately 68% of the world's population will inhabit urban areas (UN Department of Economic and Social Affairs, 2018). Most of the urban development over the following decades is expected to happen in the poorest parts of the world, where people more intensively move to cities for employment and better services (Salama & Grierson, 2016) (Fig. 3). Therefore, the Sustainable Development Goal 11 — making "cities and human settlements inclusive, safe, resilient, and sustainable" (United Nations, 2018) — is relevant and constitutes a major challenge in

3 *User* is terminology employed commonly in product and service design, in which the outputs are used by people (thus users). But in architecture, buildings and space are not products, produced outside one's living environment and finally offered to people to be used. Buildings and spaces are much more than architectural products as they can be perceived of as a secondary skin and also carry immaterial values, sensations and hope for people (Pallasmaa, 1996). Thus, the word user is not an appropriate term for the dwellers of a building. Nevertheless, in this thesis I am combining literature from design and architecture and I study projects involving both disciplines, thus I alternate between the different terms of user, inhabitant, dweller, or sometimes community member, according to a logic that to me seems relevant to the present context.

low- to middle-income countries. In these contexts, rapid urbanisation, coupled with the absence or ineffectiveness of local housing policies, has resulted in an increasing number of people living in informal settlements, adding to urban sprawl (Golubchikov & Badyina, 2012). Additionally, these unplanned areas are often prone to disasters, lack sufficient infrastructure and are inhabited by the most exposed and potentially vulnerable members of a society. This development is neither inclusive, safe, resilient, nor sustainable. However, we, as architects and designers, have the agency and can extend our capabilities to deal with these challenges. In this regard, Rahul Mehrotra (2020), Professor and Chair of the Department of Urban Planning and Design at Harvard Graduate School of Design, suggested that we architects can expand our role to become a *bridge practice* connecting grassroot groups to decision-makers.

Typically, the socio-cultural aspects of sustainability are more difficult to both measure and take into account in architectural practice than are the environmental and economic ones. This might be one of the reasons that the significance of the socio-cultural aspects of sustainability is often generalised and understated (Chiu, 2004; Woodcraft, 2014). Cultural worldviews and values, traditions and everyday activities evolve throughout history and have an impact on human activities and thus also on nature (Chiu, 2004). In this regard, if architecture is to become a bridge practice that connects stakeholders, we architects need to acknowledge these values. The South African architect and historian Hannah le Roux (2020) proposes that architects can promote transformative values through embodied and intellectual work that takes into account the past and present ways people live their lives, co-exist, use existing architectural space, apply building materials or construct according to prevailing climate conditions. To gain this understanding, architects need to collaborate with the local community, including the different stakeholders, throughout the design process. Consequently, aiming for sustainable change in fast-growing urban settlements includes co-operation, collaboration, co-ordination, and communication with multiple actors with their various interests and can potentially be a long-term, com-plex and open-ended processes (Ambole L. A, Swilling, M & M'Rithaa, M.K., 2016). Architecture can be a bridging and transformative practice when driving such processes.

My research is premised on two assumptions. The first assumption is that it is important to emphasise social aspects when striving for sustainable societies, to enable, for example, human health and well-being, affordability and cultural preservation in a community. Additionally, attitudes toward the environment and the use of local resources are strongly shaped by both social and cultural factors. Likewise, conditions such as heritage, sense of place and tradition-bound use of space are critically important when striving for sustainable architecture (Octay, 2016). These factors all belong to the socio-cultural segment of sustainability and are hard to understand and pursue without engaging the local people, dwellers, inhabitants or users in the design process.

Thus, the second assumption is that involving people in the process of shaping a sustainable society will enhance their further appreciation of a development in this direction. In this regard, as noted by the architect Charles Correa (1994), people's engaged participation is an essential aspect of the well-being of our habitat. Moreover, according to scholars associated with the Stockholm Resilience Centre, *broadening participation* is one of the core principles when addressing both the social and ecological aspects of a sustainable outcome (Simonsen et al., 2015). Consequently, these assumptions stand as a foundation of my research.

## 1.2 THE EXPANDING ROLE OF THE ARCHITECT

Architecture forms the built environment that surrounds us and the places we inhabit. It is associated with aesthetic, structural and functional spatial qualities. However, to respond to the complex sustainability challenges in low- to middle-income parts of the world, we, as architects, need to broaden our view of the field. Architecture needs to more effectively encompass the complexity of phenomena such as environmental health and the climate crisis, social inclusiveness and immigration challenges, economic equity and poverty. These are all realities of today that architects and designers working in low- to middle-income countries have to be aware of and capable of tackling professionally. Consequently, architecture needs to open up to other professions because it cannot, in isolation, properly manage the challenges ahead. As the architect Alejandro Aravena (2016, p. 23) and curator of the 15th Venice Architecture Biennale, "Reporting from the Front" states: "architecture is called on to respond to more than one dimension at a time, integrating a variety of fields instead of choosing one or another." This view is supported by Mehrotra (2020), who suggests that we need to facilitate cultural empathy between disciplines. Essentially, the synergy of combined differences provides the endeavour to tackle global challenges with the agency the effort needs to evolve (Schmachenberger, 2019).

One of the tasks of architecture is to mediate human relationships, such as the relationships between humans and the built environment, and between the built environment and nature. The Finnish architect and author Juhani Pallasmaa (2020) is concerned that rapid urban growth and commercial interests threaten this existential task because the latter lead to a replacement of visionary and empathic architects by administrators

and regulations. Instead of endorsing the acceleration of our world, architecture should slow down and defend cultural rootedness, support human beings to find meaning in life, and strengthen the environments of life (Pallasmaa, 2020). We, as architects, need to safeguard and develop these qualities of our profession in our work.

In recent decades, architectural discourses have been showing a growing interest in the social and humanitarian engagement of the discipline (Lepik, 2010). Aravena (2016) also reflected on this trend when he called out for projects that, apart from artistic and cultural qualities, would respond to social, political, economic and environmental issues.

At the same time, in an article for El Croquis in 2016, the architect Alejandro Zaera-Polo discussed how Charles Jencks's famous diagram in Architecture 2000 had inspired him and Guillermo Fernandez-Abascal to present a synchronic *political compass* of contemporary emerging architectural practices (Fig. 4). In this *political compass*, they ranked 181 emerging practices in categories named after such movements as Techno-critical, Technocratic, Cosmopolitical, Austerity Chic, Constitutionalists, New Historicists, Revisionists, Skeptics/Contingent, Populists and Material Fundamentalists. He positioned architectural firms that "mobilise social consciousness and re-engage the architectural object with the community" in the area of Activists, and he described them as having a focus on development, rejecting customary procurement processes, relying on non-conventional funding strategies, and engaging communities in both design and construction (Zaera-Polo, 2016, p. 257). The compass indeed indicates that there are several emerging practices from both the Global North and the Global South that are motivated by the social aspects of architecture.

Parallel to this discourse, there has been a flourishing interest amongst young architects to engage in projects with social impact and tackle the challenges of the world (Lepik, 2010; Stohr, 2006). On this point, the architect Kate Stohr (2006, p. 53), co-founder of the organisation Architecture for Humanity, asked whether "the beginning of the twenty-first century will be remembered as the golden era of socially conscious design" and responded that this might depend on whether architects and designers are willing to be humble and reach beyond their normal comfort zone (Stohr, 2006). However, there is also an ongoing debate on whether European and American design is potentially a new form of colonialism, in which designers with good intentions presume too much in their attempt to do good (Nussbaum, 2010). In a recent study, the design researcher Mahmoud Keshavarz (2020) argued that the endeavours of humanitarian designers might only reinforce a pervasive structure that divides the world into the helpless and those who can help, depriving people of their agency. He suggested that architects and designers should be aware of the political structures that lie behind the challenge faced, actively working for a redistribution of wealth and global resources and striving for justice. I agree with Keshavarz regarding the importance of an awareness of the structures underlying the challenges of today. However, I propose that architects use their professional expertise as spatial designers to provide spaces that support justice, inclusiveness and trust. I also see the importance of including local students and professionals in the design process in the case of being an architect or designer from the northern hemispheres working in the Global South. Moreover, I agree with Mehrotra's (2020) suggestion that we develop our capacities as mediators and facilitators functioning as bridges across levels and between different actors in society, supporting connections between people.

Although professional architects are necessary in rapid urbanisation processes and sometimes legally required by municipal decision-making, there is a general scarcity of professionals in the Global South. Per capita, there are, for instance, 20 times as many professional architects in Europe than there are in Africa (Architects in Europe, 2014; African Union of Architects, 2018), which is due to the lack of educational opportunities (le Roux, 2014). Nevertheless, the shortage of professionals engenders situations in which local architects might have too many duties or might come from another region or country. Regarding design for low-income communities, the architect almost always belongs to a social level different from that of the inhabitants due to the conceivable lack of opportunities for higher education among the low-income population. These aspects are reflected in the significant social distance between architects and users that needs to be taken into account when designing in such settings.

As a partner in the architectural practice of Hollmén Reuter Sandman Architects and the NGO Ukumbi I participated in an exhibition curated by Aravena in Venice, and our firm was one of the 181 chosen firms that were placed in the political map of Zaera-Polo. This indicated that the societal and environmental concerns of our practice in the last two decades had become visible. Although Zaera-Polo and Fernandez-Abascal interpreted our work as Activism (close to the section of Material Fundamentalists) (Fig. 4), I would personally not choose that word to describe our practice. Since architects sometimes do not aspire to anything other than commercial gain when designing for marginalised communities, it is understandable that our work can be interpreted as either humanitarian architecture or activism. The same conclusion can be drawn if we understand the concept of *design activism* as design that challenges traditional design practice and catalyses a positive impact on sustainability (Fuad-Luke, 2009). On the contrary, architectural engagement in the Global South by architects from the Global North has often been classified as a form of *development aid*, which lies at the other end of the political compass spectrum. Development aid could be de-


*Figure 4. Hollmén Reuter Sandman Architects is placed in the section of activists in the political compass of architectural firms by Guillermo Fernandez-Abascal and Alejandro Zaera-Polo (Zaera-Polo, 2016).*

fined as top-down driven, utilising organised participatory mechanisms and engaging known stakeholders, according to the division of political practices delineated by Edgar Pieterse, the urbanist and Director of the African Centre for Cities at the University of Cape Town (2008). In contrast, the concept of activism is associated with direct action and is bottom-up driven (Pieterse, 2008). Pieterse, however, underlines the difficulty in dividing and naming activities and practices within a complex process marked by dissensus. Thus, our practice, and the work I am recalling in this doctoral research lies somewhere in between. We come from outside the community that we are designing for, we aim to collaborate with a various range of stakeholders, including governmental institutions, we are especially alert to the voice of the coming inhabitants, and we endeavour to support their agency. In our projects, the need for interventions is always born locally, in other words, from the current situation at hand. Thus, I would prefer to define our work as architecture in its most fundamental and essential sense, with no need to categorise it, because I think that all architecture should be designed with respect for the local culture, the local climate, and the local circumstances in general. Additionally, it should endeavour to include local professionals and future users and inhabitants of the buildings in creative collaboration in the design process as far as it is possible. What we have personally been aiming to do is to respond through architectural means to the actual needs of people, places and situations in which our expertise was called for and valued.

This kind of architectural work is seldom free of obstacles. The projects in which we have been engaged have been slow processes presenting several challenges, and the results have not always been fully satisfying. Due to our own capacity and level of engagement and also due to the availability of the communities we have been working with, we have in particular faced challenges with community engagement, not achieving the desired level of horizontal proximity and partnership during the design process that we had hoped for. The barriers have been on both sides, that is, on the side of the architects as well as on the side of the users.

For instance, in the case of the design of a shelter home for victims of domestic violence in the town of Moshi in Tanzania, we could not attain the desirable horizontality (Fig. 5). In this project, we had asked our local partner organisation, who supported abused women, if they could arrange a meeting between us and a group of potential inhabitants of the shelter home. Finally, after several attempts, they managed to convince one young woman to meet us. The woman was very shy and responded kindly but briefly to our questions. Although we were grateful for the opportunity to meet her, the meeting did not result in a co-design process with a group of engaged women that we had wished for. There would have been several different ways to improve the potential for collaboration. For instance, if we

*Figure 5. The need for the shelter in Moshi was obvious, but horizontal collaboration was not easy.*

would have had the time and knowhow to approach the co-design session differently, it might have reached another level. Nevertheless, we had understood her extreme need for safety, which she probably shared with her fellow victims. In this case, we continued the co-design process with the employees of the local organisation that provided the services for the victims of domestic violence (Fig. 6).

In the case of the Moshi shelter, the future inhabitants were in an extremely vulnerable position. However, there are different grades of vulnerability. For instance, inhabitants in a fast-growing city, who cannot afford augmenting living costs, can in this specific regard temporarily find themselves in a vulnerable position due to the threat of eviction. In other projects I have been involved with, the future occupants of the buildings have been orphans, women in labour or secondary school girls lacking the agency to influence their respective situations due to their position in the society or due to their particular life situation.

Regardless of the level of vulnerability, engaging inhabitants and users in the design process can anyway be challenging. Other scholars and practising architects have recognised similar challenges and called for more research and practitioner attention to inclusive and collaborative architectural design in the Global South (e.g., Goluchikov & Badyina, 2012; Salama

*Figure 6. Participatory workshop with employees of Kilimanjaro Women Information, Exchange and Consultancy Organisation (KWIECO), Moshi, Tanzania, 2005.*

& Grierson, 2016). In collaboration, solutions that support sustainable development can emerge that individuals would have been unable to achieve on their own (Schmachenberger, 2019). This motivated me to investigate collaboration further, in order to understand how to improve the abilities of our profession to horizontally engage inhabitants and to learn how to facilitate a fruitful *co-design* process, a process of designing together.

### 1.3 DESIGNING TOGETHER

Engaging inhabitants and users in architecture and design has been part of practice and research for half a century. Consequently, there are numerous approaches, methodologies and concepts related to user/inhabitant engagement in design and research work, including *participatory design, participatory planning, human-centred design, co-creation, co-design*, and *empathic design,* that all have in common the similar values of respecting the participants' tacit knowledge (e.g., Muller & Kuhn, 1993; Ehn, 2008; Blundell Jones, Petrescu & Till, 2005). These concepts have originated in different contexts and are defined in distinctive ways. In this section I will clarify the ones that are relevant to my motivation.

The concept of *participatory design* is most commonly used when discussing urban planning and architecture in the Scandinavian context. It originates in *workplace democracy*, in which participation was aiming at reducing the distance between people from different levels of the organisational hierarchies, thereby affording them an equal say (e.g., Gregory, 2011; Hyysalo, Jensen & Oudshoorn, 2016; Kensing & Greenbaum, 2013). With reduced distance, there could be more democratic power relations and control over deskilling and workforce-reducing technology introductions (e.g., Hyysalo et al., 2016; Kensing & Greenbaum, 2013). In this approach, workers' professionality was recognised, and arrangements were developed that allowed them to participate directly in the design activities (Greenbaum & Kyng 1991; Hyysalo et al., 2016). Since the 1970s, participatory design has been developed to not only involve factory workers, but also a broad field of users, inhabitants and other stakeholders in various design fields. Likewise, the participants are perceived as experts of their own environments and experiences and are thus invited to participate in the design process (Ehn, 2008).

The concept of *co-design* originates in the tradition of participatory design (Steen, 2013). It has been defined as "collective creativity as it is applied across the whole span of a design process" (Sanders & Stappers, 2008, p. 6). The design researchers Andrea Botero and Sampsa Hyysalo (2013) further defined the term as an enduring interaction in which diverse actors, including inhabitants or users, together with professionals, integrate their knowledge and capacity to generate novel solutions that they would not be able to create on their own.

The concept of *co-creation* has its origins in business interests in emerging economies and value creation, where it refers to contemporary connected, informed and active consumers who interact with companies and thereby co-create value (Prahalad & Ramaswamy, 2004). In this thesis, I have chosen to mostly use the term *co-design* when discussing collaborative activities as part of the design projects and *co-creation* when referring to the New Global research project, because the term was used there.

Similarly, like co-creation, the concept of *empathic design* has not originated in design, but in knowledge management studies, having been introduced by Dorothy Leonard-Barton (1991) as the creation of products and services based on a deep and empathic understanding of the needs of the users. However, the concept of empathic design has been developed further to encompass a broader field of design where the focal point has moved from the originally commercial aspects to the users' experiences, feelings and aspirations, with the broader goal of achieving good design (Koskinen, Mattelmäki, & Battarbee, 2003).

Today, in the Global North, the demand for inclusive and collaborative design practice is widely recognised among practitioners and decision-mak-

ers in the fields of design, architecture and urban planning in the drive for inclusive and holistic sustainable solutions. Researchers have mapped out and presented several approaches, methodologies and methods (Action Catalogue, 2020). In addition, there is a large body of literature on user and inhabitant engagement and collaborative practices in design. Consequently, designers are already familiar with the participatory approach within most design fields, for instance, regarding user interfaces, products and services. This occurs to the extent that many companies and researchers take the approach for granted as part of product development (Binder et al., 2008). Likewise, in architecture and urban planning in Europe, inhabitant participation has become an obligatory institutionalised part of public work (Blundell Jones et al., 2005). For example, legally bound hearing procedures were recently expanded to include a more encompassing participation in general plan development in Helsinki, Finland (Helsinki City Plan, 2013).

While user engagement and participatory processes in both design and architecture have a long tradition in the Global North, there is considerably less published literature regarding such approaches in the Global South (Messeter et al., 2012). However, in development work in the Global South, in different humanitarian and socio-economic fields, various participatory methods are well-established and have been successfully used for decades by practitioners in these fields in community development. For instance, the field of *Participatory Action Research* recognises the capacity of people who inhabit the geographical focus of a study to participate in the research process with the purpose of making it more productive, just and inclusive (Kemmis, McTaggart, & Nixon, 2014). Another example is the approach of *Participatory Rural Appraisal*, in which researchers enable local people to map, analyse, plan and act to improve their situation (Chambers, 1994). Additionally, in most cultures, there exist indigenous methods for community collaboration and participatory processes (Akama, Hagen & Whaanga-Schollum, 2019). However, these kinds of approaches have neither been mainstreamed in formal city planning nor in most governmental or commercial architectural design processes in low- to middle-income countries.

Designers and architects can conduct participation in many different ways, from merely informing the users to actively co-designing throughout the project. Thus, naming participation as part of the design process can offer a false perception of a project, without really transforming the work (Arnstein, 1969; Blundell Jones, et al., 2005). If one neglects power structures in a society while utilising participatory approaches, the participation can become a camouflage of what is going on behind the scenes (Pieterse, 2008). However, thorough participatory design generally requires the long-term involvement of several parties in a community, which is not always possible in fast urban development in disorganised, low-resource settings. Additionally, as architects work within the public realm with diverse stakeholders, the inequality between actors can be highly complex, including asymmetries, social distances, and dissensus, which cannot be entirely resolved (Keshavarz & Mazé, 2013). Thus, often, if present at all, the practised form of participation might remain symbolic (Emmet, 2000; Davidson et al., 2007). Particularly in architectural projects intended for the majority population, participation could easily be closer to mere "consultation", as described in Sherry Arnstein's (1969, p. 2) seminal work regarding the well-known *ladder of participation*.

In terms of engagement in an urbanisation process, in which the pace of change can be difficult to follow, there are often obstacles from the perspectives of both participants and architects. Engaging people in change can be a chaotic process (Light & Akama, 2012). For an inhabitant, it can be challenging, time-consuming and often impossible to actively influence the outcome (Nielsen, 2014). This defies the proposition that the desire of all parties — clients, architects, and inhabitants — should drive participation (Petrescu, 2005). This desire is often present in a society in the Global North, accustomed to and governed by democratic principles, but might be absent in an unequal low- to middle-income country. This drive to actively participate might not exist in situations in which the actors feel excluded from decision making due to the structure of their society. This may also happen when the inhabitants are not used to — and might not even be able to — imagine that they could influence the development of their surroundings, as is often the case in low- to middle-income settings. Thus, to gain insights as to how to generate healthier and more inclusive cities, architects need to take the responsibility, prioritise the placement of people at the centre of the process (Smith, 2011), and seek to develop a common understanding grounded in the community's perspective (Nix et al., 2019). This might sometimes be challenging. However, taking small steps at a time in the right direction and building our capabilities as facilitators may be a response to this demand.

Thus, practitioners need to develop their capabilities to lead an inclusive process and take responsibility for its outcome. As one example, the researchers Sofia Hussein, Elisabeth Sanders and Martin Steinert (2012) proposed that designers should take a strong lead in participatory design activities to ensure user engagement in complex and challenging settings. One can also observe this leading role in the participatory processes that the architecture practice, Elemental, conducted in its well-known and widely appreciated social housing projects in Chile (Aravena & Iacobelli, 2013). In this project the architects designed half of the houses and facilitated the inhabitants to further develop their houses. In any case, architects need to be

aware of and carefully consider the roles of users/inhabitants and designers/architects (Kujala, 2010). Approaches in which the designer has a strong leading role appear to contradict the intent of typical participatory design: to shift the focus from designer expertise to the user expertise, premised on social democratic principles (Kensing & Greenbaum, 2013). Relying on these principles might be challenging in contexts where citizens seldom are consulted on social matters and may be neither accustomed nor willing to reveal their thoughts and opinions due to the lack of trust.

The design researchers Jörn Messeter, Hester Claassen and Craig Finnan (2012) acknowledged the challenges when they applied participatory methods that had been developed in Scandinavia in South Africa. They recognised that, in comparison with Scandinavia, for instance, there was a greater social distance between stakeholders and there was also an unfamiliarity with these kinds of participatory processes in the African contexts (Messeter et al., 2012). Similarly, the design researchers Hussain and her colleagues (2012) identified hierarchical structures in the society, based on age, gender, education, or income level, that affected the outcome of participatory exercises in a project in Cambodia related to children with mobility challenges. As they noticed, vulnerable users might not have the trust or strength needed to stand up for their rights or reveal their dreams. Thus, a lack of motivation and trust in authorities might disturb the participatory process. In Hussain's case, the responsibility to ensure the influence of the users in the process rested with the designer (Hussain et al., 2012). In these kinds of situations, there might be a need for long-term capacity and trust-building among the actors involved before a proper participatory process can take place (Hussain et al., 2012; Drain & Sanders, 2019). This process of building trust depends on the relationship between designers and users or architects and inhabitants, and also on how the connection between the various actors evolves throughout the design process.

In addition, there might be barriers that lie on the side of the architect/designer. Due to the acknowledged gaps between architects/designers and inhabitants/users, there is a risk of involuntary *othering* (when these actors distance themselves from each other). Keshavarz (2020) warns about seeing oneself as a saviour, thereby transforming the other to a victim, somebody to be saved. In such cases there is the imminent risk of the relationship becoming extractive, depriving the users/inhabitants of their agential power. This can particularly be a risk in cases where the users are in a vulnerable position.

In sum, when working with projects in low- to middle-income settings, architects can experience several challenges, including inadequate self-knowledge, unawareness of personal biases, insufficient professional resources or limited inhabitant engagement. Moreover, from the inhabitants' perspective, challenges such as the lack of empowerment, trust, time, energy and experience with participatory design might emerge. In these contexts, architects and designers need to be thoroughly prepared to deal with such challenges (Ambole et al., 2016). Additionally, entanglements, obstacles, or gaps between stakeholders often appear in design projects (Hussain, Sanders, and Steinert, 2012) and dissensus is usually unavoidable (Keshavarz & Mazé, 2013). Thus, approaches that direct attention to bridging these gaps are necessary. This means, not ignoring the challenges, but, on the contrary, to embrace the differences, to allow differing opinions and controversies to exist, and to create a platform for these to be addressed amongst the stakeholders, in other words, to create *agonistic public spaces* (Björgvinsson, Ehn, & Hillgren, 2012).

There is an existing critique of seeking a universal model that fits all and would thus support globalisation (Escobar, 2015). This also includes the discipline of design, when applying design methods developed in the West in different cultural contexts, because these methods might hide colonial legacies in their structure (Akama, Hagen & Whaanga-Schollum). These methods often pursue efficiency and replicability, whereas issues like cultural identity, personal values and geographical contexts are easily neglected. For architects who work at a distance from the community for whom they are designing, it is particularly important that they act sensitively to local culturally specific customs, are aware or their own preconceptions (Akama, Hagen, & Whaanga-Schollum, 2019) and acknowledge both the local heritage as well as the colonial legacy (le Roux, 2020). In this regard, one valuable approach is to collaborate closely with local professionals and other stakeholders, so as not to reinforce and recreate these legacies (le Roux, 2014; Lokko, 2014). However, deeply rooted participatory design is simply not always possible in low- to middle-income contexts and thus architects and designers need other means with which to narrow the social distance between them and the impacted people that may reside in intersectionally marginalised positions. Having encountered such situations repeatedly in my practice and research, this thesis moved towards elaborating the potential that lies in utilising empathic design in such situations and settings.

In conclusion, particularly when designing with users in vulnerable situations, as in my field of work, there is often a distant relation between actors that needs to be reduced in order to engage users horizontally. Co-design has, in recent decades, sought to bring designers and architects closer to users and inhabitants. Nevertheless, the residual distance remains significant, and this field still needs attention (Fig. 7). This understanding drove me to investigate the relationship between actors in the design process through the notion of *empathy*. Empathy, the way the concept

is understood in Western culture and the way I perceive the word, embodies an emotional layer in understanding and can thus support the architect/designer in reducing the distance to the inhabitants/users.

In both architecture and design discourses regarding the relationship between architect/designer and inhabitant/user, the notion of *empathy* is present, but it is, however, defined and used in a variety of ways. Therefore, the researchers and professionals in these fields would benefit from a better comprehension of empathy and the complexity of the concept. Despite the considerable amount of research on the concept in general and of empathy in the design realm, the notion remains unclear and lacks practical applicability on multiple levels in the design process. In this regard, I became interested in the co-design process and the attitude of the architect and designer and found it valuable to use the lens of empathy to study at which points design and architecture merge in context, process and discourse. Additionally, as mentioned above, evoking empathy per se brings people closer to each other and, hence, potentially prepares space for meaningful encounters.

*Figure 7. Participatory workshop with the inhabitants of Ng'ambo, Zanzibar, 2016.*

## 1.4 INVESTIGATING EMPATHY AS THE GUIDING FORCE IN DESIGN

In general, the notion of empathy refers to our relationship with other human beings. As architects often do not design exclusively for themselves and their designs can affect large numbers of people, empathy ought to be a core competence in the profession. In this research, I refer to empathy as experiencing and appraising the world from another's point of view, which in a design and architectural context is associated with a desire to improve the experience of the other. Experiencing the world involves practical, habitual, cultural and emotional components.

An empathic and sensitive approach has been a central theme in *design* particularly when discussing the relationship between designers and vulnerable users. Design researchers have addressed the theme through case studies, of which some examples include designing for disabled children in Cambodia (Hussain & Sanders, 2012; Hussain, et al., 2012), mourners (Smeenk, Tomico, & van Turnhout, 2016), and patients with dementia (Smeenk, Sturm, & Eggen, 2018). In a design process, when designers thoughtfully guide engagement with sensitivity, it enhances the relationships between stakeholders while building trust and a shared understanding (e.g., Akama & Yee, 2016; Mattelmäki, Vaajakallio, & Koskinen, 2014). These qualities need to be developed to the extent that designers and architects also are able to recognise silence and non-action as significant participation (Wiberg, 2018). In addition, not everybody might have the possibility to participate, such as the most marginalised or the ones with caretaking responsibilities.

Within product and service design discourses the importance of empathy has evolved over recent decades, in particular within the approach of *empathic design* (Koskinen et al., 2003; Leonard 1995). Positioning empathic design within the broader landscape of design approaches, the design researcher Marc Steen (2008) used *human-centred design*, a term that originated in usability engineering (Norman & Draper, 1986), as an umbrella under which he mapped six different types of user engaged design: *empathic design*, *applied ethnography*, *co-design*, *participatory design*, *lead-user approach* and *contextual design*. Furthermore, he analysed the design orientation of each of these approaches (either "What is?" or "What could be?") and their direction (either users moving toward designers or designers toward users). He stated that in participatory design the users are active and approach the designer, whereas in empathic design the designers are the ones who approach the users. His model also highlights the difference between empathic design and design ethnography, ethnography taking the research orientation of "What is?" while empathic design has the orientation of "What could be?".

For architectural projects in complex low- to middle-income settings with constraints, there is a need for more than simple observation, that is to say, a need for the architect to actively and thoroughly understand the living conditions of people in different cultural and social contexts. The actively empathic architect approaching the users with the question "What could be?", as is done in empathic design, would seem relevant in these contexts. If architects adopted this approach, they would have the intention, willingness and responsibility to include the inhabitants in the design process with the curiosity and openness to see where this collaboration might lead. In being responsible for this active movement, the designer/architect should become emotionally involved in the process, whereas in contrast to traditional participatory design the future users/inhabitants do not necessarily need to be involved in the design process to such an extent when it is conducted according to empathic principles.

There is an ongoing discussion on the role of empathy in the design process. Kouprie and Sleeswijk Visser (2009) presented a framework for an empathic approach in which the design process is composed of *discovery, immersion, connection* and *detachment*. This framework proposes that empathy is part of every sequence in the design timeline. In addition, Smeenk and her colleagues (2016) emphasised the different perspectives that designers can adopt during the design process, that is, they can design from a *third-, second-* or *first-person perspective*. They argued that active designers can chose whether they maintain distance from users, observing them from a third-person perspective; they can collaborate with users in a dialogue from a second-person perspective; or they can immerse themselves in the design process at the same level as users from a first-person perspective. These two holistic views of the process indicate the complexity of the design work and invite a deeper investigation of the potentiality of each stage and what role empathy plays in this regard.

In my research, I followed a possible assumption from the two previous views, namely, that architects' adoption of empathic design skills and methods would support the profession in becoming a bridge practice that could connect different actors in the society as part of the design process (Mehotra, 2020). This could assist our profession to meet the challenges of rapidly growing low- to middle-income societies. In conclusion, my aim with this thesis is to help in surmounting the distance between actors through the enhancement of empathy and understanding between people.



## 1.5 OBJECTIVES AND SCOPE

Multiple perspectives motivated this research, as I have described in this chapter. Firstly, from a societal point of view, the extreme need for sustainable and humane architecture in the fast-growing cities of the Global South calls for an active and qualitative socio-cultural engagement of professionals. Secondly, from a professional point of view, there is a growing interest among architects to engage in societal issues and act sustainably. However, there is little literature that explains how this engagement could happen. Additionally, there is little empirical knowledge of how the distance between actors can be overcome and what is required of architects if they are to enhance proximity and reach horizontality in the design process. This indicates that there is an urgent need for both professional and personal development among architects. Thirdly, from a research point of view, there should be an intensifying of the discourse within the field of design and architecture on the relationship between designers/architects and users/inhabitants as well as on empathy, particularly in the context of practice in vulnerable communities.

Like other researchers within this emerging field of an empathic approach to design (e.g., Yoko Akama, Tuuli Mattelmäki, and Wina Smeenk), my motivation was to comprehend the underlying challenges and opportunities in the co-design process, and to see how one could achieve proximity between actors and horizontality in the design process. To gain an understanding of these issues, I employed various collaborative design methods in practice and reflected on their respective relevancy in the design process for sustainable architecture in low- to middle-income parts of the world. Furthermore, I sought to clarify the notion of empathy in the fields of architecture and design from both theoretical and empirical perspectives. One purpose of this thesis was to extend the discourse within the design discipline by deepening the understanding of empathic behaviour in the design process and by enriching it with my experience in architectural projects in low- to middle-income settings. The overall objective was to contribute to socio-cultural sustainability and encourage user engagement in architecture and design, both theoretically and methodologically. Ultimately, I intended to reveal the potential of empathy for enriching the design process and supporting the endeavour of reinforcing the connection between users and designers in both theory and practice. It would bridge the gaps between architects, designers, inhabitants, users and other stakeholders. As such, an empathic design approach could be valuable for any designer working in low- to middle-income countries and particularly for architects highly engaged with socio-cultural and local aspects.

### 1.5.1 RESEARCH QUESTIONS

With my three research questions, I seek to illustrate the line of thought that connects my papers to the entity that this thesis forms. The questions emerged at different phases of the work on the thesis. Thus, the first question established the foundation for the validity of the research, the second grounded the theoretical background, while the third referred to practical contributions.

**RQ 1**
*To what extent is inhabitant engagement beneficial in architecture projects in low- to middle-income settings when the main aim is sustainability?*

This question is discussed on a general level in Paper I and explored more structurally in Paper II. In this introduction, the discussions and responses to the question are distributed over Chapters 1, 4, 5 and 6.

**RQ 2**
*How is the notion of* empathy *understood, interpreted and used in design and architecture?*

This question is discussed through a practical exploration of different design methods in Papers III and IV. However, it is reviewed specifically and on a deeper level in Paper V. In this introduction, I respond to this question in Chapter 4.

**RQ 3**
*How can designers and architects apply* empathy *in practice to contribute to a* decreased social distance *between actors and* horizontality *in design?*

This question is the most significant of the three as it led me to the main part and destination of my research journey and related to my practice-led research through design. Through it, I empirically tested different collaborative design methods and reflected on empathy in the design process as discussed in Papers III, IV and V. I respond to this question in Section 4.5 and Chapter 5 of this introduction.


*Figure 8. Dar es Salaam, 2013.*

## 2 CONTEXT AND RESEARCH APPROACH

In this section, I present the contexts of my research, the methodologies and methods applied, and the available data. By context, I mean the starting points and surroundings, the academic environment and literature, the geographical settings and the people inhabiting them as well as the practice within the design projects.

My epistemological standpoints were in several different contexts. From the practice point of view, I have had 25 years of experience in architecture in low- to middle-income countries. This long-term experience of learning by doing — reflection in action, or reflecting on practice (Schön, 1983) — has taught me much about designing collaboratively in complex settings: However, I had not yet written about my experiences. Therefore, for this thesis, choosing two different field contexts in Tanzania and India where I was actively involved, gave me the opportunity to conduct research on design processes with relevant similarities to my earlier work while they were evolving. I reflected upon my previous professional architectural practice in Paper I, whereas I discussed the design processes of the field projects of Tanzania and India in Papers III, IV and V. Additionally, from an academic point of view, I was part of a research group with a transdisciplinary focus on sustainability and co-creation in the Global South, which functioned as a starting point for my research. Beginning with the broad spectra of sustainability in low- to middle-income countries, I soon narrowed the focus down to socio-cultural sustainability, and further to architecture and design discourses related to user or inhabitant engagement. Nevertheless, all these contexts presented points of access, sources of material, and methods for the research process.

The visual art scholar Janis Jefferies (2012) points out that collaboration between disciplines, like thinking and making, happens over time, develops, and changes according to different contexts that offer an abundance of opportunities. Likewise, the various contexts that I present in this section were not only settings, projects or disciplines, but they also offered timely opportunities for my research to emerge. This led to possibilities that I could not predict or determine in advance (Jefferies, 2012). They offered me numerous alternatives, obstacles and changes along the way. Thus, I drew the map of my research territory as it evolved along the journey.

In my research, practice and theory are intertwined with a continuous interplay between the two. In this case, the research can be defined as *practice-led* (Gray, 1996), as opposed to *practice-based*, or *relevant for practice*. Thus, I formulated the research questions while in practice, and the design projects guided the direction of the research. Practice-led is one of many possible orientations for practice within research, along a spectrum between theory-led and practice-led. However, in the case of this thesis, the research findings are an analysis of the design processes, not the designs as such. To quote the architect Stan Allen (1999, p. 113), my research sought to let theory and practice merge to "accommodate the multiple and contradictory demands of the real", while through "pragmatic realism", it was possible to "embrace the complexity and unpredictability" of the settings where I worked.

### 2.1 ACADEMIC CONTEXT: NEW GLOBAL

I begin by introducing the academic context of my study with my participation in a research group that aims at transdisciplinary and systemic research. The disciplinary and methodological orientations as well as the colleagues and collaborators formed one of the solid grounds for learning and influence out of which this research emerged.

This thesis was developed within "New Global", which is the name of both a research group and a project at Aalto University, in Espoo, Finland, that ran from 2014 to 2020. The inspiration for this research project arose when I was teaching an interdisciplinary master's-level studio course in Tanzania together with Sara Lindeman, who holds a PhD in inclusive business. On that course, students from different departments of Aalto University collaborated with the inhabitants of the informal neighbourhoods of Dar es Salaam (Lindeman & Sandman, 2018) (Fig. 8). Encouraged by the innovative solutions that students and inhabitants came up with, we sought funding for a research project. Consequently, we gained a grant for a five-year interdisciplinary research project. This grant also funded the main part of my research.

The New Global project tackled global sustainability-related problems inclusively through a *systemic* and *agile* approach. In other words, it sought to acknowledge the whole, while in a flexible manner acting with its parts. In practice, this meant approaching the challenge from several disciplinary angles, including multiple stakeholders, while prototyping a portfolio of possible alternative pathways towards sustainable solutions. In the New Global project, we argued that this kind of approach was required due to the complexity of the problems and the collaboration with multiple actors from various cultures. As the project applied research in society, it engaged Finnish companies and academia with communities, companies, governmental institutions and academia from the Global South. The involvement of all these stakeholders striving for co-creation led to

a dominantly qualitative research approach. Hence, we were interested in understanding culture and people on a personal level, identifying their needs and aspirations through qualitative encounters. Essentially, we regarded the qualitative approach as a prerequisite to understanding the parts thoroughly, and only through that to form a picture of the whole and propose actions accordingly.

The systems approach to comprehend what was underlying the phenomena rather than looking at the different parts in isolation was supported by the heterogeneous backgrounds of the members of the group. My background was in architecture, although I was doing my research studies in the department of design, while others came from engineering, business, sustainability sciences and human rights. Regardless of the different backgrounds, we aimed at a fluent co-creation process. The process developed throughout the years, starting as a *multidisciplinary* collaboration in which people from different disciplines collaborated by sharing their knowledge. When the research project evolved and we learned more about each other, we moved toward *interdisciplinarity* and the researchers started to integrate both knowledge and methods from the other disciplines, synthesising their approaches. Toward the end of the project, it achieved the aim of the collaboration and became arguably *transdisciplinary*, in which knowledge from different disciplines merged, transcending their traditional boundaries, and new frameworks emerged beyond disciplinary perspectives (e.g. Jantsch, 1972; Piaget, 1972). It is a privilege to work in this kind of transdisciplinary context, as acknowledged by Doucet and Janssens (2011), who emphasise its relevancy to architecture, because it already deals with a combination of arts and science, creative authorship, and service to clients and society. They defined transdisciplinary knowledge production as "a fusion of academic and non-academic knowledge, theory and practice, discipline and profession" (Doucet & Janssens, 2011, p. 7).

This form of research influenced the choices of the group and constituted the topic of my thesis. Being part of the New Global research group allowed me to reflect on my work from a broader perspective. This also resulted in the eclecticism of my thesis. Due to the complexity of the research challenge, it was both inevitable and beneficial for me to ground the research in several fields despite my own position in the department of design. Particularly in the beginning, the spectrum of my research was wide, until I defined my territory more precisely and continued by deepening my understanding of co-design and empathy as reflected in the last papers of the thesis.

The choice of diving deep into the concept of empathy was supported by the design department at Aalto University, where the approach of empathic design has been studied, utilised and deepened in recent decades. I was influenced by the writings of Tuuli Mattelmäki, Harri Koskinen, Katja Battarbee and others, and saw the advantage of bringing their views to the architectural field. Conversely, I had an interest in comparing them with the view of empathy in architecture, in particular the writings of my former professor, Juhani Pallasmaa. Additionally, the word empathy has been frequently used, although rarely clearly defined, in both design and architecture in the last few decades. Empathic design has also been the subject of critique. Thus, the concept was worthy of investigation in the context of low- to middle-income countries, in order to be meaningful from a scholarly perspective. Furthermore, I wanted to improve my own capacity to co-design in my work in these settings. The attitude of empathic design seemed right for this endeavour.

The multi-situatedness of my research did not include only the New Global but also Hollmén Reuter Sandman Architects, the NGO Ukumbi, the social impact company M4ID (renamed Scope) that executed the maternity ward project, and the Department of Urban and Rural Planning of Zanzibar, my partner in the affordable housing project. Hence, several additional non-academic contexts influenced the outcome over time. In addition, there were communities and inhabitants involved in each particular situation. Thus, the balance between my aesthetic and professional knowledge as an architect, the knowledge and wishes of the other stakeholders, and the aspirations of the inhabitants — the relationships between the different actors — all became relevant. In particular, the designer-user/architect-inhabitant relationship attracted my attention because I had noticed in my previous work that it could easily remain superficial.

Moreover, the research process included periods of literature review through which I also gained knowledge over time. In this introduction, the literature referred to in Chapter 1, "Motivation", represents mainly the broader perspective of this research, including socio-cultural sustainability, the role of the architect, and inhabitant participation in design in low- to middle-income settings. I familiarised myself with this first set of literature while starting the collaboration with the New Global group. However, as the topic for my thesis became more focused, and after the writing of Paper II, I incorporated a new set of literature on user engagement in architecture and design, including participatory, human-centred, empathic design, and design probing (Papers III and IV). While writing the last paper, I reviewed more literature on the concept of empathy (Paper V). This latter part of the literature is presented in Chapter 5, "Designing with empathy", which represents the foreground theory from architecture, design and philosophy discourses that formed the final focus of my research. In Chapter 6, "Bringing Theory to Life", there is an

interplay between the findings from literature and the empirical findings of the design processes.

What started as several different territories, appearing impossible to join, evolved over time and the different parts came closer to each other. Towards the end, a landscape took shape. This explains perhaps the *drifting* nature of this thesis — moving from one focal point to the next — its development over time, and the complex variety of material and methods of my thesis (Gall Krogh, Markussen, & Bang, 2015).

### 2.1.1 POSITIONALITY

I acknowledge that my positionality has affected this research. Firstly, the design work that I conducted and examined in this thesis was carried out in regions geographically and culturally far from my own origins. Thus, I might have made mistakes or misinterpretations on some socio-cultural aspects. Secondly, the people I collaborated with were on many levels less privileged than me. I belong to the income group 4 (high income level), whereas most of them probably belong to the groups 1, 2 or 3 (low income, lower middle-income, or upper middle-income groups) (Rosling et al., 2018; World Bank, 2020). Additionally, they did not get paid while collaborating with me, and had not had the same privilege of free education from elementary school to university as I have had, and regarding the relevant topics — housing and child delivery — they lacked the freedom of choice that I have had.[4]

All the people who collaborated with us in the project did it voluntarily. They were well informed of the intention of the projects, also of the possibility that the design projects would not be executed, and even if the projects did proceed, they might not benefit from the outcome because they might not deliver a child again or they might move away from the neighbourhood before the buildings were completed. All the people who appear in the images (except for pictures taken on the street: 1, 3, 8, 11, 13, 14, 15, 25 and 28) have agreed to be photographed and given us verbal or written consent to use the pictures for research purposes. I have blurred the faces of the ones who have not given me their consent. All the photographs in this thesis were taken by me, unless mentioned separately in the captions.

The qualitative approach in this thesis was interpretative and took advantage of embodied and situated knowledge, although acknowledging limitations. For instance, there was a social distance between me and the community I collaborated with on many levels: geographic, cultural, social and lingual. In the context of the maternity-ward design project, it is relevant to share that I am a mother who gave birth in an exemplary high-resource (in terms of personnel, time, equipment and space) public maternity ward in Finland. All these facts created a multi-level distance between me, as the architect, and the communities I was collaborating with during my research process.

I am a former student of the professor emeritus, architect and scholar, Juhani Pallasmaa, who has written about empathy in architecture and to whom I will refer in the following parts. Consequently, in line with his teaching, I grew up as an architect who valued my own capacity to imagine myself as a user. For my whole professional life, I have been working in cultures that are different from my own, finding myself in professional situations in which there has been a considerable distance between me and the other actors. It is due to these experiences that I have learned that it is not always enough to imagine the other's conditions, but that there is also a need to listen, to understand, to provide a voice to everyone involved, and to become immersed in the situations with as few preconceptions as possible.

I have asked myself the following questions about my position during this research and in my professional life: I might not be justified to act in the places where I work; there is a risk that I leave nothing advantageous for the people who stay behind when I leave; I might not understand the people with whom I collaborate to the extent that I can produce something of significance to them; my relationship to the people I collaborate with can be extractive, because what I give them in return might not be of equal value, or it might be other people in the end who use the architecture, as processes are sometimes very slow. I do not have answers to these questions. However, I do know that, due to my origins, I have a predominantly Western view as my starting point, and preconceptions might slip through unnoticed. Additionally, due to the unavoidable gaps, the *co-* and the *mutual* will never reach a hundred per cent. Nevertheless, I continuously aspire to work in a way that improves my capabilities to understand and empathise, and this thesis is a part of that lifelong project.

4 The main part of my research was funded through the governmental Finnish Funding Agency for Innovation (renamed Business Finland) through an instrument of strategic openings for innovative research that financed the New Global project, my research being part of that. Additionally, I received funding from the Finnish Cultural Foundation to finalise my thesis. Thus, the starting point for my research originated within the framework of the proposal for strategic research, i.e., sustainability and co-creation in the Global South. However, the results were not directed by Business Finland. Furthermore, I received funding from the Finnish Cultural Foundation based on my research plan at the moment of applying. Thus, the foundation did not interfere with the results of the research.

## 2.2 FIELD CONTEXTS: ZANZIBAR AND ODISHA

Not only the academic context became important for this research journey, but perhaps even more important were the fields. Particularly the people in the fields played a significant role in the development of this thesis.

In my research I adopted the *field approach*, which originates in the social sciences, and includes design projects in contexts formed by ordinary people living ordinary lives. According to the design researchers Ilpo Koskinen, Thomas Binder and Johan Redström (2008), the field approach has different qualities from the *lab* and the *gallery* that they also identified within design research. They further define the field approach as a "sequential unfolding of events" in which "research is integrated seamlessly into design" (Koskinen, Binder, & Redström, 2008, p. 51). Nevertheless, the way the field is conceived of in their proposal differs from its role in my research because I was not exploring a designed object in use but actually designing with the people in the field. Nevertheless, it is relevant to use the concept of field for the contexts of this thesis in which I practiced with collaborators in particular settings.

