‘There’s flooding, so we dig’

Going behind the scenes of how agentic residents of informal urban settlements build their own drainage canals in Beira, Mozambique

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Acknowledgement

Meanings come from unexpected places, like how my research participants in Mozambique's Beira described the word 'resilience' based on what they experienced. To me, words like resilience were intuitive: being strong and independent. Hold your ground, no matter what. I had romanticised it to the extent that it proved detrimental to my mental and physical health; until I realised that resilience has a threshold. The people whom I acknowledge here played a defining role in reconfiguring that understanding: it is okay not to be strong; it is okay to be a human. This was an important reminder that helped me complete this research journey.

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List of Acronyms

CBO	Community-Based Organisations
CMB	Conselho Municipal da Beira (Municipality of Beira)
DUAT	Direito de Uso e Aproveitamento dos Terras (Right of Use and Benefit of Land)
FRELIMO	Frente de Libertação de Moçambique
MDM	Movimento Democrático de Moçambique
MZN	Metical Moçambicano (Mozambican Metical)
NGO	Non-Governmental Organisation
NPO	Non-Profit Organisation
RENAMO	Resistencia Nacional Moçambicana
SASB	Serviço Autónomo de Saneamento da Beira (Beira Autonomous Sanitation Unit)

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Abstract

The informal urban settlements in Beira, Mozambique, lack architecturally engineered drainage canals. This could be attributed to the lack of space, political will and funds, and probably the perception that nothing can be done there now. However, the residents are responding to the absence of drainage canals with their own drainage systems. This research explored the social process of how and why these canals are built, and who are the actors who facilitate and impede the process. Through my Beira-based research assistants, we interviewed 47 participants from five informal settlements, comprising neighbourhood leaders and residents. The data was analysed using a thematic approach, and explained through four social concepts: social innovation, assemblage, bricolage and communing, as well as an interpretative methodology. The research found that residents are the main agentic actors who create handmade ditches and barriers using all materials and tools available at home and from their surroundings. They play a key role in making social rules, decisions and negotiations with other residents. The neighbourhood leaders guide and mediate when necessary. Through the research, I argue that the handmade drainage systems are an expression of community residents' agency, or their capacity to choose to act by acquiring all resources within their limitations. It shows that exercising agency is possible in enabling social settings and institutions (rules and decision-making, primarily). I conclude with suggestions to development practitioners and agencies to avoid romanticising words such as resilience and 'living with floods' to consider often less-explored realities of agency and exhaustion of the 'resilient' community members. I suggest considering the complexities and messiness of community-driven socio-economic activities rather than relying completely on 'expert' and technological solutions.

Relevance to Development Studies

International, multilateral aid and development organisations have expanded their top-down interventions based on economic structural adjustments to accommodate participatory, resilience-oriented approaches, specifically for disasters caused by climate hazards such as floods, droughts and heatwaves. Such claims to participatory approaches, however, tend to overpower the strategies adopted by people who frequently experience disasters, letting them slip through the cracks. The research argues that designing participatory techniques should take an agency-based approach. It provides a purchase on the existing initiatives designed by the people, and contextualised within their social and geographical space. This is relevant not just in designing development initiatives, but in understanding how we conceptualise lived experience-based concepts such as vulnerability, resilience and 'living with floods'. Going beyond the remits of traditional 'business room-to-field' or 'business as usual', such an approach requires first understanding the people — for whom the intervention is being designed, or the 'beneficiaries' (in the parlance of the Western aid community) — and the context (geospatial environment and the institutional governance structures) within which they live, navigate, negotiate, thrive and sustain.

Keywords
Beira, Drainage Systems, Informal Settlements, Community Governance

"Urban strategy resting on the science of the city needs a social support and political forces to be effective. It cannot act on its own. It cannot but depend on the presence and action of the working class, the only one able to put an end to a segregation directed essentially against it . . .This does not mean that the working class will make urban society all on its own, but that without it, nothing is possible. Without it, integration has no meaning and disintegration will continue under the guise of nostalgia and integration (Lefebvre, 1996, page 114).

Chapter 1
Introduction

Over the past few decades, "a new way of life" (AlSayyad, 2004) has been contesting the urban space and the debates around it. The informal settlements. These are areas of human settlements where houses and other buildings are built "in the leftover and degraded space in and around formally planned towns" (Huchzermeyer, 2013, page 29; Tipple, 2005). The 'informal' is rendered by virtue of being 'legally' non-compliant and "an antithesis to the 'norm' aspired to, the planned and orderly modern city" (Huchzermeyer, 2013, page 10; Waliuzzaman and Alam, 2022), leaving them without adequate provision of urban infrastructure services such as water and sanitation as well as land tenure security (Durand-Lasserve, 2006). Incidentally, the vacant land where informal settlements emerge is predominantly areas that are prone to environmental hazards such as floods (Abunyewah et al., 2018; Alexander, 2005; Doberstein and Stager, 2012, Tipple, 2005; Dodman and Satterthwaite, 2008; Nchito, 2007). It then becomes a costly affair for the State to plan, regulate service them (Watson, 2009), turning them into "isolated entities within the city" (Ono and Adrien, 2024). International donors and development agencies working in developing countries could strategically push such areas into informality by excluding them from urban planning and development. For example, in the aftermath of Cyclone Idai in Mozambique's Beira city, the World Bank excluded "areas designated as prone to flooding" for the reconstruction of houses, "thereby excluding significant parts of the city" (Schubert, 2024, page 43). Disasters only then exacerbate the vulnerabilities underlying the deliberate and constructed deficiencies of informal settlements.

While informal settlements are bracketed as disorderly, disorganised and chaotic (see Bouwmeester and Hartmann, 2021; Agyabeng et al., 2022; Arefi, 2011), they are a type of informal urbanism with "an organising logic, a system of norms that governs the process of urban transformation itself" (Roy, 2005, page 148). They are spaces regulated through informal systems and social rules (Rakodi and Leduka, 2004; Ostrom, 1990; Arefi, 2011). These are also spaces where residents exercise their agency to invent, produce, experiment, negotiate, implement and reproduce knowledge, practices and strategies to survive and cope with the constructed deficiencies of informal spaces (Ostrom, 1990; Dekens, 2007a and 2007b; Holston and Caldeira, 2008 as cited in de Beer, 2017; Huchzermeyer, 2013). They are what Easterly (2006) calls, the "Searchers" who — amid the big plans of the Western aid agencies or "Planners" — "find things that work... adapt to local conditions... hopes to find answers to individual problems only by trial and error experimentation... believes only insiders have enough knowledge to find solutions, and that most solutions must be homegrown" (pp. 5-6). However, the informal settlement residents internalise such practices, resultantly (unintentionally) invisibilising them to the world (Dekens, 2007, page 29).

I view these strategies as an exercise of one's agency to act on their capacities and choices. Informed by her ethnographic research in Nepal and Pakistan, Dekens (2007c) defines capacity as "all the strengths and resources available within a community, society, or organisation that can reduce the level of risk, or the effects of a disaster" (page x). This definition prompts one to explore the tangible and intangible resources *within* a group of individuals and institutions rather than *outside,* which could be external stimuli or forces (the State, donor or development practitioners) that induce hybridised knowledge and understanding.

The research will explore this aspect of informal settlements, particularly the social process behind the production and implementation of non-technical organic ideas employed by the residents and other mix of crucial actors involved in producing and maintaining this space. I use of the tertiary or neighbourhood canals as a case to explore how residents of Mozambique's informal settlements in Beira express their agency through this project. These canals are unlike those that are built using state-of-the-art materials and equipment and by technically qualified actors.

1.1 Background: Beira and its informality

Located in the low-lying delta region at the mouth of Pungwe and Buzi Rivers (which meet the Indian Ocean), Beira is the port city of Sofala province in central Mozambique. The coastal city, which is "almost entirely a sedimentary plain" (Uacane and Ombe, 2016, page 209, translated by DeepL), is also prone to pluvial (extreme rainfall) and coastal (storm surge) flooding. Despite its mudflat and swampy low-lying terrain and frequent flooding, Beira witnessed extensive developmental activities. People migrated to Beira for economic opportunities and due to the deadly civil war in Mozambique between 1977 and 1992 (internal migration) (Noden et al. 2011, page 5). This section will briefly discuss the politics of Beira's development, its tryst with informality, and how drainage systems became a critical component in the urban informal settlements.

1.1.1 The politics amid Beira's donor-led expansion and development

While Beira was straining to keep up with the population growth, the State politics further burdened the city. The municipality of Beira is the stronghold of Movimento Democrático de Moçambique (MDM, or Democratic Movement of Mozambique). MDM is the opposition party to the Frente de Libertação de Moçambique (FRELIMO, or Liberation Front of Mozambique), which has been ruling Mozambique since the country won independence from the Portuguese colonization in 1975. MDM is also a splinter group of the main and largest opposition party, Resistencia Nacional Moçambicana (RENAMO, or Mozambican National Resistance). The political tension between the ruling and opposition parties seeped into almost every aspect of the country – which municipality gets more funding, or which party loyalist gets preference (Shannon, 2019; Shankland and Chambote, 2011; van Houweling, 2022).

For the Municipality of Beira, the constant political marginalisation also means limited administrative resources and capacity to govern the city (Shannon, 2019; also see van Houweling, 2022, Ames et al., 2010, page 29). This was also emphasised by an official from the Municipality of Beira, who said that after the civil war, the central government initiated an economic rehabilitation programme (in 1987) to put the country back on the road to economic recovery. However, infrastructure, including drainage, was not a priority for the national government; that responsibility was devolved to the municipalities. With sparse funds, and routine delays in decision-making and coordination, Beira municipality turned to donors (Shannon, 2019).

1.1.2 Focus on Beira's drainage

The focus of donors, multilateral agencies and foreign governments (the Netherlands, China, Germany, France, and Sweden, among others) is on making Beira resilient in the face of floods through climate investments and other technical support. The interventions primarily centers on

urban infrastructural projects and institutional capacity building, particularly "improving the drainage system, detailed engineering designs for upgrading the existing open-air drainage network as well as subsequent works such as rehabilitating, lining, and widening" (Government of Mozambique, 2011, page 41; also see UN-Habitat, 2020; Shannon et al., 2018; van Weelden, 2013). With the 2019 Cyclone Idai[1], efforts to rehabilitate drainage systems intensified.

The World Bank financed the rehabilitation of drainage canals built during the colonial era (World Bank Group, 2020; Shannon et al., 2018). The Beira Masterplan 2035, led by the Netherlands government and a consortium of Dutch organisations, primarily aims to expand the urban stormwater and set up a land development company to provide land concessions for affordable housing and supporting infrastructure (Municipality of Beira, 2019, page 15; van Weelden, 2013; RVO, 2013). While strengthening primary drainage canals (including lining the canals) has been a priority project in Beira, secondary and (especially) tertiary drainage networks[2] pose a particular challenge (Municipality of Beira, 2019, page 13; RVO, 2013), especially in informal settlements (Schubert, 2024; Jiusto and Kenny, 2016; Williams et al., 2018; Personal Communication 1, 2024; Personal Communication 2, 2024).

The reconstructed primary drainage networks "worked well during the cyclone and other storms" (Municipality of Beira, 2019, page 13), and claimed to have "improved the lives of more than 284,000 people" (World Bank Group, 2021b, page 45). The Beira Masterplan 2035, too, is said to have made some impact where "people no longer have to sleep on the table"[3] (personal communication, May 2024), which indicated reduced flooding in houses[4].

One of the challenges noted for the drainage rehabilitation projects under the Beira MasterPlan 2035 is that tertiary drainage canals require interventions at a local level, and not by engineering firms (Personal Communication 1, 2024). Spatially convoluted patterns of houses, too, pose a challenge. However, a research study by Knoop (2023) showed residents in informal settlements of Beira build their own 'unstructured' tertiary (neighbourhood) drainage canals and barriers using everyday materials or resources at their disposal (tyres, clothes, sand, cement) as well as maintain

[1] Flood-inducing rains and tropical storms have been historically recurring phenomena in Mozambique, especially between October and March. However, cyclones are fairly recent climatic occurrences, as some residents recounted to Fumo (2023, page 4). Cyclones and tropical storms have become frequent since 2019 — cyclones Idai and Kenneth (2019), cyclone Chalane (2020), cyclone Eliose (2021) and storm Filipo (2024). Cyclone Idai in 2019, which made landfall near Beira and brought a storm surge in its coastal areas, displaced 400,000 people, claimed over 600 lives and caused damage to about 3000 square kilometres of land in the provinces of Sofala, Tete, Manica and Zambezia (Post-Cyclone Idai Cabinet for Reconstruction, 2019).

[2] A network of drainage canals comprises natural (wetlands, rivers, ponds, lakes, drainage basins) and built (stormwater drains, canals, ditches retention basins) structures. The latter collects and diverts stormwater runoffs in areas with impervious surfaces, mostly in urban spaces. Tertiary drainage canals collect runoff from a neighborhood, which then drains into a secondary canal in an area or locality, and then into the primary canal in a city or region to finally drain into the main waterway (Gilja et al., 2021). Secondary and, particularly, tertiary (or neighbourhood) canals are part of local drainage systems (Remmers et al. 2016). Hence, in the event of floods, tertiary drainage canals in neighborhoods serve as a crucial starting point to prevent houses from flooding as well as the stagnation of water that could threaten livelihood assets and onset of diseases.