In this thesis, several geographical fields contributed to the overall landscape of the research. It was especially important that I identified, for my design process of affordable housing, the community to collaborate with in Zanzibar, Tanzania, and I also recognised the potential for theory building in the process of designing maternity wards for low-resource settings in Odisha, India, and in Zanzibar, Tanzania. Furthermore, the different fields in Africa and Asia, where I have practised for a long time, exist in the background, and additionally, three different fields in Tanzania, Namibia and Chile, are also used as comparable examples in Paper II.

The two fields in particular focus, Tanzania and India, played a significant role in my research. They were dissimilar and had different stakeholders and people who all influenced both the design and the research processes. When I began my doctoral research, I was looking for an architectural design project that would fit the scope of the New Global research project. At that point, I intended to do research related to housing. Consequently, in 2014, while I was teaching on the Aalto University master's course, "Cities in Transition", in Dar es Salaam, Tanzania, I was introduced to Zanzibar by Dr. Muhammad Juma, an architect and Director of the Department of Urban and Rural Planning of Zanzibar (DoURP). When I learned about the sustainability aspirations of the department, the urban challenges of Zanzibar Town particularly regarding affordable housing, and the concerns regarding insufficient numbers of professionals, I could see the potential for this field to fulfil what I was seeking for in my research. Therefore, I decided that an affordable housing project in Zanzibar would be the design project that could provide me with a situation from which I could learn while executing the design process. Later, during the design work in Zanzibar, my research focus shifted from housing to co-design and the relationship between actors in the design process. Consequently, housing design became a field for co-design instead of the central topic.

When sharpening my research focus on co-design, I realised that another project in which I was involved could also be relevant and filled with opportunities for investigating the topic. This project, the design of a maternity ward for low-resource settings, would be a timely occasion to investigate empathy, which had come to the surface as a significant concept. Thus, I did not choose the maternity ward project to be part of my research for reasons of comparability but as another case to explore further the key concepts of the thesis and their practical application.

The two design projects for the housing and the maternity ward, their design processes, and their locations in Odisha and Zanzibar are singular and not directly comparable, due to both cultural differences and the design focus. However, in both cases, I emphasised user/inhabitant-engagement as the means to reach horizontality in the design process. In these cases, from the start I could recognise several potential tensions: between relying on my own expertise as an architect and letting the participants drive the design, between the authorities and the community, and between different actors being part of the complex systems of housing and maternal health in general. Thus, I saw an opportunity to learn from the cases. They were valuable because they were symptomatic of the larger phenomena of the socio-cultural complexity and the expanding world described in Chapter 1, "Motivation". In the following sections, I will present these settings and their people (Fig. 9 and 10).

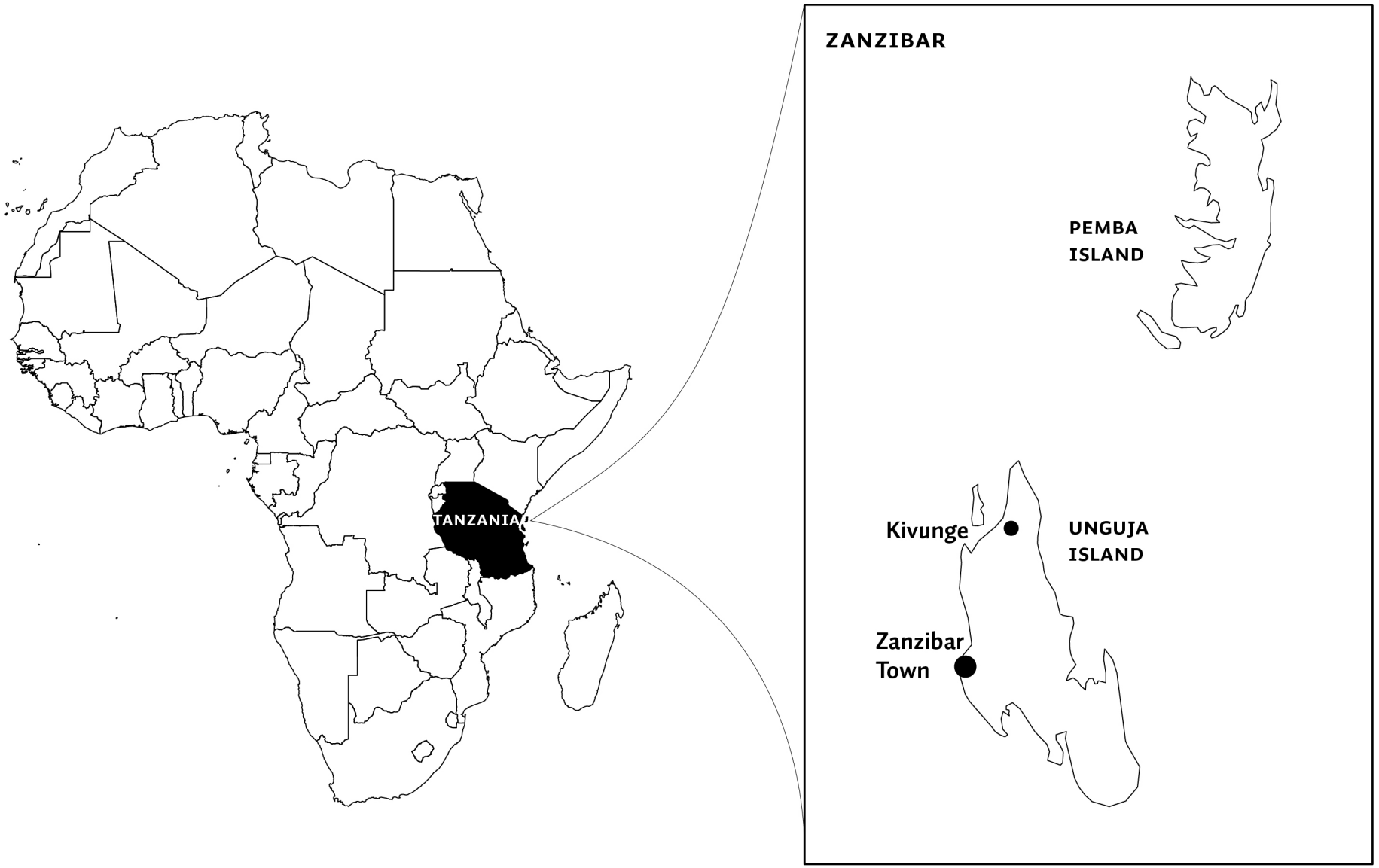



*Figure 9. Map of Tanzania and Zanzibar.*

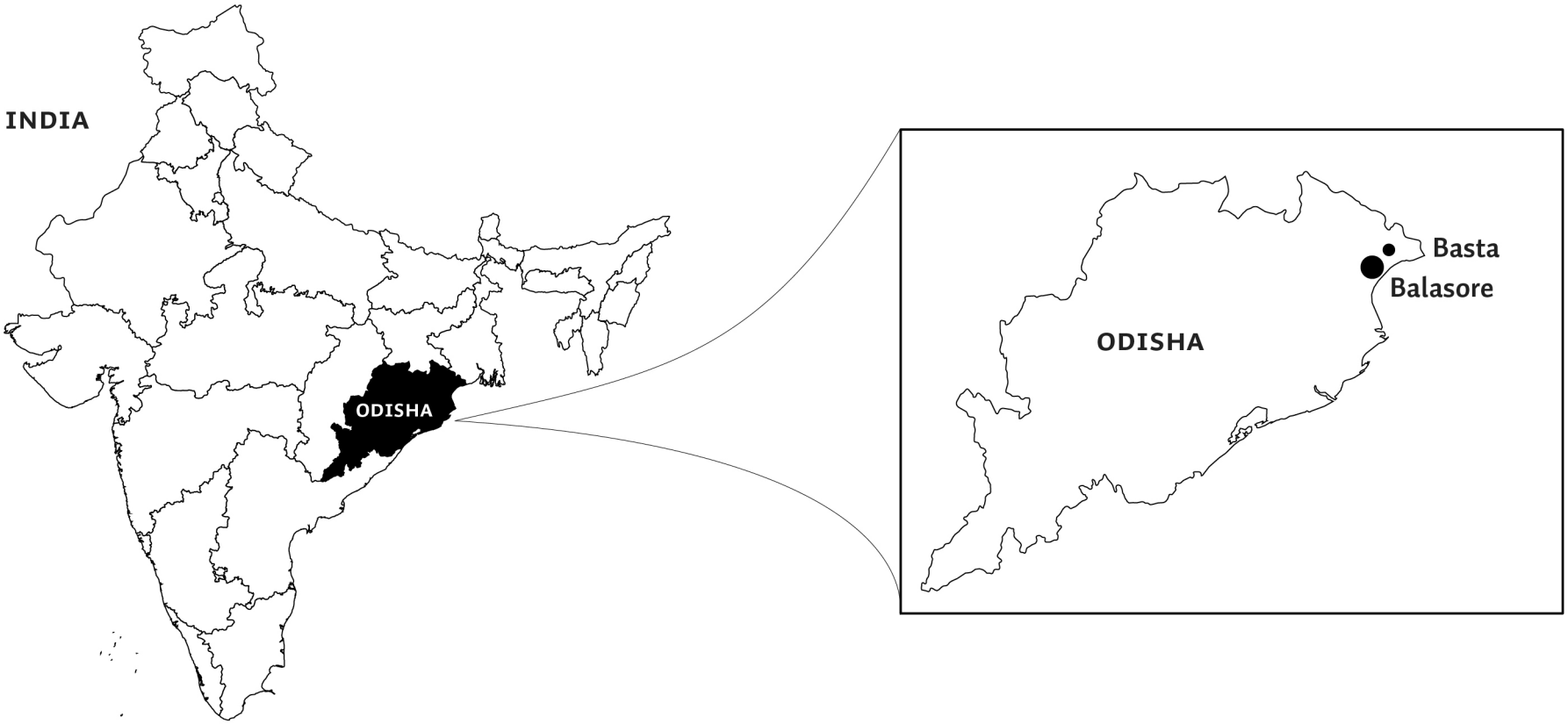



*Figure 10. Map of India and Odisha.*

*Figure 11. Ng'ambo, Zanzibar, Tanzania, 2016.*

### 2.2.1 AFFORDABLE HOUSING IN NG'AMBO

Concerning the research landscape that had started to take form for me, the settings of Ng'ambo, Zanzibar, offered the potential to design sustainable and affordable housing in collaboration with the current inhabitants of the area (Fig.11). This would provide me with the opportunity to study the design process while it emerged. Additionally, the Department of Urban and Rural Planning (DoRP) was willing to introduce me to the community and allow me access to previous research, urban planning, and design work that had been conducted in the area.

Zanzibar Town, the capital of Zanzibar, even if moderate in size, faces the same challenges as large urban centres in the Global South. Unrestrained urban sprawl is encroaching on valuable agricultural land, which is a threat to the densely populated island (Juma, 2014). To prevent informal sprawl, the DoURP identified the need to accommodate more inhabitants in the central parts of the city and to plan for sustainable new areas as urbanisation is accelerating.

The old centre of Zanzibar Town, Stone Town — a UNESCO World Heritage Site — was originally built on a small island separated by a lagoon from the rest of Unguja Island (Fig. 12 and 13). The shore of the lagoon, opposite the city centre, was named Ng'ambo ("The other side" in Swahili). Ng'ambo was constructed during the 19th century, when Stone Town became overcrowded (Folkers, 2010). The lagoon has been filled and Ng'ambo currently forms the buffer zone between the cultural heritage site of Stone Town and the rest of the city. It is a predominantly low-rise neighbourhood except for the apartment blocks forming a cross over the whole neighbourhood when looking at a map (Fig. 14). However, in the recently finalised Master Plan of Zanzibar, Ng'ambo was defined as the new city centre, meaning that the density is quite likely to grow at a fast pace. Today, Ng'ambo has approximately 50,000 inhabitants and roughly 5,000 houses, many of which were constructed at the beginning of the 20th century (Juma et al., 2014).

The DoURP was concerned about the risk of losing both tangible and intangible cultural heritage if uncontrolled development forced the present inhabitants to move to the outskirts of the town. The Ng'ambo area is particularly at risk if the real-estate market alone guides the development (Juma, 2014). This future trend is already distinguishable in the neighbourhood: some plot owners have replaced the original houses with apartment buildings that are constructed without considering the surrounding con-

*Figure 12. Inner courtyard in Stone Town, Zanzibar, 2015.*

structions, the commonly used pattern of public spaces intertwined with the buildings, or the community structure. There is a risk of development of this kind continuing if the area remains unplanned without building regulations. Additionally, real-estate prices in the neighbourhood will probably rise due to the central position of the place, and developers might have an interest in purchasing the land. In this case, the original population will probably migrate toward the town's peripheries as they might not be able to afford apartments based on the expected market price. In addition to the cultural loss, a potential migration would lead to further urban sprawl. For this reason, the DoURP would prefer the original inhabitants to remain on-site and be involved in the development of the area.

After having familiarised myself with the situation, I decided that I would take on, as part of my research process, a participatory and sustainable affordable housing design project for Ng'ambo that would have a higher density than the present one. The objectives of the design project were threefold. From the perspective of the inhabitants, they would have the opportunity to participate in the development of their neighbourhood, reflect on how they would like their future to look, be informed of future threats (for some people, opportunities), and establish contacts with the DoURP. From the perspective of the DoURP, the design process would advance their plans and test the possibilities of developing dense housing in collaboration with inhabitants in the area. Finally, from my perspective, the design process would help me to explore the potential of different collaborative design methods in the context of architectural design for development. In the process, the DoURP would function as a bridge of introduction between the inhabitants and myself, because they had already done work together with the community. For my part, I would function as a bridge between the inhabitants and the DoURP with regards to the participatory exercises. This co-design practice would strengthen the relationship between the governmental institution of the DoURP and the inhabitants of Ng'ambo, thereby giving the Ng'ambo community the possibility to play a central role in the development of their neighbourhood. Thus, the project seemed like a potential platform for mutual learning from which all parties could benefit. Mutual learning implies exchange and interaction across asymmetric positions whilst the parties engaged in the project gain increased understanding of each other's knowledge base and position. Everybody could benefit in one way or another even if they did not learn the same things because there would not be one central mastery to be learned, like there is, for instance, in apprenticing models (Lave & Wenger, 1991).

The DoURP suggested a block of 13 houses and approximately 100 inhabitants as the site and field for inhabitant engagement for the design project. Many of the inhabitants had lived in Ng'ambo for generations and some of them had lost their houses due to the construction since the 1970s of the



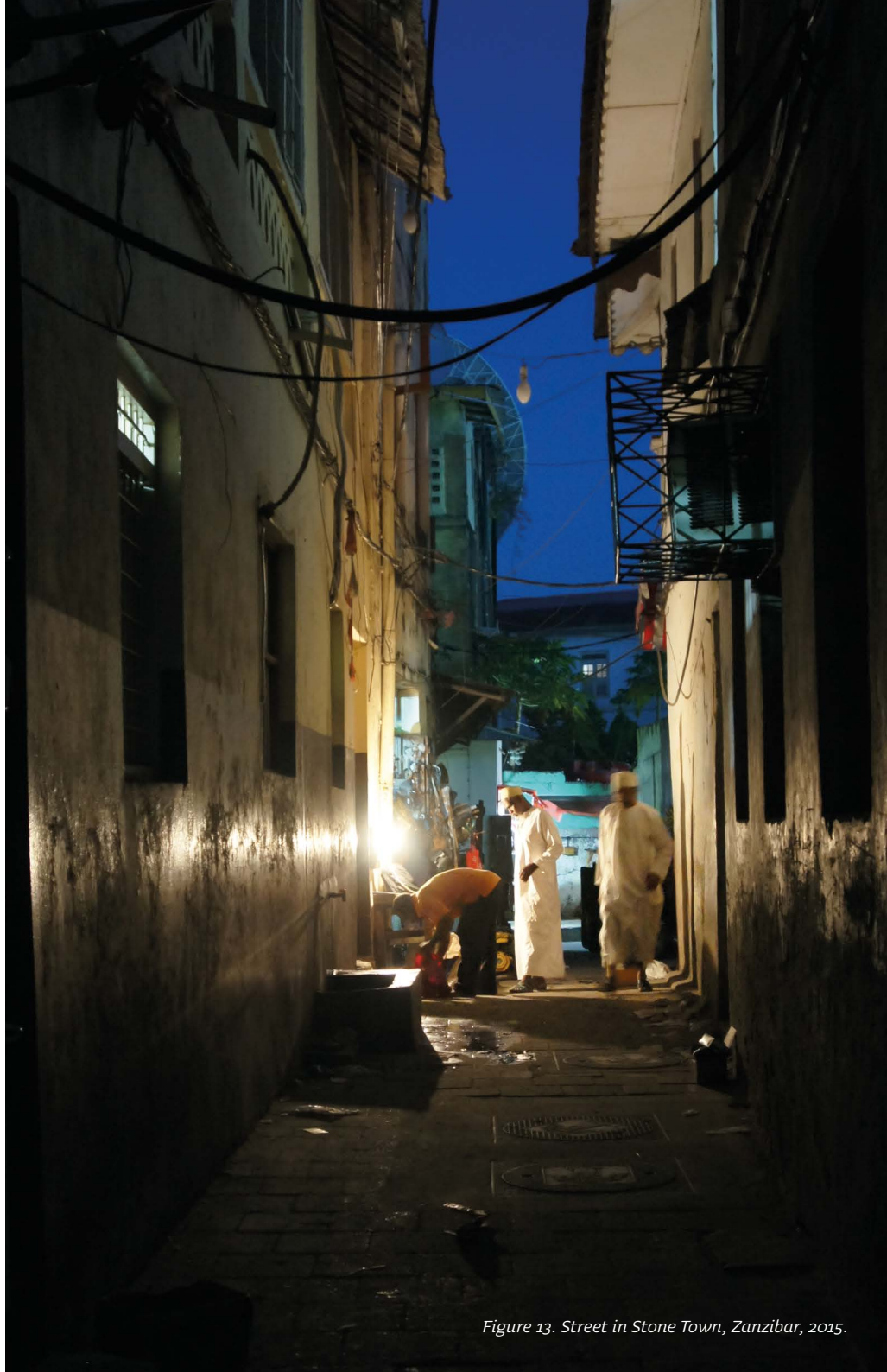


*Figure 13. Street in Stone Town, Zanzibar, 2015.*

*Figure 14. The city centre-to-be of Zanzibar Town and view of the Michenzani buildings in Ng'ambo, Zanzibar, 2017.*

Michenzani apartment blocks: 12 seven-storey, 300-metre-long buildings in the core of their neighbourhood (Folkers, 2014) (Fig.14). This major change in Ng'ambo was still fresh in the inhabitants' memories. Thus, they were aware of the risk of eviction they might face, which made the task of establishing trust between all involved stakeholders a challenge (Fig. 15).

During the two years of the design process, I had the opportunity to be in the field for three consecutive months at the beginning and to return for two shorter visits of a few weeks during the design period. During my visits, the DoURP facilitated the introductions to the community and allowed me to use their premises for workshops. They also shared with me the outputs of research conducted in the area during the last decade by the non-governmental organisation African Architecture Matters, several international researchers, and students. However, due to the lack of professionals and, thus, the employees' pressed time schedules, I did not collaborate much with the professionals at DoURP during the design process. After all, their field of work was urban planning, not housing design.

However, being affiliated with the DoURP was not entirely beneficial. As the department is a governmental institution it is managed by a person chosen by the ruling political party. Consequently, some of the participants were suspicious because not all of them were followers of this political inclination. This was shown in their reluctance to participate in the different activities and their scepticism toward the project altogether. This strong political division led to the situation that one of the 13 houses chosen to be part of the site rejected the proposal and refused further collaboration. The family who resigned from the participation were shop owners who wanted to expand their house themselves, rather than with their neighbours. I could easily understand their reasons. However, even though this was a setback in the design process it gave this family the opportunity to address their concerns to the DoURP and it informed the DoURP of the political landscape in the neighbourhood.

Another constraint that I faced during the collaborative work was, even if predicted, the need for translation. Even though the contact between myself and the participants relied on non-verbal communication, the lack of a common language affected the connection. In any case, I recorded all conversations and had them transcribed. Thus, I could include the misin-

*Figure 15. Ng'ambo, Zanzibar Town, 2016.*

terpretations, if they occurred, in my analyses of the collaborative work. Additionally, the availability of the participants was sometimes a problem, even if this had also been foreseen, and my activities had been planned so as not to require much time engagement from their side.

In this thesis (Papers III and IV), I discuss the different design methods that I applied to engage users in the early stages of the design process: applied ethnography, design probing, workshops and theme discussions. I handed over the final design proposal (presented in Paper IV) to the DoURP in 2017 for their utilisation. However, the project has not yet been constructed. Originally, the DoURP and I hoped that, with our joined forces, we would have been able to find an investor willing to construct the housing block. This would have allowed me to follow up on the research throughout the whole design project, and not only in its early design phase. Nonetheless, this did not happen within the timeframe of this thesis.

### 2.2.2 MATERNITY WARDS IN KIVUNGE AND BASTA

While working on my doctoral research, I became involved in a maternity ward design project for low-resource settings. Originally, this project was a separate job. However, the design process appeared to be significant for my research as it afforded me the possibility to investigate further the topic of co-design and particularly to delve into the notion of empathy in the design process (Fig. 16).

This design project was carried out by the Helsinki-based social impact company Marketing for International Development (M4ID, renamed Scope) and funded by the Bill & Melinda Gates Foundation. The main objective of the design project was to prevent maternal and child deaths through comprehensive design, enabling smoother and safer maternal and new-born birth experiences with a focus on the quality of care.

M4ID gathered background information for the project from several related service design projects they had previously conducted in Tanzania, Uganda, Kenya, Nigeria and India. The project applied these materials along with the World Health Organisation (WHO) guidelines as the basis of the design. Additionally, M4ID employed an advisory board of medical experts from multiple countries, in both low and high-income settings.

M4ID formed three design teams: one on architecture, led by me; a second on services; and a third on products. We (i.e., the architecture team) conducted background research in December 2015 and January 2016 in Zanzibar. We gathered data through observations in five different hospitals on the island and semi-structured interviews with women, healthcare providers and traditional birth attendants. Additionally, we organised two separate workshops with women and men, respectively. We also received support, knowledge and contacts from the Health Improvement Project



*Figure 16. Workshop with health care providers in Odisha.*

Zanzibar (HIPZ), an NGO that runs two of the state hospitals in Zanzibar. HIPZ had recently coordinated a thorough study on the maternity field of northern Zanzibar that revealed the need for a new maternity ward. The data was gathered as a foundation for the design process, because, at this point, I did not assume the project would be part of my research. We designed a proposal for an extension of the maternity ward of Kivunge hospital, but the extension was not constructed according to our proposal for reasons I am unaware of (Fig. 17).

In 2018, we prototyped the design concept in the town of Basta in Odisha, India, as a refurbishment of an existing healthcare facility. The M4ID team, myself and a local consulting firm, 4th Wheel, conducted additional observations, semi-structured interviews, workshops and design-probing exercises in 2017 and 2018 in Basta and Balasore. The refurbished facility began operations on December 15, 2018.

The aims of the design project were relevant in both Odisha and Zanzibar, and presumably in many other countries where there is a similar situation in the maternal healthcare sector. Healthcare facilities are crowded; mothers and mothers-to-be do not have agency; the quality of care could be improved; and the level of hygiene is often low (Fig. 18). In both countries the health-care system is built upon the colonial legacy and Western medical principles that have not acknowledged local traditions (Hunt, 1999). However, Odisha and Zanzibar are different cases, even if seen from a clinical point of view. Although the actual birthing process is the same, there are varying cultural traditions, divergent norms, as well as dissimilarly operating health-care systems. In both places, we tried to improve the existing situation based on the available terms. Our original intention with the design project was to design with empathy throughout the process. This experience motivated me to include the project in this thesis. I use some situations of the design process of this project to discuss empathic engagement in Paper V.

My choice of these projects helped me to frame the direction of the thesis. Moreover, these cases and settings functioned as the landscape where the intertwined design and reflection on the design process took place. Toward the end of the writing process, I was combining reflections on the design process with theoretical inquiry. It was particularly important to follow a design research approach that allowed for openness and flexibility in the increasingly complex systems it was dealing with (Koskinen et al., 2008) in the two cases and settings where I worked, due to the vulnerable situation of the participants.

*Figure 17. We created a magnet board to study the alternative spatial arrangements for the ward that was exhibited and in use by the public in the Women Deliver conference, 2016.*


## 2.3 RESEARCH THROUGH DESIGN

The design practice has proven to be suitable as an instrument for socio-cultural and spatial research (van de Weijer, Van Cleempoel, & Heynen, 2014). *Design research* is described as an inquiry in which design engagement has a substantial role in understanding, aspiring for and generating knowledge (Brandt, Redström, Agger Eriksen, & Binder, 2011). To put it simply and using the words of the design researchers Tuuli Mattelmäki and Ben Matthews (2009), it is "the exercise of traditional academic skills such as reading, critical reflection, and argumentation, in combination with doing design work". However, when the already manifold and unpredictable process of design is incorporated into academic research, describing the methodological journey is to me like finding a path between the trees in a blurred photograph of a landscape. During the design processes developed within this study, due to the complex and constantly changing situation, it was necessary for me to be creatively flexible and use an assortment of means and methods while learning along the way. Comfortingly, Mattelmäki and Matthews (2009) proposed that design research should be seen as a family of heterogeneous methods in which multiple connections between design and research can be present. Furthermore, the architects Marijn van de Weijer, Koenraad Van Cleempoel and Hilde Heynen (2014) agree with this

when they describe design as a partial methodology, in which instruments of design are used in research.

In the case of this thesis, both the research and the design processes had multiple goals, in other words, design and research outcomes. Mattelmäki and Matthews (2009) emphasise the importance of understanding clearly when one is designing and when one is contributing to research. The part of my study with the focus on the design process incorporating collaborative design methods could be interpreted as *research for design* (Frayling, 1993) or *reflection for design* (Blythe & van Schaik, 2013), in which the research intention was to improve design strategies and enhance connections between actors in the design process. On the other hand, the side of the research related to theory building, in which I reflected on the notion of empathy, can be defined as *research through design* (Frayling, 1993) or *reflection on design* (Blythe & van Schaik, 2013). I did the design work with an empathic intention, but the analyses and theory building happened only after the design process, recognising empathic engagement based on the theoretical understanding gained from the literature. These distinctions are relevant as they enlighten the order of priorities and distinguish the research activity from the design activity. When researching for design or reflecting for design, the design result is prioritised — how can the research improve the design? On the other hand, when researching through design or reflecting on design, the research result is prioritised — how can design inform research?

Design research can be *practice-led* when the designer reflects on their design process through a research topic (Mäkelä & Nimkulrat, 2011). In a seminal workshop on practice-led research organised in 2006 by Professor Chris Rust, this approach was defined as research in which the professional creative practice functions as a "vehicle for an exploration that contributes to knowledge and understanding". However, it is not research in itself (Mäkelä & Routarinne, 2006, p. 12). Throughout this journey, the practice motivated me to do research. To begin with, the continued practice guided the directions of the research journey; the practice constituted the field context in which I was able to experiment with different methods; and ultimately, I analysed my practice in order to attain the results of this research. The research process was not linear, but was moving between theory and practice, learning and adapting after each turn (Mäkelä & Nimkulrat, 2011).

In the last three papers (3, 4, and 5), the design practice provided contexts for the research and communities with which to collaborate. In the process, I used different methods in the two cases that resulted in heterogeneous research material. Besides this, the contexts provided me with access to reality in my research. In the affordable housing case, it was intriguing for me to have the opportunity to engage in a design process with inhabitants who in reality were in a situation of potential eviction. Therefore, there was a real need for a housing solution that both the inhabitants and the government could agree on. Otherwise, the former would most probably have to move from the area sooner or later. This unique possibility to deal with a real need for the design motivated both the design process and the research process. On the other hand, in the case of the maternity ward, the design process was not conceived of to try out particular methods or designs, but to innovate new possibilities for improvement of the delivery process in low-resource settings. Nevertheless, the possibility to investigate and analyse empathy as it had occurred in reality made the research tangible.

Because the projects I was involved with were complex and unpredictable, the loops in the evolving inquiry varied in time and length. Nevertheless, it is possible to detect a structure. Concerning the affordable housing project, I executed the design using established methods of design research, which I had discovered through reviewing the literature. The actual utilisation of a given method guided me to the choice of the next one. However, in the maternity ward, the reflection happened mainly retrospectively because the design project was originally not part of my research.

In these research processes, the design played an active role. In both the housing and the maternity ward cases, the results of the engaging exercises informed the design, whereas the means of design generated material for the research (Mottram & Rust, 2008). This form of research would be defined as *action research through design*, according to the art scholar Christopher Frayling (1993) in his early writings on research through design. The action research can in this case be comparable to practice-led research since Frayling (1993) defines action research as reflecting on and documenting practical experiments. More precisely, in my case, it should be called *participatory practice-led research through design* because I involved participants in my design process.

The documentation of such a process, that is, the research material gathered in the end, is not heterogenic or structural. It is complex, rich, and even messy sometimes. In my case, this kind of material represents the data for the last three papers. I had a diverse collection of data to study, consisting of field notes and journals from site visits, informal and formal interviews, workshop results, design probing responses, photographs, video clips and sketches. Additionally, in the maternity ward case, we had the results from a baseline study and an impact assessment conducted by an Indian research firm on our behalf (Table 2). To arrive at the conclusions I made, I organised all the material I had gathered and analysed the data. In the case of the housing project, this happened along the way of the design process, whereas in the maternity ward project I did the analyses retrospectively in comparison with existing theory. The physical outcome of the designs are not my research results as opposed to my reflections, recol-

lections and understanding of the design processes and the relationship between the architect (me) and the inhabitants.

Richard Blythe and Leon van Schaik (2013) discussed reflective methodology as being a natural part of an active design process. They identified three dynamic aspects of reflection: *reflection on* previous projects, *reflection in* amid the process on the next move, and *reflection for* future projects (Blythe & van Schaik, 2013, pp. 62–63). In addition, the practice-led design researchers Maarit Mäkelä and Nithikul Nimkulrat (2011) see *reflecting in action* and *reflecting on action* (Schön, 1983) as tools when building design theory. Reflection is common in practice-led research, in which the actions are guided by the practice or design process in the first place, research in the second. The evolving of the research is not predictable but emerges over time according to the needs (Jefferies, 2012).

Regarding these aspects in my research, the first, second and fifth papers *reflect on* previous projects because the first paper discusses projects executed before my research, the second reflects on projects designed by other architects, while the fifth paper analyses the design process of a project that was not initially part of my research plan. On the other hand, the third paper particularly *reflects in* as the design process and the theory building happened simultaneously, whereas the fourth paper could be seen as *reflecting on* design in retrospect and *reflecting for* future projects as it acknowledges the potential of a particular method for architectural design in low- to middle-income countries. Accordingly, this thesis represents a journey from Paper I to Paper V, in which the design decisions paved the way for the research and, dialectically, the research affected the design process.

### 2.3.1 CRITICAL REFLECTIONS ON THE NATURE OF THIS RESEARCH

In philosophically established terms, my research belongs to the social constructivist paradigm of inquiry due to the acknowledgment of the foundation of cultural differences and the significant role I gave to the social interactions of the different players in the creation of knowledge (Audi, 1999). Referring to the paradigms of inquiry presented by Carol Gray and Julian Malins (2004) and Linda Groat and David Wang (2013), my approach can be explained as constructivist with a relativist ontology because I acknowledged multiple constructed realities and described personal experiences. Additionally, following their proposition, findings emerge from interactions between inquirer and inquired and knowledge is co-constructed with participants. Finally, my research developed simultaneously with the design projects and the methodology for inquiry and theory building evolved during the process of learning, repeating and reflecting throughout the project, as well as in retrospect.

As theory building in this research emerged with time, intertwined with practice, the view of the research landscape often felt out of focus. Thus, it was sometimes difficult to know where the road was or which direction to choose at a crossroads. In the most chaotic moments, it was easy for me to become immersed in the design because that was familiar territory for me, and I might forget to follow up the research aspects. Nevertheless, this form of research was rich and allowed for the new to emerge in creative moments of producing together. The evolving process, not always directed by myself but by other circumstances, also taught me to trust my intuition and appreciate my flexibility.

| HOUSING | DATA |
|---|---|
| Background information | Reports, books and project documentation on Zanzibar Town and Ng'ambo<br><br>Semi-structured interview with the head of the Department of Urban and Rural Planning, Dr. Muhammad Juma<br><br>Semi-structured interview with the director of the non-governmental organisation African Architecture Matters, Dr. Antoni Folkers |
| | DATA COLLECTED IN ZANZIBAR, 2015–2017 |
| Using methods without user involvement | Observations and documentation of the neighbourhood<br><br>Documentations and journals of ethnographic observations and visits in 13 homes |
| Using methods and tools that involved users | Results from one workshop with 11 inhabitants from different households. Results from one workshop with 9 inhabitants from different households (all also participated in the previously arranged workshop with a different theme)<br><br>Design probing results by 5 inhabitants from different households |
| Meetings with users that achieved a personal level | Discussions together with 2 of the participants on the probing results<br><br>Theme discussions with 5 inhabitants from different households |
| Feedback | Presentation of the designs and discussions with 8 inhabitants |

*Table 1. Overview of the available data from the housing project 2015–2017.*

| MATERNITY WARD | DATA | |
|---|---|---|
| Background information | World Health Organization (WHO) guidelines<br>M4ID's previous research related to maternal health in Tanzania, Uganda, Kenya, Nigeria and India<br>Publications on medical background information related to best practices and benchmark projects | |
| | DATA COLLECTED IN ZANZIBAR, 2015–2016 | DATA COLLECTED IN ODISHA, 2017–2018 |
| Using methods without user involvement | Study on the needs for maternal health care in Northern Zanzibar<br>Reflections on our own experiences of giving birth<br>Documented observations in 5 existing facilities<br>Journals from our periods of site visits<br>Photographs and films | Baseline study done by 4th Wheel in Odisha based on a survey done by 58 women (15% of monthly deliveries in Basta) and 16 birth attendants (ashas), and semi-structured interviews with healthcare workers<br>Publications of medical background information related to best practices and benchmark projects<br>Reflections on our own experiences of giving birth<br>Documented observations in 2 existing facilities<br>A survey done of more than 20 mothers.<br>Journals from our periods of site visits.<br>Photographs and films |
| Using methods and tools that involved users | 7 semi-structured interviews with healthcare providers<br>Material from one workshop with 3 local men whose wives had recently given birth | Material from one workshop with 11 healthcare providers<br>More than 5 semi-structured interviews with healthcare providers<br>More than 10 semi-structured interviews with women in labour in the facilities.<br>More than 10 semi-structured interviews with women who had recently given birth<br>More than 10 semi-structured interviews with birth attendants (ashas).<br>Design-probing exercises with 5 mothers and ashas.<br>Prototyping and a feedback session with 3 mothers. |
| Meetings with users that achieved a personal level | Material from one workshop with 6 local women who had recently given birth<br>Documentation of one meeting with 2 local traditional birth attendants and 3 women who had recently given birth<br>3 semi-structured interviews with healthcare providers | – |
| Feedback | – | Impact assessment conducted after the facility had been in use for one month. |

*Table 2. Overview of the available data from the maternity ward projects 2015–2018.*

*Figure 18. Maternity wards in Odisha, India, are often crowded.*

## 3 SUMMARY OF RESEARCH PAPERS

In Chapter 3, I explain the structure of the research and briefly present the five papers that, along with this introduction, form the doctoral thesis. The map of my research was drawn along the way, based on my decisions to choose one path in favour of another. However, these choices depended on circumstances related to the other actors and contexts. Regarding this type of process, the architect Peter Gall Krogh and design researchers Thomas Markussen and Anne Louise Bang (2015, p. 39) explained research through design as "process-loops where hypothesis, experiments, and insights concurrently affect one another and result in a drift of research focus and continued adjustment of experiments to stabilise the research endeavour." They acknowledged *drifting* as a measure of quality as it ensures the capability of the researcher to learn from findings and adjust the research journey accordingly. Likewise, the nature of a compilation thesis — i.e., a thesis consisting of an introduction and published academic papers (Gustavii, 2012) — is to learn along the way. In my thesis, the papers are organised in the order that they were written, thus acknowledging the roadmap of my research journey. The papers do not follow the same format nor a similar structure of argumentation. There are many reasons for this: firstly, four out of the five papers were written with co-authors, who thus took part in shaping the discussion and argumentation; secondly, the papers relate to different field contexts, which shaped their content; and thirdly, they were published in four different journals or books, which meant that the review process influenced the argumentation. Moreover, the papers were written before this introduction, the purpose of which is to bind them together, connect the different territories, and paint the landscape of the research.

The first paper explains where I come from professionally, the landscape of my background. The paper was written on the basis of a keynote speech and later published in an architectural research journal. The text of this paper had evolved over a longer period, and the discussed projects, mostly in Africa, were designed within a timeframe of 20 years. Consequently, the results of the first paper represent the motivation for moving from practice to research; the paper explains where the basis of my motivation to engage on the journey lay. In the process of writing, I realised the need for a change in the role of the architect active in low- to middle-income countries. This was the starting point of my journey (Fig. 19).

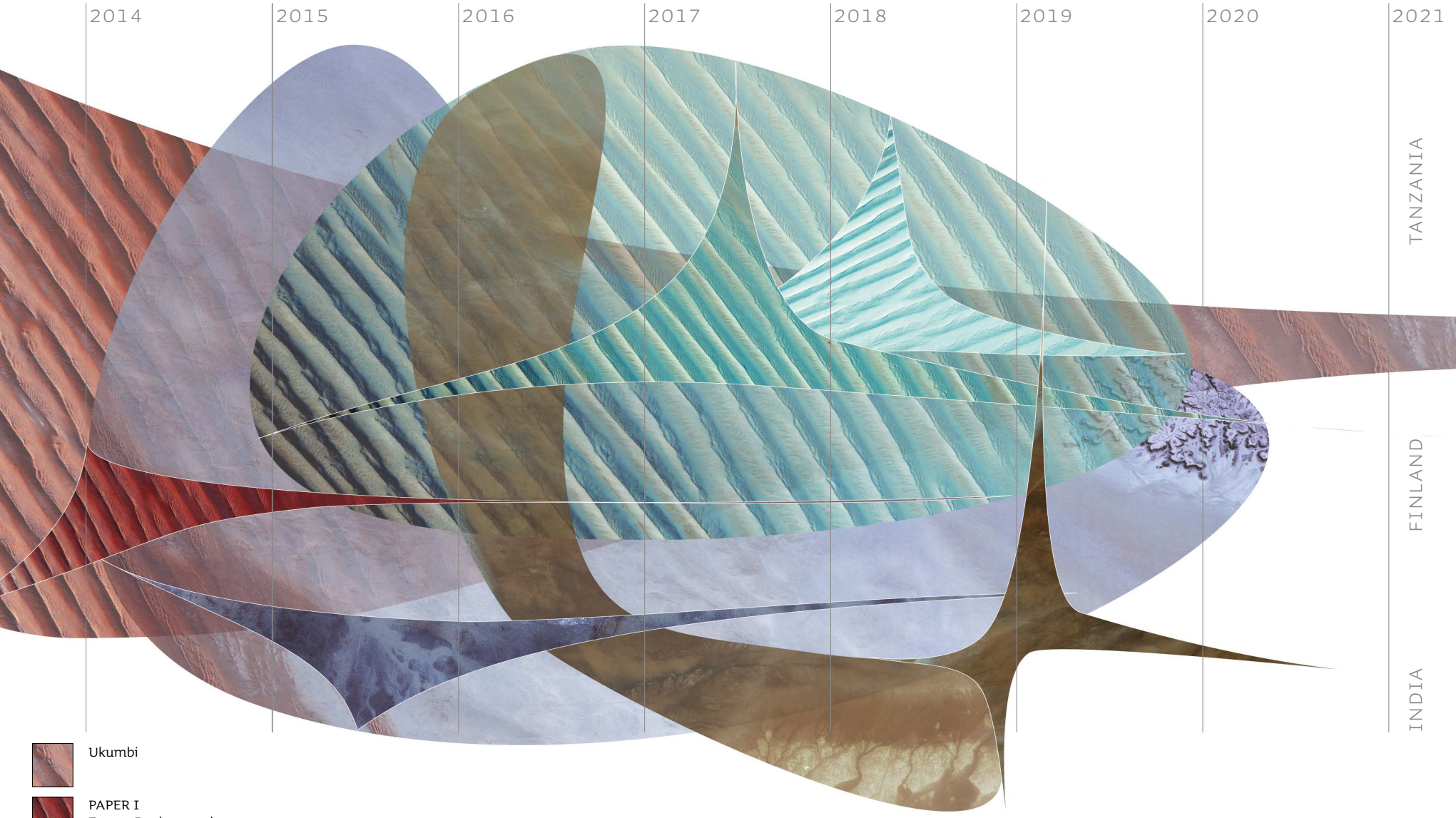
In the second paper, published in a journal devoted to sustainability, I sought evidence that this journey was relevant when looking at the situation from a broader perspective and taking advantage of the academic environment of the New Global research group. In this paper I thus included projects designed by other architects. I broadly surveyed sustainability measurement tools and social housing in order to identify the gaps related to socio-cultural sustainability. The findings in this paper pointed at the importance of the socio-cultural aspect of sustainability that can be easily neglected, and how empathy can be a means to avoid this in the architectural design process. These findings led me to the core of my research, namely, the architect-inhabitant relationship and empathy (Fig. 19).

In the third paper, published in an architectural research journal following a presentation I made at a conference, I took the first steps in examining the gap mentioned above by engaging users in the design process of a project of my own. I studied various optional design methods for this engagement. This paper reflects on the design process of the affordable housing project in Zanzibar. The findings of the study indicated that several methods, borrowed from the design discipline, are useful when applied in architectural projects in low- to middle-income settings, and that the empathic design method of design probing, in particular, had many advantages when seeking greater proximity between architects and inhabitants (Fig. 19).

The focus of the fourth paper, a chapter in a book on resilience and also the result of a conference presentation, was on design probing, examining it both theoretically and empirically. As this method had proven beneficial in the affordable housing project, I wanted to explore it more closely. The findings of the study showed the multiple possibilities of this method and also emphasised how empathy can lead to deeper relationships between architects and inhabitants (Fig. 19).

The last paper, published in a design journal, represents the destination of my research journey. In this paper, I studied the notion of empathy and how it is approached in design and architecture discourses. Furthermore, I retrospectively reflected on my empathic engagement in the design process of the maternity wards for low-resource settings. This paper resulted in a proposal of different registers of empathic engagement during the design process (Fig. 19).

In the following sections, I briefly summarise the five papers, focusing on the aspects that are relevant to this thesis in order to weave the red thread that links them together.




Ukumbi

PAPER I
Focus: Background
Method: Reflection on previous projects
Main reference: Zaera-Polo

The New Global

PAPER II
Focus: Sustainability
Method: Reflection on other people's design
Main references:
Aravena, Iacobelli, Ndezi, Hussain...

Affordable Housing (DoURP)
in Ng'ambo, Zanzibar, Tanzania

PAPER III
Focus: Design methods
Method: Reflection in the design process of the affordable housing project
Main references:
Steen, Sanders, Stappers...

PAPER IV
Focus: Design probing
Method: Reflection on the affordable housing project and for future projects
Main references: Mattelmäki, Gaver...

Maternity wards (M4ID)
in Kivunge, Zanzibar, Tanzania and
in Basta, Odisha, India

PAPER V
Focus: Empathy
Method: Reflection on the maternity ward project
Main refernces: Akama, Smeenk, Hollan, Pallasmaa...

*Figure 19. The diagram illustrates the territory and the timeline of my research journey. The different colour fields show the sequential and overlapping processes in time, region, research context and collaboration partners. The sharper figures show the theory building in the papers and their relationships to the fields.*

*Figure 20. KWIECO shelter home, Moshi, Tanzania, Hollmén Reuter Sandman Architects, 2005.*

### 3.1 PAPER I: EQUALITY QUALITY: ARCHITECTURAL PLANNING FOR UNDERPRIVILEGED GROUPS

A building can be an island of stability in a turbulent world. The need for stability influences its siting, structural demands, functionality and appearance. Also, the building process can enhance stability, empower and unite a community. Hollmén Reuter Sandman Architects and the NGO Ukumbi aspire to use architecture as a tool to improve the living conditions of underprivileged communities. We, Saija Hollmén, Jenni Reuter and I, began our architecture work in low- to middle-income countries almost 20 years ago. Since then, socially engaged architecture has moved from the professional margins towards the frontline. In the last decade, the architectural discourse has shown a growing interest in the possibility of a social and humanitarian re-engagement of the discipline. The issue had faded from general debate after the 1970s but now seems to be back on the scene. This implies the recognition of the impact that a successful building project in a low-resource setting can have. Such an impact can be twofold, consisting of *on-site* and *off-site* effects. On-site, the building can make a difference in social, technological, economic and cultural terms. Its impact also differs from one phase of the project to the next. When the design process involves the local community, it influences a small but important group that may include politicians, community leaders, planners, builders and inhabitants. The integrated process of planning, design, and participation is most probably new to the community in question. The architect's ability to combine his or her expertise and experience with that of the local community becomes an important aspect of the project. Such an aspect can be successful even when the project is not ultimately constructed. In the end, the broadest but least tangible effects of the building are off-site because a successful building project constructed sustainably may eventually influence and dignify countless people (Fig. 20)

### 3.2 PAPER II: USING EMPATHIC DESIGN AS A TOOL FOR URBAN SUSTAINABILITY IN LOW-RESOURCE SETTINGS

Architectural design plays a crucial role in sustainable city development. In fast-growing cities in low- to middle-income countries, it can be a challenge to achieve sustainable results. As a response, the objective of this paper was to better understand the interconnectedness between the different dimensions of sustainability and recognise the points in the design process that most urgently require a participatory input. In this paper, we propose the use of empathic design, a concept borrowed from the design field, as a means to support the work of architects and other stakeholders in these settings. To investigate the aspects in which this methodology could be

*Figure 21. Chamazi, Dar es Salaam, Tanzania, 2014.*

helpful, we synthesised two existing sustainability models. We then applied them to three examples that represent the context of our research: all provided housing for less advantaged parts of the society and were situated in low- to middle-income areas. In addition, the design processes of these projects were carried out in very different ways; one initiated by the inhabitants themselves, one involving the inhabitants in a thorough participatory design process, and one not involving the inhabitants at all. Thus, the level and type of inhabitant engagement varied in the three projects and illustrated when an approach originating in empathy might be required. After analysing the examples, we propose a model which has an equal balance between the four dimensions of sustainability — environmental, economic, social and cultural — and highlighted the aspects that most need inhabitant engagement. Consequently, the findings illuminate that sustainability analyses cannot focus only on the outputs of design processes, but, instead, they must include indicators for the unfolding of the process itself. Similarly, it is important to estimate how well the architect and other actors have managed to create and maintain a connection with each other throughout the design process. To enhance the proximity between actors, we draw on principles of empathic design. This design approach emphasises the importance of an emotional connection between designers and inhabitants when aiming to understand the social and cultural aspects of a community. Moreover, we argue that to hold the balance between the diverse dimensions of sustainability, the architect needs an in-depth understanding of the living conditions of people for whom she or he is designing. This calls for a fine-tuned empathic approach when designing in low-resource settings (Fig. 21).

### 3.3 PAPER III: SHOULDN'T ALL ARCHITECTURE BE DESIGNED WITH EMPATHY? A CASE OF AFFORDABLE-HOUSING DESIGN IN ZANZIBAR

Rapid urbanisation and the resulting fast-growing informal areas increase the need for affordable housing. This urgent need requires new forms of input from architects active in the Global South. Based on previous research, I argue that to build sustainable communities the inhabitants must be heard and must participate in the process. To involve inhabitants, architects can employ contextually suitable and effective design methods. To this end, the design discipline offers a wide range of methods, tools and techniques for user engagement. This paper describes the application of four different methods: applied ethnography, co-design workshops, design probing and theme discussions in the early stages of an affordable housing design project in Zanzibar. The project illustrates how these approaches can

*Figure 22. The backyards are much utilised, as an extended living room, as a kitchen and for laundry, particularly by the women of the family, Ng'ambo, 2016.*

be applied in the architectural design process, how they complement each other, what adaptations and changes I needed to make, and what benefits and limitations I detected. These findings suggest that the use of these methods can positively influence the architectural planning of housing and support the architects in better considering the socio-cultural aspects of sustainability. The findings also illustrate that architects can move toward an understanding of the locality and the inhabitants in more meaningful ways using methods that are time-efficient and flexible (Fig. 22).

### 3.4 PAPER IV: PROBING FOR RESILIENCE: EXPLORING DESIGN WITH EMPATHY IN ZANZIBAR, TANZANIA

We argue in this paper that to keep pace with rapid urban changes and to build sustainable and resilient communities, we need to develop inclusive architectural design processes. When community members are effectively engaged in the development of their habitat, they are empowered and possibly inspired to embrace endeavours that promote the resilience of the community, which further improves the overall sustainability. With the help

of two examples from our design processes, we discuss the advantages of using a collaboration method, borrowed from the design discipline, namely, design probing. This method invites inhabitants to have an active role in changing their living environment and helps architects to understand the community for whom they are designing. Thus, we hypothesise that an empathic design method like this can help to diminish the gaps between stakeholders and enhance empathy and understanding between people — architects and community members alike. Additionally, by directing the attention of the participants to aspects of their everyday life and environment through the probes, the design process encourages and empowers the participants to tackle these issues themselves. When the inhabitants find that their participation matters and can translate into changes for the better, their feeling of empowerment and ownership is enhanced and can encourage further actions to develop their community's sustainability. The examples presented here illustrate the potential that design probing has as a technique to support a community's ability to adapt to change and to keep developing without losing its core characteristics (Fig. 23).

*Figure 23. Design probing in Ng'ambo, 2016.*

### 3.5 PAPER V: UNBOXING EMPATHY: REFLECTING ON ARCHITECTURAL DESIGN FOR MATERNAL HEALTH

Co-design aims to bring designers and end-users together to improve the quality of design projects. To build upon this, we focused on this relation concerning the social distance between designer and user, and how it could be reduced to create depth[5] in the design process. In this paper, we studied how to enhance the proximity between actors, particularly in settings where it might be lacking. Especially when designing in low- to middle-income settings, or when users are in a vulnerable situation, in other words, in the fields where we work, there are often factors that prevent proximity. Empathy can be a guiding philosophy to reduce distance and deepen the design process. We here refer to the concept of empathy in a broad sense as experiencing and appraising the world from another's point of view and as a quality of social encounters. As designers and architects seldom design for themselves and their designs often affect several people, we assert that empathy ought to be one of their core professional competencies. Therefore, professionals in these fields would benefit from a better understanding of the multidimensional nature of empathy. By investigating various approaches to empathy in design and architecture, we could retrospectively understand the various aspects of the design process of the maternity-ward project in which we were involved (Fig. 24.). Engaging a theoretical clarification of empathy as a multidimensional concept made it possible to empirically explicate diverse difficulties that designers face when trying to employ empathy as a guiding philosophy in their work. As a result, we identified three *registers of empathy* on a varying proximity scale that can be integrated into the design process: firstly, *empathy from a distance* embodies the value of the architect's/designer's presence and capacity to employ personal experiences and an active motivation to imagining being the user; secondly, *engaging empathy* emphasises the users, with a pragmatic focus on their activities, emotions and aspirations using practical methods and tools; and thirdly, *empathy in depth* proposes that the designers and architects take a step closer to the users, seek out similarities and differences, and aim to reduce social distances between stakeholders. In conclusion, our work illustrated that these registers of empathy can complement each other or be used in different circumstances when one of them might be more appropriate than another. By presenting these registers, we sought to unbox the different views on empathy and draw attention to the potential of empathic engagement when aiming for depth in a project.

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5 Elsewhere in this introductory chapter, I have replaced the word *depth* in this context due to its multiple meanings, with horizontality or rootedness.

*Figure 24. Laundry from the maternity ward at Mnazi Moja Hospital, Zanzibar Town, Tanzania, 2015.*

## 4 UNDERSTANDING DESIGNING WITH EMPATHY

The *registers of empathy* constitute the core of my research and, therefore, I focus on empathy here in Chapter 4 of the introduction as well as in the following, "Bringing theory to life", Chapter 5, to better explain the context that led to my proposition of the different registers within the design process. I organised these sections that represent the foreground theory and the findings of my research according to the various approaches to empathy in design and architecture. I primarily expand on the theory and findings of Paper V that represents the final destination of my research journey.

In the following, I will delve deeper into the concept of *empathy,* answering my research question 2: *How is the notion of* empathy *understood, interpreted and used in design and architecture?*

The concept of empathy in design is fragmented. For this reason, the purpose in this chapter is to understand empathy as part of the design process and to study how empathy can support the design process when working with vulnerable users in the pursuit of socio-cultural sustainability in low- to middle-income countries. I wanted to identify and articulate the differences within and across the design disciplines in order to clarify the scholarly approaches behind the various ways of empathising in architecture and design. The term empathy is widely used by architects and designers and continues to be popular and relevant across the fields. However, what is actually meant by empathy can vary to such an extent that is sometimes is confusing and misleading. Consequently, within the professions, the term should be better understood and articulated as regards the different assumptions, contexts and uses of its sources in order to construct a more robust basis for research and practice.

In the following sections, I will begin by briefly considering some of the definitions and different forms of empathy as discussed in philosophy and psychology. Subsequently, I present a couple of holistic views on empathy as part of the design process followed by selected discussions from the architecture and design discourses that show the different perceptions of what constitutes an empathic approach. I have organised the discussions about different design approaches according to the proximity of the empathiser and the empathised, which means, in this case, the social distance between the architect/designer and the inhabitant/user. For instance, in architecture discourse empathy is often discussed in the form of imagination when the architect is not collaborating with the actual inhabitants-to-be, whereas in design discourse the designers engage the users by employing empathic design methods. Thus, in design discourse, the contact between designers and users is considered important, whereas in architecture discourse this is not evident. I will elaborate on this in the following sections.

### 4.1 EMPATHY AS A CONCEPT

It is important to recognise the empathy discourse in the fields of philosophy and psychology in order to understand the use of this notion in design even if it is beyond the reach of this research to provide a comprehensive discussion on the concept. In the recent "Routledge Handbook on the Philosophy of Empathy", the editor and philosopher Heidi Maibom (2017, p. 1) differentiates *cognitive* and *affective* empathy. She explains cognitive empathy as "the ability to ascribe mental states to others", in other words, one empathises cognitively when one reflects on or positions oneself in the place of another to see how one would feel. On the other hand, she describes affective empathy (also often called *emotional empathy*) as a situation in which the empathiser is emotionally involved on a personal level. In the Handbook, Maibom (2017) concludes that cognitive empathy does not necessarily involve emotions, whereas affective empathy often involves cognition. However, other leading psychologists argue that empathy is foremost an affective process guided by cognition (Baldner & McGinley, 2016).

Within a design process, cognition and emotions, in other words, thinking and feeling, often get mixed. However, it is worthwhile to be aware of the existence of both dimensions, even if it might not always be important to separate them. In this regard, conflicting views on empathy were the primary finding from my extensive review across a selection of the literature within the design and architecture fields. Broadly, within these fields, scholars agree that empathy can build bridges between actors. However, in his extensive writings on empathy in architecture, Pallasmaa (e.g., 2015) ascribes the architect a strong role, and he understands the architect's imagination, thus seeing cognition as a means of being empathically involved. This is similar to the way Maibom (2017) defined cognitive empathy, through the imagination, thinking how the other would feel. On the other hand, in the empathic design discourse, the main focus is on the user's experience, and thus there is less emphasis on the role of the designer. In this approach, the cognitive is combined with the affective, designers and users are collaborating, and the proximity evokes feelings.

Considering the different views presented above, empathic engagement can happen on a scale ranging from only within the thinking domain to deep emotional involvement. Within this scale, the psychologists Conrad Baldner and Jared Ginley (2014) propose dividing the construct of empathy into six factors: *emotional interest, perceived other's awareness, vicarious emotional experience*, *perspective-taking* and *sensitivity*. Additionally, the design researchers Wina Smeenk and her colleagues suggested *self-awareness*

and *personal experience* should be added to the spectra of empathy (Smeenk et al., 2019). These aspects can help us to understand and develop our empathic behaviour. First and foremost, it is important to understand the essential qualities of an empathic experience: the interest and ability to share emotional experiences — both positive and negative; and the abilities to understand them while maintaining the self-other distinction (Baldner & McGinley, 2016). This kind of empathic understanding can motivate action in an altruistic way (Batson, 2011).

Nevertheless, empathy also has a shadow side. Diving deep into empathy can eventually cause a strong counter-reaction of empathic or personal distress if the balance between identification and the distinction between self and other is not preserved (Engelbrektsson, 2020). Distress often prevents action. To avoid such a drawback, both parties should maintain enough distance to not feel emotionally overwhelmed.

Moreover, empathy can also be misguided or fail, particularly when working across cultures or in situations where significant social distance prevails. Thus, we need to be aware of the risks when taking an empathic approach. The anthropologist and psychoanalyst Hollan (2017) has warned that knowledge obtained through an empathic approach can be misused — particularly if used by a third party — even if the original intentions were good. In other words, it is important to be careful when using personal information that has been shared in a situation of trust. Another prevailing risk is to fall into *naive empathy,* failing to recognise the projection of one's own cultural and social beliefs, or one's personal feelings and experiences onto others, particularly when the empathiser originates in a culture other than that of the empathised (Hollan, 2017).

The discussion on empathy I refer to here represents a Western view. I acknowledge that there are many other ways, practices and beliefs about understanding and feeling for each other in other cultures that are valuable and can be explained with similar or different concepts. Thus, empathy is part of the social and cultural environment in which it is embedded (Hollan, 2017). Likewise, there are often existing indigenous co-work practices that can be applied with advantage in a design process (Akama, Hagen, & Whaanga-Schollum, 2019). However, in this thesis, in which I investigate the relationship between designers and those they design for as well as the methods from design research used in architectural design, the Western view on empathy is applicable as a framework.

In the following sections, I introduce how I mapped out the meanings of empathy within the selection of literature in my review across architecture and design. As a result, I identified three approaches to empathy. Firstly, when it occurs from a distance; secondly, when users are engaged through empathic design methods; and, thirdly, when aspiring for horizontality and profoundness in the design process. The three emerging approaches represent a synthesis, that I further build upon in the following sections of this chapter as well as in Chapter 5, by proposing combinations of various empathic approaches in the design process.

## 4.2 EMPATHY WITHIN THE DESIGN PROCESS

A design process is a complex sum of parts with a mix of stakeholders. The beginning is often unclear and *fuzzy* (e.g., Sanders & Stappers, 2008), and the journey to the end is long. Some scholars propose empathy as an approach particularly for the beginning of the design process (e.g., Koskinen & Battarbee, 2003; Sanders & Stappers, 2014). However, others suggest an empathic approach throughout the design endeavour. For instance, the industrial design engineers Merlijn Kouprie and Froukje Sleeswijk Visser (2009) present empathy as a process of four phases or steps, based on several models from psychology literature. Their framework integrates *ability*, *affective resonance* and *cognitive reasoning*. The four steps are 1) *discovery*, when the designer steps into the life of the user, 2) *immersion*, when the designer lingers for a while taking the user's point of reference, 3) *connection*, when the designer finds emotional resonance and meaning, and 4) *detachment*, when the designer steps out of the user's life (Kouprie & Sleeswijk Visser, 2009, pp. 444–445). They conclude by arguing that when mindfully engaged in these four phases during a design process, designers can enhance their empathic abilities and design with increased understanding of the user's perspective.

The design researchers Wina Smeenk and her colleagues (2016) conceive a framework of *mixed perspectives*, which proposes a holistic view of empathy as part of the design process. They identify three perspectives that support designers in employing personal experiences intentionally. In their terminology, designing conventionally, that is, looking at the users from afar without involvement, represents taking a *third-person perspective*. On the other hand, activating the users in collaborative exercises and therefore designing for a known other represents taking a *second-person perspective*. Finally, when designers experience the situation of the users personally, being part of the users' system, and from that point design intuitively, designers take a *first-person perspective.*

These views on empathy as a holistic approach that designers can disperse throughout the design process and use in different situations inspired me to comprehend the concept more profoundly. Combining the different views in architecture and design suggest alternative ways of empathising according to the circumstances and the momentum in the design process.

This can be particularly useful when working in complex settings and with processes evolving rapidly. Through summarising my findings from the examined literature in the following sections, I seek to identify the particularities of the different views in order to combine them and allow the theoretical differences to complement each other.

### 4.3 USING OUR IMAGINATIVE CAPABILITIES

Empathy does not necessarily require a physical presence. In the architecture discourse, empathy is often discussed as an imaginative endeavour (e.g., Robinson 2015; Pallasmaa, 2015), whereas in design, the method of *empathic handover* enables empathising when the users are too vulnerable for collaborative activities (Smeenk et al., 2018). In both approaches, designers seek to empathise even when distant from the users. This is valuable when designing in situations in which it is difficult to involve the users.

In her essay "Boundaries of Skin" in the book "Architecture and Empathy", the architect Sarah Robinson (2015, p. 47) emphasises that "empathy is a further expression of our innate sensitivity to the world". She continues by referring to the philosopher John Dewey's reflections on empathy as being rooted in our imaginative capacity and his definition of empathy as "entering by imagination into the situations of others" (John Dewey, 1932 as cited by Robinson 2015, p. 47). Furthermore, Robinson suggests that while imagination extends the reality of the world temporarily, empathy expands it spatially, being a bridge of connection between ourselves and other beings or elements (Robinson, 2015).

In the same book, in his essay "Empathic and Embodied Imagination: Intuiting Experience and Life in Architecture", Pallasmaa (2015) discusses the issue of empathy in architecture from a phenomenological point of view by agreeing that it is possible to empathise through imagination. He proposes that the architects imagine themselves as users to the extent that the architect plays the role of "a surrogate mother who gives birth to a child of someone who is not biologically capable of doing so herself" (Pallasmaa, 2015, pp. 12–13). The child represents in this case the designed home or building.

This view is criticised by some scholars, who claim that the senses, both physical and mental, of somebody else cannot be imagined rightfully or observed from the outside to be replicated and felt by somebody else (Krippendorff, 2006). Similarly, the philosopher Dan Zahavi (2018) has defined empathy from the phenomenological perspective as "expressive understanding that requires bodily proximity and allows for a distinct experiential grasp of and access to the other's psychological life" (p.42). This definition embraces physical experience, which is critically important in architectural design given that spatial qualities and our relation to space is essentially physical. However, as an example, watching a movie showing a close-up of a crying face can easily evoke empathy in us, regardless of the actual physical distance.

This is further emphasised by Pallasmaa's (2014, p. 82) view that architects can "simulate an actual sensory, emotive and mental encounter with an imagined entity". With the help of their imagination, architects can *be* the user and thus emulate similar emotions to those that the users come to experience. Thus, the design process becomes a course of action geared toward internalising the physical realm and projecting one's self into it, a combination of thinking and feeling (Pallasmaa, 2014). Consequently, talented architects can imagine atmospheres and create them. When imagination is fortified with the capacity for empathy and compassion, they can project themselves into the inner worlds of others (Robinson, 2015). In this way, it is possible to create architecture that can dignify human life (Pallasmaa, 2014).

A deeper issue lies in the contextual limits of empathy in design. Pallasmaa is implicitly reflecting on empathising in culturally shared contexts and practices such as the use of space by architects and users in contexts that are well known to both sides. The architectural solutions thus comprise relatively limited potential differences, culturally speaking. When the contexts are less familiar, the limits of empathy become more pronounced, so much so that empathising, especially through bare imagination, is not reliable. Furthermore, in particular situations, take for instance empathising on the work of medical surgeons, it is beneficial for designing a surgical instrument, but to really succeed with it one also needs deep contextual and interactional understanding of how operating teams, surgical procedures, communication and interaction play out. There is ample evidence that this kind of understanding cannot be achieved by empathising, but it requires a more in-depth and situated approach (e.g. Hartswood et al. 2002; Hyysalo & Lehenkari, 2003; Botero, 2013).

This conscious experience of empathy, according to one phenomenological approach, happens from a first-person point of view (Woodruff Smith, 2013). However, according to my understanding of the mixed-perspectives framework presented by Smeenk et al. (2016), this imagined first-person point of view, presumably lacking immersion with real users, would actually constitute a third-person perspective. Moreover, compared to other approaches in design (in which the actual users physically collaborate in the same space as the designers), this imaginative approach is primarily cognitive because the action happens as a mental output. This idea is in tune with Maibom's (2017) explanation of cognitive empathy: the ability to em-

brace the mental states of others through reflection or perspective-taking, in other words, by imagining or putting oneself in the position of another.

In this view on empathy in architecture, the architect does not necessarily have any contact with the users. For similar situations in the field of design, the *empathic handover* approach was created to develop empathy in designers when they could not meet the users, for instance, when designing for vulnerable users or for others who, for other reasons, are incapable of engaging in co-design (Smeenk et al., 2018). Wina Smeenk and her colleagues developed this method when designing for dementia patients. The method is threefold. It begins with a sequence in which a designer becomes involved with the users and harvests first-hand information using traditional user research methods. This is followed by a sequence in which the designer hands over the information to the other designers in the team through discussions and role-play activities to build empathy in the team focusing on the question "How would it feel if…?". It finally ends with an empathic ideation workshop among the designers, not including the users. This approach requires that there is a person (not necessarily a designer) who is physically engaged with the users during the first sequence. On this point, Smeenk and her colleagues (2018) emphasise that it is important that this person has experience in empathic design because the designer is the one who leads the handover and design workshop sequences. However, if the designer cannot execute the initial user research, the person responsible for the first sequence could potentially be anyone who has insight into the vulnerable users (i.e., without design experience), whereas a designer would lead the workshop together with this person. In that case, this form of empathic design could happen entirely at a distance because the designer and user would not be close to each other.

When we observe other people, we can observe from a distance or be part of the observed field (Flick, 2009). If they are in the proximity when we observe, the physical and also potentially the psychological distance between the empathiser and the empathised is smaller than when we imagine because, in this case, the object of our imagination does not have to be in the proximity, nor even exist as a living being in reality. As an observer, one can keep a proper distance, and only observe, whereas, alternatively, one can participate in activities with the objects of observation (Lincoln & Guba, 1985). When only observing, there is a distance between the observer and the observed, and they are not fully engaged with each other, even if the observer might in some situations interfere with the observed person or being observed can affect the behaviour of the observed. Yet, when observing and meanwhile engaging in activities together, the observer has two simultaneous tasks to accomplish (Lincoln & Guba, 1985). In both cases, being in physical proximity, the designer/architect can experience both cognitive and affective empathy. For instance, we can stay distant and, while we observe, *think* how it would feel to be in the position of the other, or we can through the observation *feel* the emotions of the person we observe. Regarding empathy through observation, there has been ongoing neuroscience research on the matter since the discovery of mirror neurons in the 1990s (Debes, 2017). The mirror neurons are activated in our brain both whether we do something ourselves or whether we observe somebody else doing it. This indicates that observation evokes empathy to some degree. However, it is still unclear whether this reaction is proper empathy or might remain only at the level of recognition (Debes, 2017).

In the design field, *design ethnography* is a methodology in which designers or researchers observe the users often from a distance (e.g., Szymanski & Whalen, 2011; Steen, 2008). When practising ethnography, the designer observes people's lives to understand it but not to interfere or change their living patterns. Ethnography has its origin in anthropology, sociology and ethnomethodology as a method of enlightening and understanding different perspectives of everyday lives. Currently, ethnography is also a common, widely discussed and utilised approach in design as it provides a qualitative description of cultural practices (e.g., Szymanski & Whalen, 2011; Sanders, 2006; Steen, 2008).

The design researcher Mark Steen (2008) has further elaborated on *applied ethnography*, which was pioneered by the anthropologist Lucy Suchman when studying people-machine relations in the late 1970s (Suchman, 2011), as a design research method and recommended its application for understanding people's habits with a focus on particular sub-areas of their lives. By using ethnography in that sense, the designer can frame the endeavour according to what is relevant for the design task (Salvador et al., 1999) (Fig. 25). Applied ethnography, in my understanding, is a more superficial and short-term ethnographic activity than the older, more rigorous academic ethnographic traditions in, for instance, anthropology, as part of which researchers often live and aspire to be part of the societies they study. Applied ethnography allows for delimitations and a focus on a particular phenomenon or segment. In this regard, Sanders (2006) and Steen (2008) suggested that designers should lead the applied ethnography in design because they are the ones actively making efforts to gain a better understanding of the users while observing their lives. This happens in the natural surroundings of the users, and requires physical presence, even if there is no need for thorough engagement with the users. Nevertheless, being in their proximity or entering their space affects the situation. In the design field, this problem is acknowledged, particularly through the use of video ethnography. This method has been developed creatively within design in recent decades using the videos as design material and involving us-

ers in various ways in the production process. This use of videos as design material moves this kind of design ethnography one step on from studying what *is* to studying what *ought to be* (Buur, Binder, & Brandt, 2000). This kind of ethnography approaches co-design due to its collaborative aspect.

In empathic handover and design ethnography, there is a connection between users and designers, even if they might remain distant from each other. In these approaches, the designers predominantly observe the users from a third-person perspective, although they might lightly engage with users from a second-person perspective and even experience some moments from the first-person perspective, according to the mixed-perspective framework (Smeenk et. al., 2016).

When the designer or architect primarily relies on imagination or developing empathy through cognitive activities, it might not always accurately reflect the actual situation of the user (Morton, 2017). Moreover, one's imagination might only partially correspond to reality; one's observations might only show one side of the reality; additionally, one's interpretations of stories might not be accurate. For architects and designers, neither imagination nor observation alone are enough if we want to truly understand the users

*Figure 25. Public meeting spot for men in the Ng'ambo neighbourhood. When seeking to understand, for instance, a neighbourhood and how space is used in different cultural contexts, ethnographic observation is a valuable methodology.*

because these means of empathising do not reveal the users' inner thoughts, feelings or motivations (Fulton Suri, 2003). As a response to this claim, there are several empathic design methods for the purposes of user engagement that can help architects and designers to approach the inhabitants and users.

## 4.4 ENGAGING USERS THROUGH EMPATHIC DESIGN METHODS

A discussion around user involvement in the design process has been part of the design discourse for decades. The discipline represents multiple approaches, methods and tools to support the endeavour of understanding users with empathy (Sanders & Stappers, 2014). Leonard-Barton introduced the term *empathic design* as an umbrella for market research methods with a focus on users (Leonard-Barton, 1995). She proposed three characteristics: 1. Actual observed user behaviour in situ for a period of time, 2. Direct interaction between designers and users, and 3. Drawing on existing technological capabilities (Leonard-Barton, 1995, 194–195). Thereafter, the term was further developed to guide designers to understand the customers' needs and aspirations with an open-minded attitude, observational skills and curiosity, even before the potential customers could recognise these themselves (Leonard & Rayport, 1997).

### 4.4.1 EMPATHIC DESIGN

Today, empathic design is not only related to commercial design because it aims to help designers in general to understand what is meaningful to users and why, and to make design decisions based on this understanding (Smeenk et al., 2019). This approach is widely adopted in the field of design and it has entered into practice in various ways. The concept is thoroughly discussed in the book "Empathic Design: User Experience in Product Design" edited by Ilpo Koskinen, Katja Batterbee and Tuuli Mattelmäki (2003). They describe empathic design as a series of techniques that combine design and qualitative research. The types of techniques, mostly originating in other disciplines, that have been used by designers and design researchers include *design probing* (e.g. Gaver, Dunne & Pacenti, 1999; Mattelmäki, 2006), *storytelling* (e.g. Battarbee, 2003), *prototyping* (e.g. Sanders et al., 2014), *design games* (e.g. Brandt, Messeter, & Binder, 2008; Mattelmäki, Vaajakallio & Koskinen, 2014), observation and *shadowing* (e.g. Fulton Suri, 2003), and *empathic handover* (Smeenk, Sturm, & Eggen, 2018; Smeenk, Sturm, Terken, & Eggen, 2018). Designers can mix and combine these in various novel ways to enable an empathic understanding of users' experiences (Sanders, Brandt, & Binder, 2010; Sanders & Stappers, 2008, 2014). In

all of these methods, the designers seek interaction with the end users or future inhabitants, trying to empathise with their life experience from an early stage of the design process. The focus of this interaction includes the individual desires, moods and emotions of the users that can inspire and guide the project.

Empathic design represents a form of cognitive empathy, in which designers understand users cognitively, without placing a strong emphasis on how this understanding affects themselves emotionally. However, the more profound the process, the more emotionally involved the designers can become. Moreover, according to the mixed-perspectives framework (Smeenk et al., 2016), the empathic design process constitutes a second-person perspective due to the fact that the empathic design discourse often focuses mainly on the user perspective, without considering the designer's personal experience (Smeenk et al., 2016).

One of the tools within the empathic design approach is *design probing*. The design researcher Tuuli Mattelmäki (2006) has, through her extensive research on the tool, proved its value as part of a larger participatory agenda for understanding human phenomena and unveiling design opportunities. This method stood out as useful for me in this regard in the empirical case studies (see Section 5.2 "Engaging Empathy" and Paper IV). Therefore, I will elaborate on that particular method in the following subsection.

### 4.4.2 DESIGN PROBING

When designing in low- to middle-income settings, where there might be several constraints as described above, it is important to identify flexible methods that are easy to modify according to cultural, physical and time circumstances. In this regard, designers have used *design probing* and found it to be a valuable tool when designing in socially critical contexts with and for vulnerable users (Debrah et al., 2017). This method has its origin in research subject self-documentation kits employed in ethnography and sociology (e.g., Adler et al., 1998; Mattelmäki, 2006). As used in empathic design, the method was developed from *cultural probes*, devised by the psychologist and design researcher William Gaver (1999) and his colleagues, pioneers of design methods and probing. The method engages users but, depending on the circumstances, there can be differences regarding how designers execute probing, with varying levels of physical proximity between designers and users. The generic structure of design probing is that the designer prepares a set of assignments, known as a probing package, and sends or gives it to several users who accomplish the assignments on their own and then return the package to the designer. Potentially, this can be followed up by designer-user meetings.

In her doctoral thesis, Mattelmäki (2006) described three features of design probing: the assignments' focus on the user's perspective in a broad sense, from the cultural environment to feelings and needs; the participant's self-documentation; and the exploratory character of the exercise, seeking to identify new opportunities. Consequently, the emphasis of the probes is to inspire *what ought to be*, in contrast to capturing *what is* (Boehner, Gaver, & Boucher, 2012). Between the is and the *ought* to be, there is space for creativity. In this respect, design probes intend to support both users and designers in expanding their creativity. Undeniably, creativity is the main driver in the different phases of the probing process. Firstly, designers create the probes to be as inspiring as possible before distributing them to the participants who, secondly, creatively accomplish the tasks, and thirdly, designers make use of the material received from the participants as creative inspiration for the design task (Gaver, Dunne, & Pacenti, 1999). The creativity of the designer, when preparing the probes package, receiving the probes and inspired by them, and designing, is motivated by the empathic understanding because the input and experiences of the users primarily guide the design.

Furthermore, when receiving the probes, the designer acquires the opportunity to acknowledge certain aspects of the users' lives that would otherwise have remained opaque, due to the distance between them. For the users, the activity can make the familiar seem interesting when viewed through the designer's lens as provided in the probing assignments (Gaver, Boucher, Pennington, & Walker, 2004). On the other hand, for the designer, the probing results can illustrate something surprising and unknown to them, but, through the personal insight of the user, make it familiar (Gaver et al., 2004). Upon receiving the probes, the participants do not know the exact intention behind the exercises because of the distance between them and the designer. Thus, they can personally interpret the assignments and respond with creative freedom. Likewise, for the designer, this detached though still close view into someone's life can be a fruitful standpoint for innovative design ideas; such an "intimate distance" leaves the freedom required for creativity (Gaver et al., 2004, p. 6).

In design probing, one can detect the different approaches of empathic engagement and understanding, as previously presented, throughout the entire process. To design the probes, designers have to imagine themselves in the place of the users, based on their own experiences. At this stage, the capacity to involve personal experiences that can deepen the imagination is valuable. In the second stage, designers create inspiring tasks for users to allow them to share important aspects of their lives. Here, designers engage with users to be able to grasp their emotions and aspirations (Gaver et al. 2004; Mattelmäki, 2006). In the third stage,

designers seek to understand the responses emotionally, not merely intellectually (Gaver et al., 2004).

Originally, Gaver and his colleagues (2004) criticised the application of probing for merely obtaining information rather than getting inspiration. They argued that applying probes to get objective answers in research frameworks endangers the original intentions of the method, which values uncertainty, play and exploration. Furthermore, they argued that most research techniques tend to disguise subjectivity through controlled procedures, the results of which can be considered impersonal, whereas probes can take the opposite approach. In their own probing processes as designers, they refrained from believing that they could scrutinise the heads of the users and instead made use of their subjective interpretations. Encouraging this subjective engagement and empathic interpretations, Gaver and colleagues (2004, p. 56) still accepted that designers can use probes for collecting research material. However, they anticipated that the original motivation of the probes, to retain a "pervasive sense of uncertainty", should be respected. Nevertheless, if the designers interpret the design probing results with the participants, the understanding can be more profound.

In the empathic design approach, the designers seek to understand users with various methods and tools. However, there is a constraint related to the rigid focus on existing methods that lack culturally embodied critical engagement (Botero et al. 2020). For instance, the format of the methods or the way they are executed might not be customised according to the users' cultural background, level of education or position in the society. Therefore, to have a socially sustainable outcome, it is crucial to consider the contextual and situated practical aspects of all methods used, in other words, to customise the methods, tools and materials to the users/inhabitants and to employ them in culturally specific ways (e.g., Messeter et al., 2012; Akama & Yee, 2016; Botero et al. 2020).

### 4.5 AIMING FOR HORIZONTALITY IN DESIGN

Recalling that the task of architecture is to mediate human relationships and that the design process aims to connect stakeholders with the objective of building trust and shared understanding, there is a need for enhancing proximity between designers/architects and users/inhabitants. This need is particularly important when considering the prevailing risk of misunderstandings when working across cultures or with underprivileged, vulnerable or marginalised users in low- to middle-income settings. It is acknowledged in ethnography discourse that there is much to be investigated in the hope of achieving "higher-level forms of human empathy" (Hollan, 2017, p. 349). It is not unambiguously good to take a first-person-like perspective on other people's lives because it involves the risk of errors and can easily be used to harm instead of help — creating boundaries instead of building bridges — while dividing people into victims and rescuers (Hollan, 2017) (Fig. 26).

In the design discourse, a precaution against this risk and a step towards a more profound process is to put the emphasis on awareness and *sensitivity*. In recent literature on empathic design, some researchers emphasise sensitivity as the original cornerstone in empathic design, indicating that designers should acknowledge sensitivity towards people, tools, collaboration and designing (Mattelmäki, Vaajakallio, & Koskinen, 2014). To these, there should also be added — particularly when working in different parts of the world — sensitivity towards cultures, habits and practices. In this regard, the techniques and methods of empathic design allow designers to empathise with people in different physical, social and cultural contexts (Koskinen & Battarbee, 2003). Moreover, there is a call for developing sensitivity to behavioural nuances and details (Messeter et al., 2012) and applying intimacy and awareness when designing for social innovation (Akama & Yee, 2016). These aspects are particularly meaningful beyond the traditional design realm, for instance, when the design is acting as a moderator of change in complex settings where there is a significant distance between actors or when users are in a vulnerable position. In these kinds of situations, it is crucial for the designer to learn about the users and the context and to develop a common understanding and a common aim for the project with all actors (Brandt & Messeter, 2004).

Based on their experiences with vulnerable communities in Cambodia, Hussain and her colleagues (2012) listed the difficulties that they faced, to begin with when employing co-design tools, due to local habits and culture. In this case, the users were shy about participating. The attempt to achieve deep insights into user needs required a thorough understanding of the culture, time and the involvement of various stakeholders, not only the end-users. They advocate for awareness about the risks posed by superficial outcomes in an empathic design approach, particularly under circumstances when the users are not accustomed to being engaged or asked to share their opinions. Trust needs to be built over time because it supports the aim of achieving horizontality.

The design researchers Yoko Akama, Penny Hagen and Desna Whaanga-Schollum (2019) underline the importance of sensitivity to *the other* in intercultural situations. For example, there may be pre-existing issues, such as the users might have been subject to previous consultations or research without outcomes, the translations of concepts could have been misinterpreted, or existing power relations might be unclear. Concerning this phenomenon, Akama and Joyce Yee (2016) have been critical of any traditions,

including co-design, in which designers perceive the processes and methods as universal and replicable. Likewise, Ralitsa Debrah, Retha de la Harpe and Mugendi M'Rithaa (2017) emphasise that designers should consider the socio-cultural dynamics of methods and toolkits for improved outcomes. They underline that contextualised toolkits planned for use by specific users in a specific culture make it easier for participants to relate to the design tools. In their case, this emphasis on developing the tools for specific users resulted in a positive empathic experience for both participants and designers.

To understand the distances created by cultural differences, Akama and Yee (2016) employed the cultural philosopher Thomas Kasulis's (2002) theory that compares integrity to the relationship between seawater and sand: the waves of the sea form the sand, and the beach forms the waves. However, the sand remains sand, and the water remains water. Regarding *intimacy*, Kasulis (2002) compared it to the relationship between water and salt that merge to become seawater. With this intimate orientation to design, the designer seeks to direct attention to cultural, emotional and relational entanglements (Akama & Yee, 2016). This call for design to embrace differences and accommodate heterogeneity requires the acknowledgment of both designers' and users' backgrounds, an awareness of how the present moment unfolds, and a trust in intuition (Akama, Hagen, & Whaanga-Schollum., 2019).

When applying design probing, as discussed in the previous subsection, there is always uncertainty. It is not possible to know what responses the designer will receive because the intention of this tool is not to guide the participants in any sense. This aspect, valuing uncertainty, also requires sensibility from the designers who use probing (Boehner et al., 2012). Moreover, when the users receive the probes and are confronted with their design features, they can obtain an intimate insight into the creativity of the designer. Here, the aim is to bridge the gap between the actors while they identify similarities and recognise differences in their understandings and experiences. At this stage, a relationship on an intimate level might be established between designers and users. This is possible even if a distance between them is inevitable. The probes tend to "create relationships [between designers and users] that are a little like designing for friends: We know them well" (Gaver et al., 2004, p. 6). Thus, probing constitutes an ongoing empathic dialogue that nurtures understanding between the designers and the people for whom they are designing (Boehner et al., 2012). However, this connection can also be extractive if the balance between the asymmetric benefits remain unequal. This can happen if the participants only get a glimpse of the designer's creativity through the exercises, or if they do not receive the same kind of personal information that they themselves are sharing, or if they cannot perceive any other benefits.

Design probing can also be used as a preparation for interviews with the participants. The feeling the designer has of already knowing the participants after the probing exercises mentioned above, and the process of self-documentation the participants have gone through are good foundations for meaningful and well-informed discussions. Particularly in situation where there is a distance between designers and participants, it is critical for designers and participants to meet, discuss, co-explore and make sense of the results together when the probes are returned (Mattelmäki, 2008). This can even be seen as a prerequisite to achieve horizontality. If it is not possible to meet physically, this can in some circumstances potentially be arranged remotely. Given the vast use of self-documentation kits in the social sciences, it is evident that it is these dialogic moments that create probes as reliable as knowledge creation devices. The use of 'cultural probes' (Gaver, 2002) rests on settling on inspiration for design, not producing accountable design for radically differing contextual conditions.

When adding the layer of sensitivity to an empathic approach, it is also possible to create trust in situations in which the distance between designers and users is significant or where the users are in a vulnerable position. On the other hand, an intimate approach to empathy takes the collaboration to more profound levels when inviting all parties to open up to each other and to share both commonalities and differences. In this approach, the focus is equally on the designer and the user. This immersive yet open nature of the relationship between designers and users allows the designer to be emotionally involved. It also indicates a deep empathic engagement in which the designer feels from a first-person perspective, according to the *mixed-perspectives* framework (Smeenk et al., 2016) discussed earlier.

With this kind of approach, when designers modify the methods with sensitivity to the users and their own distinctive heritages and the particular characteristics of their relationship, no design process will be the same. This is supported by the clinical psychologist Carl Rogers's (1961, p. 332) discoveries in his practice in the 1950s, in which "understanding with a person, not about him" makes a significant difference in the relationship. In his case, the listener, and in my case, the architect, needs to be prepared as I "run the risk" or get the opportunity "of being changed" myself (Rogers 1961, 333). As designers and architects, we should willingly step into the voids that are not yet known and be open to potentiality (Akama, 2015). If we pay attention to these voids between us, boundaries can be transformed into togetherness (Akama, 2015). When we intentionally and actively aim to reduce the distance between we architects/designers and the inhabitants/users, we are open to stepping into that void of unknowns and exploring it with curiosity. This is how the new can emerge out of co-design.

*Figure 26. Kivunge maternity ward, Zanzibar, 2016. Sensitivity is imperative when collaborating with users in situations where they might feel vulnerable.*

## 5 BRINGING THEORY TO LIFE

The previous chapter presented a deep dive into some of the main academic discourses and conceptions concerning empathy in design. Here, in Chapter 5, I reflectively inquire into the different theoretical findings presented above in relation to my own empirical experience in the field with the housing and maternity ward design projects in Zanzibar and Odisha. Thus, my objective now is to respond to research question 3: *How can empathy be applied in practice to contribute to decreased social distance between actors and increased horizontality in design?*

In this research, I focused on the relationship between the architect/designer and the dweller/user and particularly on aspects of empathy in this relationship. This thesis proposes that it is crucial to involve users and inhabitants in the design process in order to achieve socio-cultural sustainability (Papers I and II). Additionally, it suggests that several methodologies and methods are valuable for architectural projects in low- to middle-income countries (Paper III). In particular, design probing within the empathic-design methodology stood out as beneficial due to the horizontality it promoted in the encounters after the exercises, even though it did not require a long-term engagement (Paper IV). Furthermore, the literature suggests that designers can practice and feel empathy in both cognitive and emotional ways and can develop it in situations, whether they act from a third, second or first-person perspective.

With the help of the literature and analyses of the research material of the two empirical projects of this thesis, I identified three means of empathising in the design process: through imagination and observation, through engagement and collaboration, and through sensitive and intimate encounters. Inspired by the positive results of an empathic engagement in challenging settings and to characterise the key findings, I propose a set of *registers of empathy* because, in practice, I believe we can use our empathic skills in the way that a singer uses vocal register. Some songs require a high pitch. Likewise, a particular design project may either allow for or require a particular register of empathy. Conversely, in the same way that some songs need multiple registers to resonate, some projects also require a wide range of empathic engagement to achieve a sustainable result. Thus, the registers either need to be combined and used in different parts of the design process or to be employed separately, according to the circumstances of each design case. Regarding the registers that I have identified through the work with this thesis, I refer to them as *empathy from a distance*, *engaging empathy* and *empathy in depth* (Paper V).

This section is organised according to the narrowing social distance — psychological, but also often physical — between designers/architects and users/dwellers while empathising. The sections are named after the registers identified above. I re-examine the theoretical findings from the previous section by reflecting on practical examples as well as on the conclusions that I have arrived at by analysing the data from the field (Table 1). Consequently, I present the findings of combining theory with field experience.

### 5.1 EMPATHY FROM A DISTANCE

In the first register, *empathy from a distance*, as the name implies, there is a distance between the architect/designer and the inhabitant/user. In this register, architects and designers use imagination and/or observation as a tool with which to empathise. The process involves the architects/designers imagining themselves as users. Alternatively, the architect/designer lays the focus on the user through observation. In this form of empathising, the architects/designers value their embodiments, presence, and experiences; they play the important role, while the actual users are not present at all or are observed from a distance.

When designers and architects remain distant from the users and rely on imagination, there are endless possibilities that might only partially correspond to the reality perceived by the future users or dwellers. For instance, when designing the maternity wards, not all the designers in the group had experienced pregnancy and delivery themselves, and therefore, would have been unable to accurately imagine a situation in which they would be a person giving birth. In this regard, reducing the distance between designers and users through collaborative exercises is crucial. Even in a situation in which the activities are familiar, some aspects might be different and lead to misconceptions.

As an example, from the maternity-ward project, those of us designers who had given birth ourselves imagined that the users, in this case, Indian mothers-to-be, would have preferred to move around during labour, even if they had not expressed this in the interviews or workshops (Fig. 27). This conclusion came from observing the mothers-to-be being held in a certain position and asked not to move on the delivery bed or to lie down. Recalling our own deliveries and the need to move, we designed a space and different props that would allow for physical activities. However, when the newly renovated ward was taken into use, the women did not use any of these possibilities for movement; they continued to wait sedentarily or lying down (4th Wheel Social Impact, 2018). This example illustrates that, poten-

*Figure 27. The equipment for physical exercises during labour proposed by the design team did not naturally come to use, at least not straight away when the refurbished building was opened. Photo Abhay Mohanty.*

tially, an architect imagining a reality needs to find support in and rely on additional empathic registers in order to understand the situation correctly. This disconnection revealed the complexity within the dynamic and the risk of imposing one's own beliefs onto another setting, when we would have needed to recognise and explore further at that point in order to resolve it.

When there is a possibility to move a step closer to the users, architects/designers can apply design ethnography to improve the design results by combining their imagination with observation of the reality. The act of observing the living conditions of the users does not require the engagement of the users and might, therefore, be practical in a situation in which user engagement is difficult. In the two empirical cases presented in this thesis, observation was crucial for the design result, in order to have an overview of the activities in the neighbourhood, to observe the living conditions of the inhabitants, and to follow the operations in the existing hospitals (Fig. 28).

In the housing project, the observations, the documentation of my observations and their analyses enabled me to understand how people used their houses, where they spent their time, and what parts of the house were significant for whom. For instance, when I investigated the interviews, the results from the workshops, and the material submitted through the probing exercises, nobody had mentioned the importance of the porch. Yet, when I observed the inhabitants, I noticed that the women often spent time on the porch in the evenings, chatting with neighbours or visitors, while the men gathered in the public squares of the neighbourhood. When the architects, as in my case in this situation, are from a different culture, come from another social level or are not knowledgeable of all activities in focus for the design task, observation can reveal aspects so deeply embedded in habits or culture that the inhabitants are unaware of them or perceive them as obvious or not worth mentioning.

*Empathy from a distance* embodies the value of the architects' and designers' presence and capacity to employ their personal experiences and an active motivation to imagine being the user. Even if it is often insufficient to imagine in order to thoroughly understand one another, the ability to imagine is an advantage that we have and can develop further. However, it is not always possible for architects and designers to be close to the inhabitants or user, so our capacity to imagine and be affected emotionally by the imagination, as if it were our own reality, is valuable. Architects and designers remain an integral part of the design process, and their imagination naturally appears as a creative component of the design process. This means that they cannot and should not erase their own experience, since it is also valuable not merely from a professional point of view.

In this register, the active role of the architects/designers can provide them with the freedom and opportunity to introduce solutions that, for in-

*Figure 28. The outdoor public space in Ng'ambo is used for all kinds of activities, communal, commercial or private.*

stance, support sustainability in situations in which customs or user aspirations would otherwise prevent a development in this direction. However, the risk of making cultural mistakes remains a significant concern due to the distance between professionals and users. In this respect, it is usually not difficult to introduce a new technology or a novel building development. The challenging part is ensuring that the new ideas survive and take root in the long term. To act within the other registers of empathy can potentially respond to this challenge.

Empathy from a distance includes conventional architectural design methods, such as observing the site and its surroundings and studying the climatic and cultural conditions, before a design project starts. Various factors, such as the use of *urban space, spatial hierarchy, methods of participation, building tradition* and *sanitation solutions* build upon the knowledge of local core cultural values related to the use of physical space and construction. It is possible to study some of these aspects in *vernacular architecture* (traditional architecture built without architects). However, it is only through studying the ongoing living conditions and valuing the way people live that the architect/designer can truly understand the local behaviour in creating and using architectural space. Thus, when the architect pays particular attention to the inhabitants, their lives, activities, and behavioural details, it lifts the observations to another level. The architect learns about the inhabitants' lives and lets this understanding affect the design. Nevertheless, as this register does not invite the inhabitants to engage in the design activities and actively influence the design, they can easily become objectified. This also means that architects in the roles of observers can distance themselves from the inhabitants. To prevent this and make the situation feel more natural and engaging, I found it helpful to be involved in practical activities and, even if for a short period, be part of the community while observing.