[3] This is a popular refrain in Beira, which people use to explain the condition inside their house when it rains and floods. When water enters houses, residents sleep and cook on tables. This happened in a few neighbourhoods, and about five to 10 years ago. Formal drains are now said to have improved the situation inside houses.

[4] It must be noted that while most drainage development works are implemented in formal areas, planned areas (as part of development projects) sometimes lack drainage canals. Fumo (2023, page 39) points to an orderly sub-divided neighbourhood, where Chinese contractors built houses to relocate people who lived near an area of interest to the former. Although the construction followed the urban planning rules of the Beira Municipality, the neighbourhood lacked drainage canals, thereby flooding the area.

and improvise them, such as altering the canal dimension, to manage floods. Hence, unstructured (or informal or self-made) drainage canals co-exist alongside structured and planned canals. This research will focus on the 'informal' process of production and re-production of such water management systems. The 'informal' in this context refers to the process of production of water management systems, within a spatially contested urban space, through the ideas, resources, decisions and actions of a group of actors sharing common interest, but without or with limited "governmental support and framework" (Adger, 2003).

1.1.3 Beira's tryst with 'informality'

'Informal institutions', as defined by Helmke and Levitsky (2004), are "socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels. By contrast, formal institutions are rules and procedures that are created, communicated, and enforced through channels widely accepted as official" (page 727). Thus, formal and informal rules, norms and practices co-exist in this 'between' arena, where traditional institutions, particularly in Africa, operate "in the twilight between state and society... vying for public authority, often bolstered by government recognition" (Lund, 2006, page 686; Earle, 2014; Suhartini and Jones, 2020).

In Mozambique, such institutions function at the *bairro* or neighbourhood level, "with an ambiguous relationship (with) the municipal state" (Earle, 2014, page 632). With the Municipal Law 1997, neighbourhood institutions became legally instituted to meet the mandates of a decentralised governance system, but founded on the country's historical style of governance through traditional leaders. With a socio-cultural context[5], these roles become socially legitimised. Thus, the neighbourhood institution that emerged in the post-colonial Mozambique "has the look of "custom" without being reducible to it, and partakes of "modernity" without being wholly included in it" (Mbembe, 2001, page 25).

The neighbourhood leadership structure in Beira (Figure 1) is one of the multiscalar actors. They function below district administration under the municipality council. The structure comprises secretário de bairro (secretary of a neighbourhood), followed by chefe de quarteirão (leader of a block in a neighbourhood), and then chefe de dez casas (leader of 10 houses in a block). The municipal law provisions the creation of sub-roles if needed. For instance, Maputo Municipality has chefe de bloco (leader of the block) (Kihato et al., 2012), while Beira Municipality has secretário/chefe da unidade (leader of the unit).

Their administrative roles engendered informal practice, specifically in relation to land tenure systems. Research shows how the neighbourhood leadership structure played a pivotal role in the production of informal settlements, particularly by issuing the *declaração*, an affidavit declaring the occupation of land. This is an alternative document for the legal document of rights to use and

[5] The origin of the neighbourhood leadership structure can be traced to the creation of Grupos Dinamizadores (dinamising group) in the mid-70s, introduced by the FRELIMO, to replace régulos (traditional leaders), as a way of erasing all practices and symbols of the colonial period. Although the role of this grassroots organization was not legally identified, it encompassed managing social issues, conflicts, policing and administration (Earle, 2014, page 638), in addition to handling "rapid rural-urban migration, rising unemployment, the uncontrolled occupation of abandoned properties, critical food shortages and escalating crime" (Grest, 1995, page 152). The creation of these roles was mostly FRELIMO's political project to gain hegemonic popular power, where the leaders were mobilised for political activities, as well as to control and monitor people and their activities (Meneses, 2009; Ginisty and Vivet, 2012).

benefit from land called DUAT, or Direito de Uso e Aproveitamento da Terra[6] (Chiodelli and Mazzolini, 2019; Cabral and Norfolk, 2016; Shannon, 2019). Not being a legally-recognised document lends it an informal nature. The neighbourhood secretary, along with the local district administrators, "operate as 'semi-formal'/'traditional' authorities, who allocate land based on demand and usually with some form of payment (often hidden)" (Anderson et al., 2015, page 341). The issuance of *declaração*, as well as oral agreements (Kihato et al., 2013) are often based on trust and recognition associated with the neighbourhood leaders among residents. Besides declaração, there is *testamunha* (witness statement) that declares the resident is 'legal' and lives in the neighbourhood (Earle, 2014). This 'authority' produced through testamunha is reproduced in several other day-to-day affairs of people's lives: opening a bank account, requesting electricity or water connection and domestic workers, school enrollment, applying for jobs, and even moving into a new neighbourhood (ibid.) It doubles as a transfer certificate or moral conduct certificate, where the neighbourhood leader(s) certify a resident as legal, 'bad' or 'good' (ibid.). The long bureaucratic process is sometimes attributed to residents taking this 'informal' route, and/or the socio-cultural familiarity associated with this route.

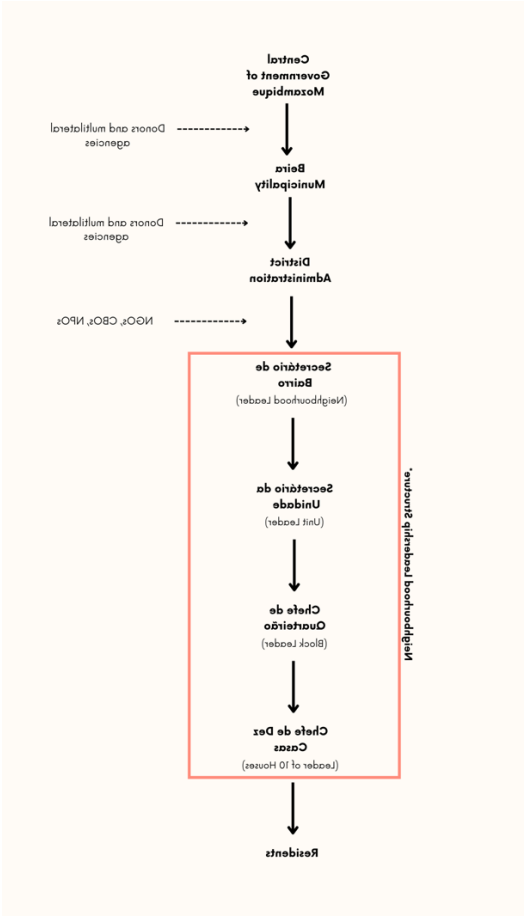

Figure 1: Multiscalar Actors in Beira. Image: By Author.

[6] In Mozambique, selling land is prohibited as it is government property. The rights (or DUAT) can either be leased, transferred or inherited.

1.2 Research Puzzle

If 'paperwork', as a resource for the *everyday*, is a socially embedded and an authoritative power-driven informal practice, how does it play out in a scenario that does not (generally) demand paperwork, such as flooding in Beira? If residents of the same informal institution build drainage canals (a resource) during life-threatening climate disaster events, they could be guided by similar socially embedded practices. According to a humanitarian practitioner who has worked in Beira, such neighbourhood canals are the outcome of community labour handled by government-authorised community leaders, although the roles and responsibilities are unclear and uncertain (Personal Communication 3, 2024). Besides, the power dynamics among residents of informal settlements —for instance, the pressure to create ditches for low-income households — are unknown (Personal Communication 4).

On the one hand, the literature focuses on the types of disaster adaptation, preventive and management measures adopted by communities in several developing countries, with a cursory understanding of the actors involved in the process (Adger, 2003). On the other hand, existing research delves into informal flood management strategies practised in rural contexts, and how communities use traditional ecological knowledge in climate change events, especially as flood warning mechanisms (Dekens, 2007a, 2007b). The role of community leaders (in Mozambique specifically) has been explained through the literature on informal land tenure, and in some cases, their political role and origins (Earle, 2014; Fernandes, 2019; Agyei-Mensah et al.; 2024). Some literature also shows how residents, as first responders (that is, before trained government actors arrive), organise themselves in an ad-hoc manner to respond to a disaster event (floods, hurricane, landslides) to save lives and arrange food, water, shelter, and other essentials (Koshy and Smith, 2023). In a similar post-disaster response, individuals unfamiliar with and outside the impacted community step in as volunteers to organise themselves through informal channels, mostly online platforms like WhatsApp and social media apps, to help and support the affected people (Duda et al., 2020; Roth and Prior, 2019; Smith et al., 2021).

In their research on similar efforts by communities to build their own drainage systems in South Africa's informal settlements, Jiusto and Kenny (2016) noted there is a dearth of literature pertaining to the urban drainage systems in informal settlements, with most debates focusing on the semantics of the word (Dovey et al. 2020; Roy, 2009), and bottom-up initiatives by residents to incrementally upgrade their houses. Like Jiusto and Kenny, and Muniz et al. (2010), too, focus on the types of self-made drainage canals in South Africa's informal settlements using materials in their immediate environment. They also briefly discuss the internal social dynamics – some cooperate while others do not – among the residents. Stephens et al. (1996), too, discuss the structural adjustments made by residents of slums in the Indian city of Indore, to their houses and surrounding area. They explored how the residents' perception of floods as an environmental risk, and of the stormwater drainage intervention in these areas. While Ono and Adrien's (2024) show how communities in the villages of Rwanda engage in the upgrading of informal settlements process as an everyday practice (to improve roads and drains), these are bolstered by government policy, funds and institutional structures, in addition to funds from the residents themselves.

However, comparatively little attention has been given to the process — actions, decisions, negotiations, rules, agreements and (central and peripheral) actors — behind the emergence of these self-made structures in flood management. Understanding 'the process' of flood management and disaster risk reduction efforts at a community level in informal urban spaces places primacy on the agency of the actors, as agency is "more than observable action" (Kabeer,

1999). It is about "the meaning, motivation and purpose which individuals bring to their activity, their sense of agency, or 'the power within'... (which) can take the form of bargaining and negotiation, deception and manipulation, subversion and resistance as well as more intangible, cognitive processes of reflection and analysis" (ibid. Page 438). Besides, agency is not only about the intentions of the actors (or agents), but their 'capability' "to 'make a difference' to a pre-existing state of affairs or course of affairs" so that they do not experience the social effects of a disaster even after it has ended (Giddens, 1984, page 14). By disengaging 'agency' from such bottom-up response to disaster, "formal disaster governance" system (the "rigid, slow, and command-and-control driven" approaches by state, donors, multilateral agencies and non-governmental organisations) may perpetuate the "focus on saving individual lives without linking this approach to wider social needs" (Duda et al., 2020, page 375). Since it risks relegating individuals experiencing disaster as merely "a target population to receive donations of food and clothes to maintain their lives", Marchezini (2015) warns governments and development agencies "not to undermine the capacities of people to plan, decide, and externalize what is best for them" (page 370). It demands, as a starting point, understanding a social phenomenon that accounts for "situational actors' own understanding of their experiences" (Schwartz-Shea and Yanow, 2012, page 106).

1.3 Research Questions and Objective

With the objective to situate agency as a critical component in disaster responses, the interpretative research will explore the social process behind the emergence of drainage systems made by those impacted by flooding. Taking an interpretative approach, situating agency in this research involves contextualising and making sense of how residents' capacity to exercise agency is shaped and influenced by the contexts and social institutions in which they live, make meanings, and operate. Accordingly, the main research question will explore:

How and why do residents self-organise to drain out water?

I will answer this through the following three sub-questions:

1. Who are the actors organising around the water structures?
2. How are rules and decisions made?
3. What is the power arrangement underlying the process?

The idea is not to look at *why* people continue to live in flood-prone areas despite the risks, but to understand *what* people do to continue living there; to understand what matters to them (in a descriptive sense), rather than what should matter to them in a prescriptive/normative sense. It brings out the "situated, contextual meaning… specific to those who are its everyday creators and/or users" (Schwartz-Shea and Yanow, 2012, page 17). Besides, understanding the handmade drainage system is not just an exercise to know the context in which these structures emerge but to identify/note our own "assumed, unspoken, or taken-for-granted ideas about a range of values, beliefs and/or feelings" that we tend to generalise when applying to development concepts (ibid., page 23).

Chapter 2
Assembling the Commons for Risk Attenuation: The Conceptual Framework

I began my empirical journey with the assumption that residents of informal settlements, like in South Africa's Cape Town and Mozambique's Beira, organise themselves into groups to build their drainage systems. I assume that the practice, which is antipode to technically and architecturally planned engineering process, was gradually institutionalised with some forms of rules, power, negotiations and other types of actors. The research will explore how residents use their existing resources – knowledge, practices, norms, politics and materials – to institutionalise their handmade drainage systems. Other critical points of exploration are *who* are the types of actors, what these interventions mean to them, or rather, *why* they engage in this practice.