Empathising from a distance has limitations and can result in an outcome that users might not adopt. In this regard, when imagining, there are many risk factors because our imagination is based only on our own experiences, learning and observations. We cannot neglect the existence of our own legacy. Thus, an imagined situation is probably not entirely accurate. Indeed, when observing, it is possible that only one side of reality is revealed, while the other stays in the shadows. The larger the background gap between the inhabitants/user and the architect/designer in terms of societal status, geographical location, gender or age, the greater the possibility for inaccuracy in imagination and misinterpretations in observation.

## 5.2 ENGAGING EMPATHY

The second register, *engaging empathy*, involves the users in the process through empathic design methods, and the designers value the users' experiences, opinions and aspirations to a great extent. In this register, the users play an important role in the design process, whereas the designers stay in the background.

After having analysed the three housing-design projects with two sustainability-assessment tools, as explained in Paper II, we came to the conclusion that aspects such as *trust, transparency, choice, interaction, inclusivity, capacity-building, adaptability, familiarity* and *sensitivity* all require engagement with the inhabitants. For instance, if there is a great social distance between the stakeholders and they remain far from each other in the design process, it can be difficult to create trust. Alternatively, if the project aims at a long-lasting sustainable outcome, there is often a need for capacity building, which requires the engagement of the users. Engaging users improves the chances of attaining a holistic, sustainable outcome, in which socio-cultural, environmental and economic aspects are equally taken into account. Specifically, to move towards socio-cultural sustainability, the community that will inhabit the design needs to be involved in

one regard or another. As a result of the projects presented in this thesis as well as my practical experience with a dozen projects in various low- to middle-income settings, I have learned that architectural design must be executed on-site in order to achieve participatory engagement throughout the design process. This engagement can happen on different levels, using several methodologies and methods with varying proximity. Nevertheless, the more contact there is between architects/designers and inhabitants/users, the easier it is to build trust and achieve horizontality that can then result in a locally rooted design.

From a theoretical point of view, as presented in Chapter 4, Section 4 there are several methods that architects/designers can make use of for user engagement. In this respect, the advantages and disadvantages of the methods that I empirically employed in the housing project are revealed in the findings of Papers III and IV. In the comparison of design ethnography, co-design workshops, theme discussions and design probing, workshops seemed to be more challenging as a form of co-design in settings with severe contextual constraints, whereas design probing came to the foreground as an approach with several benefits.

Regarding the workshops, I perceived them as challenging in the housing project for many reasons. Firstly, the arrangement of taking people away from their natural surroundings, their daily routines and activities made it difficult for the participants to take part. Additionally, when arranging a workshop for a group, the combination of actors is crucial. In this case, there were inner structures within the community that potentially created tensions. Thus, differences in income levels, age, gender, political views, or property ownership, all present in this case, probably affected the outcomes of the workshop. The more sensitive the topic, the more responsive one needs to be when planning a workshop. Nevertheless, workshops are beneficial when there is a need to reach a large group of people to share information uniformly and conduct the same exercises. In this regard, it is also important to be both flexible and prompt at the same time.

On the other hand, the workshops arranged in the maternity ward project were fruitful. In this case, the participants belonged to homogeneous groups because we arranged separate workshops for mothers, fathers, birth attendants and healthcare workers (Fig. 29). Although it is good to meet people in bigger groups to be able to share the same information with everybody, it is often advantageous to co-design in small and homogenous groups if possible. Additionally, it is important that the activities recognise and respect local customs. There can also be an advantage in arranging workshops toward the end of a design project, when the distance between architects/designers and inhabitants/users is already reduced and they know each other.

*Figure 29. A workshop with asha workers in Odisha, India, 2018.*

The empathic design method of design probing, which is the particular focus of my attention in Paper IV, can be applied by architects/designers in the very early phase of a project as a foundation for collaboration or in a situation where meeting the inhabitants or users is impossible to arrange. In the housing project in Zanzibar, design probing invited inhabitants to take an active role in changing their living environment and helped me to understand the community that I was designing for (Figs. 30 and 31). It allowed me to produce exercises that focused on the aspects that were important for the design and also to raise awareness of particular issues regarding the current lives of the inhabitants and the future need for density in the area. Having their attention directed to aspects of their everyday life and their environment through the probes, the participants may feel encouraged and empowered to tackle these issues themselves. For architects working in low- to middle-income countries, using a method that supports empowerment can be an asset for the future development of the area. As an example, related to this, the probing exercises led to one of the participants opening a small shop in his house. In the probes, he had envisioned that he would be a shop owner when the new houses were built. However, the design process was long, and the new houses have not been built as yet.

Thus, he realised that he could transform a shed next to his house into a little shop and establish a small public outdoor seating area in the triangular space in front of the house. Consequently, he both improved his own living conditions and contributed to the well-being of the community.

Another advantage of design probing is that the participants get time to contemplate their responses thoroughly. Thus, if the exercises are well prepared, the results have the potentiality to reveal their aspirations and dreams. In this sense, even if there is no collaboration between architects and inhabitants in the same physical space, it is possible to improve understanding between actors through probing. When I received and studied the probing results, it felt as though I had been a visitor in the households for a much longer period than the brief introductory meetings that we actually had on the porches. It also made me feel like a guest, bringing my attention to aspects of the homes that would have stayed obscured through observations alone, and I came to appreciate these homes and their inhabitants. Additionally, in some of the cases, I had discussions with the participants based on the results of the probes. Particularly in these cases, the probing exercise helped me to feel proximity to the participant as a starting point and also served as a basis for well-informed discussions. Thus, the probing yielded deep insights into the world of the inhabitants without demanding excessive effort on either part and helped me to connect to the inhabitants and to feel a proximity regardless of the prevailing distance.

*Figures 30 and 31. In one of the design probing exercises the inhabitants marked favourable and less favourable items in their homes with red and green stickers, Ng'ambo, 2016.*


It is difficult to say how the various and necessarily asymmetric benefits of the probing exercises became distributed in the course of the design process. During the process the participants were informed about the future plans in the area and had an opportunity to contribute to its development. Nevertheless, although I know that I learned a lot from them, they might not have learned as much from me. Moreover, even if the exercises did not require long-term and time-consuming input from the participants, it did, however, require some commitment. As the houses have not been built to this day, the participants have not yet benefitted from the outcome of the project, even though they shared their lives with me and helped me to design the project. They may have experienced this as being extractive, although this is speculation because none of them shared any concerns regarding this with me.

Nevertheless, in this case, the probing exercises allowed for the generation of solutions that neither I nor the participants would have been able to create independently. Additionally, our experiments illustrated that architects are able to apply design probing within a short period and thereby adapt to the rapid urbanisation pace of cities, which cannot be achieved with traditional participatory-design practices.

All the methodologies that I employed deepened and enriched the design process. For instance, in the housing project, one of the results of engaging the users as part of the design project was the activation of the community. When the inhabitants noticed that their participation mattered and could translate into development, their feeling of empowerment and ownership was enhanced, and this potentially encouraged further actions to develop their community. As an indication of this, for instance, I learned that one of the participants had organised a discussion group around the future of the neighbourhood initiated by the participatory process.

When engaging users, regardless of which design method is used, it is an advantage to customise the methods according to the inhabitants' culture. While engaging with the inhabitants, I noticed that if the engagement was not conducted with sensitivity — if, for instance, it happened in a hurry, in an uncomfortable space, or in unclear circumstances — I could misinterpret emotions, and the openness would disappear. Additionally, when I

focused on the point of view of the inhabitants alone, the acknowledgement of my own know-how and feelings was easily blurred. There are other risks that we need to be aware of when conducting an empathic approach. The designer can, by mistake, misuse the information obtained, even if the original intentions were benevolent. For instance, as architects/designers, we need to be aware that personal information shared in confidence might be revealed through design solutions.

To summarise the register of *engaging empathy*, it can be said that it places the emphasis on the users/inhabitants, with a pragmatic focus on their activities, emotions and aspirations, and using practical methods and tools. In this register, they are in the spotlight. Thus, the designers/architects seek to understand them with sensitivity, curiosity and integrity. However, this approach can sometimes remain superficial, as discussed earlier, partly due to the rigid focus on methods. Therefore, it is important to employ the methods in culturally specific ways and adapt them to the particular users/inhabitants. When the users have an active role early in the design process, they can potentially appreciate the familiarity of the design and be capable of modifying it according to their future needs. Additionally, once designers and architects hear and engage people from the beginning of a design process, everybody can commit to the mutual aims of the project and the design result will be a collective creation.

### 5.3 EMPATHY IN DEPTH

The third register, *empathy in depth*, implies a profound encounter between actors. To take empathy to a more intimate and sensitive level, both users and designers need to open up, share about themselves, search for existing similarities but also take an interest in differences. In this register, everybody has an active role. It allows for design results that ideally are deeply rooted in local culture and which inhabitants and users can perceive as their own.

To collaborate on an equal level, architects/designers from a different geographical location or from a very different social level must be humble and aspire to position themselves on the same level as each of those with whom they are collaborating. Thus, a self-serving attitude only takes stakeholders further from each other, as discussed in Paper I. Instead, sensitivity and empathy can be a means to reduce social distance and enhance proximity between stakeholders. As such, it is important that the architect has the ability to listen to people's emotions and support an empathic environment. Developing the sensitivity of designers, architects and other stakeholders can help us/them to understand the diverse and transformative conditions of people. For instance, when inhabitants face eviction risks, as in the housing-design case that I studied, an atmosphere of trust, in which inhabitants can talk openly and also share their fear, can have a positive influence on the project as a whole and support togetherness — "we are tackling this challenge together to reach a common goal". When comparing the different activities in my notes, I could notice a difference between the responses, in situations where I had felt relaxed and acknowledged that there was trust between the participant and myself. In these situations, light was also shed on problematic aspects and an attitude of *togetherness* was apparent.

Some design methods encourage relaxed and trustful encounters better than others. From my experience with the projects discussed in this research and based on my analyses of the research material, personal meetings, in which I had a conversation with only one person at a time, functioned better than group meetings. To conduct a design process in a sensitive manner, architects and designers need to develop their personal skills of sensitivity. If there is a social gap between the designer and the user, a step towards intimacy will support the horizontality. However, in an intimate meeting, the architect needs to be aware of the risk of despair, particularly if the users find themselves in difficult or devastating situations. In such a case, the designer also needs to be especially careful not to further victimise the users but let them maintain their agency and dignity. Sometimes, the best solution is not to intervene, but to step back, listen and be sensitive both to oneself and to the users.

In the housing project, I conducted thematic discussions using maps and photos. In the discussions, I framed a small part of the project, focusing on a couple of issues in individual intimate meetings with inhabitants in their homes. For instance, in one situation, I was looking at a map with one of the elderly houseowners and recognising important spots in the neighbourhood. The woman told me which shop she frequented and shared the reason why she particularly liked this shop. The reason was that the shop owner was flexible with the payment, letting her have necessities even if she could not pay him that day. In response, I shared with her that, when I was a child, there used to be a small shop in the block where I lived. In this shop, I could write in a black booklet what I had picked up, and then my mother would pay at the end of the month. I also told her that, unfortunately, this would not happen in Finland anymore. This exchange of experience brought us closer together and made me further appreciate the small scale of the neighbourhood for which I was designing. Additionally, these meetings revealed interesting personal points of view. When I compared this situation with when I met the same number of people in a workshop scenario, the individual intimate meetings were much more time-consuming, but they had a qualitative advantage.

Likewise, in the discussions following the design-probing exercises, I perceived the connections between me and the inhabitants to be personal and intimate. The reason for this might have been that I had learned a lot about the participants through the exercises prior to the discussions. Due to this I felt relaxed, as if I were visiting somebody I already knew, and therefore I was open to sharing about myself when meeting in person, to give something back to the participants. For their part, having had time to do the exercises and in full knowledge of the purpose of the meeting might have made them trust me. Additionally, my informal and relaxed attitude due to the background probing might have reflected onto them as well.

Nevertheless, even if the ratio of the number of participants to the time spent was smaller in the design probing and thematic discussions than in the workshops, the responses and results achieved through the smaller and more intimate meetings were richer and more diverse than from the workshops. When studying the results of the intimate forms of participation, I could see that they had created a deeper connection between the actors. It was possible for me and the inhabitants to establish a foundation for deep empathic encounters. In this regard, I would prioritise quality, not quantity.

As the personal encounters were deeper, I also identified how sensitive these interactions were. As soon as there was a disturbance in the form of misunderstandings or inaccurate translations, we changed the direction of the meeting. Thus, architects' and designers' capacity to be sensitive is a characteristic that we can develop, but before we can collaborate horizontally, we need to know ourselves and be open to getting to know the other people in the design process.

In the intimate and sensitive approach of empathy in depth, the distance between actors is reduced in comparison with the other registers of empathy. In this register, my experience is tightly combined and sometimes even merged with the experience of the other. As an example of this, in one of the situations from the design process of the maternity ward, when meeting with a couple of traditional birth attendants, they demonstrated how to use the little wooden stool commonly used for delivery. I and my research assistant, who had not given birth herself, tried out the stool, simulating that we were giving birth. The traditional birth attendants found this quite amusing, we were all giggling together for a long time (Figs. 32 and 33). It was not what the interviewees had said, but this relaxed experience that made us understand why most women in the villages preferred to give birth in the house of the TBA, rather than in the hospital. In addition to being able to choose her birthing position and follow local indigenous traditions of delivery, this is the place where she has the possibility to relax, be herself and maintain her dignity. Here she is not deprived of her agency.

*Figure 32. The TBAs still supported many of the deliveries in the villages in Zanzibar, 2016.*

When empathising deeply, designers/architects and inhabitants/users willingly step closer to each other, seek to acknowledge both the similarities and differences between them, look forward to learning from each other, and actively try to reduce any existing social distance with compassion. This can happen when architects and designers are able to establish an intimate connection with the environment, culture and inhabitants or users. To engage deeply is not always an easy task and requires some effort. It might be uncomfortable, with moments of unease when differences in thoughts, views or opinions appear which can potentially result in conflict. For designers/architects to actively enhance horizontality in the design process, they need to be sensitive towards both users and towards themselves in order to establish a connection of trust with the users and to follow their intuition. When all actors can experience empathy on a deep level, the process becomes a foundation for trust and empowers the people involved with the freedom of choice. This form of design and architecture practice functions as a bridge connecting the various stakeholders in the society and promotes transformative values (Fig. 34).

*Figure 33. Angela Giacomazzi, (Deputy Hospital Director for Kendwa hospital and my translator) trying a delivery stool at the home of one of the traditional birth attendants.*

*Figure 34. The design of the maternity ward in Basta, Odisha, India, would not have been similar if the local people would not have been part of the design process. Debashree Jena worships for better luck of the newly opened facility. Photo Abhay Mohanty.*

## 6 ESTABLISHING AN EMPATHIC APPROACH TO DESIGN FOR THE MAJORITY POPULATION

In this final chapter of my introduction to the thesis, I discuss how my research contributes to the related societal, professional and research field. I also reflect on my research journey, starting with the wide picture of overall sustainability and narrowing it down to socio-cultural sustainability. I continue with my reflections on co-design both in research and between designers and users, with a particular focus on the connections between actors, and ending with a final close look at empathy.

In the pursuit of sustainable development globally, I agree with Rahul Mehrotra (2020), when he argues that "all architecture must place the social questions and society at the centre of its agenda." Architects, designers, and users — we all have our responsibility. Therefore, the socio-cultural segment of sustainability is crucial because everyone, including the marginalised, underprivileged and vulnerable, needs an opportunity to collaborate for sustainability. However, we as architects and designers have the agency and can increase our capacity to deal with these challenges.

From my experience in practice with multiple projects in my professional life as well as in the projects included in this thesis, I can claim that sustainable, culturally knowledgeable, skilfully designed architecture with a social agenda can improve the living conditions of communities. This kind of architectural practice can strengthen gender equality and mitigate poverty. It is not global and replicable (Akama & Yee, 2016), rather, it has to be deeply rooted locally, and this can be achieved through collaboration between different actors in the society. We as architects and designers can support this by following Mehrotra's (2020) suggestion of bridging stakeholders and grassroots levels vertically and seeing our profession as a bridge practice, with the mission to connect actors with each other and facilitate collaboration. As every community is different, the means to collaborate needs to be developed according to local circumstances. Based on the experience of my previous work and through this research, I argue that in order to co-design, in the real sense of the word, we architects/designers are required to make use of our ability to empathise. This would help us to understand comprehensively the local living conditions and know-how as well as the future aspirations of the people for whom we are designing.

As an example of this line of thought, we can imagine a desirable sustainable building process in a low- to middle-income country. Firstly, the architects would involve the local people in the design process of a building. The local people would share their knowledge, needs and wishes while the designers would share their know-how. This design process would raise awareness, build capacity and create ownership because it would be executed with sensibility. Secondly, the construction of the building would be sustainable because it would utilise recycled or locally available materials in line with the local building principles that have been adapted to the local climatic conditions through time, trial and error. This knowledge would have been obtained through understanding the local environment, culture, architectural heritage and building traditions and the understanding would spring from engaging with local people, who would share their knowledge on the matter. Thirdly, by building with locals rather than for them, the construction process would become an education in sustainable technologies for both the dwellers-to-be and the architects. Additionally, both sides could learn different things from each other regarding the utilisation of recycled or recyclable materials as structural elements. This could be an aspect that the local people would have been implementing out of necessity; they would have the know-how to take advantage of the material, while the architects could turn recycling into a willingly chosen aesthetic solution for everybody. Moreover, the people who would be constructing the building could maintain the know-how of local building traditions and treatment of local materials, and in this way preserve the cultural heritage. This kind of a process would result in a building rooted in local culture that would create a sense of pride for the inhabitants, the local community, and probably even beyond. Finally, in each step of the process, there was the factor of collaboration.

Ideally, the aspects of sustainability and mutual learning become part of a project. However, in the cases of this research, only some of the aspects referred to above took place. The inhabitants of Ng'ambo became involved in the future plans for their neighbourhood and the mothers and mothers-to-be in Odisha and Zanzibar had the opportunity to share their concerns and hopes while learning about other possibilities and options for giving birth. In Odisha, the mothers, who out of necessity performed a silent demonstration by placing their babies on the floors of the corridors in Balasore Hospital, gained visibility and their silent voices were heard. However, as the building projects did not advance within the time constraints of this project, the respective know-how regarding material aspects of sustainability and local construction have not yet been shared. Only the refurbishment of the existing maternity ward in India was executed, but in this case no new additional construction material was introduced. Nevertheless, with regards to social sustainability, the involvement of the people in the design process had an impact. I see it as obvious that the level of the impact of social sustainability depends on the number of people involved and, even more so, on the quality and depth of the involvement.

Collaboration skills are an advantage in participatory, interdisciplinary and transdisciplinary work. The quality of the collaboration depends on the parties' capacity to empathise. During this research journey, I learned that we are able to inquire into, expand and deepen our empathic skills that eventually enhance the proximity between people. The closer we can be to each other in this process of change, though often not consensus-driven, the stronger the possibilities are for the emergence of innovative solutions that can guide us towards a better future and respond to the sustainability challenges we are facing today. Additionally, to resolve these challenges, we need to work transdisciplinarily, engaging all potential stakeholders in the pursuit of emergent solutions. If we, as architects, want to make a difference, one way is to see ourselves as facilitators of collaboration, connecting people from different social levels and consolidating knowledge from several disciplines. Combining this facilitation with locally adapted co-design that emphasises empathy, awareness and flexibility could potentially guide the growth of cities in the lower income parts of the world in a socially sustainable, inclusive and humane direction. This kind of practice could of course be called activism, according to Zaera-Polo's (2016) definition, however, the word activism suggests that the practice would be out of the ordinary, practised by a marginal number of the professionals. On the contrary, it is my belief this kind of approach should be the ordinary, mainstream way of practising design and architecture.

It is thought provoking that the methodology of empathic design that was originally developed to contribute to business innovation can also support the achievement of social and cultural sustainability in an architectural context. In this way, sharing our needs, thoughts, aspirations and dreams helps us to understand each other. However, an empathic design process does not guarantee a better design outcome, but it does have the potential to make a project locally grounded and help the users and inhabitants to feel ownership. Additionally, through empathy, the design process can become empowering for all involved actors: architects, designers, users and other stakeholders. Consequently, an empathic approach is a strategy for meeting the challenges of social and cultural sustainability in the design process.

As a long-time professional architect, I have often engaged inhabitants and users in my design projects. However, I have frequently perceived this engagement to be light, and its effect on the design result has not always been substantial. Now, having travelled this research journey, I have gained an understanding of collaborative and empathic design methodologies. These methodologies are well developed for use by designers in the Global North but have not been used or studied by architects in the Global South in the context of complex, large-scale and long-term spatial projects. Through this research, I came to realise that it is truly beneficial to take these methods from design as long as they are customised to the local socio-cultural setting.

The importance of acknowledging the origins, contexts and usages of empathy resonates with Akama and Yee's (2016) critique of a universal and replicable assumption of co-design. I aim to provide an enriched and deepened terminology and conceptualisation for empathic approaches. As the approach to empathy was so dissimilar in the different fields of design, I recognised the need for foundational theoretical work. Thus, I studied the concept of empathy across design and architecture discourses, made it more coherent, and illustrated its significance in the design process. Furthermore, I structured these different approaches to empathy in three registers, in which we can operate throughout the design process. In addition, I assembled and recounted substantial empirical material through my design work in relation to theory building on this topic. This can be valuable because there is not much written on design methodologies for user engagement and empathy in the field of architectural design in low- to middle-income countries.

Empirically, I recognised the need for all three registers of empathy: distant, engaging and deep. I suggest aiming for the deepest possible level of empathy within the constraints of a project. However, circumstances do not always even allow for physical engagement with users. For instance, a situation like the current pandemic might interfere with a design process. Therefore, it is crucial to utilise and also further develop methods that allow us, as designers/architects, to empathise even from a distance. On the other hand, design probing, for instance, has the potential to be used from a distance and still enhance horizontal design. Thus, design probing would require further research in situations where a distance between actors is evident. When employing the method, I could detect the different registers of empathy throughout the entire process of design probing. Fundamental to this, a large portion of the empathic experience depends on the empathic ability, attitude and motivation of the designer/architect.

This research also has several limitations. Being practice-led research, it is therefore limited to a theoretical perspective that served practice. Moreover, even if the research group that I was part of was conducting transdisciplinary work, I did not include more than a limited number of disciplines in the theoretical scope of the thesis. In the research, I did not, for instance, include a broad background of sustainability sciences nor a historical perspective on architecture or collaborative work in the regions where the design projects were situated. Another field that would have been interesting to delve deeper into is neuroscience and, in particular, the emerging research on empathy in relation to mirror neurons. For architecture, this also has relevance with regards to our perception of space.

Other aspects that I also left out were political and gender-based theoretical discourses. The long-term dilemma, that I only touched upon, of the distinction between *me* and *the other* in development studies, anthropology and the discourse on intersectionality could have been a possible discussion to include in this research. The topic of intersectionality is emergent and important but, nevertheless, I intentionally left this discourse aside. This was not because it was irrelevant to the territory of this thesis, but because my focus was on co-design practices and empathy and I was forced to delimit my territory. In the end, the precise intention of this work was to prevent discrimination, reduce social distances, enhance connection and proximity between people, and support inclusive development. Further research should dig deeper into locally present methods of collaboration in the respective geographical fields and strive to develop co-design methods based on these. However, in conclusion, for this thesis, I made the decision to keep my main focus within design and architecture, taking methods from these fields of practice in the West. Regardless of its delimitations, I do see the potential of my work.

Furthermore, this thesis presents practice-led research in which practice happened before or at the same time as the research. This led to situations that were less organised and logical than they could have been had the order been reversed. The result can seem chaotic, even though it followed the logic of the momentary circumstances and events. Nevertheless, this drifting combination of theoretical understanding, methods and practice was an advantage because the rich influence of the empirical contexts motivated me to delve deeper into the literature and, thereby, gain more knowledge to serve the practice.

The decision to make a compilation thesis came naturally because the map of the journey was not laid out in the beginning and the influence of the research group was strong at that point. Thus, after having written one paper, it directed me towards the next one. This way of working meant that I developed as a researcher during the journey. The first texts would look different if I had written them today, having travelled further into the territory and learned along the way. For instance, regarding the use of vocabulary, there are variations in the papers when compared to this introduction. Today I would not use the word *developing countries* even though it has been in my vocabulary earlier, without properly reflecting at the time on the meaning of the definition. In this regard, I see the necessity for development towards a more sustainable way of living in all countries globally. Using that term exclusively for the low- middle income countries is therefore misleading, because many of these countries have a smaller carbon footprint than countries traditionally considered to be developed. There are certainly other words and tones that no longer resonate well. However, this is the nature of a compilation thesis. If I had decided to write a monographic thesis, the journey would most probably have developed differently.

My reason for organising empathy into registers was not to build compartments that would exclude other modes of empathy. Rather, I envisage complementary registers that would appear in different circumstances and be topics for further research. However, the scope of my research was delimited to the close study of only two different architectural design projects in two countries. Thus, in these two cases, I arrived at a core that made sense. Nonetheless, this does not make my findings universal or generalisable. Therefore, the potential for additional relevant findings in different situations is high. Fortunately, the discourse on empathy in design and architecture is ongoing and evolving. Towards the end of the process with my thesis, I discovered Wina Smeenk's (2019) parallel doctoral thesis in design that presents a complex compass for empathic engagement, including the additional area of empathy in design. Her work does not touch upon low- to middle-income countries, but it does include vulnerable users. Thus, it would be a useful tool for both researchers and practitioners in the Global South. As the pace of development in this part of the world is fast, all efforts in a humane and empathic direction are needed.

I found the choice of using empathy as a lens, a motivator and an aspiration for my research to be fruitful. The concept is multi-faceted. Its origin is in the German word *Einfühlung* in the theory of art, explaining the reactions in human beings when encountering the aesthetic as reflecting a yearning for unity of "subject and object, mind and body, man and world, or reasoning and the imagination" (Matravers, 2017, p. 77). Even if the definition of the word is different today, it resonates with the yearning for unity and understanding, and, in this case, the connection between human beings and architectural space. I invite further explorations into using the empathic registers in the design process. My focus has been on empathy between human beings, although other non-human living and non-living components could also be included in empathic relations, such as animals, plants or architectural space. However, I do not exclusively refer to architecture and design practice, but also to empathy in any practice because these findings can be customised to any field in the pursuit of a sustainable future. Love for life in general should guide our practice in any field. This could enhance sustainable development within the planetary boundaries (Rockström, 2015).

Through my work, I bridge practices across disciplines and discourses and between the North and the South. My interest in this research sprang from my architectural practice. However, I hope that architecture and design professionals, scholars from the high-income as well as the low-income countries, grass roots and design activists as well as people or insti-

tutions in power can all receive this research and find it useful. I wish to further develop this empathic approach to design for the world's majority, which encourages designers' and architects' awareness of their empathic behaviour as well as self-awareness. This approach inspires us to include the users and inhabitants in an interactive, sensitive and transparent way. Consequently, we can build trust and capacity between actors, and the users get the possibility to make choices in the process. This is essential if we aim to root a project locally and, through that, enhance sustainability and well-being. This kind of approach is the antithesis of replicated *parachute* projects, designed without concern for place or users. When we execute humanitarian architecture and design with this empathic attitude, it does not matter if the architect is local or from abroad, from a different social group or from the neighbourhood, because the design springs from local culture, local engagement and mutual understanding. Reflecting on the critical discourse on humanitarian architecture and design, when these aspects are in place, architects can avoid neo-colonialist intrusion and promote inclusive participatory development.

Certainly, there are cases of design and architecture in which empathising is not enough and where there is a need for situated and in-depth knowledge in order to achieve a satisfying result. However, adding the broad spectrum of empathy as a mindful attitude to the design process has its benefits. Ideally, when combining the registers of empathy, the designers/architects, users/inhabitants and other stakeholders imagine, observe, engage with each other, share experiences and ultimately gain the possibility to form a collective understanding, regardless of the context of the design. Moreover, when we as designers/architects aim for horizontality in the design process, we are relaxed with uncertainty; we use our potential; and we invite intuition. Consequently, we can build a territory for the new to emerge and grow roots deeply in the local ground. Thus, I pose the question as to whether empathy between the actors in the design process could lead to spatial solutions that support empathic encounters. When I reflect on this with regard to the quotation at the beginning of this introduction, "The world we make in turn makes us, inscribing how we are being and becoming with others" (Akama, 2015, p. 267), my aspiration is that when we design in this spirit the created architecture potentially becomes an environment supporting encounters and activities with similar qualities.

*I'm sitting on the barasa outside a house in Ng'ambo with Omar Muhammed Ali. He built his house himself in 1958. He is spending his days on the bench in front of the house as his legs are tired with age. 40 years ago, his mother planted a tree in front of the house. The tree is big now, one of the biggest in the area. I ask Bwana Omar if he thinks that trees are important in the city and in his neighbourhood. He sighs and tells me that for a long time he has been in favour of trees, and particularly in favour of this tree in front of his house. However, now he has come to the conclusion that, after all, the neighbours are more important than the trees. The roots of the tree are taking water from under the house of his neighbour Mama Barke and the roots are cracking the foundations of her house. Now Bwana Omar is ready to let go of the tree to keep up his good relations with his neighbour.*

Ng'ambo, Zanzibar, 2016 (Fig. 35).

*Figure 35. Bwana Omar's tree, Ng'ambo, Zanzibar, Tanzania, 2016.*

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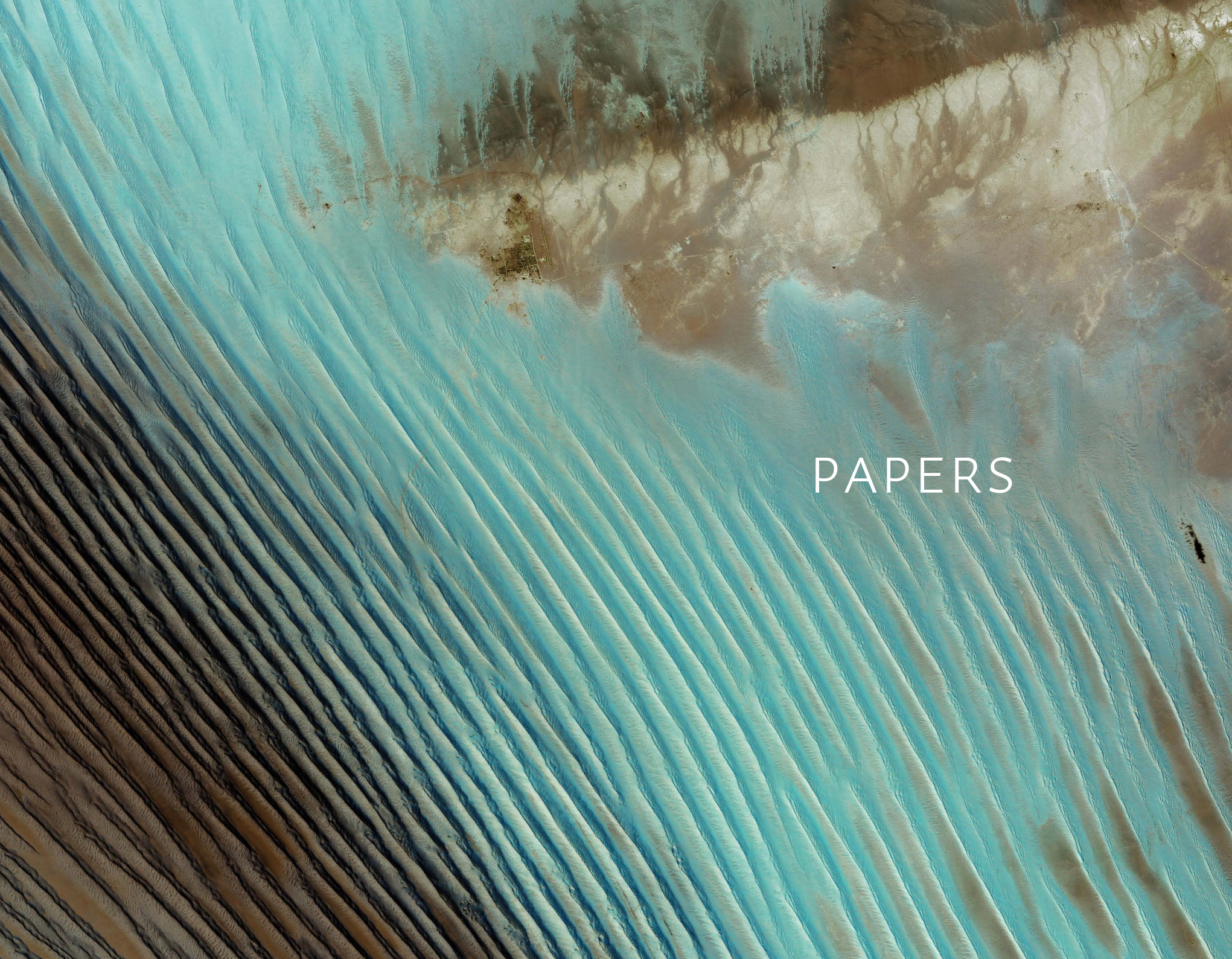


# PAPERS

**PAPER I**

## EQUALITY QUALITY: ARCHITECTURAL PLANNING FOR UNDERPRIVILEGED GROUPS

Saija Hollmén, Jenni Reuter and Helena Sandman, 2018
*Architectural Research in Finland*, 2(1), 29–35.
Reprinted with permission from Architectural Reserch in Finland.

### ABSTRACT

A successful architectural project will eventually encourage countless people to work for change. Hollmén Reuter Sandman Architects and Ukumbi NGO strives to use architecture as a tool to improve the living conditions of underprivileged communities. The impacts of a successful building project in a low-resource setting can be seen as twofold, consisting of on-site and off-site effects. The architect's ability to combine his or her expertise and experience with that of the locals is an important aspect for the success of the project. To employ local building traditions in the poorest countries of the world is not just a matter a justice, it is also a way to find different paths to our own future. It is usually not very difficult to introduce a new technology or new building developments; the challenging part is getting the new ideas to survive and take root in the long term.

Keywords:
humane architecture impact; locality; participation; developing countries

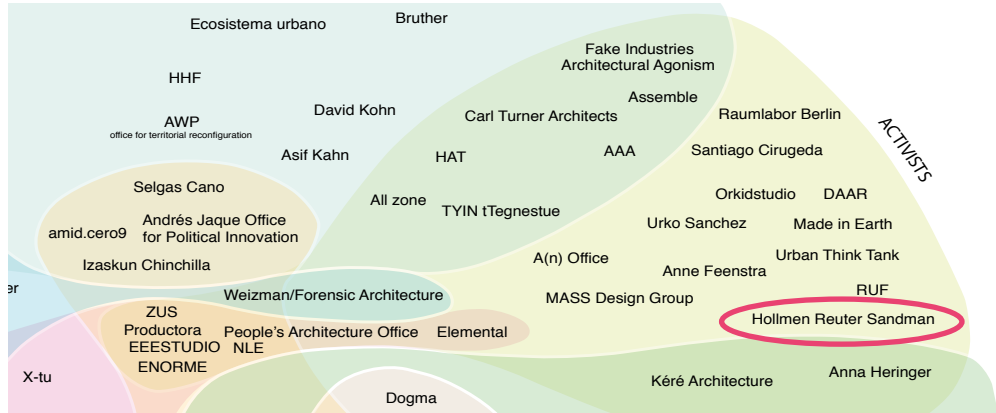
### ACTIVISM FROM THE FRONT

The architects Saija Hollmén, Jenni Reuter and Helena Sandman began their work with humanitarian architecture almost twenty years ago. Since then, socially engaged architecture has moved from the margin towards the "front line", as suggested by the theme of this year's Venice Biennale, "Reporting from the Front", although it can hardly be called mainstream as yet. It is therefore remarkable that Alejandro Aravena, the curator of the exhibition, has elevated the humane aspects of architecture to international discussion and shifted it to the centre of our attention.

This discussion has also brought the work of Hollmén Reuter Sandman Architects into the on-going architectural debate. During the last decade, a growing interest has emerged in architectural discourse regarding the possibility of a social and humanitarian re-engagement of the discipline. The issue faded from the debate after the 1970s but seems to now be back on the scene.

In an article for *El Croquis 187*, Alejandro Zaera-Polo discusses how he has been inspired by Charles Jencks's famous diagram that appeared in *Architecture 2000* to present a synchronic political map of contemporary emerging architectural practices. In the *Global Architecture Political Compass* (Figure 1), 181 emerging practices are ranked in categories named after such movements as Techno-critical, Technocratic, Cosmopolitical, Austerity-chic, Constitutionalists, Historicists, Revisionists, Skeptics and Populists. Hollmén Reuter Sandman Architects finds itself in the category of Activists, close to the border of Material Fundamentalists. When being placed at the far Activist edge you can find practices such as BIG (Bjarke In-

*Figure 1. The Global Architecture Political Compass. Made by Alejandro Zaera-Polo and Guillermo Fernandez-Abascal and published in El Croquis 187.*
*(For the entire compass, see pages 26–27)*



gels Group) on the opposite Populist side. The compass indeed shows how the world sees the work.

In the explanation of the compass, the activists were described as follows:

*There are now quite a few practices where the rejection of the customary processes of architectural procurement is driving a return to development, self-building, or community-building as an act of resistance against the rote commodification of architecture. Drawing resources sometimes from arts grants, academic research, community funding, and, on occasion, entrepreneurial devices, some of these practices have become engaged with direct-action practices formerly associated with political agitation, while occupying a space between social activism, art installation, and architecture. These practices bypass traditional forms of commissioning buildings through direct engagement with the community and the construction process, as collective acts of resistance to the reduction of architecture to "rentable" commodity. On the other hand, there are also groups who operate largely within the academic environment, where political engagement occurs on a more theoretical level through competitions, publications, exhibitions, and lectures. For these practices, the discipline itself becomes the crucial tool for resistance.* (Zaera-Polo 2016, 252–288)

The explanation seems quite relevant, particularly as it contains several familiar components, such as the fundraising and grant aspect, as well as the connection to academic research. It is intriguing to see the work of Hollmén Reuter Sandman in this broader context.

## REALISTIC IDEALISM

After the first executed project, the Women's Centre in Rufisque, Senegal (Figure2), Hollmén Reuter Sandman founded a non-governmental organization named Ukumbi in 2007. In the course of the first project, Hollmén Reuter Sandman had realized that culturally knowledgeable and skilfully designed architecture is a tool that can be used to improve the living conditions of communities, strengthen gender equality and mitigate poverty. The women's centre attracteed a great deal of attention and became a model for similar projects around the world.

Saija Hollmén, Jenni Reuter and Helena Sandman had known each other since they were students at the architecture department in Helsinki University of Technology (nowadays Aalto University) and shared the ambition to do something more with their expertise, rather than just work for those with the most resources. They had grown up with the interest in and engagement with Africa, both through their families and because of the long-standing Scandinavian commitment to foreign aid and development work.

*Figure 2. The Women's Centre in Rufisque, Senegal. Executed in 2001.*

Engagement with what some still call the Third World was a global extension of the welfare state they enjoyed at home. Among the countries that had stayed out of colonial politics there existed a strong sense of solidarity with countries that had paid for our prosperity with their own poverty. Many Scandinavians observed, with justifiable outrage, the continuation through post-colonial structures of what they regarded as violation of developing countries by the West.

The theme is complex. Quoting the Irish architect Kilian Doherty, who has been working with projects in Rwanda:

*How can Western practice outrun the ghosts of the postcolonial and come closer to a modern African architecture? As interests between local (African) government, international NGOs and architects are inextricably linked, is that contemporary mode of practice simply the newest face of neo-colonialism?* (Lokko 2014, 14–15)

This concern has led many Scandinavian architectural programs to place strong emphasis on the world outside of Europe. In some cases, their commitment has also resulted in executed buildings, cases in point includ-

ing a leprosy hospital in India designed by architects Jensen & Skodvin from Norway in 1983–85 or a few projects in Guinea designed by the well-established Finnish firm of Heikkinen & Komonen, all of which have received international recognition. However, the Women's Centre in Rufisque achieved a unique position: the architects didn't just design the building, but as a response to local grassroots needs, they also took the initiative for getting the project underway and even did the fundraising themselves. The project began with a course at the Helsinki University of Technology but was executed entirely independent of the school.

After their first executed building, the architects returned to their alma mater to teach. This provided an opportunity to put their experiences working abroad to even broader use. They inspired the younger generation and established Ukumbi as a non-commercial platform. Its non-profit status made fundraising easier but also helped define the contours of their work. The more firms joined the organization, the greater the need became to distinguish between the time and money spent on for-profit and not-for-profit activities. There are other, much larger organizations that also have a mission to help people improve their own circumstances through building construction. Ukumbi distinguishes itself through its focus on architectural quality – for Ukumbi, the human need for self-affirmation through the built environment is a fundamental aspect of human nature, not merely a privilege for the affluent. Ukumbi's mission is to offer architectural planning and design to underprivileged groups. Often such groups include women, children or young people whose opportunities for participation in society are limited.

The goal of Ukumbi is to ensure that the buildings designed by Finnish architects in the world's impoverished countries are adapted to the local conditions so well that they continue to function as designed long after the architects have gone home. Ukumbi's network serves as a kind of quality control mechanism, gathering experiences from each project to benefit the next. At the same time, the need for sharing knowledge extends far beyond Helsinki. For many years, the core members of Ukumbi have been sharing their extensive experience through exhibitions, workshops and lectures. Today several groups of architects work through Ukumbi with projects throughout the global south.

Ukumbi is a Swahili word. It can mean a meeting place, a living room, a hall or a forum. In other words, there is in the dominant language of sub-Saharan Africa a specific term for that part of a house where private life and public life come together. The existence of the term also suggests that, for someone who comes from outside and tries to introduce new qualities to the many building cultures of Africa, it is very important to be able to distinguish the essential from the extraneous. Although it seems obvious that the purpose of introducing alternative technologies and expertise is to improve people's chances for development, the risk of making culture-blinded mistakes has to be a significant concern. It is usually not very difficult to introduce a new technology or new building developments; the challenging part is getting the new ideas to survive and take root in the long term.

Ukumbi's projects to date could only be completed through trial and error. Conditions may differ from Cambodia to Egypt (figure 4), from Tanzania (figure 3) to Senegal, but the attitude of the dedicated architect remains the same. When one's work, as well as its means, aim to promote people's sense of self, even an architect flown in to assist must be humble. That humility must be founded on secure confidence in one's own competence. There is a great deal of professional expertise to be gained from Ukumbi's experiences but more importantly a valuable perspective as well.

Whether or not a project is robust enough to be built and to provide lasting benefits depends, to a great extent, on realistic idealism. For example, efforts to help women and children are among those that have a profound effect in any culture. Ukumbi's practice requires a heavy commitment to working locally, which means that a great deal of the design must be done on site. Otherwise, there is no way to achieve the degree of participatory planning that is critical to giving a building a long and fruitful life.

*Figure 3. The KWIECO Shelter House, Moshi, Tanzania. Executed in 2016. Photo Juha Ilonen.*

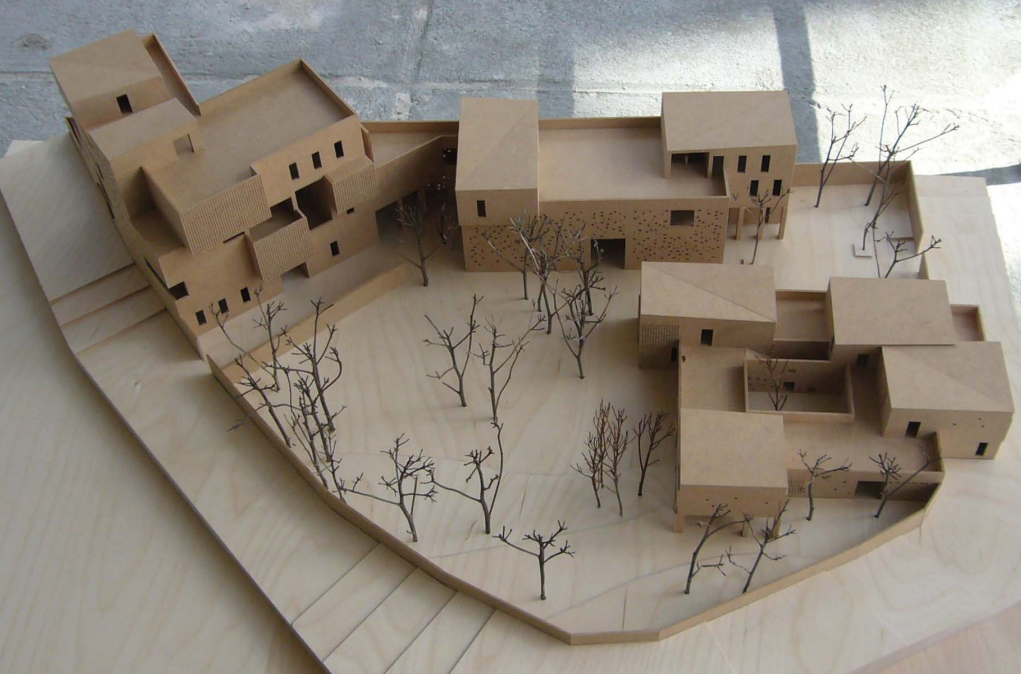


*Figure 4. A model of the APE Learning Centre in Cairo, Egypt.*

## IMPACT

Ukumbi's architecture is usually low-tech, inexpensive and custom-made on site. Regardless of whether the project is located in Asia or Africa, the architects' experiences are often the same. When problems like water, sanitation, foundation or ventilation need to be solved with manual technologies, the solutions tend to share many similar principles. As in any meticulously designed work of architecture, it is a matter of making the most effective use possible of available resources. When resources are scarce, restraint is a necessity; as the budget expands, thrift is only possible with practiced discipline. In this regard, vernacular architecture, which is usually overlooked by the media, has proven to be an outstanding source of knowledge. The ability to shift one's perspective and to discover and employ local architecture in the poorest countries of the world is not just a matter a justice, it is also a way to find different paths to our own future.

A building can be an island of stability in a turbulent world. The buildings that Ukumbi designs are intended to fulfil that need. The need for stability influences their siting, their structural demands, their functionality and their appearance.

The impacts of a successful building project in a low-resource setting can be seen as twofold, consisting of on-site and off-site effects. On site, the building can make a difference in social, technological, economic and cultural terms. Its impact also differs from one phase of the project to the next. A successful planning process involves the local community. In so doing, it influences a small but important group that may include politicians, chiefs, users, planners or builders. The process of planning, design, and participation is most likely new to the community in question. The architect's ability to combine his or her expertise and experience with that of the locals is an important aspect of the project. This aspect of the process can be successful even when the project is not ultimately constructed. In the planning phase of an orphanage in Tanzania that was never realized, Hollmén Reuter Sandman introduced a sustainable perspective on construction and maintenance that the local architect would use in his other projects as well. The planning process can also affect on-site property management.