The aim is to conceptualise handmade drainage as the object of institutional change. Institutionalisation is a process of organising (or theorising) change in response to "the failings of existing norms and practices" and as a justification for creating new ones based on "moral and pragmatic conditions" (Dacin et al., 2002, page 48). The justification evolves through identifying the problem that needs change; the emergence of actors with "the vision and ability to create" the change; the "existence of certain conditions" to operate with and within; and addressing "different attitudes" in the process (Eisenstadt, 1964, page 236). To unpack this, I employ four interrelated concepts: social innovation, bricolage, assemblage and commoning.

2.1 Social innovation to identify risk

The concept of social innovation (SI) can serve as a starting point to explore how it all begins: identifying the problem or risks, which threaten to harm people and nature, with "indirect effects on the economy, social institutions and wellbeing..." (Kasperson and Kasperson, 1996). In effect, it begins with the idea that "a need that isn't being met, coupled with an idea of how it could be met" (Mulgan, 2006, page 149). An individual converting a room in a remote village in India into classrooms for those who cannot afford it (Hassan, 2021); making an air-cooler with plastic bottles for huts in Bangladesh to beat the heat (Joshi, 2016); a village in Pakistan assigning a resident to beat the drums to announce/warn an imminent flood (Turi et al., 2019, page 19). These are examples of social innovation at a micro-level. These innovations inspire similar social strategies at a macro-level when governments, international and non-governmental organisations adopt the concept (example: microcredit projects, lunch schemes, cooperative banks for farmers, model schools, welfare schemes for women). Existing literature offers a common thread for social innovation: People are "competent interpreters of their own lives and competent solvers of their own problems" (Mulgan, 2006, page 150). Their ideas are rooted in culture and are often the product of discontent, passion, or commitment (ibid., page 149). Once ideas on how to address a risk emerge, the next step is acting on them with new resources.

2.2 Bricolage as gathering resources

Social innovation centers on the concept of bricolage, where individuals or an organisation put together, construct, invent or install resources using "whatever (materials) at hand" (Lévi-Strauss, 1996, page 17) in response to "new problems and opportunities" (Baker and Nelson, 2005, page 333; Van de Walle, 2014, page 10). Unlike a scientist, engineer, architect or rational planner, a bricoleur uses "degraded, fallow, and otherwise undeveloped" tools and materials, knowledge and social resources to "create something from nothing" (Baker and Nelson, 2005). Hence, ordinary materials (like tyres and sandbags) are repurposed, tinkered and accorded new meaning and value in the context in which the bricoleurs operate.

Bricolage is a non-linear and dynamic process that hinges on creativity and innovation during a shortage. It is not formed with the explicit aim of achieving an end or challenging an existing system. Since the strategies to put together the available resources are "developed through... exploratory activities involving trial and error, informal contacts and noticing, experiments and heuristics" (Regnér, 2003, page 290), making sense of "the bricolage product evolves together with the context producing/using it" (Concilio, 2010, page 297). That is essentially why Van de Walle (2014) says that bricolage cannot be encapsulated in "rules and procedure" (page 10).

One of the principal approaches of bricolage is trial-and-error, while countering limitations and enduring setbacks (Baker and Nelson, 2005, page 354). This facilitates product improvement and identifying new capacities in most cases where bricolage is applied, such as entrepreneurship, research, institutional building and fine arts. However, in the context of environmental disasters, one needs to consider a potential negative impact of trial-and-error approaches, which sometimes, risk lives and assets if the bricolage product collapses under the lack of required reinforcements or sensitive structural foundations. This makes bricoleurs mindful of its efficiency.

That said, bricolage may appear chaotic as it is an unplanned, learning-on-the-fly venture. Weick (1993) argues otherwise. "Bricoleurs remain creative under pressure, precisely because they routinely act in chaotic conditions and pull order out of them (page 639). More importantly, according to Ciborra (1996), "It is a model which turns upside-down our beliefs about what is structural and permanent in the strategy-structure dyad, as well as what is subjective, informal and ephemeral" (page 104). For instance, informal urban spaces lack structural and institutional resources, but studies have shown they create a thriving informal economy by generating jobs and innovative entrepreneurs (Agyabeng et al., 2022). Bricolaging, thus, is a way of pulling oneself out of urban poverty by using existing resources – materials, skills, capabilities, ideas, and spaces.

While bricolage can explain how disparate tangible and non-tangible materials come together, it cannot fully explain how the various actors come together, interact, make decisions and negotiate the making of a drainage structure. Assemblage could serve as a conceptual tool to understand these human interactions.

2.3 Assemblage as change agents

Assemblage can be conceptualised as the behind-the-scenes of bricolage. It is the process where "human and non-human, organic and inorganic, and technical and nature" converge into a socio-spatial site (Anderson and McFarlane, 2011, page 124). For instance, drainage canals (non-human elements) play the role of physically preventing flooding by diverting surface runoffs. Actors (human element), too, prevent flooding by building, operating and maintaining the structure. The knowledge, capabilities, practices, norms, rules and social relations with which the canals are

created and managed are what DeLanda (2006) calls "expressive" components of assemblage. Amid actors with disparate interests and agendas, Durose et al (2021) emphasise the role of "vision" — the common goal in an emergent situation — as a critical resource in holding the assemblage together.

Each component in the assemblage is an independent element, which coalesces into a larger system when they interact with each other. This interaction, which is emergent (especially in an urban context), is not "logically necessary" but "contingently obligatory", DeLanda (2006) argues. Meaning, these components (people, resources and rules) of an assemblage interact when triggered by certain situations, like floods. Hence, the assemblage concept helps us understand the influence each component has on each other. However, it does not build relationships, rather it is the result or "occurrence" of existing relationships, argues Eriksson (2005, page 601).

The growing debate among assemblage theorists is the agency of situated agents in assembling socio-material resources; in essence, the willingness of actors to be a part of the assemblage (DeLanda, 2006; Durose et al., 2021). "The participants have more room to express their convictions and their own personal styles" (DeLanda, 2006, page 16). The agency of the situated actors (residents of informal settlements) to transform their space through everyday practices and struggles, not only produce new structures but "new visions of (their) potentials" (Brenner and Schmid, 2015, page 178).

This is possible because, within this arena, as Monno (2010, page 166-167), along with McFarlane (2009), note, "There is no single central governing power, nor an equally distributed power". Instead, various agents exert influence at different times since assemblage undergoes change. It, thus, dispels the notion of 'the one heroic person' in a social innovation; instead, the focus is on the type of power each actor possesses. This can be explained through the social process of governing a commons.

2.4 Governing the Commons

In his essay, Paysan (2012) explains a commons: Imagine a group of climbers charting path to a mountain. They constantly invent and test codes and rules for climbing as well as negotiate with government authorities and conservationists about accessing, using and maintaining the route. However, when the climbers die, and the rock formations cease to remain a commons, "because the commons is the social relationships... and the rock is a resource" (ibid.). Hence, it is a "social practice that generates, uses and preserves common resources and products" (Meretz, 2012) in a process called 'commoning'[7]. It is characterised by "polycentric self-organizing systems" (Nogueira et al., 2021, page 35), or polycentric governance, which includes multiple yet overlapping nodes of decision-making with semi-autonomous actors to govern a commons. In essence, "everyone exercises some basic prerogative of governance and no one exercises unlimited prerogatives of governance" (V. Ostrom, 1999, as cited in Carlisle and Gruby, 2019). Governance, in this context, refers to the ability and capacity of actors to exercise agency in strategising, coordinating, building, managing, and maintaining a resource.

[7] Commoning is a term introduced by Peter Linebaugh, to describe the governance of commons as a verb, to bring into sharp relief the action or human activities: "To speak of the commons as if it were a natural resource is misleading at best and dangerous at worst – the commons is an activity and, if anything, it expresses relationships in society that are inseparable from relations to nature. It might be better to keep the word as a verb, an activity, rather than as a noun, a substantive" (Linebaugh, 2008, as cited in Gibson-Graham et al., 2016).

In environments characterised by uncertainties and historical developments, the actors negotiate strategies and tinker with the rules "based on past performance" or that which is "a good fit (to) local circumstances", but with "some underlying principles of good institutional design[8]" guiding their decisions (Ostrom, 1990, pp. 59-60, 93). Ostrom also identified collective-choice arrangements as an important feature of a "long-enduring" governance arrangement for commoning: "Most individuals affected by the operational rules can participate in modifying the operational rules", although it is not necessary that they *follow* them (ibid., page 93). In all cases she analysed (that endured complex and interdependent settings), external authorities had a limited role in the day-to-day enforcement of rules and compliance (ibid.). Trust is another component that bolsters the commoning, especially when the commons is vulnerable to (human and environmental) uncertainties (Beckenkamp, 2012).

While Ostrom's analysis of commoning is relatively suitable in rural settings, it could take on different layers in an urban setting, particularly in informal settings. Unlike forests and waterbodies, or the planned water basins and roads, the drainage system in the informal urban settlements is an urban phenomenon that emerged out of "a strategy employed by the marginalised to survive well in cities" (Waliuzzaman and Alam, 2022, page 99). Hence, the handmade tertiary drainage system here is an urban commons, which is a "collectively shared property, shaped by a context of scarce resources, via the interactions of relatively 'stranger' populations... distributed... by urban density" (ibid., page 97). The word 'strangers' is relevant in an urban space, where "long-term commonality" with neighbours found in traditional or rural spaces is relatively evolving and trust-based, often manifesting as residents' associations and civil society organisations (Huron, 2015, page 970). The urban actors work on "a dialectic relationship" (ibid.) in commoning and forming a community of members with a shared past and a common interest (Ostrom, 1990, page 88). Hence, when confronted with a challenge or collective action problem, individuals "form their own decisions,... own plans, settle on their own goals, and act..." as agents to resolve it (Gilbert, 2006, page 13). However, rational thinking may not necessarily mean they are acting voluntarily to achieve the common interest, but may involve coercion or incentives (Olson, 1971, page 2).

To summarise, while some theorise institutionalisation as a "battlefield" to contest and challenge existing systems, I take the other (often unexplored) theorisation of creating a change "by nondisruptive means, such as presenting innovations as nonthreatening to the institutional order" (Micelotta et al., 2017). The four concepts help me explore the latter as they are interconnected by an agency-based approach to change (i.e., create an alternative to) a problem. The actors give meaning to the risk they experience, with which they devise an idea to change that situation. Leveraging bricolage, they innovate within their means, using all resources, including existing knowledge and inspiration around them, to act on creating 'the change' they envision. While creating and maintaining the new system of change, they realise their structural position as actors (center or periphery) within the system, which shapes their power to make decisions and rules for governing the change. To a certain extent, it also facilitates the change agents to work with and bring together similar actors with different goals, although they "may not succeed in their intended endeavor" (ibid.), revealing the frustrations and enervations of institutionalisation. Thus, in this study, I conceptualise the handmade drainage system as an object of institutional change, where individuals impacted by a problem become change agents to create a system that works for them. Rather than systems, the focus falls on individuals, their rationalities, choices and actions. This is important in understanding community-led practices as a social process, at a micro-level.

[8] Institutional Design here refers to the process of making and embedding "rules and norms that enable and constrain actors' agency", either purposively or due to "evolving... patterns of behaviour" (Skelcher and Torfing, 2010, page 72).

Chapter 3
Methodology: From Plan A to Plan B

There was Plan A — Go to Mozambique, observe and understand Beira, conduct interviews, and gather data. It came with a set of challenges. In a month or two, I had to scrap the plan to travel to Beira. It was time to deploy Plan B — Hire Research Assistants (RAs) in Beira. The RAs warned me about a possible delay, which would impact the research deadline and the research itself. While my supervisors and I were devising Plan C to tell the story in a more conceptual term using secondary data from Beira and other regions, my RAs gave me the green light for Plan B. As the research takes an interpretative approach, the chapter will discuss the events that set the stage to help me make sense of "the concepts and meaning-making of those who are "native" to the context" I am studying (Shwartz-Shea and Yanow, 2012, page 39). As a first-time student researcher, it was pertinent to document the challenges I encountered while (virtually) navigating my way through Beira. I hope this can offer some methodological insights for future research.

3.1 Data Collection

Plan A – to travel to Beira – would have enabled me to visualise the city, its informal settlements and the residents for myself, witness the informal practices first-hand, and observe my participants as they responded. The advantages were beyond doubt. However, a month prior to my tentatively planned date, a humanitarian practitioner, who has worked extensively in Beira, told me about an administrative process that could set me back. I needed to write a letter to the Municipality of Beira to receive an accreditation to interview the community leaders and the residents, and it could take a few months before I received it. A further enquiry confirmed the same. Most researchers I spoke with were not aware of or did not have to undergo this step. The ambiguity could be attributed to the lack of documentation in the literature, as well as the informality of the procedure that was known only to those working in Beira. One researcher said he learnt about accreditation after arriving in Beira, and had to wait several months. Fumo (2023), too, talks about this in his PhD thesis. While the reason for this accreditation was unclear, one academic in Mozambique purported it was due to fear of extremist activities in the country. Fumo (ibid.) was informed it was due to prevalent "lynchings" in the city, although it was unclear what this meant. My Interlocutor 1 attributes it to politics since Beira is an opposition stronghold, and the municipality wants to be aware of any activities under their jurisdiction. When their accreditations were getting delayed and tangled in "local bureaucracy" (Fumo, 2023, page 27), the two researchers took an alternative route. They approached other contacts to expedite the process. I, too, decided to take an alternative route – Plan B. Besides, the Dutch water knowledge institute Deltares, where I am interning and which was sponsoring my travel to Beira, decided not to send me due to safety concerns. Residents of Beira and researchers warned of venturing alone into the streets and communities without the presence of someone deputed by the neighbourhood leaders (Fumo, 2023).