The building's next impact arises from the construction process. By building with locals rather than for them, the construction process can be an education in sustainable technologies. Building construction in the developing world is not a matter of assembly but of turning recycled or recyclable materials into structural elements. This part of the process involves many more people than the planning, and it creates a number of new jobs. In Senegal, ultimately hundreds of people were involved. So many husbands and sons were employed in the construction that their shifts had to be shared. The work began with vocational training, which had effects on the local building culture in general. The large number of people involved in the construction gave a considerable boost to the use of local materials.

Small projects actually have the greatest potential for producing change. It is the small projects that usually engage the locals most deeply. The greatest impact is in the actual construction process, where the number affected can be in the thousands. The activities taking place at the Red House in Senegal, and the income they produce, would not exist without the building: the building is used for the production of food items prepared in traditional, nearly forgotten ways with local cereals. The house also serves as a place of childcare.

The broadest but least tangible effects of the building are off-site. A successful project will eventually encourage countless people to work for change. The house in Senegal had a profound impact on the entire genre of "aid buildings". However, global attention awakened by success can also have an impact among the locals. A building rooted in local culture creates a sense of pride that extends beyond the local community. The architects got some indication of this from some Senegalese street vendors they met in Florence, Italy, who spoke with great pride of their Red House back home.

While it is important for architects to present their work to colleagues and even more important to present it to laymen such as public aid administrators, one must remember that change can only be measured locally. For Hollmén Reuter Sandman, this is crucial: they do not believe in a global architecture. The ultimate objective is to enhance the self-esteem of the end user. For the designer, a self-serving approach can be counter-productive.

This article is based on the keynote lecture by Jenni Reuter at the 8th Annual Symposium of Architectural Research 2016, Architecture and Experience Now, October 27 in Tampere.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**PAPER II**

## USING EMPATHIC DESIGN AS A TOOL FOR URBAN SUSTAINABILITY IN LOW-RESOURCE SETTINGS

Helena Sandman, Jarkko Levänen and Nina Savela, 2018.
*Sustainability*, 10(2493).
Reprinted with permission from Sustainability.

### ABSTRACT

Architectural design plays a crucial role in sustainable city development. In fast-growing cities in developing countries, it can be a challenge to reach sustainable results. In this paper, we propose the use of Empathic Design, borrowed from the human-centered design field, as one means to support the work of architects and other stakeholders in these settings. To investigate aspects in which this method could be helpful, we have synthesized two existing sustainability models and applied them to three examples of affordable housing from different low-resource settings. After analysis of the examples, we propose a model with an equal balance between the four different dimensions of sustainability—environmental, economic, social, and cultural—where the aspects that need inhabitant engagement are highlighted. We argue that, to be able to hold the balance between the diverse dimensions of sustainability, the architect needs to understand in-depth the living conditions of people for whom he or she is designing. This calls for a fine-tuned participatory approach when designing in low-resource settings. It may not always be easy to reach this level of participation, but we propose that it can be achieved when the architecture is created through empathic involvement. The use of Empathic Design methods throughout the design process thus supports the endeavor towards sustainable results.

Keywords:
affordable housing; sustainability; empathic design; low-resource settings; developing countries; human-centered design; participatory design

### 1 INTRODUCTION

Rapid urbanization in developing countries calls for a design approach that enhances sustainable solutions. It is estimated that approximately 66% of the world's population will inhabit urban areas in 2050 [1]. This development increases existing sustainability challenges in cities and might create new ones that we are still unaware of. Urbanisation happens fastest in developing countries where people move to the cities to seek employment and better services. In these regions, the need for affordable housing is particularly acute [2].

In this paper, we propose the use of Empathic Design, borrowed from the human-centered design field, to support the work of architects and other stakeholders aiming for sustainability in these settings. Empathic Design has not been studied in the context of architectural housing design in developing countries before. The origin of Empathic Design suggests a design with open-mindedness, observational skills, and curiosity [3]. This attitude seems right when approaching the urbanisation-related challenges in developing countries.

The objective of this paper is to better understand the interconnectedness between the different dimensions of sustainability and recognize the points in the design process where participatory input is most urgently needed. To find these points, we have developed a sustainability model through a synthesis of the Quantifying Sustainability in the Aftermath of Natural Disasters (QSAND) and UN Habitat models designed for low-resource settings. The synthesis model is used to examine the architectural design process of three different examples of affordable housing in different parts of the world: Chamazi community in Dar es Salaam, Tanzania [4,5]; the national housing in Kuisebmond, in Walvis Bay, Namibia [6]; and social housing by Elemental Chile in Iquique, Chile [7]. These examples are representative in the context of our research because they all provide housing for less advantaged parts of the society, are situated in developing areas, and are carried out in different ways. The level and type of inhabitant engagement varies in the three projects and thus illustrates where an approach originating in empathy might be needed.

Based on our findings, we provide ideas about how a researcher or practitioner can create an analytical view from the perspective of sustainability of the design process that he or she is studying, planning, or conducting. To deepen the understanding of social and cultural sustainability, we elaborate on ideas and practices of Empathic Design.

## 2 EMPATHIC DESIGN AS A SUPPORT FOR SOCIAL AND CULTURAL SUSTAINABILITY

In this section, we utilise the literature on holistic sustainability and inhabitant involvement in low-resource settings, with a final focus on the Empathic Design approach.

There is an urgent need for a holistic sustainable design approach in planning and architecture. Sustainable development has been widely considered to incorporate three dimensions: environmental, economic, and social [8,9]. Typically, the social aspects of sustainability are more difficult both to measure and take into account in practice than environmental and economic aspects, and that might be one reason their meaning has also been widely understated [8,10]. An even more underemphasized issue is cultural sustainability. The discourse on whether cultural sustainability should be included as a separate dimension is complex and still new [11]. Nevertheless, we agree with the view that cultural worldviews and values, traditions, and everyday activities evolve through history and have an impact on the human activities within the natural environment [8], and that is why culture should be considered as an individual dimension of sustainability [2,12].

Attitudes towards environment and use of local resources are strongly shaped by cultural factors. Factors such as sense of place, heritage, and tradition-bound use of space are critically important when striving for sustainable housing solutions locally [13]. Housing offers an insightful perspective on cultural sustainability because housing is a scene for social lifestyles, and the built environment is strongly connected to place and inseparable from the natural surrounding environment [8]. Developments and activities in all dimensions affect each other [14]. Therefore, cultural sustainability needs to be part of the analysis if one wants to get a clear understanding of the sustainability of a particular arrangement, such as affordable housing in developing countries. Consequently, inclusion of the cultural dimension in the analyses of sustainability is not only important from the human perspective, but also from the perspective of the overall sustainability.

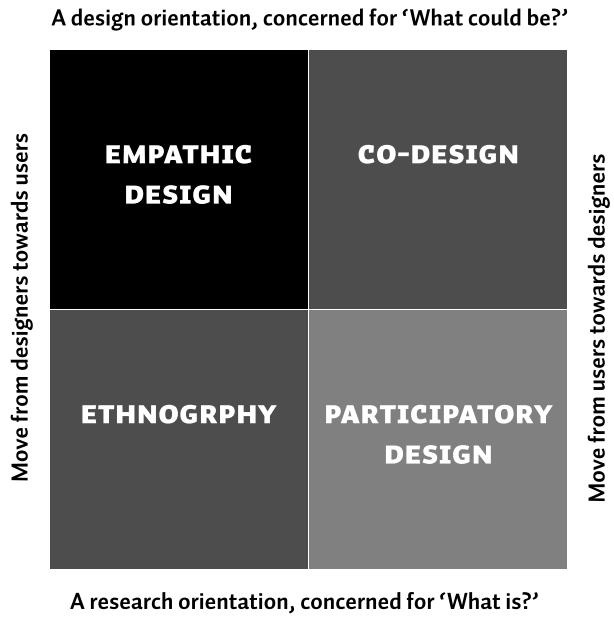
Numerous rating systems for evaluating the degree of sustainability of buildings and infrastructures have been proposed. Many of these systems focus mainly on managerial or environmental concerns and on carbon emissions related to construction, all of which are crucial measures of sustainability [15–18]. Nevertheless, we argue for a more holistic approach in which social and cultural dimensions are tightly integrated in the analysis. A need for integration of these aspects into sustainability analyses has been expressed before [14] and in the context of housing [16], but only a few studies have proposed practical tools for the integration of the social and cultural dimensions in developing country contexts [2,17–19]. There is only one tool for the assessment of social performance of buildings, and stakeholder involvement is not part of it [20]. Our experience and analysis show that to integrate the social needs and cultural aspirations of the inhabitants in a developing country context needs stakeholder involvement through a participatory approach.

In social sciences, business, and design studies, participation has been understood as an enduring interaction where diverse actors integrate their knowledge and capabilities to generate novel solutions that they could not imagine or create on their own [21–24]. Today, in developed country settings, a demand for participatory design is widely recognized in the striving for holistic sustainable solutions in city planning, and such methods are often taken for granted in design processes [25]. A participatory process is natural in a democratic society, as in the societies where the methods were developed [26], while in a society built on hierarchical structures, this might cause challenges due to multiple reasons. Ideas of inhabitants' active engagement are still not mainstream in many developing countries. Petrescu (2005) emphasizes that participation is driven by the desire of clients, architects, and users [27]. This drive might not exist in situations where the actors have a distance between each other due to the structure of the society, and/or the inhabitants are not used to and might not even be able to imagine that they could have an influence on the development of their surroundings, as is often the case in a low-resource developing country setting. Additionally, the future inhabitants might not be empowered to participate, or they might not have the time and energy to invest in the project [28]. In these cases, a desire for action and involvement is absent.

Most of the literature on participatory design relates to projects conducted in Western contexts. Nonetheless, some studies have been carried out in developing country settings. Hussain et al. (2012) suggest that the designer should lead the participatory design activities even if this contradicts the traditional democratic principles of participatory design [28]. Kujala (2010) suggests that the role of the users and the designer needs to be carefully considered [29]. In a case of complex health information systems design in a developing country context, Gregory (2009) emphasizes that the important starting point is to have an intention of mutual learning in challenging settings, then this can further open into reciprocal design [30]. Using classical participatory methods in these societies has also been a subject for critique, as they often do not lead to the desired results [31]. Participatory rural appraisal [32] and participatory action research have been widely used by non-governmental organizations in community development. However, participatory design requires a long-term involvement in a community, which is not always possible in fast urban development in chaotic low-resource settings.

The discourse of different approaches in human-centered design is relevant here due to the challenging settings, constraints, and divisions between stakeholders that often exist in low-resource settings discussed above. Within the human-centered design literature, a model has been proposed by Steen (2011) where he defines the different orientations within the field (Figure 1). In relation to this categorization, Empathic Design would be a good solution for user involvement in architectural projects in developing countries, as the leading role would remain with the architect who would lead with empathy, taking the actual needs of the user into account. According to Steen (2011), there must be a clear script on how and to what extent the users are involved in the design process [33]. He maps four different types of human-centered design: Empathic Design, Ethnography, Co-design, and Participatory Design, with respect to their design orientation (What is?/What could be?), as well as the direction of the approach (users to designer/designer to user).

*Figure 1. Diagram of the differences between approaches in human-centered design, Steen (2011).*




Steen (2011) states that in Participatory Design, the users move closer to the designer, while in Empathic Design the designer moves towards the users. The difference between Empathic Design and Design Ethnography is that Ethnography takes the research orientation of 'What is?' while Empathic Design has an orientation of 'What could be?'. For architectural projects such as the ones studied here, there is a need for more than observation, i.e., a need for the designer to understand the living conditions of people in different cultural and social contexts. The active movement of the architect towards the users with the question 'What could be?' seems relevant in this context [33]. Being responsible for this active movement, the architect can get emotionally involved, whereas, differing from traditional participatory design, the future inhabitant does not necessarily need to be involved as much in the design process when it is done according to Empathic Design principles [34]. This approach can be very helpful in a developing country context, where it is challenging to conduct deep participation, as the future inhabitants might not be empowered, might not have the time and energy to invest to the project, and might not be used to take part in a design process [28].

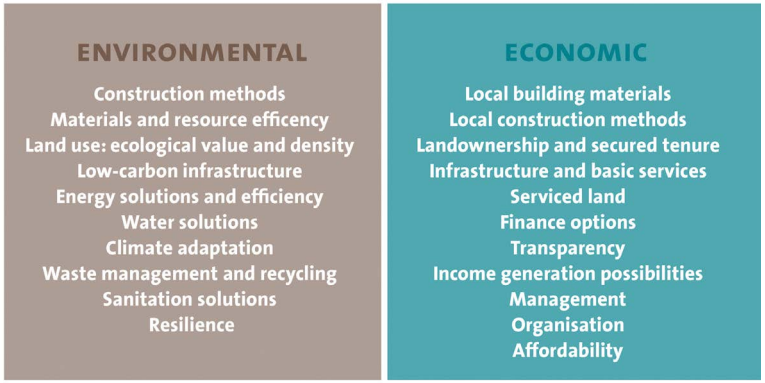
The term Empathic Design originates in innovation; for companies to be commercially successful, the products they sell need to meet the needs of the customers [3]. Peculiarly, meeting the needs of users who contribute to business innovation can also support the achievement of social and cultural sustainability in an architectural context. The foundation of Empathic Design is that researchers and designers, and in the case of this study, the architects, are seeking interaction with the end-users or future inhabitants of a housing scheme, trying to empathize with their life experience from a very early stage of the design process. The focus includes individual desires, moods, and emotions of the inhabitants that inspire and guide the project. Recent studies on Empathic Design suggest an emphasis on sensitivity [35]. The sensitivity approach in empathic design enables flexibility and adjustment to the prevailing situation and is crucial in the context of rapid urbanization—the scene for this study. In this situation, the architect as well as the other stakeholders must understand the diverse and transformative living conditions of people in different cultural and social contexts. According to Koskinen (2004), Empathic Design answers exactly these needs [36].

## 3 LEARNING FROM EXISTING SUSTAINABILITY MODELS AND THREE EXAMPLES OF AFFORDABLE HOUSING

In this section, we describe the stages of our study in detail. The method we have used in this paper is a combination of studying existing sustainability assessment models, and with the help of a synthesis model, examining examples of affordable housing. The results of the examination have led to a simple model that shows which aspects of sustainability are related to human interaction in the design process.

The process of creating this model was threefold. Firstly, we evaluated two different sustainability assessment models that were developed for low-resource situations, and we created a synthesis of those (Figure 2). Secondly, we tested this synthesis model on three heterogeneous examples of affordable housing in Namibia, Tanzania, and Chile. All aspects of the synthesis model were examined in each example. The test revealed some lacking aspects that we included in a new version of the model. It also showed that while some aspects mainly belong to one dimension of sustainability, many belong to several dimensions, and therefore, the dimensions often overlap. Thirdly, this new model was used to examine the sustainability in each of the chosen projects. This examination resulted in a table (Table A1). We let the results of the analyses of the examination inform us on which of the aspects of sustainability require involvement between the architect and the inhabitants during the design process. Our objective is not to develop a new assessment tool, but to investigate what aspects are important, while aiming for sustainable development in low-resource settings and to find out where inhabitant engagement is relevant.

*Figure 2. A synthesis of two sustainability models for housing in low-resource settings.*




### 3.1 THE SYNTHESIS OF TWO EXISTING SUSTAINABILITY MODELS

The first stage of this study was to do a synthesis of two relevant sustainability models as a base for our study: QSAND, that was developed by the Building Research Establishment and the International Federation of Red Cross and Red Crescent Societies for humanitarian construction and Sustainable Housing for Sustainable Cities, A Policy Framework for Developing Countries by UN Habitat [2,17,18]. The reason for choosing these two particular models as a basis for our analysis was that they are both designed for low-resource settings. To include complex assessment models designed for developed country settings would not have been relevant to this study. In the end of this chapter, we are presenting a combined simplified synthesis of the QSAND and UN Habitat models that reveal different aspects to consider within the four dimensions of sustainability in an affordable housing project (Figure 2).

#### *3.1.1 UN HABITAT SUSTAINABLE HOUSING FOR SUSTAINABLE CITIES*

The UN Habitat guide for designing sustainable housing policies and practical actions seeks to promote an integrated policy where environmental, economic, social, and cultural aspects are addressed in housing. This kind of policy, however, is still rare in developing countries [2]. The approach "advocates sustainable housing as socially enhancing and environmentally friendly residential practices integrated into the wider urban/settlement systems" [2], where sustainability and affordability go hand in hand. We find this model particularly interesting, as the emphasis on cultural sustainability is equal to the other dimensions. The approach is an extension of the adequate-shelter-for-all strategy of the Habitat II Agenda 2003 [37].

Despite the New Urban Agenda from Habitat III 2016 [38] that addresses these questions more contemporarily, we find the content of the guide very relevant up to this time. The guide presents a framework which is used for the synthesis model in this paper. Additionally, the guide discusses extensively the different aspects of the framework and reflects upon the relevance for affordable housing of the different dimensions of sustainability. The guide is produced to assist national and local level decision makers, as well as professionals and different stakeholders in the housing sector (Table A2).

### *3.1.2 QSAND*

QSAND was developed by the UK charity Building Research Establishment (BRE) Trust, which provides research and education in the built environment on behalf of the Red Cross. It was done as a step towards the Red Cross's Strategy 2020 of (1) save lives, protect livelihoods, and strengthen recovery from disasters and crises; (2) enable healthy and safe living; and (3) promote social inclusion and a culture of non-violence and peace. The tool is a further development and adjustment of the standards of Building Research Establishment Environmental Assessment Method (BREEAM), one of the commonly used sustainability certification schemes for the built environment, also developed by BRE Trust.

The intention of QSAND was to support aid agencies and donor organizations striving to recreate a sustainable built environment after natural disasters. QSAND is a self-assessment tool free to be downloaded online and used by individuals who have undergone an online tutorial. The tool is designed to applicate sustainability throughout the reconstruction process and the life cycle of the development. It can also be used to monitor the recovery of the community [18].

The view of sustainability is based on three dimensions: social, environmental, and economic, and the influence of the dimensions on each other [39]. The focus for the social dimension is on participation and community-sensitive design, for the environmental dimension on ecological protection, and for the economical dimension on site selection and spatial planning to help the community to be re-developed in a way that supports the growth of livelihoods. Even if cultural sustainability is not part of this model, it contains aspects that enrich the UN Habitat model, and therefore, we wanted to create a synthesis of the two for our analysis. The tool is divided into two parts, one for pre-assessment and another for core assessment [18]. For our synthesis model, we have used the core assessment only; as our focus is on housing and not on disaster recovery, decisions are not needed to be made in a speedy manner, as in the case of disaster. QSAND is a measurement tool opposed to the Habitat Sustainable Housing for Sustainable Cities, which is a guide for practitioners. Nevertheless, the aspects relevant to our research are similar and comparable (Table A3).

## 3.2. THREE EXAMPLES OF AFFORDABLE HOUSING

In the second phase, the synthesis model (Figure 2) was tested on three examples of affordable housing: Kuisebmond in Namibia, Chamazi in Tanzania, and Quinta Monroy in Chile. The data concerning each example comes from different sources and is not fully comparable. The reason for choosing these examples was that they demonstrate different types of affordable housing in low-resource settings and illustrate the aspects of inhabitant engagement.

In the context of each example, data is gathered from different sources. In the case of Kuisebmond, the data consists of (1) several documents from an evaluation currently being done on the national mass housing program by the Namibian architectural firm Nina Maritz Architects [6,40–46]; and (2) through field interviews and observations by one of the authors in 2016 [47]. In the case of Chamazi, the data comes from (1) discussions with the personnel of the NGO Centre for Community Initiatives and an article written by the managing director of the NGO [5,48]; (2) an article about community empowerment in subsistence markets studying the case of Chamazi [4]; and (3) from field observation by one of the authors in 2014 and 2015 [48]. In the case of Quinta Monroy, data comes from (1) a publication written by the architects behind the Quinta Monroy project [7]; (2) a critical scientific article on the case [49]; and (3) internet publications in Arch Daily [50,51], an internet portal, as well as one article in the Guardian [52].

### *3.2.1 KUISEBMOND*

The urban growth of Walvis Bay is expected to double by 2030 to an estimated population of 180,000 (from 79,500 in 2014) [45]. In Namibia, there is often an inherited unequal pattern of settlement because of apartheid policies followed by the colonial government [6,42]. In the Kuisebmond area, the government has aimed to respond to the growing need for housing through a mass housing project implemented by the NHE (National Housing Enterprise) and the Build Together program (Figure 3). The NHE is a solely government-owned enterprise that has a mandate to offer housing solutions for national housing needs [46]. However, vulnerable groups such as unemployed and low-income groups are excluded from access to this government-led housing program. Weak transparency and a slow and unclear decision-making process in this program reduces trust. Transparency in decision-making is considered weak as there have been a limited number of consultations of relevant stakeholders. There also seems to be a lack of good practice evaluation. A decentralized governance model enables local participation at least in theory. Local housing NGO Shack Dwellers Federation of Namibia offers a community network of savings groups and receives annual funding from the government to improve the situation. This is the

*Figure 3. Kuisebmond. Photo Nina Savela*

*Figure 4. Chamazi*

only form of community participation in the field of affordable housing [47]. In the Kuisebmond project, the end-users were not involved in the process of architectural design [45].

### 3.2.2 CHAMAZI

In 2007, the inhabitants of the Kurasini area in Dar es Salaam faced the threat of eviction due to the expansion of the city port. For most of the inhabitants, this meant losing their homes, their neighbors and their livelihoods without compensation, as they were tenants [5]. The government did not provide the tenants that were evicted with any support. The project is an offspring of that failure. The inhabitants were supported by the Tanzanian Federation of the Urban Poor (a sub organization for Slum Dwellers International) and the local NGO Centre for Community Initiatives (CCI) to create a platform for discussion and to make a numeration study on the inhabitants of the area, as no such data existed. This process led to the former inhabitants of Kurasini being able to purchase a plot of land and establish a new community in Chamazi with financial support from Slum Dwellers International [4,5]. This small urban community that is growing incrementally is thus created by the inhabitants themselves (Figure 4).

### 3.2.3 QUINTA MONROY

The architects of Elemental Chile were asked to solve the challenge of resettling 100 families who had illegally occupied a site in the center of Iquique for the last 30 years on the same site [50]. The work had to be done within the budget of the Chilean Housing Policy. This equation was solved by a dense urban plan providing half a house to the families with the possibilities for expansion in the future (Figure 5). The project was initiated by a design process aimed at finding a model for housing that would fit into the equation of available land and budget. When the spatial solution was found, the rest of the process was carried out in a participatory manner [7]. The same concept for social housing has been replicated in many projects in Chile. There are different opinions on the success of the project. Alejandro Aravena from Elemental Chile won the Pritzker prize in 2016 for his architecture that reduces inequality [50], but he is accused of inventing a neoliberal method to produce social housing that binds poor people to debts and therefore is vital for the capitalist landscape [49].

*Figure 5. Quinta Monroy. Photo Christobal Palma / Elemental Chile.*

### 3.3 USING THE MODEL TO FIND RELEVANT ASPECTS IN THE DESIGN PROCESS

Through testing the synthesis of QSAND and UN Habitat sustainability models according to the method explained in the beginning of Section 3 on the three examples of affordable housing using the available data introduced in Section 3.2. It was revealed that many of the sustainability dimensions overlap each other. The division into four different dimensions is not clear, as the borders are blurred, and it is often relevant to look at the aspects from several different perspectives. Therefore, we developed a new model that shows the overlaps. Additionally, we found aspects relevant to the design process that were not part of the original models used for the synthesis. We included these aspects in the new model (text in white) (Figure 6).

None of the models propose a focus on the *governance* of the project process, and in the future, the housing area. This is an aspect that has an influence on the social sustainability of a project. In the three examples, the governance is carried out in different ways. *Mobility* was not mentioned in the examined models. The options for mobility relate to income generation and infrastructure and are therefore connected to the economic, social, and environmental dimensions. Other aspects relating both to cultural, social, and environmental sustainability were *interaction* and *capacity-building*, relating openness and striving for innovative local and frugal

*Figure 6. Illustration of the different aspects of sustainability regarding affordable housing design in developing countries and how the aspects of sustainability overlap.*


solutions. Relating to cultural sustainability according to how it is defined in the UN Habitat model [2], we lacked the aspect of *spatial hierarchy*. This is defined by the movement from public to private space, as this may vary a lot between different cultures and affects the usability of a home and adds to the ability to feel at home. Sensitive design can relate to this, but the definition in the existing models is too tight to involve this aspect. *Use of urban space* was also an important aspect, as this relates to urban culture, and as many of the fast-growing cities in developing countries are positioned in the Global South with a warm climate, outdoor life is important to value and include in the design process. *Diversity* is strived for on all levels, relating to the population in terms of income, culture, and age, as well as to potential activities. For cultural sustainability that has an influence on all the other dimensions, we also missed the aspect of *timelessness*, as a timeless design, not following trends, is durable. We also extrapolate the aspect of *building tradition*, as it covers both methods and materials used that often reflect the requirements of local climate conditions as well as locally available materials and skills.

In the third phase, we used this newly created model to analyze the three examples more extensively than in the first round by looking at each of the aspects in each of the three projects and recording results in an extensive table (Table A3). However, below we present a summary where the main aspects are addressed. For clarity in the text, we have maintained the organization of the aspects according to the principal sustainability dimension for each aspect, even if we are aware of the overlapping as discussed above. The purpose of this study is not to evaluate these projects in detail, but to learn what aspects to be conscious of and how to address these aspects in relation to inhabitant engagement.

#### *3.3.1 ENVIRONMENTAL SUSTAINABILITY*

Most of the materials for the Kuisebmond project are imported, which already renders the project not very environmentally friendly, as it raises building costs and influences the affordability of housing. Nevertheless, the wooden parts are biodegradable, and the steel can be reused. The concrete is possible to downcycle for infrastructure, such as road construction. Using concrete as a construction material is not energy efficient. There is apparently little interest in using alternative technologies and local materials in the implementation of the NHEs [45,46]. The Kuisebmond area is not densely planned and will thus add to urban sprawl if the city is growing as fast as predicted [47].

In the Quinta Monroy project, there has been a focus on the design phase to create measurements according to standard material availability, not to cause any unnecessary costs, and to make it easy for inhabitants to

build incrementally and make extensions [7] (Figure 7). The main material of the core structure is concrete, which is not a material with a low carbon footprint; however, the economical form of the buildings saves material, and the concrete can have a new lifecycle in road construction [53]. The materials are durable. The materials of the initial construction are not possible to recycle; however, the extensions can be made of reusable or recycled materials. The materials were transported to the site. The row-house model is more efficient than one family houses, but only two floors does not make the habitation very dense [7].

In Chamazi, the walls are made of interlocking bricks of local earth with a minimal addition of cement. The roofs are made of fiber-cement tiles [48]. The materials are durable even if the roof tiles need maintenance. The roof structure is made of wood, which is available in Tanzania. The wood is durable if the roofing stays intact, and it is not exposed to water. The access of termites to the roof structure also must be prohibited. The materials are not recycled but reusable, as the interlocking compressed blocks are stacked without mortar. The quality of the construction is not very high [48]. The materials are energy efficient; however, wood and cement needed to be transported to the site. The houses have only natural ventilation. There are green areas on part of the plot. The sewage and sanitation systems are innovative, and all wastewater is treated on site [48]. Single family one-story houses are not an efficient way of using land and adds to urban sprawl; however, the split of the normative size of a plot makes the site more densely inhabited than regular officially planned areas in Dar es Salaam [4,5].

*Figure 7. In Quinta Monroy, the inhabitants have the freedom to build the extension of their house in any preferred style using their own creativity. Photo Christobal Palma / Elemental Chile.*

### *3.3.2 ECONOMIC SUSTAINABILITY*

When examining the projects from an economic point of view, the houses in Kuisebmond are too expensive for people with really low income. Additionally, there are significant registration and administrative costs in urban land registration [40,44]. Because of the bureaucratic nature of the process, the houses in the Kuisebmond area are visibly difficult to access, and furthermore, some of the houses are empty and vandalized. The capacity for skills development for the inhabitants in the area is weak. There are no spaces for income-generating activities in the area. Private sector financing is usually limited to the high- and middle-income sector [42]. This creates a missed opportunity in using housing as a tool for integration of different income groups.

In Quinta Monroy, the people who originally lived on the plot and who had access to the national social housing scheme had access to this project; still, we do not know whether everybody had access. The inhabitants had the possibility to choose between elements within their house, within the monetary restrictions [7]. The pricing is according to Chilean social housing standards; besides, instead of receiving a house that is too small, the inhabitants receive half a suitably sized house [7]. People with any income will have the possibility to purchase a house, but they will be bound to a loan, and there is no variety in size, price, or quality in the initial state [7,49]. After the initial purchase, each inhabitant has the option to ameliorate their apartment and make it bigger [7]. The area has been evaluated and the value of the apartments has increased five-fold in ten years [52]. The very organized and long-term participatory design process in this project allowed for a lot of capacity-building. There were learning possibilities for the inhabitants that could potentially be used for income generation, as they were guided by the architects on how to expand their homes [7].

In Chamazi, the sizes of plots were diminished to keep the price of purchase lower [4]. The whole area is built incrementally, for one house to finance the next. The houses were built with the minimal amount of materials and minimum costs. The houses are planned to be as affordable as possible, as the groups were originally tenants. The system for finance is self-organized within the community. The project was done with financial support for the purchase of land. People with any income can purchase a

house, but there is no variety in size or quality. The arrangement of credits and incremental construction (one house at a time) made the project possible. There is no information about whether the value of the houses has increased with time, but it is possible, as the methods of construction were the cheapest possible, and the houses were constructed without intermediaries [4,5].

### 3.3.3 SOCIAL SUSTAINABILITY

From the social perspective, the Kuisebmond housing area is an endeavor by the Namibian government to address the housing challenges. However, in reality, the implementation has been challenging, and the actual needs are not completely met. The reality is more diverse than predicted; for instance, some people (mainly men) move from rural areas only to live in the city for periods of time in the year, work, and send money back to their families. Thus, there is a need for a wider range of options, such as subsidized renting and rent-to-buy schemes, to respond to the changing lifestyles. There was no kind of participation involved in the planning of the area. There is potential for social unrest in the Kuisebmond area, as the urban arrangement is monotonous, and walls will probably be constructed around the plots for security. There are no public spaces, parks, or areas for social interaction planned [47].

In Chile, Quinta Monroy is one of several projects carried out according to a housing scheme where the architects influenced the government to make changes in the governmental social housing system for it to accommodate a better structure for social housing [7]. The architects aimed at building capacity for self-organization of the community. The participatory process was also striving to maintain the feeling of neighborhood and belonging among the inhabitants [7].

The Tanzanian project differs from the two others, as in Chamazi, the initiative of the project was taken by the community members, and it was taken forward with the help of an NGO that secured the participation of the inhabitants and meaningfulness of the project for them. TFUP and CCI also built capacity in the community for self-organization [5]. The community participated actively in the whole process of the housing project from the initial stage to realization. The project was totally transparent during the whole process [4]. All people in the original scheme had potential access to the houses; nevertheless, the time span might have made it impossible for some to wait for their turn to receive a house [4]. There is a diversity of inhabitants; however, all belong to a fairly low-income class. Throughout this project, from the perspective of safety, there was trust between the people; most of the inhabitants knew each other from before, as they lived together in Kurasini and created the project together [4].

### 3.3.4 CULTURAL SUSTAINABILITY

Looking at the examples from a cultural point of view, the Kuisebmond houses could be anywherein the world. The building tradition could potentially be adopted from South Africa. However, no cultural identification features are visible, not on the outside of the buildings, nor by investigating the use of space [47].

In Quinta Monroy, the innovation of providing the inhabitants with half of a house instead of a house that was too small was developed by the architects alone, not in collaboration with the end-users [7]. Nevertheless, the outcome of the project had a very strong influence on its inhabitants. The parts of the house that inhabitants have had the opportunity to build and design themselves are truly local and reflect the diversity of colors and personality of both culture and inhabitants. The colorful varieties of the personal extensions make the whole project alive and bound to the Chilean vernacular, while the structure designed by the architects follows a well-planned minimalistic and timeless aesthetic [50]. Elemental Chile declared the plans for the housing Open Source in 2016 [51]. This is a big and important step in trying to tackle the challenge of rapid urbanization. The question remains about how to anchor the architecture to local climate, local culture, and local use, in different settings, as the plans alone do not solve this challenge.

In Chamazi, the area and the houses were designed by a local architect in a conventional manner ordered by community representatives according to the needs of the community [48]. The design followed local suburban norms, except for the sizes of both plots and houses that were smaller [5,48]. The form does not leave space for innovative expansion nor for personal adaption [48]. The organization of the house follows in some respects the traditional way of using space, having a front veranda and the kitchen opening towards the back of the house. Nevertheless, many aspects are forgotten, for instance, the backyard activities, such as laundry, sanitation, and cooking privately in the culture, and this house does not allow for private outdoor activities (Figure 8) [48]. How the houses meet the street has potential to create a traditional street life. Nothing emphasizes locality in the details or decoration. The design of the houses is somewhat timeless and neutral [48].

Through this analysis of the projects, we noticed that several aspects emphasizing cultural and social sustainability require a connection to the people who will use the buildings. The empirical insights of this study have helped us to outline a section of our model where engaging with inhabitants is necessary (Figure 9). Full engagement is not always possible. In the following discussion, we will investigate the possibilities to use an Empathic Design approach to address the aspects that require inhabitant involvement.

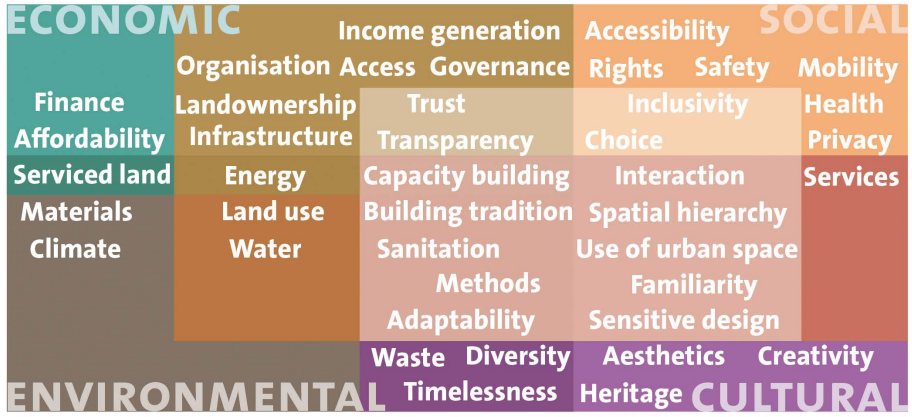
*Figure 8. In Chamazi, there is no designated back yard space, which is one of the most used spaces of a traditional Tanzanian house. The back yard is traditionally used as an extension of the kitchen and an area for hygiene and laundry.*

## 4 DISCUSSION: THE POTENTIAL OF INHABITANT ENGAGEMENT TO REACH SOCIAL AND CULTURAL SUSTAINABILITY

In this section, we discuss means to address the aspects illustrated in the model presented in Figure 9 where inhabitant engagement is required. The multiple level challenge of involving inhabitants in the design process might be one of the reasons that social and cultural sustainability is more difficult to define and has therefore tended to receive less attention in traditional sustainability endeavors. Taking into consideration the involvement of the inhabitants might be one strategy to meet the challenges of social and cultural sustainability in the design process of affordable housing in developing countries. To reach these aims, the analysis above shows that architects need to understand the people who will inhabit the houses.

Previous literature on human-centered design and the findings of this study suggest that Empathic Design can support user involvement in architectural projects in developing countries. In Empathic Design, the designer has a leading role but is leading with empathy, taking the actual needs of the user into account. To achieve a sustainable outcome of the different aspects outlined in the model: *trust, transparency, choice, interaction, capacity-building, inclusivity, sanitation, spatial hierarchy, use of urban space, sensitive design, adaptability, familiarity, methods, and building tradition*; methods from Empathic Design can be useful. These methods are often agile, flexible, and do not always require a consistent presence of the designer/architect [36,54,55]. There is an advantage if this connection can be established in the very early phase of a project, as the base for sustainable outcome is laid [53]. In the case of a housing project such as Chamazi, where the inhabitants were in a sensible situation of being evicted, the ability to listen to people's emotions and support an empathic environment, where, for instance, fear can be shared, will have a positive influence for the potential of long-term sustainability. In the Chamazi case, the collaboration with the NGO started already when the notice of eviction was announced, and the community was part of the creation process of the solution of creating a new community for the evicted tenants. This kind of transparency and open collaboration is a foundation for trust, builds capacity, and lets the people involved have a choice. In Empathic Design, there is, for instance, the method of Design Probing, which happens in the early phase of the process, where people involved are asked to fill in or do exercises planned by the designers [54]. The exercises could, in this case, include tasks that reveal living habits, traditions, and wishes and hopes for the future. In the Quinta Monroy project, many participatory workshops

*Figure 9. The white square indicates which of the aspects of sustainability require inhabitant engagement where methods of Empathic Design could be applicable.*



took place. This led to a devoted participation in the further development of the area, also after the architects were no longer part of the project. Nevertheless, this kind of workshop-based activity that involves a large number of inhabitants requires a lot of organization and time. The lack of involvement is visible in the Kuisebmond project. This is further bound to the growing separation and isolation of different income groups in the area. In the ideal situation, the interaction with end-users happens throughout the design process [56].

In the case of Kuisebmond, as there was no participation of local inhabitants, there is also no indication of social or cultural sustainability, nor acceptance [42]. In this case, already, using photography, another technique from Empathic Design, would have been most helpful. In this case, future inhabitants would have been given disposable cameras or used their phones to take pictures of their existing homes and surroundings. Ideas from these environments would have been developed and integrated into the new neighborhood. This would have most probably led to some familiarity and cultural identity recognizable for the inhabitants. Both Chamazi and Quinta Monroy have many aspects that show an emphasis on both social and cultural dimensions of sustainability. As an example from Chamazi, the Tanzanian way of relating to your neighbors is through spending time on the porch of your house talking to passers-by. The housing design in Chamazi allows for this cultural and social tradition to continue. Without engaging in the life of the people, this aspect would not have been known. The plots are not surrounded by a wall, and the porch of the house opens towards the street. This kind of knowledge concerning use of urban space and spatial hierarchy can be shared through different techniques. For instance, story-telling, personal interviews done by the architect or someone else, or the previously mentioned methods of Design Probing or self-photography could reveal these aspects. In the projects investigated for this paper, Design Probing was not used as a method of interaction; nevertheless, the authors have experienced this method as worthwhile in the beginning of the design process. In Quinta Monroy, half of the house is not built. This has resulted in the inhabitants using their creativity while filling up the gaps in the row houses. This form of the design allows for a local continuation of the vernacular architecture and supports cultural sustainability. It also gives space for local building tradition and methods, builds on capacity, and is adaptable for future needs. In this project, a training period on construction was included in the collaboration process between architects and inhabitants.

Empathic Design also requires time, even if the involvement does not need to be on a continuous basis as proper ethnographic studies or long-term participatory planning. This can nevertheless be a challenge in fast-growing urban settings. It is not enough to only observe people's thoughts, motivations, values, or preferences. To get in touch with these observations, there is a need for a more interactive connection. In the endeavor to empathize, all the methods used have the goal of getting a personal input from the participants and a personal experience for the architect. A large portion of the empathic experience depends on the emphatic ability, attitude, and motivation of the architect [55]. Using Empathic Design can make the architectural design process empowering for all people involved, both architects and users. However, an Empathic Design process does not guarantee a better design outcome; nevertheless, it has the potential to make a project locally grounded and make the inhabitants feel ownership. We argue that this can have a significant effect on the level of social and cultural sustainability.

## 5 CONCLUSIONS

In this article, we have created a synthesis model based on existing sustainability research in the context of housing. The purpose of the synthesis model was to demonstrate areas where previous sustainability studies have focused. We applied the synthesis model into analysis of three examples of different housing solutions from developing countries. Our analysis revealed that the models studied (QSAND and UN Habitat) are appropriate to use for affordable housing in low-resource settings. Nevertheless, there are shortcomings of the synthesis model, especially in terms of social and cultural sustainability and the structure, as many aspects overlap and support several dimensions. Based on our empirical findings, we developed a revised version of the synthesis model. The exercise was carried out to have a tool for revealing aspects that require inhabitant engagement. The model we have presented is not all-encompassing and should be considered as a step towards a more holistic understanding of sustainability.

The findings show that sustainability analyses cannot focus only on the outcomes of design processes, but instead, analyses must include some indicators for what has happened during the process. Similarly, it is important to estimate how well the architect and other stakeholders have managed to create and maintain a connection to each other throughout the design process. We draw on principles of Empathic Design which emphasize the importance of emotional connection between the designer and the inhabitants to understand the social and cultural aspect. Once people are engaged from the very beginning, they feel ownership and can better commit to the aims of the project, which typically leads to more sustainable outcomes in all dimensions of sustainability.

How difficult is it to combine the qualitative and quantitative sides of sustainability? The analytical model that we have developed enables inclusion of the social and cultural dimension into sustainability analyses of housing solutions. Our model also helps architects to consider their role in relation to social and cultural sustainability in practical design projects. Our findings are informative beyond the housing context. We argue that by studying housing solutions in the vulnerable conditions of developing countries, it is possible to better understand the critically important role that social and cultural sustainability plays in all kinds of sustainability analyses. We suggest further research on the creation of a proper measurement tool specifically designed for affordable housing in low-resource settings with inhabitant involvement as a prerequisite.

Future research should explore in more detail how Empathic Design can be useful when addressing the sustainability aspects of design processes. The research carried out in developing country contexts can be very informative in this respect. The idea of stakeholders' active participation is not the standard way of conducting design processes in developing countries, which opens interesting opportunities for studies on co-creation. Based on our findings, we hypothesize that Empathic Design will be a fruitful method when addressing aspects of social and cultural sustainability that need interaction.

## AUTHOR CONTRIBUTIONS

H.S. is the main author of the paper. She has a long practical experience of architectural projects in developing countries. She has developed the model for recognizing the aspects of sustainability that require inhabitant engagement and studied Empathic Design. She has also studied the Chilean project by Elemental Chile and visited the Tanzanian Chamazi project and written the parts of the paper about these projects.

N.S. has written the parts on the Namibian Kuisebmond project and also collaborated on the parts of the text concerning sustainability.

J.L. has contributed to the text about the different dimensions of sustainability, the introduction, conclusions and the overall structure of the paper.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## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

*Table A1. Sustainability examination of three affordable housing projects.*

| DIMENSIONS [2, 18] | Kuisebmond | Chamazi | Quinta Monroy |
|---|---|---|---|
| SOCIAL | | | |
| Safety Security, trust in neighbors and authority, feeling at home, connections, urban form and form of structure, materials that are durable, accessibility for fire engines and ambulances, taking into considerations healthy materials and construction methods as well as possibilities to reach health care facilities and pharmacies. | The second least densely inhabited country in the world, smaller risk for hazards. The street structure gives access to fire engines, and the materials and form of the houses are rather fireproof, except the roof structure. Urban arrangement, no units of houses, monotonous urban planning, potentially walls will be constructed for security. | The community is small and have been organized since the beginning. There is a trust between the people. The area is accessible for fire engines and ambulances. Wood is used in the construction of the roofs, which is not fire safe, but otherwise the materials are safe. The courtyards are not walled, but the windows have bars. | The participatory process was striving to create a feeling of belonging among the inhabitants to create safety. The houses are only two floors high and the regular streetscape allows fire engines to pass easily. The materials are fire safe. |
| Access, Accessibility, and Inclusivity for all societal levels, ethnical groups, and people with physical disabilities, shared responsibilities, and shared opportunities. | Connected to the access of housing. Vulnerable groups such as unemployed and low-income groups are excluded from the process. Constructed in one floor, but no ramps. | All people in the original scheme had potential access to the houses, but the time span might have made it impossible for some to wait. Constructed in one floor, but no ramps. | The people the area originally was meant for had access to the social housing scheme. The organization among future neighbors allowed them to share responsibilities and opportunities [7]. Stairs, no ramps. |
| Interaction and Participation, sense of community, trust in neighbors, form supporting social interaction, connections to neighbors, meaningfulness of the interventions done and decisions taken, feeling of ownership, ownership, learning possibilities. | Weak transparency and slow and unclear decision-making process reduces trust. | The initiative of the project was taken by the community members and it was taken forward through a local NGO that secured the participation of the inhabitants and meaningfulness of the project for them [5]. | The inhabitants were informed of the details, restrictions and constraints during the whole process [7]. The focus was on information and choice within restricted frames [7]. There were learning possibilities for the inhabitants. |
| Transparency Trust in system and authorities, information management practices, open access of design. | Transparency in decision-making considered weak as there have been a limited amount of consultations of relevant stakeholders. No good practice evaluation. This reduces trust. | The project was totally transparent during the whole process [4]. | The project was transparent during the whole process and focused particularly on keeping the inhabitants informed of the budget and steps taken [7]. The drawings are shared as open source by the architects and can be used by anybody [51]. |
| Empowerment and Capacity-Building Public participation, capacity for self-organization, societal collaboration, community structure. | Shack Dwellers Federation of Namibia offers a community network of savings groups and receives annual funding from the government. Decentralized governance model enables some local participation. | The help of the NGO Center for Community Initiatives and the Federation of the Urban Poor (part of Slum Dwellers International) has helped the community to self-organization [5]. | The architects aimed at building capacity for self-organization of the community [7]. |
| Services Areal planning: schools, public services, health care, shops, access to public transport. | Community services available in the area. | The area is not very big and there is a nearby community with schools and shops. Nevertheless, a small market place, an area for agriculture, a community hall, and a bus station was planned into the area. | The area includes only housing, but the inhabitants has the possibility to have income-generating activities in the ground floor. |
| Governance | The government addresses the housing challenges in its policies and programs. However, in reality the implementation of these policies has been challenging. | The government did not provide the tenants that were evicted with any support. The project is an offspring of that failure. The project is self-organized and governed with the help of NGOs [5]. | Initiated by a group of architects based on the social housing scheme of Chile. The architects influenced the government to make changes in the scheme for it to accommodate a better structure for social housing. The project was planned accordingly. [7] |

When reference not indicated the data for Walvis bay originates in observations [47], likewise for Chamazi [48] and for Quinta Monroy the authors' interpretation of secondary data.

*Table A1. Sustainability examination of three affordable housing projects.*

| DIMENSIONS | Kuisebmond | Chamazi | Quinta Monroy |
|---|---|---|---|
| CULTURAL | | | |
| Cultural Heritage<br>Tangible and intangible, history of place, history of people and activities, capacity-building in a sustainable direction regarding energy use recycling, communal living, place maintenance etc. | Some move from rural areas only to live in the city for some periods of time in the year, work and send money back to their families in urban areas (mainly men). Thus, there is a need for a wider range of options, such as subsidized renting, rent-to-buy schemes to respond to the changing lifestyles. | The community members had a say in the planning of the houses and the houses were done by a local architect [5]. There is a basic form that follows a bit the traditional way of using space, but many aspects are forgotten. There were no structures on the area before. | The people were staying where they lived before. The houses were constructed in the same area [50]. Even if the actual living area changed, the nearby surroundings stayed familiar. |
| Adaptability and Choice<br>Possibilities to make personal choices, incremental construction possibilities: if the family grows, the home can grow, if the income grows the home can be updated accordingly. | There is not much space for extensions around the houses. | The area and the houses were designed by a local architect ordered by representatives of the community according to their needs. The design is conventional, except that the houses were made smaller than the common house type. The form does not allow extension nor personal adaption. The area is built incrementally, for one house to finance the next [5]. | The whole scheme has a strong innovation of providing the inhabitants with half a house instead of a too small house [7]. The form leaves space for optional extension of the house. The inhabitants also had the possibility to choose between elements within their house, within the monetary restrictions. |
| Diversity and Inclusiveness<br>Mixed use: income, age groups, ethnic, prevention of segregation. | Age groups: pensions provided by the government, inherited unequal pattern of settlement as a result of apartheid policies followed by the colonial government [20,34]. | Anybody within the community had accessibility to the project. There is a diversity of inhabitants, but all are of a fairly low-income class [5]. | As it was a certain group that was moved to the area, they were of a rather similar income level, but a diverse age structure [7]. |
| Vernacular Building Tradition<br>Local forms, resilient techniques, promoting local knowledge, energy efficiency, sustainable resource use. | Building tradition adopted from South Africa. | The form does partly follow local vernacular principles. | The part designed by the architects is contemporary and minimalistic, whereas the potential for extensions leave room for vernacular features. |
| Spatial Hierarchy<br>Local use of space and structure, steps from public to private, assisting transition from other forms of housing to more dense options. | Strong urban-rural link (caused by historical factors such as apartheid, food security and employment). Patriarchal society where especially unmarried women are facing insecure tenure. | The traditional way of using space in Swahili culture does not fit very well into the Chamazi planning. | The apartments are designed in a basic manner and the house is in two floors. This does not seem to follow traditional use of space, but the literature does not reveal specific answers to this question. |
| Use of Urban Space<br>Tradition of use of outdoor private or shared space. | No courtyards or public spaces. Monotonous structure of the city scape. | How the houses meet the street has a potential to create a traditional street life. There are also elements such as the market place, that might, when the area is fully populated, have an urban life according to the cultural habits. | This project covered only housing. The buildings are placed in rows, there has not been paid particularly attention to use of urban space. |
| Cultural and Religious Activities<br>Spaces reserved for religious activities, traditions, and events. | Available and affordable public transportation is important to maintain strong urban-rural linkage between families. Churches or community halls? | There is a plan for a community hall, but no other spaces for cultural or religious activities. | There is nothing that supports cultural or religious activities. |
| Symbolism, Colors and Decoration<br>Local attachment, dignity. | Natural stones used for decoration? | Nothing emphasizes locality in the details. | The parts that inhabitants have had the possibility to build themselves, 1/2 house are truly local and reflects the color diversity and personality of both culture and inhabitants. |
| Creative Activities<br>Promoting and arranging space for affordable sports and cultural activities, activity areas for children. | Some but are they accessible to all? | There are no areas designated for these kinds of activities in the plan. | The focus is on the housing and these things are not visibly considered. |
| Aesthetics and Timelessness<br>Neutral design, not to be outdated within a short time-frame. An aim towards beauty. | The design of the houses is somewhat timeless, but not bound to the local culture or traditions. | The design of the houses is somewhat timeless and neutral and parts of them are bound to local vernacular. | The designed part of the architecture follows a simple and well-planned aesthetics while the colorful varieties of the personal extensions makes it alive and bound to culture [50]. |

Appendix A

*Table A1. Sustainability examination of three affordable housing projects.*

| DIMENSIONS | Kuisebmond | Chamazi | Quinta Monroy |
|---|---|---|---|
| ENVIRONMENTAL | | | |
| Material Efficiency | Materials as basic as Portland cement, steel and construction timber are not locally available and are imported from neighboring countries. This raises building costs and affect the affordability of housing. Banks are reluctant to finance houses using alternative material as they are not considered durable. Small number of suppliers and regulations create barriers. | The houses were built with the minimal amount of materials and the minimum costs. | There has been a focus in the design phase to create measurements according to standard material, not to cause any spare costs and to make it easy for inhabitants to build incrementally and make extensions [7]. |
| Low Carbon Footprint<br>Low greenhouse emissions in all parts of the design and during the whole life cycle of the material. | Concrete is not a material with low carbon footprint, nor is steel. | Compressed cement and earth blocks and fiber-cement roof tiles have a rather low carbon footprint. | Concrete is not a material with low carbon footprint, but the economical form of the buildings saves material [53]. |
| Life length<br>Use of durable materials. | Materials are fairly durable, if there are no termites that destroy the timber and if the steel is rust proof and thick enough. | The materials are durable. The roof tiles need maintenance. | The materials are durable. |
| Reusability of materials mse of materials that are bio degradable or that can be recycled if the buildings are turned down. | The wooden parts are biodegradable, and the steel can be reused. The concrete is not possible to reuse. | The materials are reusable, as the interlocking compressed blocks are done without mortar. | The materials of the initial construction are not reusable, but as the extensions can be made of anything, that material can be reusable. |
| Use of recycled materials use of materials that are recycled or upcycled. | No recycled materials are used as they are not considered durable [42]. Lack of technology to use local material [6]. | No recycled materials are used. | In the extensions recycled materials can be used [7]. |
| Locally Available Materials<br>Transport avoided during the construction phase. | Materials imported from neighboring countries. This raises building costs and affect the affordability of housing. | The bricks are made of local earth with an addition of cement. Wood and cement needed to be transported to site. | The materials were transported to site. |
| Resilience<br>Durable construction according to potential natural disasters, e.g., earthquakes, floods or storms, adaptability, and incremental construction possibilities. | The city of Walvis Bay does not have a policy paper or an action plan for climate change. mitigation. No specific criteria concerning the thermal environment. There are no considerations of potential flooding. | The construction is not done in a very durable way. | The calculations are made with potential earthquakes in mind [7]. |
| Energy Efficiency<br>Efficiency in all different stages, construction, and use, e.g., possibilities for energy savings and use of materials and solutions that support cooling or heating, integrating housing to sustainable energy systems. | Using concrete as a construction material is not energy efficient. Apartments tend to overheat during summer and are extremely cold during winter. | The materials are rather energy efficient, and the houses have natural ventilation only. | Using concrete is not energy efficient [53]. |
| Innovative Solutions<br>Solutions for housing-related infrastructure e.g., rainwater harvesting, sewage systems with natural water purification solutions, solar energy, ventilation based on gravity, toilet solutions etc. | Challenges in solar energy provision (sand storms affect to the maintenance of solar panels). There is very little interest in using alternative technologies and local materials in the implementation of the National Housing Enterprise's activities or the Build Together program. | The sewage system is innovative. | The innovation of providing half a house is brilliant. The house is also measured to fit to common building material sizes, so that the extensions would be as easy and economical to construct as possible [50]. |
| Land Use<br>Efficiency of the use of land, density, green areas, protection of bio-diversity. | Inherited unequal pattern of settlement as a result of apartheid policies followed by the colonial government. One floor. Green areas available (availability of water). The area is not densely planned, will add to urban sprawl if the city is growing as fast as predicted. | One family houses are never that an efficient way of using land, adds to urban sprawl, but the split of the normative size of plot makes the site more densely inhabited than regular officially planned areas in Dar es Salaam. There are green areas on part of the plot. | The row-house model is more efficient than one family houses, but only two floors does not make the habitation very dense. |

Appendix A

*Table A1. Sustainability examination of three affordable housing projects.*

| DIMENSIONS [2,18] | Kuisebmond | Chamazi | Quinta Monroy |
|---|---|---|---|
| ENVIRONMENTAL | | | |
| Urban Mobility<br>Urban sprawl, citizen's need for transport, promoting low-carbon infrastructure. | In some areas public transportation (bus service) is provided by a private actor (uranium mines). In most cases people use taxis, which are an expensive form of transportation to some and affects to the increase of carbon emissions. Road conditions are generally good. | The area is not close to the city center and as the inhabitants were moved from the port area that was very central, there is commuting. There are buses, not very far from the area. | The buildings are placed in central Iquique. |
| Waste Management<br>Promoting recycling and proper management of hazardous waste. | Some activities concerning recycling and proper management of hazardous waste but this is not always consistent. There is a need for awareness raising activities. | There was no particular attention paid to waste management in the design. | Literature does not reveal answers to this question, but the area is central and follows probably the prevailing waste management system of the city. |
| Sanitation<br>Preventing hazardous and polluting materials, introducing ecological sanitation systems. | The local authority provides a sewage system network but has sometimes been proved to be insufficient. | There is a natural ecological water cleaning system for the area. | The area is within the existing urban structure and is probably connected to the existing city system. |
| ECONOMIC | | | |
| Affordability<br>Balanced housing markets, system for finance, mixed buying, and tenure options. | Houses are mainly offered for a certain income group (unbalanced housing markets). | The houses are planned to be as cheap as possible. The sizes of plots were diminished, to keep the price of purchase lower. There is no tenure option but there is a self-organized system for finance. Done with financial support for the purchase of land [4]. | The pricing is according to Chilean social housing standards, but instead of getting a too small house the inhabitants get half a bigger house [7]. |
| EconomicInclusiveness<br>Mixed income options, and inhabitants. | Houses are mainly offered for a certain income group. | People with any income will have the possibility to purchase a house, but there is no variety in size or quality. | People with any income will have the possibility to purchase a house but will most probably be bound to a loan. There is no variety in size or quality in the initial state. Inhabitants have the possibility to ameliorate their apartment and make it bigger [49]. |
| Capacity-building<br>Job creation & skills development during the whole process, planning, construction, and maintenance. | Capacity for skills development is weak. BT project offers some form of participation in construction work. Private sector financing is usually limited to the high and middle-income sector [42]. | The community participated actively in the whole process of the housing project from the initial stage to realization. There was a lot of capacity-building included. | The long-term and thorough participatory design for this project allowed a lot of capacity-building. The aim was also for the community to get organized during the process, for the future maintenance of the housing area [7]. |
| Income-generating Activities<br>Spaces for income-generating activities mixed with housing and possibilities domestic economic activities and enterprise. | No spaces for income-generating activities in the housing areas. | A market place was planned as part of the area. | It is only a housing area, but the inhabitants have the choice to have economic activities in the ground floor facing the streets. |
| Socio-economic Organizing<br>Accessibility for anybody, arrangements for credit, lobbying activity. | Expensive for people with really low income. Empty houses are vandalized. Potential buyers register to the NHE and are placed on their waiting list. They are contacted when a suitable house is available [42]. | This project was done by a particular group of people that were the tenants in a community that was evicted. The arrangement of credits and incremental construction (one house at a time) made the project possible [4]. | Accessible for the people who have access to social housing. In Chile the system seems to be rather organized. |
| Investment Possibilities<br>Increased value with time. | No private sector participation in the process of low-income housing. Missed opportunity in using housing as a tool for integration of different income groups [42]. | It is possible that the value of the houses has increased, as the methods of construction were the cheapest possible and the houses were constructed without middlemen. | It has been evaluated that the value has increased five-fold in ten years [52]. |
| Landownership<br>Clear form and clear information, trust. | Significant administrative costs in urban land registration. There are transaction costs and risks involved to some [40]. | The land was originally purchased with aid from Slum Dwellers international but is now owned by the inhabitants [4]. | The families had occupied the land for 30 years. Land is owned by the state owned Programa Chile Barrio [7]. |

*Table A2. UN Habitat A multi-scale framework for sustainable housing policies.* [2] UN Habitat Sustainable Housing for Sustainable Cities 2012, p. 8.

| DIMENSIONS | MACRO (National) | MESO (Regional, City) | MICRO (Neighbourhood, Household) |
|---|---|---|---|
| ENVIRONMENTAL | Housing to support climate mitigation and adaptation efforts. | Achieving good location and density for residential areas and access to infrastructure. | Ensuring energy efficiency, micro/generation, water and resource efficiency. |
| | Mainstreaming green housing practices and innovations. | Serviced land in environmentally safe locations and green areas. | Green design, using sustainable local construction and materials. |
| | Ensuring energy and resource efficiency in the building industry. | Protection of ecosystems and biodiversity. | Sanitation, preventing hazardous and polluting materials. |
| | Integrating national housing and energy systems. | Promoting sustainable and low-carbon urban infrastructure, public transport and non-motorised mobility, energy systems. | Affordable use of resources. |
| | | Waste management and recycling. | Improving resilience and adaptation of homes. |
| SOCIAL | Fulfilling the right to adequate housing and promoting the right to the city. | Promoting integrated communities and ensuring trust in communities. Providing community facilities, preventing segregation and displacement. Regenerating and reintegrating 'neglected' areas into regional, urban fabric. | Empowering people and ensuring public participation. Ensuring health, safety, well-being in residences. Creating a sense of community, 'sense of place', and identity. |
| | Ensuring affordable, decent and suitable homes for all, including disadvantaged groups. | Ensuring infrastructural integration of housing into wider areas. | Meeting specific needs and wants in housing (including those related to gender, age and health). |
| | Developing social housing provision. | Upgrading inadequate housing and slum areas. | Providing access to infrastructure and public spaces. |
| | Promoting choice and security of tenure. | Promoting sustainable and low-carbon urban infrastructure, public transport and non-motorised mobility, energy systems. | Improving resilience and adaptation of homes. |
| | | Waste management and recycling. | |
| CULTURAL | Promoting links between housing and knowledge-based and cultural economies. | Promoting urban creativity, culture, aesthetics, diversity. | Culturally responsive settlements and house planning and design. |
| | Promoting traditional, indigenous and local knowledge (including of relevance to sustainable resource use, energy efficiency and resilient building techniques). | Shaping values, tradition, norms and behaviours (e.g., in relation to energy use, recycling, communal living and place maintenance). | Improving aesthetics, diversity and cultural sophistication of the built environment and residence. |
| | Protecting cultural heritage. | Protecting housing heritage and familiarity of city (e.g., preventing unnecessary social replacement/gentrification or complete redevelopment). | Helping community creativity (i.e., via amenities; affordable sporting, cultural and entertainment facilities). |
| | | | Assisting people's transition from rural and slums areas to decent housing or multifamily housing. |
| ECONOMIC | Institutional capacities for sustainable housing markets and housing development. | Managing economic activities and growth by strengthening housing provision and housing markets. | Ensuring housing affordability for different social groups. Providing adequate residences. |
| | Articulating housing productivity within national economic systems. | Provision of necessary infrastructure and basic services to housing. | To raise labour productivity; ensuring housing is integrated with employment. |
| | Improving housing supply and effective demand, stabilising housing markets. | Providing serviced land for housing. | Supporting domestic economic activities and enterprise. |
| | Improving housing finance options. | Strengthening entrepreneurship of communities, local building industry and enterprise. | Promoting petty landlordism and self-help housing. |
| | Promoting innovations in housing. | Promoting local and traditional building materials and techniques. | Housing management and maintenance. |
| | Stimulating necessary technological developments for sustainable housing. | Promoting regional and urban regeneration. | Strengthening resilience and future-proofing of homes. |

*Table A3. QSAND CAT Core Assessment Tool, Relevance of Issues.*

[18] QSAND 2014, Assessment and Scoring Tool.

| CATEGORY | TITLE | AIM |
|---|---|---|
| SHELTER AND COMMUNITY | Community Sensitive Design | To promote integration of community-sensitive shelter and settlement layout design features which support inclusivity and accessibility for community members. |
| | Privacy | To recognize and encourage shelter and settlement design measures that respect and promote privacy within the disaster-affected community and where possible eliminates the risk of privacy invasion. |
| | Internal Environment | To ensure that the internal environments of individual shelters and community facilities are healthy and comfortable for the occupants. |
| | Construction Approach | To recognize and encourage the selection and application of construction methods that are environmentally sound and appropriate to the location and needs of the community. |
| SETTLEMENT | Site Selection | To ensure that the site selected for development or redevelopment is suitable for the affected community and other relevant parties, enabling long term sustainable development. |
| | Security of Tenure | To recognize and support:<br>– Diverse tenure arrangements relating to housing, land and property.<br>– Transparency, accountability and communication with the affected community in regard to tenure issues.<br>– The promotion of security of tenure in all shelter responses. |
| | Spatial Planning | To ensure that a settlements layout, amenities, other designated land uses and infrastructure sustainably support social, cultural and economic activities, providing the necessary basis for the community to develop and grow. |
| | Infrastructure | To recognize and encourage provision of infrastructure systems that are well planned, resource efficient, environmentally friendly, secure, culturally sensitive and economically viable. |
| MATERIALS AND WASTE | Material Properties/ Specification | To encourage the use of construction materials of an appropriate quality and which consider climate, culture, durability, local supply and environmental impact. |
| | Material Sourcing | To encourage and promote procurement of construction materials based on quality, environmental, social and economic considerations. |
| | Post disaster Waste Management | To promote the sustainable management of post disaster waste, by ensuring efficient use, removal and disposal. |
| | Construction Waste Management | To promote the sustainable management of waste generated on site during the construction process, by encouraging the efficient use, removal and where necessary disposal of waste. |
| | Operational Waste Management | To promote sustainable operational solid waste management throughout the disaster-affected community by proper and effective waste management, solid waste reduction and community education. |
| ENERGY | Energy Demand & Supply | To establish and optimize the energy demands of the community ensuring that these can be sustainably met in the future through the specification of reliable, affordable and sustainable energy supplies that meet needs of the community. |
| | Energy Consumption | To ensure that energy is consumed by the affected community in an efficient and sustainable way. |
| WATER AND SANITATION | Water Demand & Supply | To ensure that the water demand of the affected community is optimised and met for all needs, through a sustainable and secure water supply. |
| | Water Quality | To ensure that potable water is palatable, of sufficient quality to be consumed and ensures that communities health is not compromised by water resources. |
| | Sanitation | To ensure that adequate sanitation solutions, facilities and infrastructure are available for beneficiaries and the importance of hygiene is promoted. |
| NATURAL ENVIRONMENT | Human Relationship to Ecosystem Services | To develop, implement and effectively communicate a locally appropriate Action Plan which will identify existing ecosystem services and facilitate effective management of human activity in the natural. |
| | Ecological Protection | To protect the ecological value of the site during the resettlement phase and support on-going ecological protection over the life of the development. |
| | Ecological Restoration and Rehabilitation | To encourage the restoration, rehabilitation and enhancement of the ecological value of the site during settlement or re-settlement. |

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**PAPER III**

## SHOULDN'T ALL ARCHITECTURE BE DESIGNED WITH EMPATHY? A CASE OF AFFORDABLE-HOUSING DESIGN IN ZANZIBAR

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### ABSTRACT

Rapid urbanisation and, as a result, fast growing informal areas, increase the need for affordable housing. This urgent need requires new forms of input from the architects active in the Global South. The profession must adapt and evolve. Based on previous research, I argue that to build sustainable communities, the inhabitants must be heard and be part of the development process. To involve inhabitants, architects can use contextually suitable and effective design methods. The study comprised research through design of an affordable-housing design project in Zanzibar, Tanzania. This paper presents the early stages of this design process. The study revealed the potential of developing collaborative methods borrowed from the design discipline in the context of architectural design. The findings show advantages and disadvantages of the different methods applied. I conclude that these methods deepen and enrich the design process while working in settings with contextual constraints in the pursuit of sustainability.

Keywords:
affordable-housing; inhabitant engagement; collaborative design; design methods; empathy

### 1 INTRODUCTION

Although sustainability is a global goal, its achievement largely relies on understanding local circumstances, including its environmental and sociocultural domains. In the case of architecture, we must consider the influence of local climate conditions and available materials to reach environmental sustainability in a project. Further, albeit occasionally imperceptible, locally and culturally specific ways of living and using space usually express communities' enduring traditions, which cannot be easily changed in the near and long term without being strongly disturbed. Previous research has shown that sociocultural dimensions are often overlooked; however, they are essential for reaching a sustainable outcome (Sandman et al., 2018). One way to understand and address these aspects is to engage inhabitants in the architectural design process to ensure that the design corresponds to their actual needs.

Involving users and inhabitants has been strongly advocated within resource-challenged settings, often typical when designing for the lower income population. However, while participatory processes have a long tradition in the Nordic countries there is considerably less practice, experience and capacity regarding such approaches in the Global South. Most of the urban development and housing design will happen in this part of the world over the following decades (Salama and Grierson, 2016). In fast growing cities, where the pace of change is difficult to follow, there are often obstacles from the perspectives of both participants and architects. To engage people in change can be a chaotic process (Light and Akama, 2012). Nevertheless, inhabitant engagement in the architectural design process can act as a means of empowerment for disadvantaged groups (Hollmén et al. 2018), and therefore support sociocultural sustainable development (Sandman et al. 2018).

While professional architects are necessary (and sometimes legally required) within rapid urbanisation processes, there is a general scarcity of the profession in the Global South. Per capita, there are 20 times as many professional architects in the Global North as there are in the Global South (African Union of Architects, 2018; Architects in Europe, 2014). The shortage of professionals engenders situations in which architects might have too many duties, come from another region, or from another social level than the inhabitants (due to a conceivable lack of educational opportunities for the low-income population). Given the challenges facing professional architects in the Global South, the field requires more research and practitioner attention (e.g. Goluchikov and Badyina, 2012; Salama and Grierson,

2016). Perhaps the practice of architecture can evolve and accommodate new flexible methods for inhabitant engagement in the design process. However, these methods need to correspond to local culturally specific customs (Akama et al. 2019) not to reinforce and recreate colonial legacies (Lokko, 2017).

Design offers a wide range of methods, tools and techniques for user engagement. There is an elaborate discourse on collaboration with users in design that indicates that some of these approaches can be suitable also for architecture in low-income and middle-income countries.

This paper presents a case where four different collaborative design methods borrowed from the design discipline were applied. The paper covers the early stages of an affordable-housing design project that I was involved with in Zanzibar town, the capital of Zanzibar, Tanzania. The project in Zanzibar illustrates how certain design approaches can be applied in the architectural design process, how they complement each other, what adaptions and changes were needed, and what benefits and limitations were detected. The findings suggest that the use of collaborative design methods can influence the architectural planning of housing, and support architects to take better into consideration the sociocultural aspects of sustainable and affordable housing. The findings also illustrate that architects can move towards a better understanding of locality, inhabitants, and users in meaningful ways utilising methods that are time-efficient and flexible.

### 1.1 RESEARCH APPROACH AND POSITIONING THE AUTHOR

I am a practicing architect, with experience of working and teaching in the Global South for many years. As a doctoral researcher, I conduct 'research through design' (Dye and Samuel, 2015; Koskinen et al., 2011), in which I, as a practitioner, develop and reflect on my own practice as it unfolds and in retrospect. In this case I have undertaken, modified, tested and critically reflected upon particular, methods for user engagement in design, that I argue may contribute to long-term sociocultural sustainability. These methods were utilized to involve the community in the design of potential housing solutions for their neighbourhood. They were not conducted merely in research purpose, but mainly for the design of housing. Retrospectively I have analysed the different activities carried out in the community during the design phase in relation to human-centred design approaches according to a model by design researcher Steen (2008). This qualitative approach is interpretative and subjective, rather than objective, and takes advantage of embodied and situated knowledge, while acknowledging limitations. For instance, the number of people I have involved in the study is small, not equally divided between gender and age-groups, and limited to one particular community in one East African country. The results are thus not directly applicable to any architectural project anywhere without being critically analysed in relation to the situation at hand. Additionally, there is a distance between me and the community on many levels: geographic, cultural and social. My knowledge of the Swahili language is limited, and therefore some of the discussions, in cases in which the inhabitants did not speak English, were conducted with the aid of a local research assistant.

## 2 BACKGROUND OF A COLLABORATIVE DESIGN APPROACH

The large body of literature on inhabitant engagement and participatory practices in architecture relates primarily to projects conducted in the Global North, as this is where the origin of participatory design resides (Kensing and Greenbaum, 2013). Today, in low- middle income settings, the need for participatory design is widely recognised, and such methods are often taken for granted in design processes (Binder et al., 2008). In development work, various participatory methods are established and have been used successfully for decades. Participatory rural appraisal (Chambers, 1994) and participatory action research have been widely utilised in community development. However, participatory design generally requires long-term involvement in a community, which is not always possible with fast urban development in unorganised, low-resource settings. If present at all, the practised form of participation in general in housing projects in fast-growing cities in contexts of the Global South might remain symbolic (Emmet, 2000; Davidson et al., 2007), and if practiced, be closer to 'consultation', already stated in Arnstein's ladder of participation from 1969 (Arnstein, 1969). Nevertheless, architects need to place people at the centre to gain insights on how to meet the challenge of generating healthier and more inclusive cities (Smith, 2011).

In her reflections on an architectural case involving the urban poor in Thailand, Supitcha Tovivich suggested three roles for the humanitarian architect – provider, supporter and catalyst – when aiming for efficiency, capacity and empowerment through a participatory process (Tovivich, 2010). Whereas, Andres Lepik underlined the importance and continuum of social engagement in architecture (Lepik, 2010). There is a growing focus on social awareness regarding architectural projects in the Global South carried out by architects with a background in the Global North (Lokko, 2014). Kate Stohr from Architecture for Humanity asked whether 'the beginning of the twenty-first century will be remembered as the golden era of socially conscious design'. She asserted that 'this depends on the willingness of the architects and designers to reach beyond the design community and

humbly offer their services' (Stohr, 2006, p.53). These arguments support the need for the architectural design process to develop in an inclusive direction and also illustrate that there is a willingness among a growing number of architects to respond to this need.

Co-design researchers Hussein, Sanders and Steinert (2012) proposed that designers should take a strong lead in participatory-design activities, which appears to contradict the intent of typical participatory design (which is premised on social democratic principles; Kensing and Greenbaum, 2013) to shift focus from designer expertise to user expertise. However, in places where citizens are seldom consulted in social matters and may be either unaccustomed or unwilling to reveal their thoughts and opinions. Regarding a product-design project in Cambodia, Hussein, Sanders and Steinert pointed out that hierarchical structures can affect the outcome of participatory exercises. They also noted the potential for a lack of motivation as well as lack of trust in authorities (Hussain et al., 2012). Vulnerable clients might not have the trust or the strength to stand up for their rights or reveal their dreams; in this case, the responsibility to ensure the influence of the users, rests with the designer (Hussain et al., 2012). There might be a need for long-term capacity building, before a proper participatory process can take place (Drain and Sanders, 2019; Hussain et al. 2012). In the context of urban development, changes can be rapid and as an inhabitant it can be challenging, time-consuming and often impossible to actively influence the outcome (Nielsen, 2014). However, in any project there is a need to develop a common understanding grounded in the community's perspective (Nix et al. 2019). Therefore, it can be favourable to find new innovative ways of inclusion that require less but potentially deeper engagement than traditional participatory processes.

Within product and service design discourse, multiple participatory approaches and methods have evolved over recent decades (Sanders and Stappers, 2008, 2014). These approaches can be useful for architects, particularly those more profoundly engaged with socio-cultural aspects, localities, use and users. Elisabeth Sanders mapped out different approaches in relation to users in 2006 (Figure 1). Design researcher Steen (2008) responded by arranging a matrix to paint a picture of some of the main schools of thought under an umbrella that he chooses to call human-centred design in order to capture the main features of some of the approaches (Figure 2).

*Figure 1. Landscape of design research. Elisabeth Sanders drew out the landscape of design research in 2006 (Sanders and Stappers, 2008).*

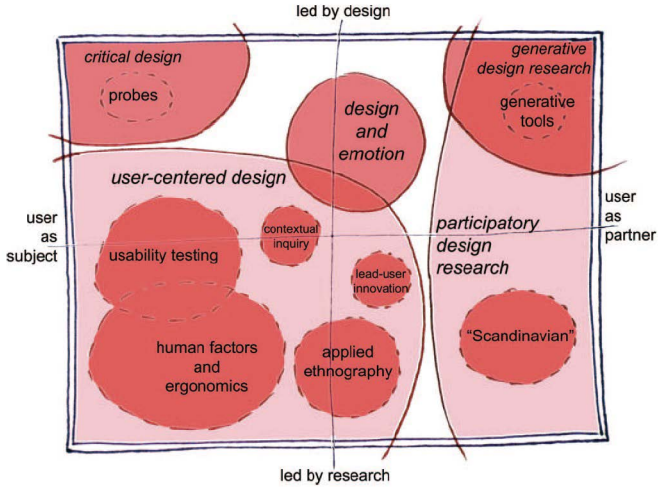
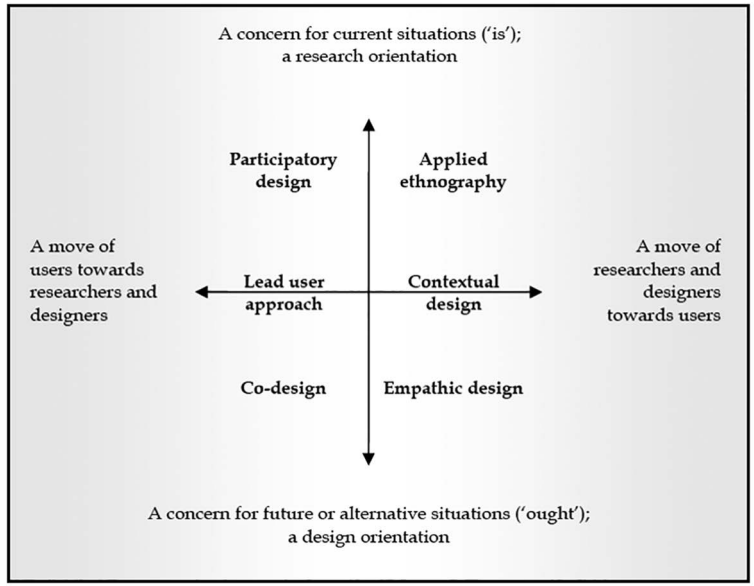



*Figure 2. Model for tensions in human-centred design. Marc Steen's doctoral dissertation (2008).*



In this paper the overview of the different approaches and the tendencies underlying them is presented to give a background for the methods applied in the case study. In the following paragraphs, I will briefly elaborate on the user-engaging orientations utilised in this study.

### 2.1 ETHNOGRAPHIC OBSERVATIONS

Ethnography is traditionally practised in anthropology, sociology and ethnomethodology, ethnography as a methodology has also recently become a common approach in design (Steen, 2008). Salvador, Bell and Anderson explained ethnography as a methodology used to represent the perspectives of everyday lives. Design ethnography does the same, while also framing the focus on what is relevant specifically for the development of new products and services (Salvador et al., 1999). Sanders defined applied ethnography as a qualitative description of cultural practices (2006). Steen further elaborated on the method suggested it to be used to understand people's habits only to a certain extent for a particular purpose. This is characterizing, in my understanding, a more superficial and short-term ethnographic activity than traditional ethnography practised in anthropology. In both Sander's map and in Steen's model applied ethnography is placed as a research-led approach, opposed to a designer-led. In an ethnographic study, it is also clear that the designer is the active party, moving towards users while studying their lives, as Steen proposed in his model (Figure 2). An ethnographic approach studies a situation as it is, striving for an authentic portrait of reality. Thus, Steen's reasoning that this orientation focuses on 'what is' *is not* arguable. Sanders (2006) positions applied ethnography in the middle between 'users as subjects' and 'users as partners'. In this case, it is questionable, as the users are mainly observed, and does not have an active role in the design process.

### 2.2 DESIGN PROBING

Design probing is an empathic-design method (Mattelmäki, 2006). Whereas the origin of design probing, cultural probing did not have any intention to empathize with users (Sanders, 2006). The original methods were introduced by Gaver, Dunne and Pacenti (1999). In that method the aim is to ask the users to generate material in order to give inspiration to the designer. Whereas in design probing, the designer is supposed to be affected, with empathy, by the material produced by the participants. The design probing is supposed to provoke the users to observe and think about their environment in new ways, as well as to stimulate and inspire the designer to come up with novel solutions. If the designer remains receptive and lets herself or himself be inspired by the material produced by the participants, the results can have a substantial effect on the design (Gaver et al., 1999; Gaver et al., 2004; Mattelmäki, 2006). For the designer, there is creative freedom in the development of the probes; the tasks presented to the users or inhabitants can vary substantially. Probing allows the designer to obtain a view of the participants' lives without the participants influencing each other (Gaver et al.,1999). Executing design probing exercises does not require physical presence of the designer.

Steen (2008) suggested, empathic design is an orientation whereby the designer has an active role, moving towards the user by focusing on 'what ought to be'. Sanders (2006) also placed probing in the position of being led by the designer, where the users are seen as subjects. This is arguable, as the users have an active role through their contribution.

### 2.3 WORKSHOPS

Workshop activities are used in many participatory design approaches, for instance in participatory design and co-design. Steen saw co-design as a contemporary form of participatory design, where tools and techniques are added from different traditions (Steen, 2008). In her map, Sanders (2006) proposed that the users in participatory design are seen as partners. Sanders and colleagues explained co-design as the combined creativity of designers and people not trained in design (Sanders et al., 2008). In co-design, stakeholders from all levels, regardless of skills, are facilitated to work together on a design task. Users, as well as other participants, can contribute as experts based on their particular experiences (Sleeswijk Visser 2009). In co-design, the users go through all levels of design: doing, adapting, making and creating (Sanders et al., 2010). Steen suggested, regarding participatory design, in his model that the orientation is focused on 'what is', and that the users have an active role: moving towards the designer. In this regard, the focus on 'what is' is not as clear as in, for instance, ethnography. However, when considering work like the case studied in this paper, a situation where users do not long for change could easily lead to a focus on the status quo.

Steen placed co-design in a position where users, as in participatory design, move towards designers, focusing on 'what ought to be'. It is easy to agree that that co-design activities require a lot of input from users; and in this case, their position, opinions, and thoughts are revealed and can have a strong influence on the design. The focus on creativity explains the direction of what 'ought to be' instead of 'what is'.

## 2.4 THEME DISCUSSIONS

Theme discussions carried out with users as part of the design process can be seen as a form of contextual design or contextual inquiry (Beyer and Holzblatt, 1998). Contextual design is influenced by ethnography and participatory design. This orientation allows to focus on defined smaller parts of the design process. In contextual design, Steen suggested that the designer stay in the active role and move towards the user. This is understandable, as the designer decides both the context and what parts of the projects should be reflected on. The orientation is positioned in the middle, between 'what is' and 'what ought to be'. Likewise, Sanders (2006) positions contextual design in the middle of her map, where being both a method for research and for design and seeing the users either as partners or as subjects.

In the case, illustrated in this paper, I used a variation of the design methods appearing in Sanders' map and in Steen's diagram presented in the previous section. The early phase of the design process contained observations in the form of applied ethnography, design probing as a method of empathic design, workshops as used in participatory design and co-design, and theme discussions that are part of contextual design. The methods used were adapted to the project and to local circumstances. The practical use of these methods and learnings from the process will be reflected upon in the following sections.

# 3 AFFORDABLE-HOUSING DESIGN IN THE NG'AMBO NEIGHBOHOOD

## 3.1 CONTEXT OF THIS RESEARCH

The focus of this paper as well as the case description is on inhabitant engagement early on in the design process; this is due to the importance of the fundamental direction of the design, which is established in the beginning of a project.

This paper presents a case study of the early phase of an affordable-housing design project in Ng'ambo neighbourhood in central Zanzibar town. Zanzibar town, even if moderate in size, faces the same challenges as big urban centres in the Global South (Figure 3). There is a need to accommodate more inhabitants in the central parts of the city, as urbanisation is accelerating. Urban sprawl is encroaching on valuable agricultural land, which is a threat to the densely populated island (Juma, 2014).

I became involved in this project through the director of the Department of Urban and Rural Planning (DoURP) of Zanzibar. The DoURP has a shortage of architects. When I proposed, after being informed of local needs, involving a housing design project in my doctoral studies, and thereby providing the DoURP with architectural plans as a result of

*Figure 3. Air view of Zanzibar town. Stone Town peninsula on the left and Ng'ambo on the right.*

my study, my proposal was appreciated. I was asked to design affordable-housing with a higher density than the present building population. I was involved purely through my own interest, while holding a doctoral candidate position within the New Global research group at Aalto University. The architectural plans created as a result of the design process would be useful for fundraising purposes and, in the future, for construction. My intention was to involve the local inhabitants from the beginning of the design process in order to study different methods of inhabitant engagement borrowed from the design paradigm. The motivation was threefold: From the perspective of the inhabitants, they would have the opportunity to participate in the development of their own neighbourhood and to establish contacts with the DoURP; from the perspective of the DoURP, the design process would advance their plans and test the possibilities of developing dense housing in collaboration with inhabitants in the area; and from my perspective, the process would help me explore the potential of methods from the design discipline in the context of architectural design.

### 3.2 NG'AMBO

In the recently finalised Master Plan of Zanzibar, Ng'ambo has been defined as the new city centre of Zanzibar Town. Ng'ambo has approximately 50,000 inhabitants and 4,700 predominantly one-floor houses, many of which were constructed at the beginning of the 20th century (Juma et al., 2014). The DoURP of Zanzibar is putting particular efforts to the development of the Ng'ambo area because there is a risk that the local cultural heritage may vanish if the real-estate market alone guides the development (Juma, 2014). It is likely that the original population will migrate towards the peripheries of town, as they might not be able to afford apartments in the buildings constructed based on market price. This migration could lead to both additional urban sprawl and the weakening of the cultural, intangible heritage of the area. Consequently, social sustainability will be disturbed. The DoURP strives for sustainability on all levels and is strongly motivated to preserve both the tangible and intangible heritage of the city. Yet, to preserve the intangible heritage, the original inhabitants would preferably need to remain on-site and be involved in the development of the area. For the affordable-housing design, the DoURP suggested an area with 13 houses and approximately 100 inhabitants (Figure 4). Many of the inhabitants have lived in the area for generations.

*Figure 4. The site for the project. Thirteen homes and a street view with the Michenzani building in the back.*

### 3.3 ETHNOGRAPHIC OBSERVATIONS

Observation as such is not new to architecture and is generally a part of any architectural project, even when only on a superficial level, due to time constraints or lack of resources. In this case, the observations that I practised is of the kind that Steen referred to as applied ethnography.

The ethnographic observations were accomplished in two stages, in periods of one to two weeks each, during which I spent the days in the community. The first stage comprised more general observations of the neighbourhood with the purpose of understanding the essence of the area. In the second observation period, I followed the families who were part of the housing project closely. Combined with observations and note taking, I took photographs to use for analyses. The observations of the families were completed while simultaneously taking measurements of the domestic spaces for later architectural drawings. This activity gave me a clear reason to enter homes and spend time there without having to disrupt the families with my presence. This also avoided awkward communication barriers due to language differences, as the ethnographic observations were done without an interpreter. The measuring had a dual purpose, as it also fulfilled a real need of the project to obtain measurements of the existing buildings.

Through ethnographic observation, I familiarised myself with the area and the use of both public and domestic spaces. During the first period, I got to know the area as a whole, including urban structures, patterns of movement and webs of social activities (Figures 5 and 6). I followed

the personal activities of the inhabitants and noticed, for instance, how women and the elderly often gathered on verandas to chat with each other in the afternoons, and how men met in bigger groups a bit further from their homes. During the second period, I entered the homes and gained an understanding of the interior use of space and spatial hierarchies. The backyard, which was used either as a kitchen or an extension of the kitchen, was used more by women than by men. The bedrooms were used for storage, while the living rooms often seemed to be a more public part of the home, and more organised.

### 3.4 DESIGN PROBING

The purpose of design probing in this architectural project was to initiate contact with the community on a personal level. By 'personal' I refer both to the intention that inhabitants share their individual views without being influenced by their families or neighbours (as there might have been unknown hierarchical levels within or among these groupings) and to the intention to allow for personal meetings between individuals and myself. I asked five of the 13 households to participate in the probing exercise.

*Figure 5. The street is a public living-room. It is common for men to gather outside the homes in public spaces in the evening.*

*Figure 6. Private outdoor spaces are useful in the climate of Zanzibar. The backyard is an important space for kitchen activities.*

The probing-package contained artefacts and exercises designed to enable recipients to illustrate what daily life is like in Ng'ambo. The pursuit was to make the inhabitants reflect on their personal relationships to their home and to encourage them to observe their surroundings. Through our discussions, they would also receive information about the future plans for the area. The package consisted of a set of questions, drawing tasks, a disposable camera, pens and stickers (Figure 7). I strived to make the probing package personal and yet familiar, using locally available material. The exercises were explained thoroughly and designed to be concrete – not abstract. The reason for this choice was that I did not, as a main objective, seek to obtain artistic inspiration, but rather to obtain a view of the lives of the inhabitants in order to better empathise with them.

Introducing the probing exercise required personal contact to create trust and an appropriate framing of the situation (Figure 8). The distribution of the packages was combined with an introduction. In this introduction, I explained the purpose of the project and went through the exercises in detail. The participants were given two weeks to complete the probes.

The assignments in the probing package included marking things or parts of the home that were either favoured or disfavoured with coloured stickers (Figure 8 and 9), taking pictures with the disposable cameras of places and people the participants visited during the period of the exercise, drawing a map of places visited during the allotted time, drawing a plan of

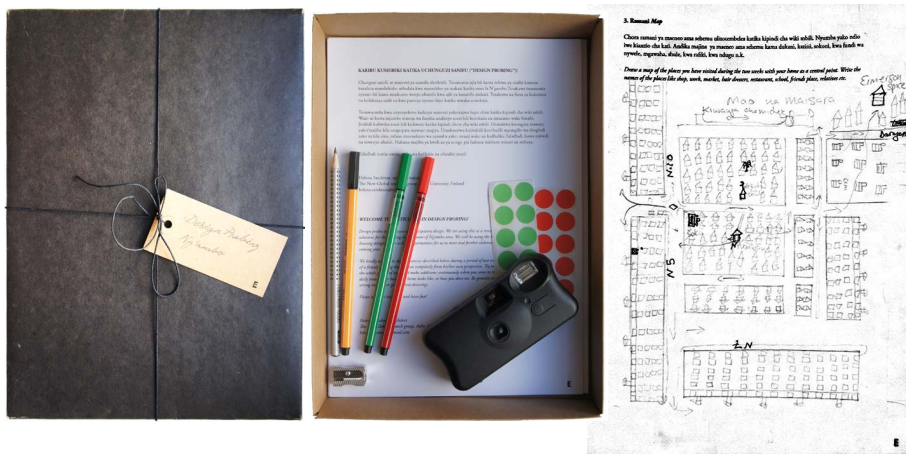


*Figure 7. The probing-package. The last picture shows a completed exercise indicating important spots in the neighbourhood.*

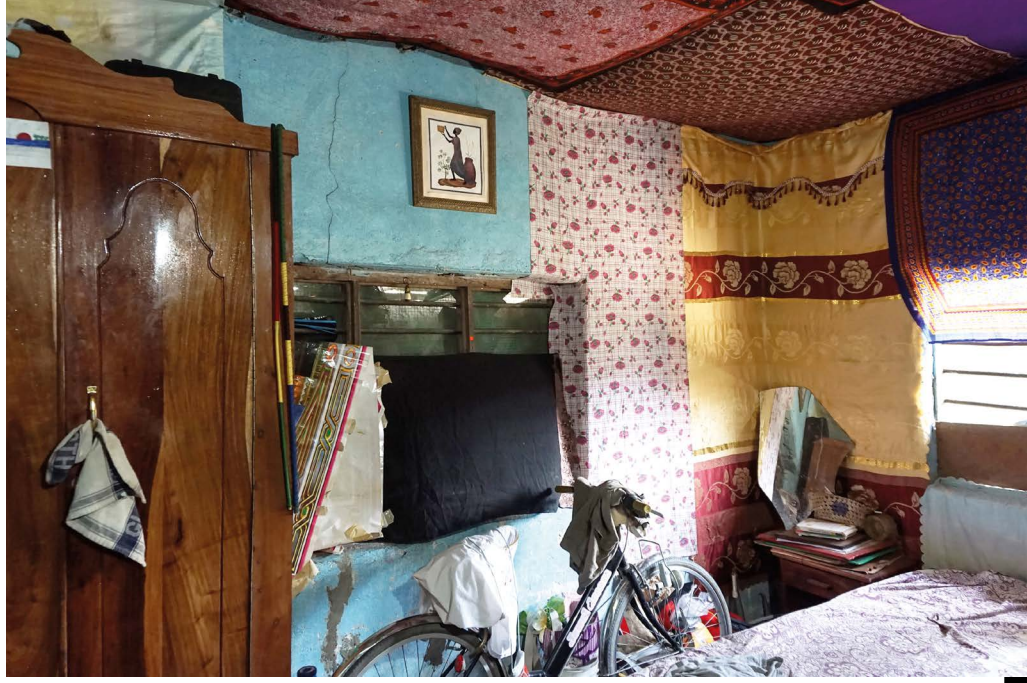
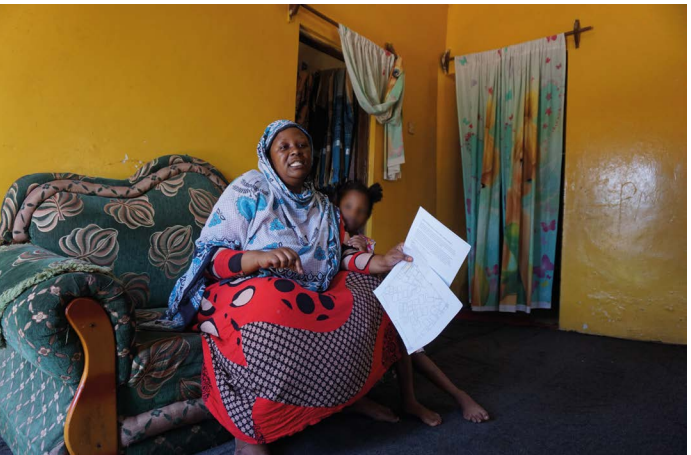


*Figure 9. Ali's room. He disliked the fact that one of the windows in his room was closed and prevented cross-ventilation due to an extension of the house.*

*Figure 8. Introduction of the probes. Neema is introduced to the exercises, and an example of a red spot showing her dislike for the absence of a proper sink for dishwashing in the kitchen.*



the homes they lived in, drawing the home of their dreams, and replying to a couple of questions in written form.