To activate Plan B of hiring research assistants (RAs), I tapped into Deltares' association with Associação FACE (hereafter referred to as FACE), a Beira-based not-for-profit organization (NPO) that works with the Beira Municipality, Serviço Autónomo de Saneamento da Beira (SASB or Beira Autonomous Sanitation Service – an institution under the municipality), neighbourhood

leaders and residents to advocate initiatives concerning water, environmental protection, sanitation and institutional capacity. One of the members, who became my interlocutor (hereafter, Interlocutor 1), engaged four FACE employees as my RAs: two to conduct the interviews, and two to coordinate between me and the RAs on the field. One of the coordinators became my Interlocutor 2. They are residents of Beira, and qualified individuals who also support and assist researchers from other countries.

I still had to write to the Beira Municipality, although FACE applied on my behalf. The letter was merely *notifying* the Municipality rather than seeking approval since FACE works with the local communities and municipal leaders. However, my interlocutors warned of a delay in receiving the signature acknowledging the research activity. Considering the limited timeframe to complete the research, my RAs proposed directly approaching the community leaders in those neighbourhoods where they had established their credibility and familiarity. And so, the community leaders gave their oral consent within a week, even before we received the signed acknowledgement from the municipality. It was my first encounter with an informal practice, where we (including the RAs) circumvented the practice of accreditation. According to Interlocutor 1, notifying the municipality was equivalent to fulfilling the formal procedure. However, this meant we could not access those informal settlements (for example, Chipangara and Ndunda 2) that FACE did not have access to, as I would need 'the papers'.

3.1.1 Research Sites

Based on the access, we identified five neighbourhoods with informal settlements[9] in Beira – 12th Chota, 9th Munhava Central, Munhava Maraza, 14th Nhaconjo, and 19th[10] Manga Mascarenha (Figure 2). These neighbourhoods are part of larger neighbourhoods. For instance, Nhaconjo and Mascarenha are part of the Manga neighbourhood. Maraza and Central are neighbourhoods in the Munhava neighbourhood.

In Beira, communities are located within neighbourhoods. According to the RAs, residents describe spaces with well-distributed houses, buildings and roads as neighbourhoods, while areas with no or poor roads and poorly distributed houses (like informal settlements) are often communities (spatially). Every formal settlement has informal settlements. All neighbourhoods are divided into units and blocks for administrative governance purposes. In Beira, each neighbourhood is divided into units, which are further divided into blocks comprising about 50 houses each (Figure 3). Within blocks, there are leaders in charge of 10 houses (chefe de dez casas), although their roles have been less prominent and sparsely discussed by the research participants and the Municipality. So, this role has not been included in the research.

The five neighbourhoods were chosen based on the presence of informal settlements and the frequency of flooding reported in these areas. Chota and Maraza, which fall in the eastern part of Beira, have often been selected for donor-driven infrastructure development projects. For instance, in 2016, as part of its drainage rehabilitation and extension project, the World Bank developed a 25-hectare retention basin in Maraza, where residents from 490 households were evicted and given replacement agricultural land (Shannon et al, 2020). The Dutch-designed Beira MasterPlan then began developing the Maraza New Town, a 500-hectare residential zone (ibid.).

[9] In Beira, informal settlements are known by different names based on certain meanings attached to them: Madjunjo (informal settlements with no cars and contracts for any development); Getto (settlements where houses are tightly built); and Mapwetepwete (settlements with risk of flooding, and are a tad far from the city center).
[10] The numbers indicate the administrative division the neighbourhoods fall under.

Chota, too, came under the Greeninfra 4 Beira project by a team of Dutch organisations, including Deltares, to improve its drainage system with a 150-hectare retention basin (Kalsbeek, 2015).

Figure 2: The five research neighbourhoods. Source: Google Maps (edited using Canva).

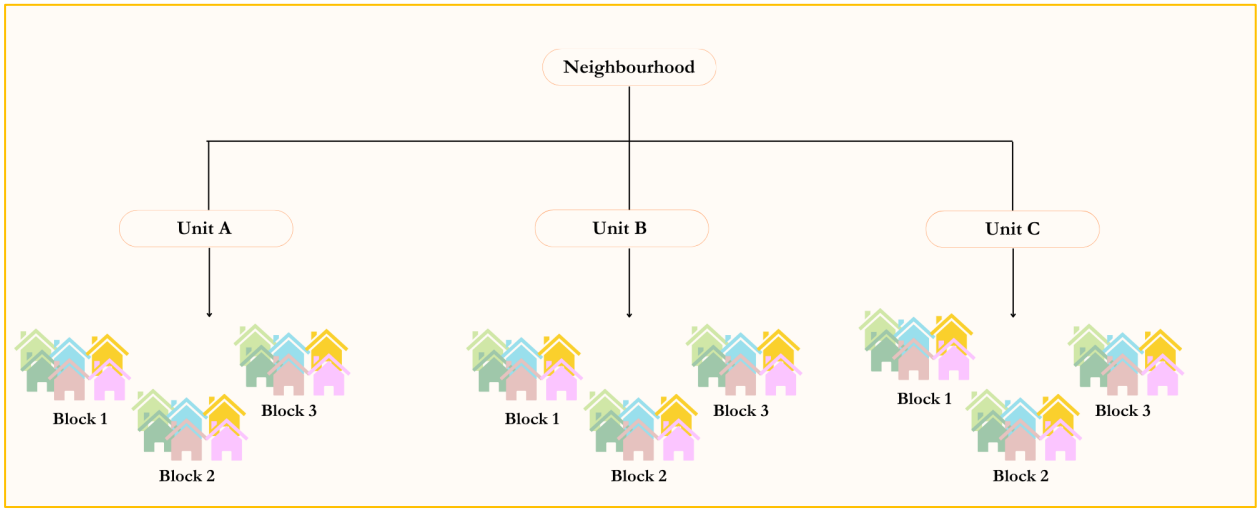

Figure 3: Division of neighbourhoods into units and blocks for administrative purposes. Image: By Author.

3.1.2 Primary Data

Primary data was collected through semi-structured interviews. Along with my RAs, we discussed and designed the questions based on the scope of the research, whom to ask what, and what questions to filter out. While I wrote the questions in English, my RAs translated them into Portuguese. On realizing that some research participants could not follow certain context-specific Portuguese words and phrases, and at the participants' request, the RAs orally translated the questions into Ndau and Sena (two native languages in Mozambique). Following the interviews, the RAs translated the responses from Ndau and Sena to Portuguese via Google Colab using codes. They provided the transcripts in Portuguese, which I further translated into English using DeepL and ChatGPT. I also used my interviews and conversations with interlocutors as a source of primary data considering they reside in Beira and work with the municipality, neighbourhood communities and international donor agencies.

3.1.3 Secondary Data

For secondary data, I relied heavily on academic papers based on Beira and Mozambique, both in English and Portuguese (translated using DeepL), in addition to grey literature. Emails and interviews (which leaned towards conversations) with academics who live in Mozambique and/or have done extensive research in Beira, as well as with humanitarian and development practitioners in the Dutch water sector, too, offered snippets and nuggets of information that helped me gather preliminary information. I also interviewed a representative from the Municipality of Beira, who heads the coastal protection and disaster risk management, as part of secondary data collection.

3.1.4 Participants and Interlocutors

A total of 47 individuals agreed to be a part of my research. A majority of the interviewees were community leaders. The local leadership structure in Beira comprises Secretário de Bairro (Neighbourhood Leader), Secretário da Unidade (Unit Leader), and Chefe de Quarteirão (Block Chief). Among the 47 participants, only 11 constituted residents. In Munhava Central and Manga Mascarenha, the Secretário de Bairro identified some participants. In the other areas, the Secretário de Bairro tasked the Secretário da Unidade to identify a few research participants. The two RAs in the field chose a few residents on the spot.

I consider my interlocutors from an NPO as "interface experts", a term introduced by Thea Hilhorst (2003, as cited in De Herdt and Bastiaensen, 2004) to refer to "people and organisations who improvise a life in the middle ground between the global and the local" (ibid., page 880). In this context, the interlocutors act as the middle ground or the interface between a community of residents and leaders, the municipality and the international organisations. In each relationship (yet interconnected), they play separate roles, navigate different domains, and possess distinct information. On the one hand, they are at the intersection "where social discontinuities, based upon discrepancies in values, interests, knowledge and power, are most likely to be located" (Long, 2001, page 243). On the other hand, the global-local interface experts may make strategic use of the space to give primacy to their agendas. However, in the "bazaar (of) enormously complicated, poorly articulated and extremely noisy communication network" (Geertz, 1978, page 29), access to information about the realities or lifeworld of the residents in the informal settlements is paramount for an 'outside researcher' like me. Considering this "known ignorance" about the quality or specificities of information available, or the things I do not know (ibid.), and due to the

challenges in data collection, identifying the Beira-based NPO staff members as my interlocutors was logical.

Table 1: Research participants from Beira

Participant	Chota	Munhava Central	Munhava Maraza	Managa Mascarenha	Nhaconjo	Total
Secretário de Bairro	1	1	1	1	1	5
Secretário da Unidade	4	3	2	3	3	16
Chefe de Quarteirão	3	4	2	3	4	15
Residents	2	0	5	3	1	11
						47

3.1.5 Dispatches from Beira

The interviews were carried out between September 2 and 11, 2024. All participants were interviewed individually since my RAs warned that focus groups would be challenging considering the extreme time constraint (due to the thesis deadline and election campaigns in September). While most interviews were conducted at the headquarters of the neighbourhoods, others were conducted at the interviewees' houses. Based on the RAs' suggestion, we decided to seek the oral consent of the participants. The responses were recorded using an audio device (with consent). Two RAs shared their field notes, including the challenges they encountered during the groundwork. Following is a paraphrased version:

> "We started the interview in Munhava Central, where only the community leaders took part. It was challenging to carry out the interviews here as it demanded our time and energy to explain the research methodology. Residents were not willing to participate despite the insistence of some local leaders. Here, we also noted the absence of young leaders. In the Chota neighbourhood, the interviewees complained about the waiting time and pending chores they had to attend to. After enquiring with all the participants, we decided to interview five participants at the office, and the others at their houses. The latter was time-consuming since the houses were quite far from each other. It was relatively easy in Mascarenha, Maraza and Nhaconjo, although a few interviews were conducted at houses and workplaces (like a market). Overall, interviewing participants at their houses was the most challenging part, since they were distracted, especially the women who took a break during the interview to attend to their children and other household chores. A few participants asked several questions before giving their consent. Some had difficulty in comprehending technical questions and words such as resilience. We also encountered certain linguistic challenges in translating Portuguese terms

into the local language. However, the groundwork helped us understand the communities further" — RAs.

The RAs also recounted some participants raising other problems in their neighbourhoods, expecting solutions. Some complained of the lack of transportation and water, while some implicitly (and validly) asked for monetary benefits for participating. Although they emphasised it was a research project by a student, my RAs later informed me that they usually organise lunch if people were being interviewed as part of a project.

3.2 Data Analysis

I analysed my data using the thematic analysis approach. I pored over the translated transcripts to identify patterns, and code accordingly. While transcripts were used to identify themes, I used my RAs' fieldnotes and snippets from informal conversations with my interlocutors to not only supplement the coding but to contextualise the responses, especially considering my unfamiliarity with Beira. I decided not to subject my data to another round of machine-interpreted analysis, since the original responses transitioned through several rounds of machine-enabled translations. Hence, I used traditional tools such as pen, paper and highlighters to code the responses.

In the transcripts, which were divided into the five areas where the interview was conducted, I re-arranged the responses from top neighbourhood leader to residents: that is, neighbourhood secretary —> unit leaders —> block leaders —> residents. This was to look for any particular patterns across the five neighbourhoods and different research participants. Iteratively, I read transcripts without looking at the position of the participants, where their answers to disaster responses were nearly similar in substance. I could tell apart the participants when the leaders discussed land tenure and municipality.

As Braun and Clark (2006) suggested, I retained some of the inconsistencies and incomprehensible responses in the transcripts. This incomprehensibility was mostly rendered by machine translation. However, I did ignore some of the incoherent responses that were eventually not relevant in answering my questions, while I validated the other responses relevant to my research questions by constantly clarifying them with my RAs and interlocutors, as well as literature.

Based on the responses to semi-structured interview questions, I created 16 codes. This helped me gain an overall understanding of Beira, its neighbourhoods and what happens in its informal settlements. Understanding that data analysis is an iterative process, I filtered my themes further through coding-writing-reading (ibid.; and Tuckett, 2005). As I went back and forth with the transcripts several times, I whittled it down to four themes, as in Figure 4. Using the four themes, I could logically organise my data, and present the findings-analysis by *making sense of* and *creating* the social and political world of Beira's informal settlements *for the readers* rather than merely presenting them (Schwartz-Shea and Yanow, 2012,).