After the two-week period, I collected the probe packages together with the research assistant. In each household, we had a thorough discussion about the exercises and the replies. In the outcomes, I noticed a wish for modern, new spaces and furniture and a dislike of worn-out parts of the home and broken furniture. The inhabitants also criticised items that consumed a lot of electricity due to the high price of electricity and frequent power cuts. The participants wished for more privacy, particularly concerning the toilet and bathroom spaces. The responses also showed a lack of proper cross ventilation in the houses (Figure 9). Through the photos, I could see how the participants spent their time and what parts of the home drew their attention. I learned whether the participants studied or worked, as well as what parts of the home were significant for them.

The exercises made it clear that these people took advantage of living in the centre of a Zanzibar town. The exercises also pointed out some spots

in the neighbourhood that were of particular importance (Figure 7). The general opinion was that life in Ng'ambo is peaceful and nice, while the infrastructure, like garbage collection, drainage, electricity and water supply, could function better. Additionally, they revealed a wish for better sanitation and technological advancement.

In each household, according to cultural habit, we approached the eldest person to ask him or her to choose who would take on the probes. They often chose a younger person. The participants who completed the probing were three women and two men, of which only one woman was the head of a household; the other four participants were younger, although still adults. Letting the eldest representative of the family choose the person to carry out the probing exercise led to a natural inclusion of different generations, thereby yielding a variety of views. The probers were in most cases young adults – except one, who was the head of the house and a single mother. The elder generation was included in the introduction in the beginning and in the discussion at the end of the probing. The five different participants all had personal views and illustrations of the exercises.

### 3.5 WORKSHOPS

For several reasons that I will discuss below, I cannot claim that the workshops conducted in Ng'ambo entirely fulfilled the requirements those of co-design, even if this was the original attempt. However, a group of inhabitants were involved in the design process in workshop settings and contributed to the design process.

One representative from each household was invited to take part in the workshops. The DoURP suggested that the workshops should be arranged in a space in the building where the department was functioning, situated in Stone Town, approximately 2 km away from Ng'ambo. I agreed to this arrangement, due to a lack of alternatives, even though I was aware that the space was not ideal, as it was not placed in the middle of the community and it belonged to the authority, the DoURP. At this point of the project, I could not know whether the inhabitants were in favour of governmental institutions or not.

My plan for the first workshop was to conduct it according to the World Café Method, starting with a personal reflection and continuing with teamwork around the question, 'What is "home" to me?'; then, a new team would build on that question, where the reflection of home would be grouped around four different categories: social, physical, emotional and functional. Nevertheless, the plan needed to be adjusted ad hoc, as the participants did not arrive on time but dropped in randomly. In the end, 11 households were represented out of 13. The activities started as planned, with each participant writing a short text around the theme. After this, the discussion continued, and different thoughts were loosely gathered on larger paper according to the different categories.

The plan for the second workshop was to envision the neighbourhood 10 years from now from a sustainability perspective, taking into consideration inevitable changes due to the central position of Ng'ambo. The workshop was to start by looking at an aerial view together and marking out important places in the area to be preserved. After this, the participants would be asked to envision how they would like Ng'ambo and their homes to look in 10 years. This workshop had to be restructured, however, as the representative of the DoURP had forgotten to print out the maps as planned. I had to skip the mapping part of the workshop and only carried out the part dealing with Ng'ambo in 10 years and inhabitants' visions regarding the neighbourhood. In this workshop 9 households out of the 13 were presented.

In the first workshop (Figure 10), where the aim was to broaden understanding of the perception of home, the discussion ended in homogenous, thorough descriptions of physical facts about current homes, e.g., how

*Figure 10. The first workshop. The neighbours Salama and Sharifa are discussing what 'home' means to them.*

many rooms, what activities and how many inhabitants. All suggestions and questions concerning shared space with neighbours were neglected. There were also multiple wishes for private bathrooms to be connected to master bedrooms. The envisioning of the future in general seemed to be a difficult task, as participants mainly explained how the situation was right now; or, if one of the participants came up with a new idea, it was copied by the rest. The main outcome was a wish for a street pattern that allowed ambulances and fire engines to pass through. The pictures of dream homes were either suggestions of future homes depicted as luxurious hotels, copied from the city, or copies of their existing homes.

Referring to the wish of even street patterns emphasized that before reaching a basic level of safety, it is difficult to consider issues like sustainable development in a broader sense. The surprisingly luxurious wish for private bathrooms can be interpreted as hygiene, meaning safety. It could also reflect uncertain relations with neighbours, as many of the households also rented out rooms. Other responses regarding the issue of sharing also indicated that trust between neighbours did not seem to be very high.

### 3.6 THEME DISCUSSIONS

The intention of the theme discussions was to receive input from the inhabitants concerning their own neighbourhood and other kinds of neighbourhoods in Zanzibar. Further to get their opinions of examples of affordable-housing projects from different parts of the world. In this scope of contextual design, I conducted theme discussions around a map of the neighbourhood (which was not used in the workshop due to printing problems, as mentioned above) and around photos of various low-cost housing projects from other locations. I met the inhabitants together with my research assistant/translator and spoke with inhabitants who had a moment to spare. We sometimes talked on the porch; in some cases, we were invited to the living room or to the backyard. I intentionally tried to engage in a relaxed discussion by being very open with my own personal life and my own views of things in general.

The meetings resulted in interesting discussions around how was to live in Ng'ambo and how the inhabitants perceived their neighbourhood in comparison to other neighbourhoods in Zanzibar town. They all preferred to live where they currently did. The did not like high-rise buildings and preferred to have their own courtyards surrounded by some greenery. Regarding other affordable-housing projects the most popular example out of ten very different ones was a Mexican housing project formed as atrium houses of three floors with a shared courtyard.

| INSIGHTS ON THE USE OF DESIGN METHODS | | | |
|---|---|---|---|
| WHAT WAS DONE? | INHABITANT EXPERIENCE | ARCHITECT EXPERIENCE | INSIGHTS |
| experience | Architect | · A way to get an overview of the area, use of space and observe social activities | · Useful as a first step in in the very early stages of a design process<br>· It was proved useful to engage in something while observing, to be part of the community for that moment, in this case measure the houses |
| experience | Insights | · Opportunity to establish a personal contact with inhabitants and also get input even if not possible to be present a lot | · A flexible method<br>· Insight into the lives of the inhabitants in a short period of time<br>· Customize exercises according to local culture, present challenges, and inhabitants' capabilities |
| Workshops<br>(two separate workshops with 11 and 9 participants from different homes) | · There is a need for trust of authority and lack of friction between hierarchies<br>· The participants were not used to creative exercises<br>· Good for avoiding the feeling of not getting equal information | · Possibility to gather many people to share equal information | · Important to operate on neutral grounds<br>· Mixing groups might hinder creation of trust<br>· Similar ideas by all individuals; descriptive, not creative results<br>· Flexibility and promptness needed |
| Theme Discussions<br>(five theme discussions) | · Possibility to share personal views in a particular area and in a particular field of interest | · Deepen connection to the inhabitants<br>· Focused activity | · Time-consuming<br>· Listening skills and openness of value to create trust<br>· Language barriers, pay attention to translator's capacity |

*Table 1*

## 4 DISCUSSION

Architects need to understand both the current living conditions and the future aspirations of the people they are designing for. Therefore, both orientations, i.e., focusing on 'what is' and 'what could be', are relevant and methods with both objectives are needed. The ethnographic observations focusing on the existing situation, even if not involved in communication, left a stronger impression than studying a context in literature. My presence might also have made the upcoming exercises more fluent, as the inhabitants became used to me. The key lesson learned on a practical level for practising ethnographic observation was the benefit of being involved in mundane activities while at the same time conducting observations. From a theoretical point of view, in relation to Steen's diagram, the architect has an active role and is moving towards the users. If ethnography is used according to the origins of the methodology in anthropology and the social sciences, then involvement should be long term and thorough. However, this is often not possible due to time constraints or lack of professionals. Nevertheless, ethnographic observation is useful, even in this lighter form of applied ethnography.

The probing exercises, focusing on future changes resulted in heterogeneous informative material that both engaged the users and allowed me an entrance at an early stage to life in the community. The design probing opened doors to the lives of the participants, which otherwise would have been challenging to access, within the constraints of the present project. Having had the honour of being introduced to the personal reflections revealed in the probes, partly illustrated above, made me deeply grateful and touched by the openness and trust the participants showed.

Discussing the exercises together with the participants and their family members, and reflecting together on the concept of home, with its similarities and differences, opened my eyes. Thus, the actual designing of the housing was strongly influenced by the probing exercise. This design probing exercise generated solutions that neither I nor the participants would have been able to create on our own.

Considering the short time frame of a probing exercise and the depth achieved, an empathic approach represents a suitable form of participation in architecture in settings with multiple constraints.

In the context of this case the users did not 'move towards the designer' nor did the users have a role as active partners in the design process, contrary to what Steen (2008) drew out in his model and what Sanders (2006) indicated in her map for participatory design or co-design, in this case the workshops (Figure 1 and 2).

The workshops functioned as a gathering of the households participating in the study. They also ensured that the same information was shared with all households and could therefore side-step rumours. In this case, there were nevertheless many challenges to achieving the level of co-design that I had aimed for. The invisible hierarchical structure between neighbours, as well as between the inhabitants and the authorities, influenced the freedom to act or speak. Also, the absence of experience with similar situations and being asked to be creative and show opinions seemed to be a barrier. It is challenging to make everyone feel equal, understand hierarchies, and political undercurrents – if the designer is not part of the society, it might even be impossible. To meet this challenge, it would have been important to gather in a familiar place, neutral to the participants. In this case, where the workshops were held in a space belonging to a governmental institution, it represented authority for the inhabitants, who were in danger of losing their homes. This may have been a reason for the mostly superficial outcomes. If it is not possible to create a psychologically neutral environment for co-creation, where cultural, educational and income level borders are erased, then this method will be a challenge.

The input generated was greater in the personal meetings of the theme discussions than during the workshops. The participants shared unexpected information, and their personal views came to light. In these moments, true connections between myself and the participants were forged more so than with participants in the probing exercise. The results of the theme discussions were very useful while forming the housing project. This method was time-consuming; however, it was possible when addressing particular parts of the project.

In an ideal situation the collaboration presented in this study could have represented a starting point for a process that potentially could have allowed equal creative activities for participants and architects. However, for that kind of situation to emerge collaborative work over multiple sessions and over a long period of time would be required. Regarding these inhabitants, a fruitful co-design session would still be a challenge to arrange, as they did not have an initial motivation for change. Indeed, they were not the ones who wanted change indicated in the master plan of the city in the first place.

## 5 CONCLUSIONS

This paper was written from the perspective of the practitioner and the case, looking at collaborative orientations in design as well as methods within the orientations that can constitute solutions for bridging the divides between different stakeholders in an architectural project for the lower income populations. Applied ethnography, design probing and theme discussions provided the most rewarding results. However, adaptation to the local environment was necessary. The workshops, representing co-design and participatory design in this case, provided substandard results due to the constraints mentioned in table 1.

Comparing the results of the design methods used shows that a pragmatic near-term development plan would be to continue using these methods with an emphasis on customisation according to local habits and the current situation with empathy. Empathy can be defined as appraising the world from others' points of view. As an architect seldom designs for herself or himself, this ability would be assumed to be a core competence in the profession.

A contribution of this paper is to combine methods in a particularly challenging context, in order to discover and elaborate on benefits as well as difficulties. With this study, my intention was to explore, test and critically reflect on the potential of developing methods from the design discipline in the context of architectural design in culturally and socially complex settings. I conclude that looking into methods from design is valuable for architecture. These methods should be adapted further to match particular cases and local practice.

The example from Zanzibar is likely to represent other, similar cases, and the findings probably have relevance to design processes under similar circumstances. This can be a source of learning for other architects active in similar settings as well as for architecture in general, when seeking new research-based methods and approaches. Through developing the design process, the architect can move towards a better understanding of local circumstances and inhabitants in meaningful ways that are both time-efficient and flexible. Ultimately this contributes to the potential for longer-term sustainability of architecture in the Global South.



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**PAPER IV**

## PROBING FOR RESILIENCE: EXPLORING DESIGN WITH EMPATHY IN ZANZIBAR, TANZANIA

Helena Sandman and Miia Suomela, 2020.
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### ABSTRACT

In the Global South, the fast growth of informal settlements and increasing numbers of disasters and refugees are challenging current architectural practices. Consequently, we argue in this chapter that, to keep pace with such rapid changes and to build sustainable and resilient communities, we need to develop inclusive architectural design processes. The profession could benefit from appropriate and effective design methods for empathic engagement between users and architects. With the help of two examples from our own design processes, we discuss the advantages of utilizing one such method borrowed from the design discipline, design probing. This method invites inhabitants to have an active role in changing their living environment and helps architects to understand the community they are designing for. Taking advantage of this method can be a way to enhance the sustainability and resilience of the built environment.

Keywords:
empathic design; design probing; architectural design; social sustainability; urban sustainability; urban growth; community engagement

### 1 INTRODUCTION

Sustainable Development Goal 11—making "cities and human settlements inclusive, safe, resilient and sustainable" (United Nations, 2018a)—constitutes a major challenge in developing countries. In these contexts, rapid urbanization, coupled with the absence or ineffectiveness of local housing policies, has resulted in an increasing number of people living in informal settlements, prone to disasters and adding to urban sprawl. This development is neither inclusive, safe, nor resilient. The vulnerability of both the environment and the inhabitants raises a demand for focusing on resilience.

In this regard, resilience is widely defined as the capacity of a system, community, or society to resist and absorb disturbance, to adapt to change, and to transform while maintaining its core characteristics and continuing to develop (Stockholm Resilience Centre, 2015; UNDRR, 2017; Walker & Salt, 2006). Walker and Salt (2006) consider resilience as a key to achieving sustainability in *social-ecological systems*—complex integrated systems in which humans and nature are bonded into a whole. They argue that the more resilient a system is, the better it can provide services essential to life. This can be considered a characteristic of sustainability. Resilience emphasizes the importance of viewing the system as a unity instead of breaking it into smaller parts that are considered independently. Walker and Salt (2006) suggest that partial solutions in isolated components of the system may eventually result in more serious problems, which can be reflected in other spatial or temporal scales.

Social scientists have criticized the concept of social-ecological systems for "undertheorizing" the involved social entities; researchers in the field are debating whether society is too complex an entity to be conceptualized as a component of social-ecological systems (Stojanovic et al. 2016). We argue, however, that there are benefits considering communities in developing countries as unified social-ecological systems, stressing the connection between society and the ecological realm. We think that it is important to emphasize social aspects when striving for sustainable societies to enable, for example, human health and well-being, affordability, and cultural preservation in a community. Nevertheless, we claim that it is possible to achieve these while also protecting the environment and ensuring the future provision of ecosystem services that the social realm depends on. When social and ecological aspects are considered equally important components of a social-ecological system, they reinforce one another and support the resilience of the system.

A resilient social-ecological system, through the contribution of its active members, has the capacity of turning disturbances into opportunities for innovation and development (Folke, 2006). To this end, as noted by the architect Charles Correa (1994), people's engaged participation is an essential aspect of our habitat. In this regard, one of the core principles of resilience building, according to authors associated to the Stockholm Resilience Centre, is "broadening participation" (Simonsen et al., 2015), to address both social and ecological aspects of improving resilience. In a previous research, Sandman, Levänen, and Savela (2018) argued that inhabitants' engagement in the architectural design process plays an important role when striving for sustainable societies. Likewise, we assume that resilience can be improved by the engagement of people by architects in formal processes of spatial change. When community members are effectively engaged in the development of their habitat, they are empowered and inspired to embrace endeavors that promote the community's resilience, which further improve the system's sustainability. In this chapter we refer to resilience from the perspective of urban development and a community's adaptation to change, and not particularly to resilience related to disasters.

In a design process, when engagement is guided thoughtfully with sensitivity, it enhances the relationships between stakeholders, and builds trust and a shared understanding (e.g. Akama & Yee, 2016; Mattelmäki, Vaajakallio, & Koskinen, 2014). Yet, architects would need to build their professional capacity to meet the challenges of engaging inhabitants to improve resilience in rapidly developing societies. In developing countries, where there might be insufficient professional resources and where inhabitant engagement can be challenging, future inhabitants might not be empowered, might not have the time and energy to invest in the project, or might not be accustomed to taking part in a design process. In these contexts, entanglements, obstacles, or gaps between stakeholders often appear in architectural design projects (Hussain, Sanders, & Steinert, 2012); thus, approaches that bring attention to bridging these gaps are needed. Our hypothesis is that a way to surmount these gaps is to enhance empathy and understanding between people—architects and community members alike. If the design process is conducted with empathy, we argue that it supports resilience building.

Empathy can be defined in many ways. Most theorists agree that empathy is the ability to "ascribe mental states to others," taking the perspective of another, or the process of being affected by another person's emotions (Maibom, 2017, p. 1). Here, we refer to empathy broadly as experiencing and appraising the world from another's point of view, not only with an emphasis on emotions. Experiencing the world naturally involves emotional states, but it also involves practical, habitual, and cultural components. As architects seldom design for themselves, this ability ought to be a core competence in the profession. The importance of empathy is even greater in developing-country settings, where the clients may be in vulnerable situations due to prevailing sociocultural structures (Hussain et al., 2012). As such, we argue that without empathic engagement it can, for instance, be difficult to identify social factors and local architectural features to be honored in the design process. Both are important aspects if the intention is to maintain and foster resilience and sustainability.

Through our interest in empathy, we have paid attention to the empathic-design discourse. Empathic design is an approach that encourages empathic understanding between designers and users (Koskinen & Battarbee, 2003). It suggests that the designer should have an open-minded attitude, observational skills, and curiosity (Leonard & Rayport, 1997). We studied this method originating in product design to identify possible applications in the field of architecture, given that product-design processes are often faster and more flexible than architectural ones. Indeed, the latter can be long, substantial, and heterogeneous, due to an extensive number of stakeholders and legal codes governing these practices (Mazé, 2007).

Empathic engagement in architecture in developing countries is the central topic of the first author's doctoral research at Aalto University, Finland. This chapter presents one of the aspects covered under this broader topic. Here, we focus on *design probing*, a method utilized in empathic design and participatory design, which can encourage multiple ways of empathic engagement. Through two design studies developed in Zanzibar, Tanzania—one of the world's least developed countries (United Nations, 2018b)—, we illustrate how design probing can support the work of architects in developing countries. Focusing on these contexts, we examine the advantages of design probing to broaden participation within architectural design. As such, this chapter presents two ways of employing design probing and discusses its practical use. We elaborate on the experiences and benefits of the method and demonstrate how the probing exercises can inspire and inform the design, support personalized local solutions, and enforce empathic engagement.

## 2 BROADENING PARTICIPATION THROUGH EMPATHIC AND CREATIVE METHODS

Broadening participation improves legitimacy, increases knowledge, and helps detect disruptions; in particular, early engagement helps in defining priorities and needs (Simonsen et al., 2015). Moreover, as regards architectural design processes, broadening participation can assign the inhabitants an active role to reach results suitable to their actual needs. To support their

engagement with inhabitants, architects need to find efficient, yet empathic, methods suitable for challenging situations in fast-growing cities in the developing world when there are time constraints and other limitations. In the architecture literature, not much is written on alternative methods for inhabitants' empathic engagement, whereas in the context of design research empathy and empathic-design methods are well-known concepts.

In our previous research, we have gained insight into the potential of an empathic approach to architectural design (Sandman, H., Maguire T., & Levänen, J., 2020). We have been able to identify three complementing registers of empathic understanding and engagement within the design process. Firstly, the architects' imagination plays a strong role. Architects imagine themselves as the inhabitants or users of a space (Pallasmaa, 2015). Secondly, architects involve users in the design process in a sensitive manner and ask them to share their views, thoughts, and dreams (e.g. Koskinen & Battarbee, 2003; Mattelmäki et al., 2014). Thirdly, architects meet users on an intimate level and reflect together on similarities and differences in their experiences (Akama & Yee, 2016). In the third option of empathic engagement, the first and the second means merge and deepen.

In the product-design discipline multiple methods and approaches of empathic design have been developed during the last three decades (e.g. Mattelmäki et al., 2014; Sanders & Stappers, 2008; Steen, 2011). While the definition of empathic design is broad and includes a variety of methods, what is common to all of them is the foundation of curiosity and willingness to step into other people's shoes (Koskinen & Battarbee, 2003). Furthermore, empathic design is defined as an approach that focuses on what ought to be (Steen, 2011). This falls back on the philosopher David Hume's well-known is–ought problem: What ought to be cannot be based on what is (Hume, 1739/1896). Therefore, methods that exclusively study what is are not enough in a design context, in which the aim is to create something new.

Design probing is an empathic-design method that has proved its value as part of a larger participatory agenda. Design probing is a tool for understanding human phenomena and unveiling design opportunities (Mattelmäki, 2006). Mattelmäki (2006) described probes in her doctoral thesis through three features: the assignments' focus on the user's perspective in a broad sense—from cultural environment to feelings and needs—, the participant's self-documentation, and the exploratory character of the exercise, seeking to identify new opportunities. Consequently, the emphasis of probes is to inspire what ought to be, in contrast to capturing what is (Boehner, Gaver, & Boucher, 2012); between the *is* and the *ought to be*, there is space for creativity. In this respect, design probes are meant to support both users and designers in expanding their creativity. Undeniably, creativity is a main driver in the different phases of the probing process.

Firstly, designers create the probes as inspiring as possible to be distributed to participants who, secondly, accomplish the tasks in a creative way, and thirdly, designers utilize the material received from participants as creative inspiration for the design task (Gaver, Dunne, & Pacenti, 1999). The motivator for creativity in this case is empathy, as all the phases of the probing exercise are conducted in relation to the experience of the users.

The registers of empathic engagement and understanding, previously presented, can also be detected throughout the entire process of design probing. To design the probes, designers imagine themselves in the place of users, based on their own experiences. In this stage, the capacity to involve personal experiences to deepen the imagination is valuable (Pallasmaa, 2015; Smeenk, Tomico, & van Turnhout, 2016). In the second stage, designers create inspiring tasks for users to let them share important aspects of their lives. Here, designers engage with users with sensitivity to be able to reach their emotions and aspirations (Gaver et al. 2004; Mattelmäki, 2006). When applying design probing, there is always uncertainty; it is not possible to know what responses will be received, as the intention is not to guide the participants in any sense. This aspect that honors uncertainty also requires a sensibility from designers who utilize probing (Boehner et al., 2012). Moreover, when the users receive the probes and are confronted with their design features, they are able to obtain an intimate insight into the creativity of the designer.

In the third stage, designers seek to understand the responses empathetically, not merely intellectually (Gaver, Boucher, Pennington, & Walker, 2004). Here, the aim is to bridge the gap between the stakeholders identifying similarities and recognizing differences in their understandings and experiences. In this stage, a relationship on an intimate level might be established between designers and users. This is possible even if a distance between them is inevitable. The probes tend to "create relationships [between designers and users] that are a little like designing for friends: We know them well" (Gaver et al., 2004, p. 6). Therefore, probing can be perceived as part of an ongoing empathic dialogue that nurtures understanding between designers and the people and places they are designing for (Boehner et al., 2012).

Furthermore, the designer, when receiving back the probes, acquires an opportunity to be part of certain aspects of the users' lives that would have stayed obscured otherwise, due to the distance between them. As pioneers in design methods and probing, the psychologist and design researcher William Gaver and his colleagues (2004) explained that for the users, the activity can make the familiar seem interesting when viewed through different lenses. On the other hand, for the designer, it can illustrate something peculiar and through personal insight make it familiar (Gaver et al., 2004).

The participants, upon receiving the probes, do not know the exact intention behind the exercises because of the distance between them and the designer. Thus, they can personally interpret the exercises and respond with creative freedom. Likewise, for the designer, this detached still close, view into somebody's life can be a fruitful standpoint for innovative design ideas; such an *intimate distance* leaves freedom required for creativity (Gaver et al., 2004).

Regardless of the seemingly open approach, there is within the designdiscourse a discussion about the purpose of probing. Gaver and colleagues (2004) criticized the application of probing for obtaining information instead of getting inspiration. They argued that applying probes to get objective answers in research frameworks endangers the original intentions of the method, which values uncertainty, play, and exploration. Furthermore, they argued that most research techniques tend to disguise subjectivity through controlled procedures, whose results can be considered impersonal whereas probes take the opposite approach. In their own probing processes as designers, Gaver et al. (2014) refrained from believing that they could scrutinize the heads of the users and instead made use of their own subjective interpretations (Gaver et al., 2004). Encouraging this subjective engagement and empathic interpretations, Gaver and colleagues (2004, p. 56) still conceded that probes can be used for collecting research materials; however, they anticipated that probes' original motivation, to retain a "pervasive sense of uncertainty", should be respected. We thus explored in our research variations of this method to contribute to empathic engagement in architectural design processes in developing-country settings.

## 3 EXPERIMENTING WITH DESIGN PROBING

We were introduced to Zanzibar through Dr. Muhammad Juma, the director of the Department of Urban and Rural Planning (DoURP) in 2014 while the first author was teaching the Aalto University's master course Cities in Transition, in Dar es Salaam, Tanzania. When we learned about the DoURP's aspirations for sustainability and the concerns regarding insufficient numbers of professionals, we decided this place would be the focus of both Helena's doctoral studies and the course's subsequent edition. In 2018, the course, then renamed Interplay of Cultures, started to collaborate with the DoURP to engage with urban challenges in Zanzibar Town. These issues include the need to accommodate more inhabitants in the central parts of the city and to plan for sustainable new areas as urbanization is accelerating. The department is concerned with the risk of losing intangible cultural heritage if uncontrolled development forces present inhabitants to move to the outskirts of the town. Additionally, unrestrained urban sprawl is encroaching on valuable agricultural land, which is a threat to the densely populated island (Juma, 2014).

During our collaboration with the DoURP in Zanzibar, we utilized design probing as a method to engage with communities at the beginning of the design process. In this chapter, we present two examples in which probing was used in different ways. The first example is an urban-design exercise for the Chuini neighborhood on the northern outskirts of Zanzibar Town, carried out by Miia Suomela for her master's thesis in architecture, as a continuation of the Interplay of Cultures course that she attended in 2018. The master plan for Zanzibar proposed that Chuini be developed into one of six sub-centers to ease pressure from the city center. In this case, the probing was conducted as an inspirational exercise motivated primarily by ecological sustainability due to the environmental vulnerability of the area.

The second example is a densification and affordable-housing design in the Ng'ambo neighborhood of central Zanzibar Town, undertaken as part of Helena Sandman's aforementioned doctoral thesis. In this case, the design probes were motivated by social sustainability, and the main aim was to gather information about the inhabitants' perception of home. In both exercises, design probing was only one of the participatory methods applied in the design and was executed at the beginning of the process to initiate contact with the community on a personal level. By *personal*, we refer to both the promoted face-to-face meetings between individuals and ourselves and the intention that the inhabitants share their individual views without being influenced by their families or neighbors, as there might be unknown hierarchical levels within or among these groupings.

As we used design probing for empathic engagement and for bringing stakeholders closer to each other, we also want to clarify that in our case, the distance was cultural, linguistic, and geographic, as we came from a different part of the world. The qualitative approach of our research is interpretive and subjective, and takes advantage of embodied and situated knowledge while acknowledging existing limitations. For instance, our knowledge of the Swahili language is limited, and therefore some of the discussions were conducted with the aid of a local research assistant and a member of the DoURP.

## 3.1 PROBING FOR ECOLOGICALLY RESILIENT URBAN DESIGN IN CHUINI

In the first design-probing exercise, we focused on ecological sustainability and sought to get inspiration for the design. The selected site, the Chuini neighborhood, is characterized by rapidly expanding informal settlements, agricultural activities, proximity to the ocean, and lush greenery. The master plan for Zanzibar Town assigned Chuini to be developed mainly into a residential area, and proposed the area to host nine-fold its current population of 10,000 people in 2035. Given that all existing agricultural land, mostly wetland, is proposed to be sacrificed for development, the planning exercise in Chuini focused primarily on ecological resilience.

The DoURP is studying alternative patterns of densification in Chuini, aiming to develop the region in such a way as to preserve the greenery, and to maintain and enhance its ability to retain stormwater and mitigate floods. Preserving the agricultural activities is crucial for Chuini's ecological resilience but, as a source of food and income, they are also a vital component of the community's socioeconomic resilience. Given the fragility of this social-ecological system, the challenge is to respond to the urgent densification needs in a socially sustainable way while protecting the environment and ensuring the future provision of ecosystem services.

The design probing aimed to gain an understanding of the experiences and thoughts of Chuini's inhabitants regarding their environment. We assembled a simple probe kit that included a card with an introduction of the master's thesis, instructions on how to proceed with the kit, a pen, and three packs of cards, each of them including five postcard-sized pieces. On the front of each card there was a picture and on its back a question, in English and Swahili, and some blank space for writing or drawing an answer. The first set of cards asked: "When you think of your neighborhood what comes to your mind first when you imagine the color green / blue / red / yellow / white?" The second set asked: "When you think of Chuini what comes to your mind first when you consider the word city / house / home / people / water?" And the third set asked: "When you think of your everyday life what comes to your mind first when you look at the picture on the other side of this card?" The corresponding photos are presented in Fig. 8.1. In addition, the participants were asked to tell their age, gender, and occupation. These exercises aimed at identifying the associations that a set of colors, words, and pictures would awaken in the participants' minds, which could then constitute sources of inspiration in the design process.

A local *sheha* (the head of a *shehia*, the smallest administrative unit in Zanzibar) chose 15 households to participate in the probing exercise. After deciding that, to avoid excessive peer influence, it was better to deliver the probe kits individually to each household than to deliver them in a group

*Figure 8.1. Pictures used to invoke associations with everyday life. From left to right: tree crown, a muddy puddle, plastic bottles in an open drainage, baked bricks, and colorful fabrics. Photo Miia Suomela.*

meeting, we walked from house to house together with the *sheha*'s assistant and our research assistant who translated the discussions. We offered a kit to each participant, gave an overview of its contents and explained why we wanted them to participate in such an exercise. Despite our intentions, we did not get to meet all the participants personally, because four kits were left with the *sheha* to be delivered to inhabitants living a little further away.

We allowed five days for the participants to fill in the cards and return them to the *sheha*, from whom we picked them up after the deadline. Altogether ten kits were returned from three women and five men aged 40–68, and two participants who did not share their personal details. The involved *sheha* probably encouraged the participants to respond to the probes but also might have put pressure on them to answer in a certain way. It is difficult to estimate the impact of the *sheha*'s involvement, but we worked on the assumption that the participants responded to the questions individually and uninfluenced as we asked them to.

The answers provided valuable insights for us into the thoughts and feelings of Chuini's inhabitants, regardless of the shortcomings. All except one respondent answered in Swahili. We carefully studied the responses but did not summarize or count them to emphasize their role as inspiration instead of information. A couple of the original responses are portrayed in Fig. 8.2. In those cards, yellow is depicted as a color "that shows a good beginning of the day in the morning" and red sparks the thought: "We condemn with all force the lack of peace inside our Chuini." The word 'people' makes one participant


*Figure 8.2. Some of the original probe responses in Swahili. Photo Miia Suomela.*

think about poverty and unemployment and to conclude: "We need to be empowered." The word 'house' inspires a very universal thought: "Every human being wants a place to live." The picture of colorful fabrics makes a participant express their hope: "I wish that there was a factory that would make fabrics for making clothes." The picture of plastic bottles in a drain spurs a call for action: "I think that we should take care of our environment."

In the other responses, the words made the participants express their concern for the unplanned urban sprawl in Chuini and how it has destroyed the natural environment and invaded cultivated land. Regarding colors, green and blue are associated with nature, which the participants value as an essential part of their environment and would like it to be preserved. The photos sparked hope of modern homes and services to be available to Chuini's inhabitants. Besides, the preservation of livelihoods and the creation of employment opportunities were addressed by the participants. The probe responses inspired the urban design of Chuini's future mandating the prioritization of protecting green areas while considering socioeconomic aspects. Thus, we proposed most of the green areas to be preserved and enhanced, gave structure and better connections to the residential areas, and proposed versatile social services and economic activities, as suggested by the participants.

## 3.2 PROBING FOR SOCIALLY RESILIENT HOUSING DESIGN IN NG'AMBO

In the second design-probing exercise, we focused on social sustainability and sought mainly to gather information about the community, even if the results also inspired the design. Together with the DoURP, we chose for our affordable-housing design an inner-city site with 13 houses and approximately 100 inhabitants in Ng'ambo, a predominantly low-rise neighborhood. Many of the inhabitants had lived in the area for generations and some of them had lost their houses due to the construction since the 1970s of the Michenzani apartment blocks: 12 seven-floor high 300-m long buildings in the core of their neighborhood (Folkers, 2014). This major change in Ng'ambo was still fresh in the inhabitants' memories. Thus, they were aware of the risk of eviction they might face, which made the task of establishing trust between the involved stakeholders a challenge. For the design-probing exercise, we chose to engage only 5 of the 13 families because we wanted to make the probe packages rather extensive, with a focus on quality instead of quantity. Moreover, probing was only one of the participatory exercises we wanted to conduct, and we did not want to exhaust all 13 families at the beginning of the design process, considering their possible time constraints.

The intention of the probing exercise was to make the inhabitants reflect on their personal relationships with their homes and to encourage them to observe their surroundings. The probing package contained artifacts and exercises designed to enable participants to illustrate what daily life is like in Ng'ambo. We strived to make the probing package personal and yet familiar, using locally available material (Fig. 8.3). As we were applying design probing in an architectural project for the first time, we crafted the probe package in a traditional way in order not to risk disturbing the results by the material choices; a rather neutral handcrafted style was recognizable in all of them. The exercises were thoroughly explained in the package and designed to be concrete.

With the stickers, disposable camera, and pens included in the probing package, the participants had to accomplish the following exercises:
mark with different colored stickers items or parts of the house that they either favored or disfavored;
take pictures of the placed stickers;
take pictures of the places visited and the people met during the exercise;
draw a map of places visited during the exercise;
draw a plan of their present and their dream houses;
and reply to a few questions regarding their life in Ng'ambo.

Through our discussions prior to and after accomplishing the exercises, the participants also received information about the future plans for the area.


*Figure 8.3. The design-probing package.*

Introducing the probing exercise required personal contact to create trust and an appropriate framing of the situation (Fig. 8.4). In each household, according to local customs, we asked the oldest person to choose who would assume the task of the probes, a practice that led to a natural inclusion of different generations, thereby yielding a variety of views. The elder generation was also involved in the meetings at the beginning and at the end of the probing, whereas the chosen probers (three women and two men) were all young adults, except for one, who was the head of the house and a single mother. During the distribution of the packages, we introduced the project and went through the exercises in detail, and allowed the participants two weeks to complete the probes.

Subsequently, in each household, we had a thorough discussion about the exercises and the replies. According to the feedback received, the participants enjoyed doing the exercises and found it interesting to reflect on their relationship to their home and their neighborhood. In the outcomes, on an informative level, we noticed a desire for new modern spaces and furniture and a dislike of the worn-out parts of the buildings and broken furniture. Similarly, the inhabitants also criticized items that consumed much electricity, due to high costs and frequent power cuts. Additionally, they revealed a wish for better sanitation and functioning infrastructure. Two of the participants wished for more privacy, particularly concerning the toilet and bathroom spaces. The responses also indicated a lack of proper cross-ventilation in the houses (Fig. 8.5). The photos taken by the participants showed how they spent their time and what parts of the home drew their attention. The exercises pointed out some spots in the neighborhood that were important (Fig. 8.6) and made it clear that outdoor life, green spaces, and vegetation were appreciated.

The floor plans of the houses drawn by the inhabitants were informative as it was interesting to compare the plans they had drawn to the actual plan of their houses, which were previously measured. For instance, when a space was perceived as good, it was often drawn bigger than the actual size in comparison to the other rooms, whereas when disliked it was drawn smaller. In two of the cases the own room was clearly bigger than the actual size of the space. In four of the plans the bathroom was perceived much bigger than its actual size. In two drawings the living-room and the veranda, and in one case also the back-yard, the common places of the home,

*Figure 8.4. Our research assistant Saada, on the right, introduces the probing package to Mwanakombo.*

*Figure 8.5. Ali disliked the fact that one of the windows in his room was closed and prevented cross-ventilation due to an extension of his house.*

were drawn bigger than in reality. Their plans illustrated how they perceived their homes, which might be more important than factual measurements for a design project. It was also interesting to compare the pictures of their existing homes and of their dream-homes. Some of the dream-homes were close to copies of their existing houses. However, three dream-homes demonstrated that living on multiple floors would be preferable to living in one-story houses. This fact is encouraging, for higher buildings are necessary when densifying an existing urban structure.

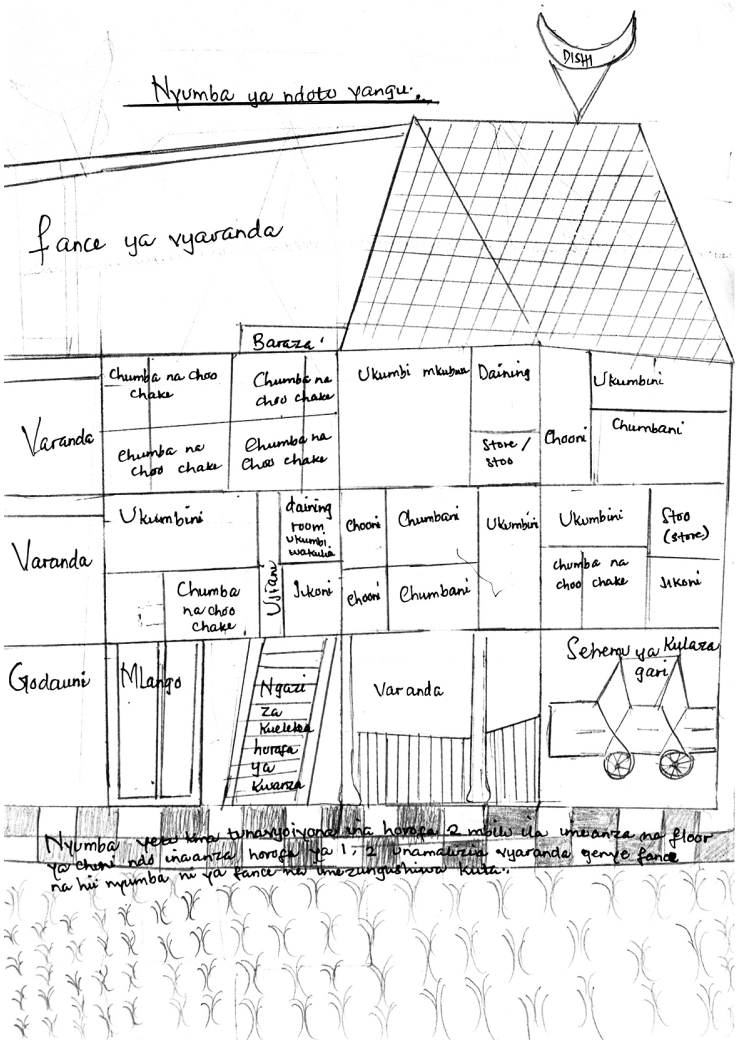
Through the probes, we learned that people generally agree that life in Ng'ambo is peaceful and nice, and its inhabitants took advantage of living in the city center. Three participants praised the social connections and the quality of knowing your neighbors, whereas two preferred more privacy. Additionally, we identified significant information regarding the use of space, social factors, and architectural features of importance. Furthermore, it proved an eye-opening experience to discuss the exercises and reflect on the concept of home with the participants and their families. Thus, the actual housing design was strongly influenced by the probing exercise, which generated solutions that neither we nor the participants would have been able to create in isolation. The rich materials inspired us to design a housing solution that would leave an opportunity for the inhabitants to develop their own homes incrementally in a personal way (Fig. 8.7). We designed a three-floor building around a courtyard, with 24 apartments. Each apartment could consist of a varying number of rooms, depending on the needs of each family (Fig. 8.8).

Through the responses we understood that the apartments required proper cross-ventilation and a space akin to an open courtyard, where laundry and kitchen activities could take place. Parts of the apartments could be left open, as large outdoor areas. Moreover, the inhabitants could choose themselves how much space would be utilized for indoor rooms and how much for the outdoor terrace. In this respect, our intention was to leave the same amount of flexibility for the inhabitants within the walls of the apartment, as they had now in their private houses, where the plot border constitutes the limits. We also understood the value of outdoor social meeting points (*barazas*), which take the form of either a veranda next to the house's main entrance or a group of benches around a tree (in a public spot in the neighborhood where men often gather in the evenings). This possibility to sit outdoors for a chat with the neighbors was also a feature added to the design due to the probing exercise. To accommodate this, we suggested barazas along the streets, in the courtyard, and in the open staircases.

## 4 DISCUSSION: ENGAGING THROUGH INSPIRATION AND INFORMATION

The probing exercises in Ng'ambo and Chuini demonstrated contentment with the present situation on some levels and a positive attitude towards the urban development to come, yet we also identified suggestive patterns of concerns and wishes. Although in the cases presented above the probing exercises aimed at either getting inspiration or gathering information, our experiences indicated that probes in architectural design are actually helpful in both dimensions. Through the conducted experiments, we consider that a combination of information and inspiration is indeed the most fruitful.

After these experiences, we would be much more flexible regarding the designing of the probe kit. For instance, we wanted to use a disposable camera in the exercises in Ng'ambo, as this is a typical probing tool and we did not know how common the use of smartphones was in Zanzibar. However, we learned that disposable cameras are actually not suitable for a probing exercise. Firstly, they are not sustainable, secondly the quality of the pictures is poor, and thirdly the item was strange and unfamiliar to the participants. We found out that smartphones are very common among Ng'ambo's inhabitants and would be natural to use in a probing exercise. Nevertheless, our design skills should always prevail when crafting the probes, regardless of the resort to digital possibilities. When the probes are



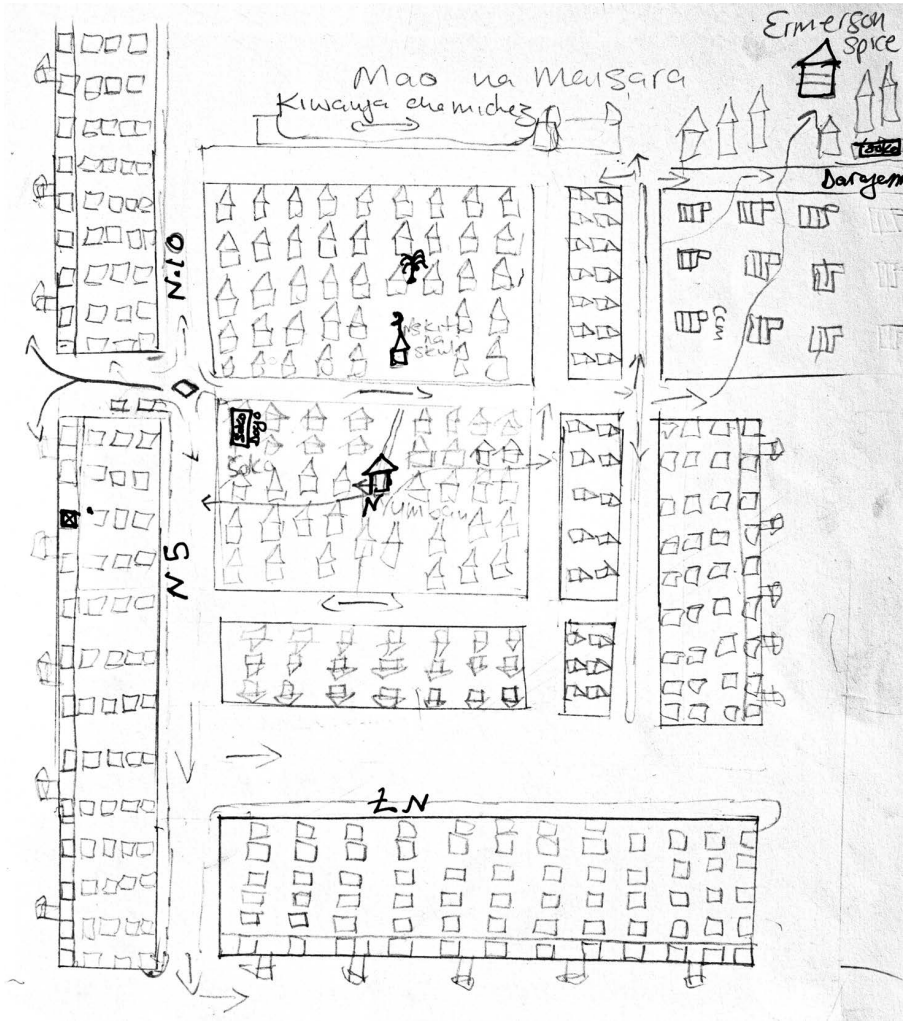




*Figure 8.6. Two completed exercises showing a dream house and important spots in the neighborhood.*

*Figure 8.7. The internally incremental and adjustable elevation of the resulting affordable-housing proposal for Ng'ambo. Rendering Mariana Rantanen, & Ivan Segato.*

*Figure 8.8. The inner court-yard of the proposal. Rendering Mariana Rantanen, & Ivan Segato.*

produced with intention and care, the exercise package becomes something nice to receive, and consequently the replies are likely given equal care, as in the probing results we received.

Furthermore, the visual impression of the probe package might have stirred the participants' imagination by encouraging them to look at ordinary things from a new perspective, as revealed for instance by the poetic comments on the cards in the Chuini case or the creative drawings of dream houses in the Ng'ambo case. In the latter, when we received and studied the probing results, it felt as though we had been visitors in the households for a much longer period than the brief introductory meetings that we actually had on the porches. It also made us feel like invited guests, bringing to our attention aspects of the homes that would have stayed obscured through observations alone. We came to appreciate these homes and their inhabitants. The design probing opened doors to the lives of the participants, which otherwise would have been challenging to access given the available resources.