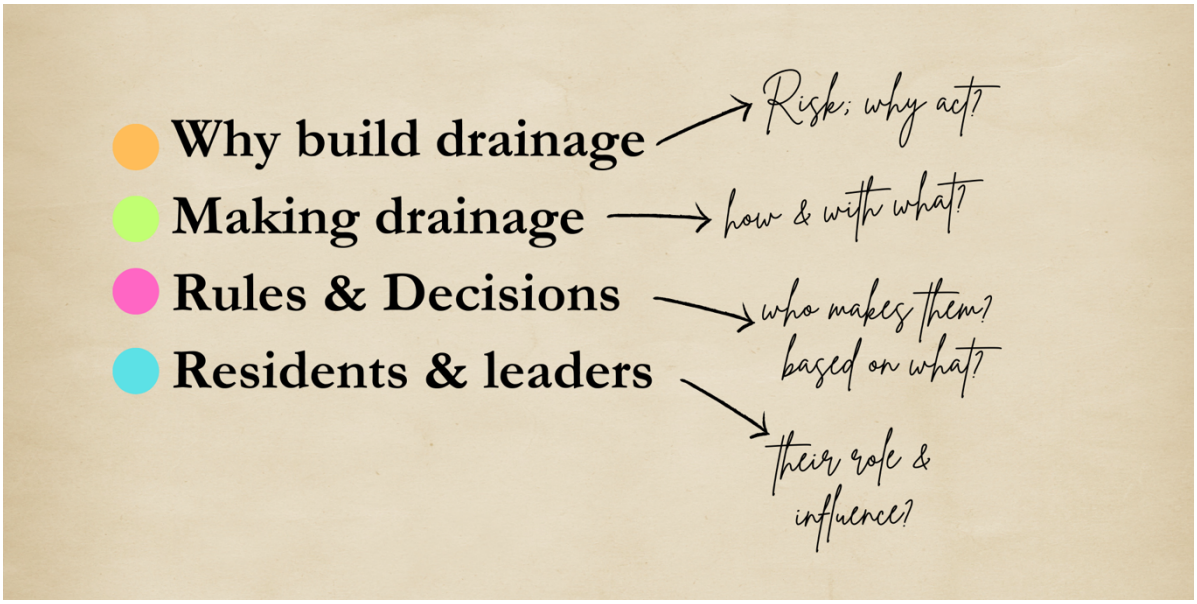

Figure 4: Thematic Data Analysis. Image: By Author.

3.3 Positionality Statement

Defining my positionality was a conundrum, especially since my research is centred on community practice, and the objective of my research is interpretative in nature. To me, reflexive analysis is a process of iteratively reflecting on my subjectivity (Finlay, 2002a, pp. 532-533) to avoid perpetuating a standard, top-down interpretation of ideas and concepts, thereby influencing the study outcome and knowledge claim.

I am an Indian, studying and living in the Netherlands — a country whose government has invested millions in the economic and infrastructural development of Mozambique, especially Beira. Additionally, I am a Master's student doing a research paper, which is co-supervised by Deltares — a Dutch knowledge institute where I am engaged in a paid internship and which is a critical implementing partner in the Beira MasterPlan 2035. One of the main outputs of the internship is this research paper.

I communicated the three identities — an Indian living in the Netherlands for nearly four years, a student in the Netherlands, and an intern at a Dutch international organization — to my research participants and interlocutors. However, I often had to readjust my position as 'a student in the Netherlands' to emphasise my position as 'an intern at Deltares', to gain access to certain actors that would have otherwise protracted my data collection process. Deltares, which works closely with Dutch government agencies and other foreign governments, facilitated my access to the development practitioners and FACE, as well as hastened the interview process with the Municipality of Beira. Although I stressed my association with Deltares to certain actors, I maintained my identity as a 'student', to manage their expectations of my knowledge of Beira.

In relation to my RAs and interlocutors, I could identify my privilege, specifically the language. I am well versed in English, the language in which this research is written and the official dominant language in which global interactions, communications and transactions transpire. My RAs, on the other hand, are more proficient in Portuguese, the official language of Mozambique, than English. I became increasingly aware of this privilege during a few scenarios: when my RAs would apologise for not being able to communicate or construct well certain lines in English (during formal and informal interactions); when some RAs relied on their colleagues to translate their responses from

Portuguese to English; and when they used AI platforms to translate their thoughts in Portuguese and accurately communicate them to me in English. Their intention was to communicate the context, the "tacit knowledge, local vocabularies with local meanings" (Schwartz-Shea and Yanow, 2012) accurately amid the fear of 'getting lost in translation'.

It prolonged my 'sense-making' process, especially since I was miles away from where the context and meaning-making were happening. One of my RAs recounted that as they explained the details of my research to the participants, the latter enquired more about the research than the researcher. This prompted me to situate my role as a researcher at the periphery of the arena where my research was taking place. My positionality is something that Banks (1998, page 8) terms as an "external outsider", who has not integrated with the community being studied, and has limited or no knowledge of the context. My limited knowledge (with second-hand information and context) about Beira and my research topic evolved when RAs entered the picture, and later reached a substantial stage (but not thoroughly and extensively) after the data analysis. Besides this, there was nothing that connected me with the majority of the local population – language, ethnicity, social class or shared experience.

Hence, as a researcher, I oversaw the progression of a community-engaged research, sitting miles away from the research site, through my RAs. They, in turn, have the privilege of an education, a job and some financial incentives (from the researcher) to carry out the research, in relation to the interviewees. This position, as an external outsider/sense-maker *at the periphery* of the research site, observing the participants from a distance, came with a determining responsibility to not distort or misrepresent the interview responses during sense-making (Banks, 1998; Schwartz-Shea and Yanow, 2012). This was attempted when framing the questions along with my RAs (as described earlier), encouraging them to ask or tweak questions to fit the context, and validating my findings with my interlocutors. It also meant frequently keeping a check on my unconscious biases and abstract understandings and perceptions of certain concepts throughout the research journey. While I tried to be as consciously reflexive as possible, the helpful guidance from my supervisors served as a check on any biases that (may) have been unconsciously at work and influenced my research (Probst, 2015, page 46).

3.4 Limitations

In this section, I will summarise the three main limitations. The interview questions and responses transitioned between three languages: English ⇄ Portuguese ⇄ Ndau/Sena. The data were *collected* in two of the local languages of Mozambique, *translated* using machine language, and *analysed* in English. As an outsider, the end was equally crucial as the means (especially being cross-language research), lest "the meaning-transfer-chain may resemble the whispering game children play" (van Nes et al., 2010, page 315) where a fabric of the word frays during the transition. While acknowledging this limitation, I attempted to attenuate the risk of mistranslation during the translation phase (to English). I frequently consulted the RAs and interlocutors for clarity and to validate the accuracy of certain translated words and phrases.

Since a majority of the research participants are community leaders, who chose the residents, the possibility of bias or presenting select information in the responses cannot be ruled out. While the interview period coincided with the election campaigns in Mozambique, it cannot be said with certainty if this would have had any degree of influence on the responses. The lack of monetary benefits may have impacted the participation or engagement with the research, as Bain et al. (2022) found this aspect as one of the barriers to effective community participation in a project.

Chapter 4

'When it floods, we dig... because ditches give life': Findings from Beira's informal settlements

> *"We are not crying out for help every year because of flooding. We already know that we have a way to take the water to the main drainage" — Resident and Community Police, Munhava Maraza, 31, Male.*

This is the story of the residents of Beira's informal settlements, of what they do when there are warnings of rains, storm surges and cyclones. Because, when it rains, it floods. With each *inundações* or *cheia* (flood), they experience *sofrimento* (suffering, or hardship). However, they respond to their suffering by creating self-made drainage systems to divert the water. The empirical findings in this chapter are only an introduction to what residents do to mitigate floods.

4.1 Identifying the Risk

For some, it was the year 2000. For some others, it was 2009, 2016, 2019 or even when Mozambique was still under the colonial rule of the Portuguese. These periods were marked by catastrophic hydroclimatic events (storms, cyclones and heavy rains). In almost every case, water entered the houses, especially those located at a lower elevation. Some families evacuated their houses to safer locations, while many others remained in their houses. In the latter scenario, residents survived for days in their flooded houses, on raised platforms. A few lost their lives, while most of them lost their food provisions to the water. Eventually, residents figured they needed to prevent water from entering their houses; it was risky. Today, they recollect these distressful moments as a thing of the past.

> "In those days, water filled our houses. It was a moment of suffering for us; our hardship was inside the house. Some kept their children on the table. Some woke up to find their children already dead because of the water. We used tables to set up a small provision to cook our food. However, sometimes, we would wake up to find that our food is gone. There would be no flour or rice; water takes everything with it. We go hungry. Sometimes, we had to leave our house and go to schools (shelter camps) for three or four days. But when we returned home, thieves would have already taken our belongings. That was the hardship we suffered... inside the house. Over time, we studied there are big ditches (primary and secondary canals). There are also small ditches. So, we have been making small ditches to connect to the big ditch, and cleaning the existing small ditches to drain the water into the big ditches. That way, when it rains, the water does not enter our houses anymore, nor does it stay in the yard, nor do we have to go to schools. So that is good for us" — Chefe de Quarteirão (Leader of Block), Munhava Central, 48, Female, Domestic worker.

In Mozambique, houses have a cultural significance, especially if one owns them.

> "In Mozambique, there is a sense that house is our priority. Even young people want to own a house rather than pay rent. Owning a house is tantamount to being successful. If you do not

> own a house, you are not considered successful, irrespective of your income. As long as you have a house, you can travel and have beer. It is about image perception" — Interlocutor 1.

Out of the 47 low- to middle-income participants, 42 owned houses. Some run their commercial businesses from their house. Besides, it takes several years to build a house, starting from 'buying the land' to gradually buying other materials (Interlocutor 1; Earle, 2014, page 640). So, keeping flood water out of their houses and yards was a priority.

Beira residents interpret three possible risks from prolonged inaction: they would have to take refuge in schools or relatives' houses; they would lose their belongings to the waters or thieves; or they would have to sleep, cook and eat on a table till the water receded. The assessment of these risks was a motivating starting point to divert water away from their house.

4.2 The bricoleurs' tools and materials

Considering these risks, the residents create a drainage system "with our hands and tools" (Chefe de Quarteirão, Nhaconjo, 54, Female). It comprises three components, or strategies: (1) dig ditches or trenches to divert or channel the water (Figure 5); (2) elevate and fill their yards with materials such as sand and rubble to prevent water from entering houses; and (3) use tyres, sandbags and mounds of shrubs to reinforce the house perimeter, and as a stepping stone to cross stagnant water. Participants used the word *valas* (ditches) to describe the tertiary canals that they created.

When there is a rain or storm warning, most families first reinforce the roofs with sandbags, place buckets below the leaky parts of the roof, and close septic tanks. The bricolage then extends to sourcing materials to dig a ditch or fill the yard.

To create these ditches, the residents follow the water. "It always shows its sign" (Chefe de Quarteirão, Munhava Maraza, 60, Male). They observe the flow path of the rainwater into the main canal or areas where it stagnates. That is where they dig a ditch. Next, residents gather all tools at home: hoes, shovels, rakes, wheelbarrows, gloves and masks. Some borrow from their neighbours.

The next (or sometimes the alternative) strategy involves levelling or elevating the ground level. For this, residents look to their surroundings for inspiration and collect whatever materials they can find: rubble, stones, solid waste such as plastics and clothes, construction materials and sand from the streets. Since sandbags are unaffordable for many or when they lack enough sand to fill the yard, residents bury garbage in the ground to raise the level of the land. It must be noted that residents who elevate their yards reported experiencing flooding, so they still dig small ditches. Some adjust the height of the elevation to avoid water flowing into the neighbour's house; although it requires some reminders from residents and neighbourhood leaders. Low-income families, who cannot build walls, use shrubs or vegetation as walls to ward off water.

After attending to their houses, residents then open new ditches as well as clean existing ditches of waste in their neighbourhood. Some volunteer, while others are encouraged to join through awareness and convincing. They remove plastic waste, silt and other potential blockages in the ditches. They pool in the same set of tools, including a pair of boots, to create or clean the ditches.

> "Almost everybody in Beira owns a pair of boots because of the flooding. Even if they are not involved in cleaning drains, it is common to see people carry them in a bag and wear them when stepping out onto the streets" — Interlocutor 1.

When in dearth of tools and materials, residents approach the neighbourhood leaders, who either share ideas, provide tools or, in turn, approach the municipality.

Figure 5: A tertiary drain, where sand and vegetation are used to reinforce the drain. Source: FACE.

Besides these ad-hoc measures, middle-income families raise their houses (van Mannen, 2023; Knoop, 2023; Interlocutors). Incidentally, none of the research participants undertook this measure. Sometimes, residents double sandbags, tyres filled with sand, and wooden planks as a bridge to cross a pool of stagnant water, or walk across a ditch (Figure 6, 7). Participants deemed this crucial for three reasons: fear of contracting diseases (cholera and malaria), not being able to step out for work, and children unable to step out to play.

Sometimes, residents look beyond their houses and immediate neighbourhoods to mitigate the flood impact. Any area that could potentially cause stagnation, and, in turn, impact them, is considered an area of intervention, such as pothole-ridden roads where heavy trucks ply. Residents, sometimes, chip in their own money to buy sand and fix the road.

> "After informing the neighbourhood leaders about the road, the municipality started repairing it, paving sand on the surface to close the potholes. But it was not spread well in many places. Then, we spread the sand uniformly to avoid waterlogging" — Resident, Manga Mascarenha, 33, Female.

This was something that Schubert (2024), too, noted in his research in Beira: the concrete casings for the small canals built by the municipality "often runs out at the point where the budget ran out, and hand-dug canals take over" (page 39).

Figure 6: A wooden plank serves as a small *ponte* (bridge) to pass over ditches and stagnant water in Manga Mascarenha. Source: FACE.

Figure 7: Tires filled with sand are used as a passageway in waterlogged areas. Source: FACE.

Researchers attributed the origin of such practices and ideas to the agricultural practices of Mozambique. Beira, particularly, had rice agricultural fields, before the land was urbanised (Shannon et al., 2021). Farmers knew how to separate fields, and block and drain water as part of the rice cultivation practices (Personal Communication 4, 2024). This knowledge was then passed from generation to generation (Interlocuter 2).

However, the research participants could not pinpoint the origin of their knowledge about these practices and ideas: 'We just know' and 'It just happens' were some of the common responses. One interviewee mentioned taking inspiration from the large formal canals.

> "We have seen those larger drainage ditches in some larger areas (formal parts of the city). We use this as an example and get an idea of how to make smaller ditches" — Resident, Manga Mascarenha, 33, Female, Small-scale entrepreneur.

4.3 The social process of creating ditches

The previous sections explained (what is) the creative process behind the handmade ditches. This section will give a peek into how it happens; i.e., the social process.

4.3.1 The assembly of actors

If a resident wants to dig or open a ditch in their yard, they are expected to apprise the neighbourhood leaders and/or neighbours. Participants said this is to ensure the diverted water does not flow into the neighbour's yard, and to avoid conflicts later. To initiate a collective project of cleaning or digging ditches, too, residents inform the neighbourhood leaders. While no 'approval' is required, residents are expected to inform the chef de quarteirão, who is in charge of the block, and is more accessible and familiar among the residents than the other leaders. In some neighbourhood blocks, community leaders, particularly chefe de quarteirão and secretário da unidade, too, mobilise residents to clean ditches. In both scenarios, the participants said residents take the lead in cleaning and creating the ditches, while the leaders guide them by mobilising more people and sourcing materials.

> "I can create my own initiative with a friend and we clean the existing ditches and open new ones. The secretário (de quarteirão) guides, but the whole community does the process... Normally, we dig during weekends. We invite all residents to take part, and they come with their own shovels, hoes, rakes and picks. If a resident does not have the time to take part, they contribute an amount of 5 or 10 MZN (Mozambican Metical) to encourage those who are doing the work" — Resident, Manga Mascarenha, 52, Male.

However, not all residents seemed to inform the neighbours or leaders. For example, a resident of Munhava Maraza (28, Male) said if opening a ditch is possible, he would go ahead without asking permission; "it is normal". A chefe de Quarteirão from Nhaconjo (34, Female) also said that residents could open ditches voluntarily, without informing the block leader; "no problem". Two interviewees said they do not participate in the cleaning activity as it is the municipality's job.

Other actors like the central government bodies, not-for-profit organisations (FACE) or community-based organisations, too, enter the arena with financial support (sometimes from donors) for community projects like cleaning ditches. When the neighbourhood leaders receive such support, they mobilise volunteers (unemployed and women who lost their husbands).

However, financially supported projects never last, and volunteers could be selected based on party politics.

> "During cyclone IDAI, many in Beira received financial and material (food, water) aid. If the donation or aid came from the central government, priority was given to FRELIMO loyalists. If it came from the municipality, they use the community leaders to give priority to those loyal to their party (MDM). This is, of course, unofficial. You hear about this when people complain they did not receive aid. And most donors, who contribute lumpsum aid, approach the central government or municipality directly" — Interlocutor 1.

The neighbourhood leaders who took part in the research did not mention receiving any financial support from the municipality to undertake such initiatives. The Beira Municipality, too, confirmed this, citing a lack of funds.

> "Communities do not have the formal responsibility to maintain tertiary canals; the municipality does. People do clean channels in front of their houses. Sometimes, neighbourhood leaders mobilise community-based and non-profit organisations to clean the channels in coordination with the municipality. But if residents have an idea for their neighbourhood, like cleaning or making a ditch, they contact the *formal associations* within the neighbourhoods (the CBOs and NPOs), who, in turn, write a letter to the municipality to carry out the activities. The Mayor then informs the neighbourhood secretary of this. But the municipality does not fund these activities. The local organisations sometimes contact international organisations such as UNICEF to finance small activities like cleaning the canals, repairing roads or other disaster risk management activities" — Interview, 2024.

Figure 8: *Resident-volunteers cleaning tertiary drainage canals organised by FACE. Source: FACE.*

4.3.2 The Decision-making

Like the traditional community governance system in several rural regions of sub-Saharan Africa, the informal urban settlements in Beira, too, follow a similar governance system. Besides resolving conflicts (theft or fights among couples), the digging and cleaning activities, too, often undergo community decision-making processes. Neighbourhood leaders convene meetings with residents or individuals concerned to resolve conflicts and to make important decisions, particularly when rains are in the offing. The research participants reported that such meetings are organised frequently: every month, every week or every 15 days, and that they receive information about it through WhatsApp groups, or the leaders go door-to-door to inform them.

> "We have to try to improve the situation, and that is how we organize ourselves... The priorities come from the needs of the community. So, when there is a problem, like a flood, we hold an urgent meeting to see what we can do. And we do it together" — Chefe de Quarteirão, Chota, 35, Male.

Before making a decision, the participating community leaders said they try to raise awareness of a particular situation and create consensus among residents.

> "The decision has to be made by the majority because I can say that a ditch has to be here. However, older people, who have lived here for a long time, can say 'yes, we need a ditch, but the ditch used to pass through another location'. So, using this explanation, the neighbourhood begins to decide" — Secretário de Bairro, Munhava Maraza, 45, Male.

However, although the meetings are open to all, some do not attend unless they have anything to gain from them, or if there is a common interest. This is reflected in how residents of Beira imagine 'community'. While they used words such as "good", "united" and "co-existence" to describe 'community feeling', they were followed with a sort of disclaimer that not everybody participates in cleaning.

> "People here are looking for ways to put food on their table. If they see they have nothing to gain from these meetings (incentives), they do not get involved. As long as there is a common interest, people will come together. For example, there was a bar in my area, where people were making a lot of noise at night. As residents, we organised into a group to collect signatures to collectively solve the issue. I joined this group because it was in my interest. There was another group for election campaigns, but I did not join it because it was not in my interest" — Interlocutor 1.

4.3.3 The Negotiations

The participants recounted that attempts to mitigate flooding also involved negotiations among residents, and between residents and neighbourhood leaders. Some residents, especially those engaged in the cleaning activity, reported creating awareness about the importance of their work. "It (creating ditches) works when we talk, and the neighbours accept your proposition and agree to collaborate" (Resident, Manga Mascarenha, 39, Female, Childhood Educator). The neighbourhood leaders, too, engage in conversations about the problem and the consequences, besides encouraging them to adopt certain informal measures. Some follow, others ignore — the 'stubborn ones' (a term used by several interviewees).

The interviews offered a sense that opening ditches or making space for them seemed to be a non-negotiable aspect. This ties back to the issue of land for housing in informal settlements. The participating community leaders repeatedly stressed that irrespective of the declaração to build the house, it cannot be built on roads and ditches where "water needs its path" (Secretário de Undidade, Manga Mascarenha, 60, Female). The leaders, and sometimes residents, said they try reasoning with those building houses on ditches, urging them to stop the construction or revisit

their plan. When negotiations fail, community leaders sanction demolition[11] or call the police[12] to forcefully open ditches. Sometimes, an X is marked on such houses, indicating it is forbidden to build the house there.

> "Together with the secretary of the unit, we have gone and spoken to such families, and have managed to open a ditch. But the resistance is always strong and some people say 'no, you cannot do it here' (open the ditches); but with the force of the police, we have managed to open it" — Chefe de Quarteirão, Chota, 43, Male.

Although protecting their houses and families from stagnant water drives them, they expressed concerns and frustration over having to constantly negotiate for space to create ditches due to rapid urbanisation, and continued blockage in ditches due to lack of garbage bins.

> "Garbage collection trucks find it difficult to access informal settlements. Sometimes, garbage containers are placed near roads. However, for people who live far away, this means about a 30-minute walk to the container. As a result, they look for alternative ways to manage their waste, including dumping it in the drains, burning it and sometimes even into someone else's house" —Interlocutor 2.

[11] The Beira Municipality carries out demolitions. According to Interlocutor 2, they also pay some compensation, which is covered by projects that have some interest in the land. Some intentionally build on land designated for expansion for compensation, according to Interlocutor 1. However, sometimes, some are denied compensation in cases where they are accused of intentionally building on prohibited land to receive compensation, even though they received the declaração from the neighbourhood leader (see Shannon, 2019).

[12] According to a Chefe de Quarteirão, (Chota, 43, Male), in the recent years, the police have started intervening in stopping such constructions as they are able to access the informal settlements. Earlier, when residents reported robberies, it was difficult for the police to access such neighbourhoods as the lanes were narrow and had no proper access roads.

Chapter 5

The social project of commoning urban ditches: The Analysis

As empirical findings suggest, the handmade drainage systems are much more than a resource to divert stagnant water for the residents of informal urban areas, where "*design-led* (master planning).... frequently neglects the *human dimension*" that makes up the space (Lehmann, 2023). The ditches are the result of a social process, where people engage with excess water by lending meaning to it, and using their knowledge, rules, and social relations. This section offers an analysis based on three themes that could help answer my research questions.

5.1 The central, liminal and peripheral actors

Taking the theoretical route of assemblage helps understand the characteristics and capacities of the heterogenous actors that put together the 'whole', i.e., drainage system assemblage. "Properties of the whole... are the result not of an aggregation of the components' own properties but of the actual exercise of their capacities" (DeLanda, 2006). This locates the situated position of the actors involved.

The interviews yielded three types of actors: central (residents), intermediary (neighbourhood leaders) and peripheral (municipality and other organisations). They have been situated across a spectrum of the assemblage, primarily based on the level of autonomy in designing the process of creating and maintaining (commoning) the ditches.

Residents take a central role in converting their ideas into action. The residents sometimes take the initiative to convince other residents to dig or clean the ditches. Even though the social rule is to consult the neighbourhood leaders, the residents sometimes form their own ideas, decide among themselves and then present them.

On the periphery of this social project are actors like the municipality, CBOs and NGOs. They join other actors in supporting the activities with material, knowledge and administrative resources. Although, such organisations need to follow the rigidity of paperwork (even for clean activities) to enter the arena of the social project (like how I, as a researcher, needed a letter to study this project).

Between the central and peripheral actors are the intermediary actors with liminal qualities: the neighbourhood leaders. Liminal actors are often "neither here nor there... between the positions assigned and arrayed by law, custom, convention, and ceremonial" (Turner, 1995, page 95). They have hybrid identities, "ambiguously positioned by structures" (Rumelili, 2012, page 497; Saward, 2019). Although the leaders hold administrative powers and certain influence, they are also residents of the same neighbourhood, with similar socio-economic backgrounds (some leaders are unemployed or work informal jobs). Some of the participating leaders, too, shared their stories of 'suffering' due to the floods and storms. On the other hand, the neighbourhood positions are political positions, too (Interlocutor 1) designed by the State. Leaders are often involved in election campaigns because they are aware of people's political leanings, and can influence them accordingly.

Thus, there are no heroes in this assemblage. Both residents, along with community leaders, become agents in commoning the ditches, and exert some influence in the process, thus diffusing or decentralising power at a micro-level.

5.2 The social rules and decisions

There are no fixed rules or procedures to put together the drainage system, as bricolage is based on "local learning... local tinkering... local needs... than on plans.... or planned changes" (Van de Walle, 2014, page 11-12). Such local context-based learning is also applied to making the rules for commoning (Ostrom, 1990, page 90). These are (social) rules that reflect "specific attributes of the particular resource" (ibid., page 92).

In Beira, three social rules of commoning were identified. One, when creating ditches and raising yards, residents should either maintain a certain level lest it floods the neighbour's house, or consult with neighbours to agree on the height. Two, residents cannot build houses on ditches as it leaves no space to create new ditches or divert water. Three, residents are expected to inform the neighbourhood leaders to create or clean ditches. This rule stems from the existing social practice of securing the written *declaração* and *testamunha* from the leaders to build houses, open bank accounts or move to another neighbourhood. However, this rule has been adapted to a "good-fitting rule" (Ostrom, 1990, page 93) for enabling the commoning of drainage systems. Hence, no written affidavits are required in the flood mitigation process. Rules also "emerge as the outcome of interactions" (Partelow and Manlosa, 2022) between actors, as seen in the decision-making meetings, where residents can decide where to dig ditches.