The responses further implied that the community members are open to various spatial possibilities and willing to participate in the design process. The personal reflections revealed in the probes made us deeply grateful to the participants. We were touched by the openness and trust the participants showed us. In the cases illustrated above, we experienced the flexibility and versatility of design probing, which yielded deep insights into the inhabitants' world without demanding excessive efforts on either part. Through these experiences, we could easily agree with the argument of Gaver and colleagues (2004) that probes foster intimacy between designers and users. This method helped us build bridges between us, the architects, and the inhabitants.

## 5 CONCLUSIONS: DESIGN PROBING AS A METHOD FOR RESILIENCE BUILDING

Design probing allowed us to produce exercises that duly considered ecological and social aspects. The exercises aimed at fostering social sustainability through people's engagement and the focus on their ways of living. Moreover, the exercises also raised awareness and interest in ecological issues. By directing the participants' attention to aspects of their everyday life and their environment through the probes, the participants may feel encouraged and empowered to tackle these issues themselves. When the inhabitants find that their participation matters and could translate into development, their feeling of empowerment and ownership is enhanced and might encourage further actions to develop their community's sustainability.

The examples presented in this chapter illustrate the potential design probing has as a technique to support a community's ability to adapt to change and to keep developing without losing its core characteristics. When design probing is geared towards sustainable development and building resilience, both inspiration and information are needed, as well as empathy at the deepest possible level within the project's constraints. For architects working in developing countries, utilizing a method that supports these qualities can be an asset. Furthermore, our experiments showed that design probing can be less time-consuming and more adapted to cities' rapid urbanization pace than traditional participatory-design practices. However, as probing is only one possible technique amongst others, future research would need to consider probing in relation to other empathic-design methods when targeting resilience building.

We can conclude that design probing as a participatory method for resilience building provides a possibility for the inhabitants to take part in the process of change and for architects to learn about the core characteristics of the community, and its inhabitants' aspirations and dreams. At this stage of the process in Zanzibar, we cannot yet find long-term evidence that empathic design and probing exercises lead to augmented resilience and sustainability; however, indications in this direction are possible to detect. Our experiences hint at the probing exercises having an impact on community engagement and empowerment. For instance, in his probing responses, Ali had wished for an apartment where he could have a small shop downstairs. As the affordable-housing project was not implemented fast enough, he ended up transforming a shed attached to his house into a small shop, in front of which he organized a baraza around a tree on public land (Fig. 8.9).

Another example is Mama Barke, who runs a small coffee shop in Ng'ambo and participated in our activities. She told us that after our project she established a discussion group together with some of her clients, inhabitants of the neighborhood. They intended to discuss their views on how they would like their neighborhood to develop in the future, a totally novel experience of public debates for them, according to Mama Barke. The small positive changes demonstrated in the cases of Ali and Mama Barke support the overall hypothesis that participatory engagement enhances resilience.


*8.9. The house of Ali's aunt, Ali's shop, and the baraza he created in front of it.*

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**PAPER V**

## UNBOXING EMPATHY: REFLECTING ON ARCHITECTURAL DESIGN FOR MATERNAL HEALTH

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ABSTRACT

Co-design aims to bring designers and end-users together to improve the quality of design projects. In this paper, we study how the distance between designers and users can be reduced with an empathic approach particularly in settings where it is significant. By investigating various approaches on empathy in design and architecture, we were able to retrospectively understand different aspects of the design process of a maternity ward project in which we were involved. Engaging a theoretical clarification of empathy as a multi-dimensional concept made it possible to empirically explicate diverse difficulties that designers face when trying to employ empathy as a guiding philosophy in their work. As a result, we identified three registers of empathy on a varying scale of depth that can be integrated in the design process. Our work shows that various registers of empathy can complement each other or be utilized in different circumstances where one form might be more appropriate than another. By presenting these registers, we seek to unbox the different views on empathy and draw attention to the potential of empathic engagement when aiming for depth in a project.

Keywords:
co-design; empathic design; empathic architecture; designer-user relationship; health architecture; maternity ward

### 1 INTRODUCTION

A central theme in co-design is the relation between designer and user. Our research focuses on this relation concerning the 'distance' between designer and user and how this distance can be reduced to create 'depth' in the design process. The distance between stakeholders has posed a general challenge since the beginning of participatory design and originates in the concept of 'workplace democracy' — reducing the distance between people from different levels of organisational hierarchies and giving them an equal say (Gregory 2003). When designers work within the public realm (and with diverse stakeholders), this inequality is even more complex (Keshavarz and Maze 2013). Particularly in humanitarian design, in developing country settings, or when users are in a vulnerable situation — which is the field in which we work — there is often a distant relation between actors. Distance between actors in challenging settings has been addressed in design research through case studies on designing for children with disabilities in Cambodia (Hussein and Sanders 2012; Hussain, Sanders, and Steinert 2012), mourners (Smeenk, Tomico, and van Turnhout 2016), and patients with dementia (Smeenk, Sturm, and Eggen 2018), for example.

Empathy can be one way to reduce distance and deepen the design process. We refer here to empathy broadly as experiencing and appraising the world from another's point of view and as a quality of social encounters. Since designers and architects seldom design for themselves, and their designs often affect several people, we assert that empathy ought to be one of their core professional competencies. Therefore, professionals in these fields would benefit from better understanding the multi-dimensional nature of empathy.

This led us to study how the concept of empathy has been used in design and architecture. In the study we encountered a variety of approaches that separated the view on empathy into 'boxes' apparently unaware of their respective content. In the architecture literature, empathy is discussed as a phenomenological approach through architects' personal experience when they imagine themselves as users (Pallasmaa 2015). In design discourse, 'empathic design' (Koskinen and Battarbee 2003) is presented as a practical toolbox to support the endeavour of understanding users with empathy (Sanders and Stappers 2014). In recent literature on empathic design, there is an emphasis on sensitivity, particularly when dealing with vulnerable users (Mattelmäki, Vaajakallio, and Koskinen 2014). There is also a call for using intimacy to create depth when designing for social innovation (Akama and Yee 2016).

Our interest in the depth of the relationship between designers and users is motivated by the evident challenges and opportunities we encountered when executing a maternal health design project for developing country settings. We observed the types of social structures, entanglements, and cultural divergences that influence the distance between actors. The challenge of humanitarian co-design is not only to bridge the distance between stakeholders but also to increase the depth of the relations. In this paper, we aim is to unbox the various forms of empathy and through that understand how and to what extent this depth can be achieved.

We reflect retrospectively here on the different roles of empathy in a design project and share empirical examples from maternity ward design processes in Tanzania and India. Moreover, we enquire into differences, challenges, and conflicting situations regarding empathy when working in a heterogeneous environment with diverse stakeholders. Our retrospective reflection is carried out to synthesize and clarify the terminology related to empathy in design. We can identify three different registers of empathic engagement in real-world practice that can be in service of design and architecture research as well as of future projects of a similar type.

## 2 DESIGNING WITH EMPATHY

Within the design field, we found conflicting views on how empathy can bridge the distance between *me* (the designer) and *the other* (the user). In architecture research, the role of the architect is strong, and imagination is understood as a way of being empathically involved. In empathic design discourse, the main focus is on the user experience, and thus there is less emphasis on the role of the designer. These different perceptions of what constitutes an empathic approach can be confusing and misleading. The term empathy is used widely and continues to be popular and relevant across architecture and design. However, the term should be better understood and articulated in terms of the different assumptions, contexts and usages of its sources, to build a more robust basis for research and practice concerned with 'empathy'. To deepen our understanding, we wanted to identify and articulate the differences within and across disciplines to clarify the philosophical approaches behind the various ways of empathising in design and architecture.

The framework of Mixed Perspectives in an empathic design process formed by design researchers Wina Smeenk and her colleagues (2016) that helped us to further clarify empathy in design. They identified three perspectives defining the distance between designers and users. In their terminology designing conventionally, looking at the users from afar, without involvement, could be understood as a 'third-person perspective', activating the users in collaborative exercises and therefore designing for a known other could be understood as a 'second-person perspective', and when designers experienced the situation of the users personally, being part of the users' 'system', designing was in their words done from 'a first-person perspective'.

### 2.1 EMPATHY IN DESIGN: DESIGNING WITH A FOCUS ON THE USER

Empathy in design is thoroughly discussed in the seminal book *Empathic Design, User Experience in Product Design* (Koskinen 2003), in which the editors trace the concept of empathic design to the field of business studies, which is where it was introduced to gain an imaginative understanding of customers as part of the product design process and as a strategy for companies to achieve commercial success (Leonard and Rayport 1997). Empathic design has guided designers' understanding of the needs and aspirations of end-users through observation and curiosity, even before the customers themselves could recognize those. Through involving the actual users in the design process, this approach has allowed industrial design to be personalised in a way that resembles customised products. Behind this approach is the view of the sociological theory of symbolic interactionism, focusing on the meaning people find in their interaction with things in their everyday life (Paavilainen et al., 2017). The theory of symbolic interactionism is threefold; action depends on meaning and meaning derives on social interactions and can change over time (Blumer, 1986). It gives the importance to small interactions between individuals.

Today, the empathic design approach is widely adopted in the field of design, and it has entered into practice in various ways. For example, Ilpo Koskinen and Katja Battarbee (2003) have described empathic design as a series of techniques that combine design and qualitative research. These types of techniques include design probing (Mattelmäki 2005, 2006), storytelling (Battarbee 2003), prototyping (Sanders et al. 2014), design games (Vaajakallio and Mattelmäki 2014), observation and shadowing (Fulton Suri 2003), and empathic handover (Smeenk, Sturm, and Eggen 2018; Smeenk, Sturm, Terken, and Eggen 2018), and they can be mixed and combined in various novel ways to enable empathic understanding of users' experiences (Sanders, Brandt, and Binder 2010; Sanders and Stappers 2008, 2014).

According to the Mixed Perspectives framework (Smeenk et. al., 2016) the empathic design process could be seen as a second person perspective. They point out that empathic design discourse often focuses mainly on the user perspective, leaving the designer at a distance without accounting for the designer's personal experience.

## 2.2 EMPATHY IN ARCHITECTURE: DESIGNING FROM A DISTANCE

In his essay "Empathic and Embodied Imagination: Intuiting Experience and Life in Architecture", architect and theorist Juhani Pallasmaa (2015) discussed the issue of empathy in architecture from a phenomenological point of view by claiming that it is possible to empathize through imagination:

> *It is usually understood, that a sensitive designer imagines the acts, experiences and feelings of the user of the space, but I do not believe human empathic imagination works that way. The designer places him/ herself in the role of the future dweller, and tests the validity of the ideas through this imaginative exchange of roles and personalities. Thus, the architect is bound to conceive the design essentially for him/ herself as the momentary surrogate of the actual occupant. Without usually being aware of it, the designer turns into a silent actor on the imaginary stage of each project. At the end of the design process, the architect offers the building to the user as a gift. It is a gift in the sense that the designer has given birth to the other's home as a surrogate mother gives birth to the child of someone who is not biologically capable of doing so herself* (Pallasmaa 2015, 12–13).

In Pallasmaa's (2015) view, the designers imagine themselves as the actual users and thus seek to experience similar emotions as users come to experience. This conscious experience of emotions according to a phenomenological approach happens from a first-person point of view (Smith 2013). However, according to our understanding of the Mixed Perspectives framework (Smeenk et. al., 2016), this kind of imagined first-person point of view, lacking immersion with real users, would be defined as a third-person perspective.

## 2.3 TOWARDS SENSITIVITY AND INTIMACY IN DESIGN

Within design discourse, one step moving towards a deeper process is the emphasis on sensitivity. The techniques and methods of sensitive empathic design allow designers to empathise with people in different physical, social, and cultural contexts (Koskinen and Battarbee 2003; Mattelmäki et al. 2014). Furthermore, developing sensitivity can help designers and other stakeholders to understand the diverse and transformative conditions of people. Tuuli Mattelmäki and her colleagues (2014) have identified four layers of sensitivity in the design process:

Sensitivity toward humans: gathering inspiration and information about and making sense of people and their experiences and contexts;

Sensitivity toward design: seeking potential design directions and solutions and posing "what if" questions;

Sensitivity toward techniques: application of generative, prototyping, and visualizing tools to communicate and explore the issues, and;

Sensitivity toward collaboration: tuning the process and tools according to co-designers, decision-makers, and organizations alike. (2014, 76).

Point 4 is particularly meaningful beyond the traditional design realm, such as when design is acting as a moderator of change. In these kinds of situations, the need to build trust over time is crucial and supports the aim for achieving greater depth.

Based on their experiences with vulnerable communities in Cambodia, design researchers Sofia Hussain and her colleagues (2012) listed the difficulties they faced when using co-design tools due to local habits and culture. They advocated for awareness of the risks of superficial outcomes present in an empathic design approach, particularly if the users are in a vulnerable position or distances between stakeholders are substantial. Yoko Akama, Penny Hagen, and Desna Whaanga-Schollum (2019) have also underlined the importance of sensitivity to the other in intercultural situations for many reasons. For instance, the users might have been subject to previous consultations or research without outcomes, translations of concepts can be misinterpreted, or power relations might be unclear. Yoko Akama and Joyce Yee (2016) have been critical of any traditions, including co-design, in which processes and methods are perceived as universal and replicable.

To understand the distances created by cultural differences, Akama and Yee (2016) have utilised cultural philosopher Thomas Kasulis's (2002) theory that explains integrity as the relationship between seawater and sand: the waves of the sea form the sand and the beach forms the waves, but the sand remains sand, and the sea remains water. Regarding intimacy, Kasulis (2002) has explained it as the relationship between water and salt that merge to become seawater. With this intimate orientation to design, the designer seeks to bring attention to cultural, emotional, and relational entanglements (Akama and Yee 2016). The call for social design to embrace difference and accommodate heterogeneity requests the inclusion of personal heritage in the empathic dialogue and allows for intuition and awareness of how the present moment unfolds (Akama et al. 2019).

Through this approach, no design process is the same, and the methods are modified according to the distinctive heritage of the designers and users and the particular characteristics of their relationship. This is supported by clinical psychologist Carl Rogers's (1961, 332) discoveries in his practice in the 1950s, in which 'understanding with a person, not about him' makes a significant difference in the relationship. In his case, the listener, and in our case, the designer, needs to be brave, as 'you run the risk of being changed

yourself' (Rogers 1961, 333). As designers, we can willingly step into the voids that are not yet known and be open to potentiality (Akama 2015). This immersive yet open nature of the relationship between designers and users indicates a deep empathic engagement that allows the designer to feel from a first-person perspective according to the framework of Smeenk et al. (2016) (Figure 1).

Based on the literature referred to above we could agree that the notion of empathy is fragmented in design. We collected the main characters of the different approaches studied in Table 1 to articulate the notion. We utilized these three approaches when reflecting on a design project to identify when and in what form empathy was part of the design process.

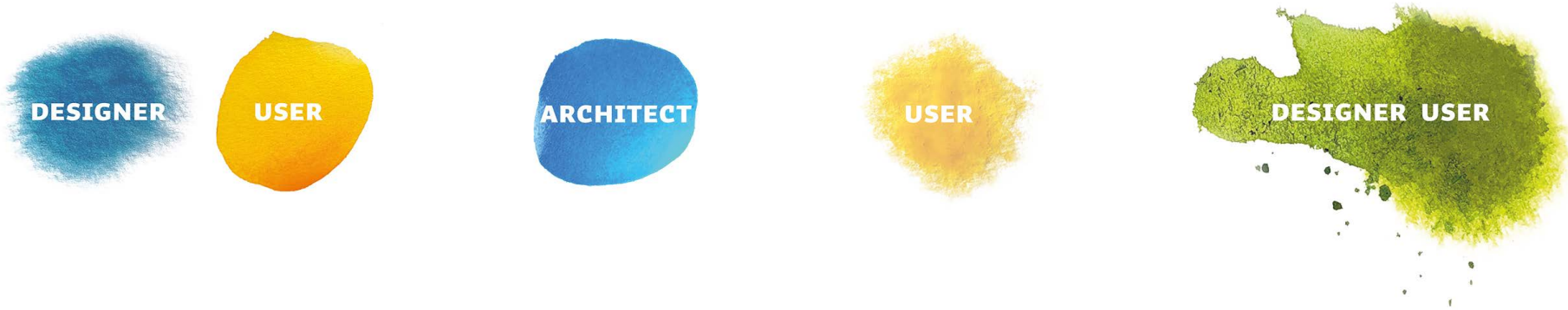
## 3 ELABORATING ON THE EMPATHIC APPROACH

In this paper we retrospectively study a maternal healthcare design project in which one of the authors were involved. This design project offers a typical example of a situation in which the distances between stakeholders are large and users are in a vulnerable situation. Therefore, the objectives of this paper, to enhance empathic engagement and depth in the design process align with the general demands of the maternal healthcare sector in low-resource settings.

| EMPATHIC APPROACH | IN PRACTICE | PARTICULARITIES |
|---|---|---|
| Imaginative (Pallasmaa, 2015). | Architects imagine themselves as users and experience the design from a personal point of view. | A phenomenological approach with a focus on the experience of the designer. Opposing views propose that the design is done either from a first-person or a third-person perspective. |
| User focused (e.g. Koskinen et al. 2003; Mattelmäki et al., 2014). | Designers engage users in participatory exercises to help the designers to understand the needs and aspirations of the users. | An interactionist approach with a focus on the experience of the user where design is done from a second-person perspective. |
| Towards intimacy (Akama and Yee, 2016) and sensitivity (e.g. Mattelmäki et al. 2014). | Immersive meetings with users, proceeding with sensitivity with the aim for mutual understanding. | A sensitive orientation with equal focus on the user and the designer. The heritage of both parties is acknowledged and trust is built. The design is culturally critical, ethical, reflexive, and done from a first-person perspective. |

*Table 1. Result of literature review regarding different approaches to empathy in design.*

*Figure 1. In empathic design, the focus is on the user, whereas in the empathic approach in architecture, the focus is on the architects' experience. The distance between designer and user is shorter in empathic design than it seems to be according to the presentation of empathy in architecture literature. However, in the approaches aiming for depth in the relationship between designers and users, the roles are immersed and the emphasis on both parties is equal.*



## 3.1 BACKGROUND TO THE DESIGN CONTEXT

One task that lies before us is to '(re)humanise' healthcare (Meguid 2016, 61). This target can be achieved through building a healthcare system that nurtures the agency of the patient, where the patient is perceived as an individual and supported with empathy. There are diverse ways to pursue this target, but one important factor among them is the architecture (Meguid 2016). Maternity wards focus on the birth of human beings and should ideally occur in places of care that emphasise dignity, quality care, and healing. In this regard, architecture can support women in embracing opportunities to influence, ask questions, and stand up for their rights, as well as shape healthcare workers' experiences and attitudes (Meguid and Mgbako 2011). Healthcare facilities can be conduits for (or, if designed poorly, obstacles to) appropriate and therapeutic healthcare. Improvement of the quality of care in maternal healthcare facilities guarantees an end to preventable birth-related deaths and disabilities (Maaloe et al. 2016). Currently, women in low-income countries give birth in situations in which they are deprived of their dignity and are afforded neither privacy nor consideration of their need for emotional support. Additionally, healthcare providers often treat women in labour without sensitivity or empathy (Meguid and Mgbako 2011). Empathy in care can be created and nourished through empathic design processes (Akoglu and Dankl 2019).

The project used as an empirical example to illustrate the different empathic approaches was executed by a social impact company, M4ID (now known as Scope). The overall objective of the design project was to reduce maternal and infant deaths in low-resource settings through design solutions. M4ID formed three design teams, one on architecture (led by the main author of this paper), a second on services, and a third on products. Two prototype facilities were planned during the project phase — one in Kivunge, Zanzibar, Tanzania and another in Basta, Odisha, India. The design proposal for Zanzibar has not yet been constructed, while a refurbished facility in Basta was inaugurated on 15 December 2018. Our original intention with the design project was to design with empathy throughout the process, however specific empathic actions stayed vague and was difficult to specify amid the design process. This experience justified the need for a differentiated articulation on the notion of empathy that we are aiming for in this paper.

## 3.2 POSITIONING THE AUTHORS

We oppose 'fortifying a design culture of nowhere and nobody' (Akama et al. 2019, 4), and therefore we want to introduce the authors. Helena Sandman led the architecture team in the maternity ward design project. She is a practising architect who has been working in developing country settings for two decades. In the context of this design project, it is relevant to share that as a mother, she has delivered in an exemplary high-resource (in terms of personnel, time, equipment, and space) governmental maternity ward in Finland. The second author Tarek Meguid, is a practising medical doctor with origins in North Africa and Germany and professional experience of working as an obstetrician and gynaecologist in various African countries. The third author Jarkko Levänen, is an assistant professor of sustainability science with significant experience examining different aspects of social sustainability in developing countries.

## 3.3 DATA COLLECTION AND ANALYSIS

For this paper we reflected retrospectively on the maternity ward project. The reflective methodology we employed for this paper was discussed by Richard Blythe and Leon van Schaik (2013) as naturally being part of an active design process. They identified three dynamic aspects of reflection: 'reflect on' previous projects, 'reflect in' the midst of the process on the next move, and 'reflect for' future projects (Blythe and van Schaik, 2013, 62-63). Reflection is common in practice-led research, where the actions are guided by the practice or design process in the first place, research in the second. Also, practice-led design researchers Maarit Mäkelä and Nithikul Nimkulrat (2011) sees reflection in action and reflection on action as tools for analyses when developing design knowledge.

The background studies and participatory design activities for the maternity ward project were conducted primarily to inform and support the design project — not for academic purposes. During the design process, due to the complex and constantly changing situation, it was necessary for us to be creative and use an assortment of means and methods as well as to combine our own professional experience with local knowledge. We thus had a diverse collection of data to analyse consisting of our field notes from site visits, informal and formal interviews, workshop results, design probing responses, design sketches as well as photographs and video clips (Appendix I). Additionally, we had the results from a baseline study and an impact assessment conducted by an Indian research firm on our behalf. For this retrospective reflection we analysed the diverse data and the different methods used during the 3-year long design process and extracted some examples which

substantiate the point of this paper. These examples illustrate, problematize, and discuss the three different empathic approaches defined in design literature (introduced in Table 1) to elaborate on the challenges and potential of empathy and to motivate designers to deepen their empathic registers.

### 3.4 EXAMPLES OF DESIGN SITUATIONS CONNECTED TO DIFFERENT APPROACHES TO EMPATHY

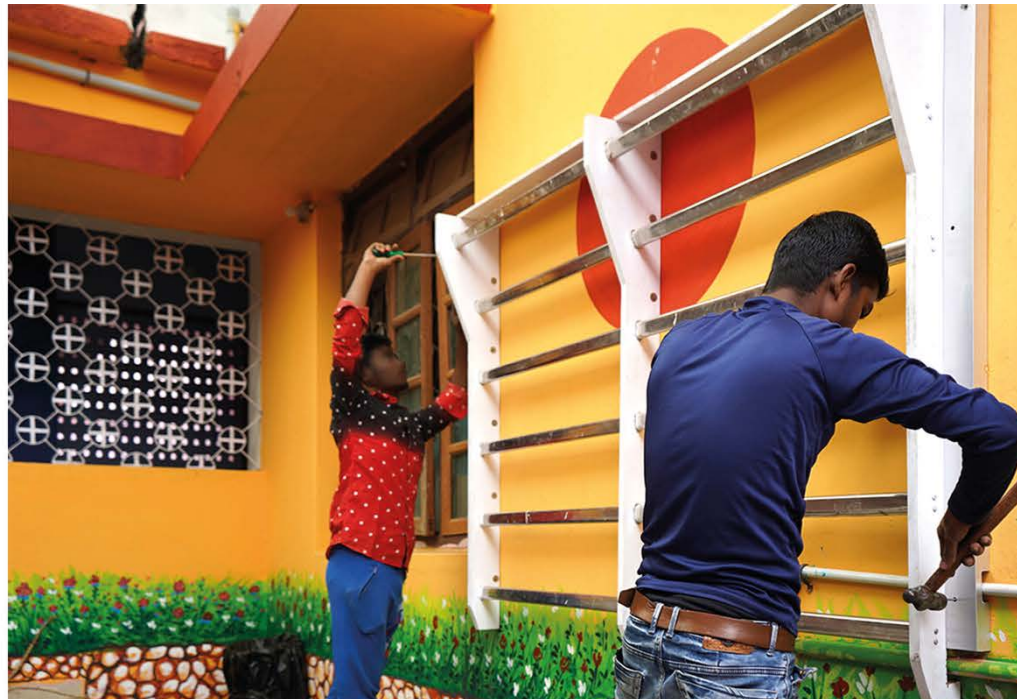
In the following sections, we describe situations in the design process where empathy has played a role in the different ways presented in the theoretical part of the paper (Table 1). For the sake of clarity, we have chosen to use examples that led to a particular design solution.

#### *3.4.1 EXAMPLES OF AN IMAGINATIVE APPROACH TO EMPATHY*

From our in-depth analysis, one example in particular highlights a situation that shows where using empathy from a distance can lead. Responses to questionnaires carried out in Odisha revealed that the majority of respondents were sedentary during labour; they were either lying down (62.7%) or sitting (6.9%). Women's desire to move around during labour was not addressed by the participants in our co-design activities. However, in the current medical research, it is widely accepted that engaging in activity during labour is beneficial for the birthing process. This unexpressed desire might be the result of insufficient knowledge of the practice and no prior experience of moving during labour. Nevertheless, we introduced spaces that enabled mobility. The interior design of these spaces reflected directly user engagement, design probing responses and the personality of the locally hired artist. However, the solutions for mobility did not originate in direct responses from the users but from our background research, our observations, our own experiences of delivery, and from imagining being users of the space (Figure 2).

After the refurbishment of the facility in Odisha, the building had been in use for one month when an impact assessment was done. Regarding movement in the facility during labour, the findings were not positive:

*Figure 2. Design probing had an impact on the interior design of the spaces, but did not suggest equipment for mobility, that ended up being untouched by the women in labour when the building was taken into use. Photos Helena Sandman and Abhay Mohanty*



*Overall, the level of activity of women in labour did not change post the re-organisation of the space… As it is not common among these communities to exercise during labour, they are not aware of how to use the new equipment. In addition, the facility staff (nurses and birth attendants) did not educate them on the importance of active labour and the correct usage of equipment.* (4th Wheel 2019)

In this example, despite our good intentions, the resulting imaginative design solution might have been too far removed from the actual real-life situation on the ground, and it would therefore require further collaboration in order to properly enter into use.

### 3.4.2 EXAMPLES WITH A FOCUS ON THE USERS' NEEDS

The issue of taking an empathic approach with a focus on the users' needs also came to the fore in our research, with two notable examples. In Odisha, we engaged with mothers of new-borns who had not been given a bed in a room due to overcrowded facilities and therefore had to stay in the corridors. They were concerned for their babies, as they lay on the floor on blankets (Figure 3). As a result of this engagement, we proposed offering a cardboard box that would protect the baby from draughts and prevent it from being stepped on. Once the baby was brought home, it could function as a first bed. The mothers were really happy with the prototype we presented. However, after having prototyped the solution, we realised that introducing this box would indicate an acceptance of the scarcity of space and would potentially prevent the Indian authorities from allocating funds for new maternal health facilities. Consequently, the box was never produced.

In both Zanzibar and Odisha, women revealed in workshops and interviews that they were treated harshly by healthcare providers while in labour. The women in Zanzibar were not allowed to have a companion in the maternity ward during labour. Partly as a response to this alleged mistreatment, in our design for Zanzibar, we proposed private delivery rooms to allow for companions, a partner, relative, or supportive friend to attend the delivery. The companion would also be able to inform the nurse if there was a problem.

However, during one of our visits to a maternity ward in Odisha, where

*Figure 3. The spaces in the maternity wards in Odisha were often overcrowded. Due to a lack of space, corridors were also utilised as wards. One of the alternative solutions of the design process was a box to protect the infants.*

companions were allowed, we witnessed a mother-in-law force a delivering woman to hold her ankles with her hands for hours, slapping her as soon as she released her grip (Figure 4). In this case, having a companion did not prevent mistreatment. Having gained this understanding, for the Zanzibar proposal, we redesigned the private rooms so that the nurses' station would be in the centre to make the rooms more exposed.

In Odisha, even if we could privately condemn the actions of the mother-in-law, as designers, we did not have the necessary influence to intervene in such a situation. However, through our design response, we could offer options. To address this particular situation, we changed the delivery beds to softer, adjustable beds that offered support for the feet (Figure 4). This new bed, with its possibilities for adjustment, would perhaps indicate to the women, companions, and personnel that a delivering mother should be able to move according to her preference.

In these examples, the design solutions were responding to explicit demands for safety. The input was shared with us during a workshop in Zanzibar with a group of women and in Odisha during interviews. However, as in the example of the private delivery rooms and the baby box, our designs were not all watertight, as we noticed at a later stage.

### *3.4.3 EXAMPLES OF THE SENSITIVE AND INTIMATE DESIGN ORIENTATION*

One meeting in particular offers an example of intimacy and two design-related insights. When we visited a small maternity ward in Zanzibar that benefited from additional external funding, our impression was more positive compared to our impressions of the average government hospital. We perceived a calm and clean space that functioned smoothly and was not crowded. However, during interviews with traditional birth attendants and women in the neighbouring village, we learned that they perceived the experience of arriving at and moving around in the maternity ward to be awkward. The women shared with us their shame at being seen in pain. In this maternity ward, the women in labour stayed in one room until the last moment when they were ready to push. Then, they were supposed to move to the delivery room by walking down the corridor where parents and children queued for antenatal care. This meant that delivering women felt as though they were being paraded in front of the whole village when they were at their most vulnerable. This knowledge and reflection deepened our understanding of the complex matrix of actors and phases in the delivery process and forced us to figure out how the organisation of space could reflect and support the integrity of the delivering woman in the best way (Figure 5).

*Figure 4. We replaced the uncomfortable metal delivery tables with adjustable softer tables equipped with a leg support. Photos Abhay Mohanty*

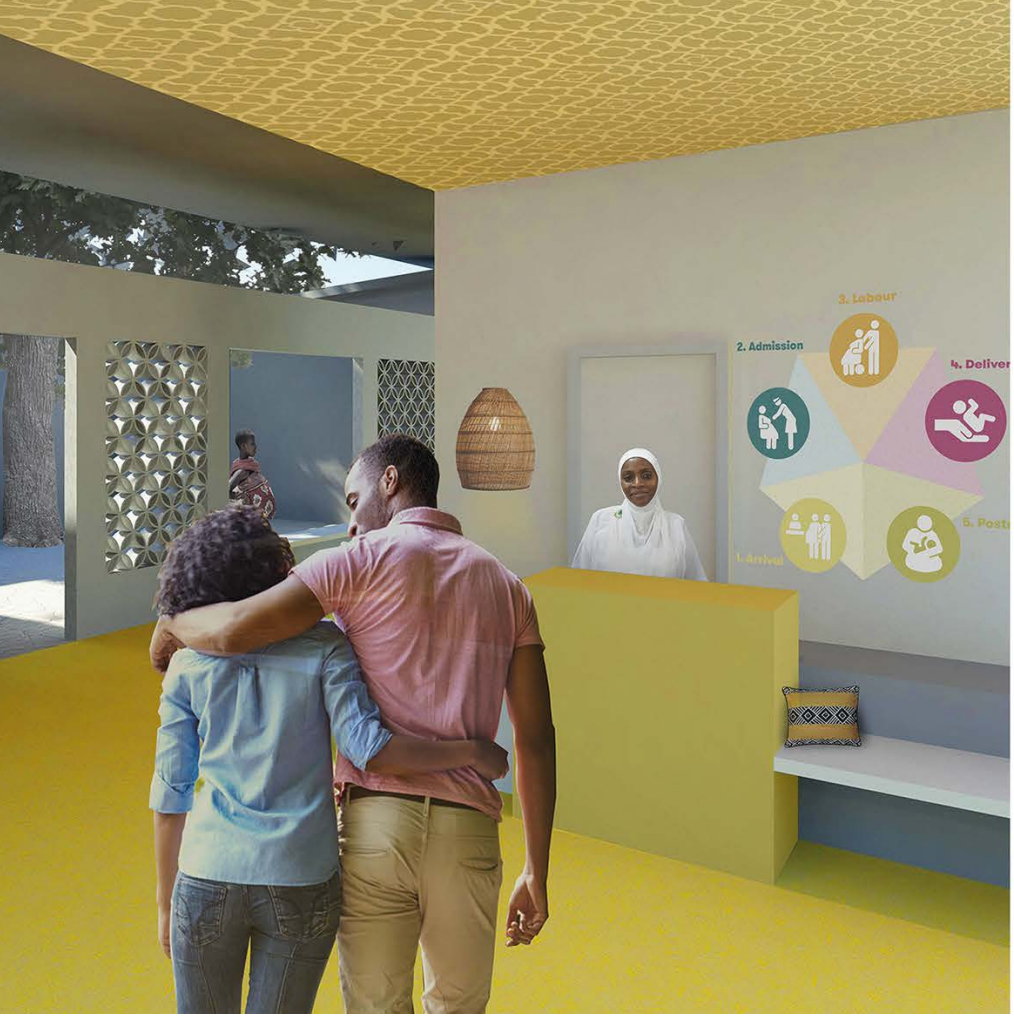



*Figure 5. The design for Zanzibar. In the design solutions for Zanzibar the spatial order was designed, to protect the integrity of the women. Renderings Petter Eklund*

During our session with the same group of women, we shared our experiences of birthing positions in our culture and compared them with how they delivered. They taught us how to utilise the stools women use for home births in their village. This low, simple stool with handles supports a woman as she holds a steady position by leaning against the wall and planting her heels into what is often an uneven dirt floor (Figure 6). According to the women, this position was ideal for delivery. This stool has similarities to the medically proven birthing stools currently on the market; however, assuming the position of leaning against a wall with your feet firmly planted and having the opportunity to draw the stool towards the body created a particularly strong stance. Unfortunately, these stools were not available in any of the facilities we visited in Zanzibar, a stainless-steel bed was the only option for delivery (Figure 6). Consequently, we incorporated the stool and a nonslip floor into our design for the delivery rooms.

In this encounter, all three parties — designers, traditional birth attendants, and women — were able to share their birthing experienc-

es and together reflect on the advantages and disadvantages in this process. Laughing while trying out the stool brought intimacy into the encounter. It was a mutual learning experience on an intimate level. We could compassionately empathise with how the women had experienced their births. Our understanding of the situation of women in this area would have been very different if we had relied only on our experiences of visiting the facility, our interpretations of the workshop responses, or our imaginative capacities.

## 4 DISCUSSION

In the following, we will reflect on how different approaches to empathy affect the distance between the designer and the user and if, by understanding the particularities of the different approaches, this distance can be reduced and depth created in the design process.

What we have been describing as empathy from a distance, where the designer merely relies on imagination, has been criticised because it might not always accurately reflect the actual situation of the user (Morton 2017). Moreover, one's imagination might only partially correspond to reality. For instance, when designing maternity wards in general, not all architects have experienced pregnancy and labour themselves, and therefore they might not accurately understand (or be capable of imagining) the situation. However, as in the example presented in section 3.4.1 (regarding mobility during labour), despite having had our own experiences of labour, our design result did not turn out perfectly. However, circumstances do not always allow for physical engagement with users; therefore, optional ways of including empathy in the design process are valuable. Furthermore, architects and designers remain an integral part of the design process and will, on top of engaging methods, still imagine themselves as users according to Pallasmaa's (2015) theory. This means that they cannot and should not erase their own experience since it is also valuable. Honestly recognising one's limits and possibilities as a designer positions the design (Akama et al. 2019).

In the empathic design approach, the users inform designers. However, this approach can sometimes be superficial due to a rigid focus on methods that lack culturally embodied critical engagement because the format of the methods might not be customised according to the users (Akama et al. 2019). In the design project we discussed in the previous section, a great deal of information and understanding was shared through encounters in the form of dialogue. Nonetheless, we noticed that if this dialogue was not conducted with sensitivity — if, for instance, it happened in a hurry, in an

*Figure 6. A common stool in Zanzibar used for delivery and many other purposes. The need to move around during labour is not always recognised, and the delivery beds in the maternity wards were flat and made of stainless steel.*

uncomfortable space, or if there were uncertainties — emotions might be misinterpreted and the sense of openness disappear. Additionally, focusing on the user's point of view alone might exclude other components, as in our example of the baby box in section 3.4.2, when only in a later stage was the complete situation revealed to us. There are also risks we need to be aware of when taking an empathic approach. Anthropologist and psychoanalyst Douglas Hollan (2017) warned that knowledge obtained through an empathic approach can be misused, even if the original intentions were good. For instance, as designers, we need to be aware that personal information shared in confidence might be revealed through design solutions.

To take empathy to a more intimate and sensitive level, we need to open up and let *the other* 'inside' by searching for existing similarities and taking an interest in our differences. Akama et al. (2019) described the Maori method of collaboration as taking the form of three questions: 'Who am I?', 'Who are you?', and 'Who are we?' Before we can collaborate, we need to know ourselves and others. These questions build a base for an empathic approach and resonates with the Mixed Perspectives framework of Smeenk et. al. (2016). In taking an intimate and sensitive approach, the distance between *me* and *the other* is reduced when compared to both the approach of empathic design with focus on the users and of empathy with an emphasis on imagination from a distance because 'my experience' is closely linked to 'the experience of the other'. This is not always easy to achieve and requires making an effort. The process might be uncomfortable, and there may be

moments of unease when differences appear. Diving deep into empathy can eventually cause a strong counterreaction of empathic or personal distress if the balance between the identification and distinction between *me* and *the other* is not preserved; distress often prevents action (Maibom 2017).

For designers to develop depth in their design, they need to be sensitive to both users and themselves to be able to establish a connection of trust with the users and to follow their intuition. Ideally, this relationship permits the creation of intimacy between designers and users, according to Kasulis's (2002) and Akama and Yee's (2016) definitions, where similarities as well as differences between emotions, cultures, and habits are sensed and exchanged.

## 5 CONCLUSIONS

Our practice motivated a need for a more nuanced understanding of empathy. Our account of the origins, contexts and usages of empathy follows Akama and Yee's (2016) critique of a universal and replicable assumption in co-design, yet provides an enriched and deepened terminology and conceptualization for empathic approaches. This paper builds an analysis of various significant approaches to the notion across architecture and design while recognising the value of unboxing and embracing contrasting theories. By retrospectively revisiting the design project, we could identify several possibilities for empathy to have a significance throughout the design process. Thus, we propose a variation of registers of empathy with different particularities. Our analysis led us to here establish three registers of empathy: distance, connection, and depth (however, not excluding the possibility for other registers to appear in different contexts) (Figure 7).

A. 'Empathy from a distance' embodies the value of the architect's/designer's presence and capacity to employ personal experiences and an active motivation to imagining being the user. In this register, the architect/designer is strongly embodied, and the actual user is often obscured. This register can give designers and architects the freedom to introduce new innovative solutions that promote development. However, it also has limitations and can result in an outcome that is not adopted by the users.

B. 'Engaging empathy' emphasises the users with a pragmatic focus on their activities, emotions, and aspirations through practical methods and tools. In this register, the users are in the spotlight. The designers and architects are seeking to understand them with sensitivity, curiosity, and integrity. This register gives users a voice and a part to play in the design process.

C. 'Empathy in depth' proposes that the designers and architects take a step closer to the users, seek out similarities and differences, and aim

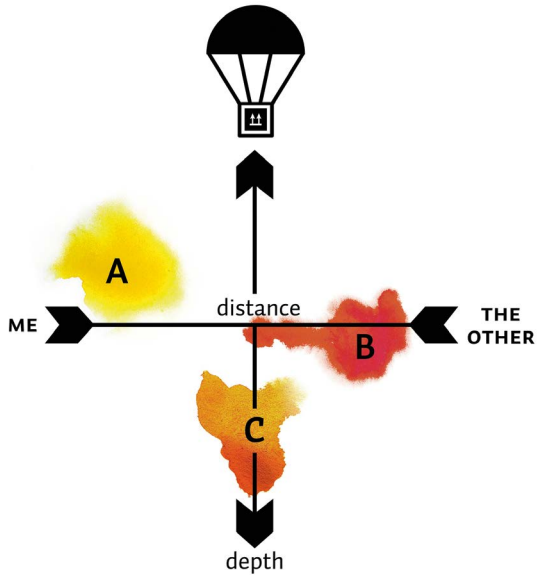



*Figure 7. Placement of the different registers of empathy in relation to a 'parachute' design approach without user involvement and an in-depth design process. A, stands for Empathy from a distance, B, for Empathy through connection, and C, for Empathy in depth*

to reduce distances between stakeholders with compassion. This happens through establishing an intimate connection with the environment, culture, and users. This register connects the two previous registers as the designers/architects, users, and other stakeholders share experiences and form a collective understanding.

Through presenting these registers, we seek to draw attention to the potential offered by empathic engagement and help designers to be aware of different kinds of empathic behaviour. The empathic approach can extend from the very beginning of a design process throughout the project and beyond. We can be empathic from a distance and when closely immersed with the users. There is no need to exclude one or another register of empathy, they can all be combined to complement each other or utilized in different circumstances, where one form might be more appropriate than another.

The use of registers of empathy can have a wider value not only for research within and across fields, but also for practice. For architects and designers, mastering empathy implies a competence to practice in an intuitive, contextual and agile way.

When reflecting on the case illustrated in this paper, we found that through a design process that applies several registers of empathy there is the potential to create a space in which women, their infants, and their families can 'show up', find their voices (literally and metaphorically), and be heard. We invite further explorations of whether empathy between the actors in the design process can lead to spatial solutions that support empathic encounters. When we as designers strive for depth in the design process it allows for true meetings that are so intimate that neither party fears their differences and where both parties are open to possible development. When design is born through meetings of this kind, the created architecture potentially becomes an environment supporting meetings alike.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*Summary of methods used in the design process, 2015–2018.*

| | MATERIAL | |
|---|---|---|
| Background information | World Health Organization (WHO) guidelines. | |
| | M4ID's previous research related to maternal health in Tanzania, Uganda, Kenya, Nigeria, and India. | |
| METHODS IN RELATION TO EMPATHY | METHODS USED IN ZANZIBAR | METHODS USED IN ODISHA |
| Methods that affected empathic imagination, without user involvement. | · Studies of medical background information related to best practices and benchmark projects.<br>· Reflections on our own experiences of giving birth.<br>· Observations in 5 existing facilities.<br>· Photography and filming | · Baseline study.<br>· Studies of medical background information related to best practices and benchmark projects.<br>· Reflections on our own experiences of giving birth.<br>· Observations in 2 existing facilities.<br>· A survey of mothers.<br>· Photography and filming |
| Empathic design methods and tools to involve users in the design process. | · One workshop with local men whose wives had recently given birth.<br>· Numerous semi-structured interviews with healthcare providers.<br>· One meeting with local traditional birth attendants and women who had recently given birth. | · One workshop with healthcare providers.<br>· Numerous semi-structured interviews with healthcare providers.<br>· Numerous semi-structured interviews with women in labour in the facilities.<br>· Numerous semi-structured interviews with women who had recently given birth.<br>· Numerous semi-structured interviews with birth attendants (ashas).<br>· Design-probing exercises with mothers and ashas.<br>· Prototyping and a feedback session with mothers. |
| Situations in the design process where the meetings with users achieved a personal connection on an intimate level. | · 1 workshop with local women who had recently given birth.<br>· 1 meeting with local traditional birth attendants and women who had recently given birth.<br>· 2 semi-structured interviews with healthcare providers. | – |
| Post-project information | – | · Impact assessment conducted after the facility had been in use for one month. |

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*Cover photo by USGS on Unsplash.*

*Rub' al Khali, or Empty Quarter, near the border between Saudi Arabia and Yemen. The lines of wind-sculpted sand are characteristic of immense sand deserts, or sand seas, and the Rub' al Khali is the largest desert of this type in the world. In the centre of the highland ridge lies the Saudi Arabian town of Sharurah.*

*This area is not related to the research presented in this thesis.*

Helena Sandman's motivation in her work is to create harmonious and sustainable spaces that serve their users. She began her practice in Africa two decades ago as a partner in Hollmén Reuter Sandman Architects. The group later founded the non-governmental organisation Ukumbi to provide architectural services for communities in need. Apart from the work with Ukumbi and her own private architecture company, Helena is currently a visiting professor at Base Habitat, University of Art and Design, Linz, Austria, and a founding partner of Leapfrog Projects — a global strategy and design consultancy focusing on ambitious sustainability initiatives. This thesis emerged from her work with the New Global research project at Aalto University from 2014 to 2019.

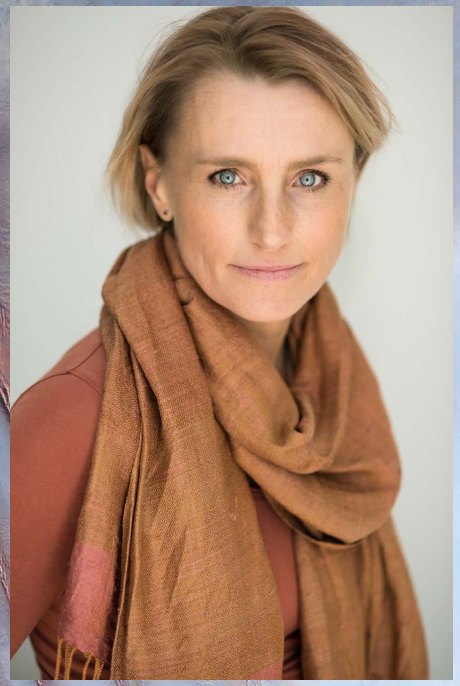

Photo Tanja Ahola

The world is urbanising rapidly, particularly in those regions where most people live. This results in sprawling, informal settlements and expansion of the built environment. To respond to these challenges in a sustainable way, architects and designers have an important role to play. The environments and spaces that they create also shape the people who inhabit them.

This thesis builds on findings from two architectural design projects conducted in Tanzania and India. It suggests ways for practitioners to bring actors in a design project closer to each other with the help of empathic engagement. The main conclusion is that applying a broad spectrum of empathy as a mindful attitude to the design process enhances horizontal collaboration. The findings support the argument that empathy matters in design — it is a profound ability that we need to cherish and develop.

Through designing with empathy, awareness and love for life, the spaces we create will support quality encounters between people.

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