However, as Ostrom (1990) reminds us, good-fitting rules do not mean all actors will follow them. Although the motivation to cooperate or participate in a collective-choice arrangement was ambiguous in Beira, they had a common interest in reducing waterlogging in the neighbourhood, as it (socio-economically) impacts them. Such scenarios often unfold in socially mixed communities — diverse incomes, social status, religion, and race — such as informal settlements, as Chiodelli and Mazzolini (2019) found in an informal settlement of Mozambique's Maputo city, where residents took the initiative to regularise the land (securing DUATs). The procedural cost to draw up a new urban layout was beyond the means of low-income members. So, the high-income members of the neighbourhood volunteered to cover their costs because of "the strong interest in the success of the regularisation process, and... to prevent the planning procedure from being halted" (ibid., page 173).

One of the characteristics of self-organisation in commoning is the absence of external intervention (Comfort, 1994; Ostrom, 1990), which necessitates motivating "themselves (or their agents) to monitor activities and be willing to impose sanctions to keep conformance high" (Ostrom, 1990, page 44). Hence, deviations in rules are followed by negotiations (awareness, conversations) — and sometimes, consequences, like demolition — by neighbourhood leaders and residents.

5.3 The power arrangement

The previous sections (5.1 and 5.2) set the stage to venture further into discussing power in the process of commoning the ditches. Taking inspiration from Partelow and Manlosa's (2022) work on the importance of power in understanding commoning, I note the four types of power in my

empirical findings: 'Power over', 'power to', 'power with' and 'power within'. I define power here as the agentic capacity of an individual to act on a situation with a certain degree of independence.

'Power over' is "the capacity to influence, coerce, or force others contrary to the latter's will overtly or covertly" (ibid.). Beira's informal urban settlements lack formal tertiary drainage canals, due to a lack of space, political will and growing donor-led development ideas and plans for unplanned spaces (Shannon, 2019). Both indicate the State's and the municipality's power over those residents who occupied unplanned areas without legal documents and thus face the looming threat of eviction (Atkinson, 2024). These power dynamics force them to create their own urban commons. The State does offer some (financially) incentivised opportunities to take part in commoning activities, but the politically-motivated 'power over' often decides who gets to participate.

It is, however, the 'power to' that interests me, as it helps explain how the 'powered over' responds in countering the zero-sum game (an increase in one's power reduces the other's power). "Power to, is the generation of abilities by individuals or groups to choose, act, and realize desired outcomes" (Partelow and Manlosa, 2022). By choosing to create and maintain their own drainage systems, the residents respond not just to waterlogging, but also to the absence of the State (i.e. formal drainage systems). The responses also showed their 'power to' make decisions in commoning activities. These actions are supplemented through other forms of power. When individuals come together to collectively clean and create ditches by pooling their tools, it becomes 'power with' where they "amplify their voices to effect change" (ibid.). By protecting their house, which has a cultural significance in Beira, residents use their 'power within' that is tied to their "sense of dignity and self-efficacy" (ibid.).

Both 'power to' and 'power with', as the authors argue, can strengthen polycentric governance, which has "multiple, independent or semi-independent centres of decision-making" (Acton et al., 2021). In such forms of governance, which goes beyond government, "the main responsibilities to solve or prevent the tragedy of the commons rest partly, if not primarily, with individuals, citizens, and consumers... (and) the government should encourage" the actors in actualising their commoning autonomously (Iaione, 2016, pp. 431-432). This relates to what Partelow and Manlosa (2022) found in their case studies in Indonesia and the Philippines, where governments or those with power over capacities exert a positive influence on self-organisation. The "(coercive) power over a group is controlled or utilized in a way that lacks abuse of that power, fosters open dialogue and inclusion... to be recognized and valued in the relevant processes of governing despite the power differences".

Answering the sub-questions using the three sections (5.1, 5.2 and 5.3), it could be inferred that the commoning for drainage systems in Beira is a collective-action arrangement where residents are at the center of the action that allows them to express considerable agentic capacities and power to act, including rule-making, decision-making, sustaining motivation, and even to complete tasks that the municipality left incomplete (rather than let it be). The neighbourhood leaders facilitate and support the commoning with social rules, tools, ideas, motivation and sometimes sanctions. The municipality and other organisations are external forces of support in the process, although future research could delve into the role of CBOs and non-profit organisations in commoning.

5.4 The process of self-organisation

Here, I will attempt to answer the main research question: How and why do the actors self-organise in draining out the water? Self-organisation is the "reallocation of energy and action within a

system... to achieve a larger goal... in environments characterized by rapid change" (Comfort, 1994, page 394). Comfort (ibid) identifies four elements that make self-organisation possible in disaster environments such as flood-prone areas: communication, capacity to select or choose, internal influence, and working parallelly to achieve a common goal.

Communication: Self-organisation begins with communicative acts through verbal, electronic and written forms (ibid., page 396); not just to alert risk, but to initiate response. Being the initiators in most instances, residents meet and communicate among themselves. Using WhatsApp and door-to-door communication, the neighbourhood leaders call meetings to discuss the plan and facilitate the process. Negotiations and raising awareness, too, constitute communicative acts. Sometimes, as Comfort (1994) notes, communication could be "symbolic and nonverbal" (page 396) such as experiencing the impact of ditches. These acts are the "building blocks" of self-organization (Luhmann, 1986, as cited in Comfort, 1994).

Capacity to choose: Being active agents of their own learnings (or lives), participants of commoning use their 'power to' and 'power within' to decide if they want to participate. There are no penalties (except when they do not or cannot participate) or external influence. Their choice of participation is influenced by their individual motivation, needs and experience. It is the voluntary nature of self-organisation, Comfort (1994) argues, that enables "repeated interactions and aligning" around points of activities.

Internal influence: The handmade drainage system is an interdependent system, where the constituent units (residents and neighbourhood leaders) exert influence over each other. The tasks are interconnected by social rules that sometimes require leaders' support to influence other residents to participate and source resources from the municipality. What makes self-organisation an orderly and sustained process is that the internal influence is exerted within smaller units (unit-level or block-level), because "when the number of actors and the number of interactions among the actors increases..., the system is able to achieve only ever-poorer resolutions..." (ibid.).

Working collectively and parallelly: No same unit of actors engages in the same set of tasks or activities. They work collectively but parallelly, at different speeds and processing different information, "to achieve the desired goal of the system" (ibid.). For instance, during disasters, volunteers perform different tasks at the same time (collecting emergency numbers, raising funds, gathering aid and support, raising awareness or coordinating with the government) to ensure help reaches impacted people soon (Joseph, 2022). In Beira, while some residents engage in creating and cleaning ditches, others raise awareness. The leaders, too, sometimes clean ditches but primarily hold meetings and coordinate between residents, among leaders, and with the municipality.

Thus, a sense of order is evident in this disaster-related social practice, which is also established through repetition (creating and cleaning the ditches) amid the recurrence of flooding events. As Kauffman (1993, as cited in Comfort, 1994) notes, on the order to chaos continuum, self-organisation unfolds at the "edge of chaos", which is enabled by "sufficient structure (that)... allow participants to hold and exchange information, (and)... sufficient flexibility (that)... allow mutual adaptation among the participants to substantive changes in their operating environments". In essence, self-organisation is a "responsible action" in response to the "continuing entropy in organizational system" (Comfort, 1994, page 397).

Chapter 6
Reflections and Conclusion

As a student of development studies, this research taught me a crucial lesson: meanings and concepts are lived experience: "how the person recognizes and interprets the self-experienced experience" (Björk, Wiebe and Hallström, 2005, page 266). In answering my research questions, my aim was to understand how people experiencing the realities of disasters, translate their interpretations of the experience into action. In doing so, my objective was to locate their agency and their agentic capacities to act, which, I argue, is critical in understanding the conditions under which community-led disaster responses unfold.

6.1 Turning agents by responding

Climate change and development literature identify access to resources and information, social capital and good governance as a pre-condition to the adaptive capacities of communities (Adger, 2003; Pelling and High, 2005; Vincent, 2007; Grothmann and Patt, 2005). The role of agency is a less explored sociocognitive aspect of adaptation. Agency is "the capacity of an individual to act independently and to make one's own free choices... formed through one's experiences, the perceptions held by the society and the individual, and the structures and circumstances of the environment one is in" (Brown and Westaway, 2011, page 325). The experiences, influenced by social, economic, political and environmental contexts, may seem complicated and 'messy', but shape the decisions and motivation of people to engage in disaster responses. Their exclusion leads to "an emphasis on financial, technical, and institutional constraints as the primary determinants of adaptive capacity... (while) agency remains a "black box" (ibid., page 326). This, in turn, influences the design-led master plans, capacity building approaches and participatory techniques, which often remove "anything complicated, making people's lives and their social interactions linear and sterile as they fit into charts, diagrams and tables..." (Kothari, 2001, page 147).

In the case of an urban delta like Beira, floods have become quasi-event for the residents of informal settlements, "which occur in the context of everyday" unlike a one-time yet attention-grabbing event (DiSalvo, 2022, page 155). The houses and immediate surroundings become "the site of happenings" (ibid.) as they are "isolated from the (formal) structures that permit water flow" (Ley, 2022, page 236). As a result, excess water turns into 'stagnation' (water stops flowing). It is, thus, the stagnation (rather than the flood itself) that causes (physical, emotional, social and economic) suffering to residents by entering their houses, taking their food, claiming lives and threatening to displace and infect them.

Initially, residents *reacted* to their sufferings by evacuating their houses or enduring the stagnation inside their houses for days. Then, gradually, they *responded* to the suffering by converting the stagnation into flow through hand-made ditches. This births a hydrosocial cycle, wherein water not only "takes on meanings by virtue of its social circumstances" but shapes who people are in that context (Linton and Budds, 2014, page 173). In her paper, Ng (2016) refers to a similar scenario in Thailand, where the residents of Ayutthaya city decided to respond to the failed reactionary efforts of the government (who built impromptu walls using concrete and sandbags) during the 2011 floods. Though financially poor, they overcame the limitations (in disaster responses) by making incremental and cumulative architectural adaptations to their houses using

wooden planks and by sharing resources (ibid.). These are "forms of response – not resistance – to what they perceive and experience as unjust circumstances" (ibid., page 17). The transition from reaction to response is what Giddens (1984) describes as action, which demonstrates "the capability of the individual to make a difference to a pre-existing state of affairs or course of events" rather than "having no choice" (pp. 14-15). When individuals act, they become agents, who exercise some sort of power (ibid.) In this case, power manifests as the emergence of ditches, where agents turn bricoleurs. Even residents engaging in negotiations and creating awareness to gather more participants can be described as "proxy agency", which "relies on perceived social efficacy for enlisting the efforts of others" (Bergström, 2014).

If the production and reproduction of drainage systems as a commons resource is the manifestation agents' power, it varies with each institution, as the power arrangement in Beira's informal settlements underscores. I elucidate this using the assemblage theory, where Deleuze (DeLanda, 2006, pp. 10-11) talks about relations of externality. That is, each component (for example, the actors) that make up the 'whole' or the system can be removed and put into another system. However, the component's characteristics or autonomy do not change when switching between institutional fields; the relations or interactions do. In the land tenure assemblage, for instance, residents have the autonomy to seek DUATs or regularise their land. Components such as bureaucracy, high costs and social practice of trust in the *declaração* and *testamunha* from neighbourhood leaders do not change their rights or capacities (as seen in the case of Maputo's informal settlement) but make the *expression* of those capacities, or 'power to', challenging. The same actors, when they join the assemblage of handmade and drainage system, the interactions of components (rule-making, decision-making, bricolage) enable the expression of 'power to' as well as 'power with' and 'power within'. The assemblage theory, thus, helps make a socio-economic process like commoning a non-reductionist concept, that is, not reducing the individual components to the properties of the whole. This is an important consideration in disaster management, where individuals are often reduced to adjectives such as 'poor', "passive victims", "powerless spectators" and "coping actors" (McLaughlin and Dietz, 2008, page 100; Fabricuius et al., 2007) or concepts such as poverty and vulnerability, as their reference is in relation to their interactions with the (lack of) laws, rights, infrastructure or political will.

Though residents exercise their agency to respond, they do not see their drainage systems as fully efficient, but something they do to 'manage' the disasters. They gave no plausible reason why they thought their handmade drainage system was 'inefficient'. The perceived 'inefficiency' is, perhaps, rendered by the underlying idea of bricolage that bricoleurs create a new system without caring "about the purity or stability... of a system... rather (use) what is there to get a particular job done" (Mambrol, 2016), and "changes them whenever it appears necessary" (Derrida, 1981). That is how bricoleurs differ from engineers (or the master plans) who prefer stability and continuity in the system (Mambrol, 2016) versus the dynamic nature of the product and its production. In Beira, once the stagnant water has drained out, some residents close the ditch and reopen it before another rain, while many others open new pathways when the existing ditches have been blocked by new constructions.

Despite the perceived inefficiency, they still want government intervention in the form of more retention basins, like the retention basin in Maraza[13], as the water "drains out in an hour into the basin" (Resident, Munhava Maraza, 47, Female). It continues to indicate their agency, or capacity to decide what works for them.

[13] It must be highlighted that the construction of the World Bank-funded Maraza Retention Basin led to the eviction of 490 families (see Shannon et al., 2021).

> "Sometimes, the solutions come from outside, and do not take into account the reality here. The ideal would be to include the community in the discussion right from the start" — Secretário da Unidade, Nhaconjo, 63, Male.

6.2 Experienced meanings versus intuitive meanings

Amidst this determination to act, I could not help but notice the growing frustration and weariness in having to constantly act and protect their houses from stagnation. This became evident in how residents conceptualise resilience and 'living with floods':

> "When you live in very low-lying areas and after the area is flooded and you have no way of getting around, that is living with floods" — Chefe de Quarteirão, Munhava Maraza, 60, Male.

> "We cannot live with floods because it can make us sick. When we have stagnant water, it attracts mosquitoes, and we get sick with malaria and cholera... Adapting is not possible. It is not possible" — Resident, Munhava Maraza, 45, Female.

> "Being resilient means doing things to protect your house, so that it does not fall down, and the water does not enter your house" — Secretário da Unidade, Munhava Maraza, 55, Male.

> "To be resilient is to endure even though things are difficult. To work with faith, to give morale to people, even if it is not possible" — Secretário de Bairro, Nhaconjo, 62, Male.

These are social imaginaries of 'resilience' that counterbalance some of the widely applied mainstream definitions. As Adams et al. (2015) argue, "Social imaginaries are irreducible to meanings alone"; it includes "other dimensions of the human condition... such as power, action/social doing, and/or institutions" (pp. 19-20). It takes a "context-oriented approach" rather than relying on rational imagination (Bottici, 2019). It is a daunting task to impart meaning to lived experiences based on a set of guidelines and indicators. Perhaps, that is why some of the (academic and grey) literature cannot describe 'living with floods', but makes associations with resilience, vulnerability and adaptation.

In juxtaposing the flood-facing residents' definition of resilience, for instance, with those by international development and aid agencies[14], policy-makers, practitioners and academics, two aspects are particularly missing: agency and exhaustion.

Development programmes 'offer' resilience through technology, finances, infrastructure and institutional building[15] (Oliver-Smith, 1996). While these are undeniably critical components for a city and its people, the focus is on institutions rather than individuals. Resilience, which is often given "relatively intuitive meaning", is romanticised through its association with the "rigidity, stoicism and self-sacrifice" of people experiencing disasters (Béné et al., 2012, page 45). Consequently, such definitions have come to connote positivity, discounting the other side of continuing to be resilient, such as "the violence of enervation, the weakening of the will..." when

[14] The United Nations (2020) defines resilience as: "The ability of individuals, households, communities, cities, institutions, systems and societies to prevent, resist, absorb, adapt, respond and recover positively, efficiently and effectively when faced with a wide range of risks, while maintaining an acceptable level of functioning and without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all" (page 11). According to the World Bank Group (2021a), "Resilience is the capacity to prepare for disruptions, recover from shocks, and grow from a disruptive experience".

[15] For instance, the Beira Master Plan 2035 does not explicitly define 'resilience', but is a key word in the programme, which is mentioned in relation to the city: "improve resilience of Beira to flooding and climate change..." through hard infrastructure, such as drainage, road and railway infrastructure (van Weelden, 2013).

people endure "quasi-events that saturate potential worlds and their social projects" (Povinelli, 2011, pp. 13 and 132). A sense of exhaustion and "resigned acceptance of misfortune" (Coulthard, 2012) from enduringly engaging in bricolage measures emerged as the residents described what it meant *for them* to 'live with floods' and be resilient. Power, agency and well-being, too, are often absent from such definitions, where "the ability of the 'system' to recover from shocks" is championed over people's "freedom to negotiate... their own resilience" (Béné et al, 2012, page 12). Such prolonged self-help efforts also run the risk of the State misinterpreting agency by furthering its agenda to remain completely absent or disengaged in the assemblages of informal urbans. As Bottrell (2009) asks, "How much adversity should resilient individuals endure before social arrangement rather than individuals are targeted for interventions?" (page 335).

When such intuitive definitions are applied in real-world development and humanitarian practices, the interpretations of those impacted are "assumed to be uninformed, false, illusory, or irrational" (Oliver-Smith, 1996, page 319), which then forces a contestation between 'real' versus 'perceived' risks (Dove, 2008). Risk perceptions emerge from *experiencing disasters*. To the residents of Beira's informal spaces, abandoning their houses is a perceived risk, as opposed to the 'rational' risk of not abandoning houses during floods. In such a 'rational' versus 'irrational' scenario, it makes me wonder whose risk is being prioritised if risk *reduction* is the goal? It becomes a futile exercise when socio-political contexts, which *directly interact* with disasters, are filtered out. And, not reading the picture in its socio-political entirety "reinforces a normative discourse that reflects a group consensus on what is usual and ordinary, while the complexities and 'messiness' of most people's everyday lives is filtered out" (Kothari, 2001, page 147).

This also explains why respondents could not pinpoint the origin of their knowledge, or even explicitly recognise it as knowledge. The impacted actors internalise their knowledge — what they know, how they know and how they do it — when it gets embedded in their everyday (Easa and Fincham, 2012). They then, Dekens (2007a) argues, take such experiential (knowledge gained through one's experience) and transmitted knowledge (knowledge gained through stories, poems, songs and religious practices)" for granted. Such internalised practices gradually become fragmented that it becomes "difficult for people to talk about what they do to prepare themselves for disasters" (ibid., page 29). And such a complex process of oral transmission or knowledge internalisation could invisibilise relevant knowledge to "outsiders and even to some extent to insiders" (ibid.).

The case from Beira shows why "we need to let theory flow from peculiar places.... where water flow is less straightforward" (Ley, 2022, page 241). Rather than "a priori concept formation", it allows "concept development" grounded in agency, social contexts (socio-political, socio-economic and socio-environmental), and the often-missed element of exhaustion (from aggrandising resilience without a humanly possible threshold) (Schwartz-Shea and Yanow, 2012).

I join the argument that agency-based self-help efforts should supplement and complement planning and policy-making (Berner and Phillips, 2005; Ley, 2022; Baulch et al, 2021). International programmes should consider adopting community-led practices as a "complementary way of knowing..." (Baulch et al., 2021), instead of 'intervening' (which could put away experiential knowledge as odds and ends) or pursuing prescriptive approaches where impacted communities have to adopt a top-down and scientific worldview. As Boven and Morohashi (2002) reminds, "There is of course no universal recipe for successful interventions, but before any interventions are designed and applied, there should be a commitment to understanding the cultural and socio-economic context of the area, the people, and their livelihoods and traditions" (page 176). This

could help the international practitioners "adjust *their* information and capacity-building activities to local perceptions" (Dekens, 2007a, page 43, emphasis added).

6.3 Conclusion

With this research, I wanted to take the reader behind the scenes of a social project found between the narrow spaces of houses in the informal urban settlements of Beira, Mozambique. Like the informal settlements *in* and *on the fringes* of urban spaces across the globe, flood-prone Beira, too, lacks the necessary infrastructural support, such as tertiary or neighbourhood drainage systems that divert water away from areas of residence into the main water channels. Initially, residents of these settlements *reacted* to the floods by leaving their houses to take shelter in safer places, or by staying back in their houses and sleeping on tables. The latter, however, almost inevitably led to moments of sufferings, where residents lost food, and sometimes, their loved ones. Eventually, the residents started *responding* to the presence of water stagnation in their houses and yards and to the absence of formal drainage systems in their neighbourhood. Their response was a handmade drainage system.

They create ditches, raise yards and create barriers to divert water away from their houses and neighbouring areas. They use all tools and materials at their house and from their surroundings: tyres, garbage, sand, vegetation, sandbags, rakes, hoes, shovels and boots. The empirical findings showed that this project is motivated by certain socio-economic reasons: protect houses (which carries cultural significance among the residents), step out of the house to earn, and protect themselves from diseases caused by stagnant water.

However, these drainage systems are much more than a mere infrastructural resource. This research highlights the social side of these drainage systems: central and intermediary actors, social rules, decisions, power, negotiations and consequences. It was found that residents take the lead and initiative in sourcing all materials and tools to create and clean them frequently or before rains. They decide where to create the ditches based on observed patterns of water flows in past rain events, and acquired knowledge that their small ditches must connect to bigger canals to expedite the drainage, although this is not always possible due to the lack of sufficient bigger canals and retention basins. The respondents said that the neighbourhood leadership structure, comprising leaders at neighbourhood, unit and block levels, guides them in building and maintaining these structures or convincing more residents to join the effort.

The community governance around these handmade structures (or commons) is guided by certain social rules, which are found to be more consultative in nature and made over several interactions. For instance, when raising yards to divert water, residents should consult with neighbours and negotiate when needed. Unlike the general practice where residents must seek permission from neighbourhood leaders to build a house or acquire written statements (declaração and testamunha) for services like opening a bank account, to create drainage systems, residents are expected to inform the leaders. However, responses indicated that residents made the decisions first and then informed leaders, or dug a ditch without informing, all of which the leaders were aware of. The Beira municipality, which does not have funds to support such activities, has almost no role or influence in the process. In fact, it was found that the residents chipped in and voluntarily completed the municipality's incomplete work, as it directly impacted them.

The primary objective of the research was to situate *agency* of those experiencing and responding to disasters, which is often filtered out in development and humanitarian planning. The findings suggest that the residents exercised their agency by actively and consciously responding to the

deficiencies of informal urbanism and environmental threats, with full knowledge and awareness of their experienced risks and limitations. Unlike the perceptions of "powerless spectators" and "coping actors" (Fabricius et al., 2007), they are empowered to act (without being empowered by external agents), which is "a consequence of the capacity for governance and the capacity to adapt, rather than a starting point" (ibid.). It also showed that agency and power to act are immanent in all individuals, but it is the varying socio-environmental settings that either challenge or enable their ability to express their agency – for instance, their ability to make choices for themselves in informal land tenure process versus creating ditches. Hence, the ditches are an expression of the residents' agency to choose how to respond, using what resources, and within the social institutions within their neighbourhoods. With a tinge of exhaustion palpable in their voice, the residents want the municipality and donors to support and work with them.

In engaging in this exercise of spotlighting agency using Beira's case, I argue that States, development agencies and practitioners designing intervention and development strategies should actively engage, support and work *with* communities, rather than the latter work with (and for) the former. Understanding such complex socio-political contexts helps practitioners to identify and approach those actors who function at a micro-level and have a key role in enabling community approach. For such drastic change, a bottom-up approach is a starting point. Or as my interlocutor 1 put it, "Solutions should first be designed in the field and then taken to laptops, not from laptops to the field."

6.4 Future research

Given the constraints in doing fieldwork, I identify certain limitations in this research. Future research on disaster responses could delve deeper into the power relations within the informal settlements of Beira; gender dynamics among the leaders and with residents; and the role of CBOs, through participant observation or other ethnographic approaches.

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Details of personal communication and informal interviews

1. Personal Communication 1, a project lead at Deltares in the Netherlands (May 2024).
2. Personal Communication 2, a Netherlands-based flood-risk advisor who works on projects based in Beira, Mozambique (May 2024).
3. Personal Communication 3, a humanitarian practitioner in the Netherlands (June 2024).
4. Personal Communication 4, a Maputo-based scholar in Mozambique (August 2024).
5. Interview, Director of Coastal Protection and Disaster Risk Management, Conselho Municipal da Beira or Beira Municipality (September 2024).
6. Email Communication in Portuguese (translated using DeepL), Director of Coastal Protection and Disaster Risk Management, Conselho Municipal da Beira or Beira Municipality (October 2024).

Annexes

Annex 1: Letters to and from Beira Municipality

1. Letter by Associação FACE appraising the Beira Municipality of my research in the city.

Associação FACE de Água e Saneamento

Para: Gabinete do Presidente do Conselho Municipal da Beira

Assunto: Pedido de permissão para realização de entrevistas com líderes comunitários na componente de Inundações e Valas de Drenagem nos bairros para uma pesquisa de mestrado de Estudante e Pesquisadora da Holanda.

CC: Serviço Autonomo de Saneamento da Beira (SASB)

Ref: FACE/HD/09 **07 de Agosto de 2024**

Exmo Senhor Presidente do Conselho Municipal da Beira,

A Associação Face de Água e Saneamento, uma organização não-governamental moçambicana dedicada a contribuir para o desenvolvimento do país, nas áreas de água, saneamento, higiene, adaptação, mitigação e resiliência as inundações, gestão de resíduos sólidos e meio ambiente.

A FACE nos últimos anos tem desenvolvido estudos referente as valas de drenagem para intensificar o conhecimento sobre elas e identificar melhor forma de contribuir para a resiliência as inundações das comunidades, e temos recebido alguns estudantes holandeses para realização de estudos.

Para a realização da actividade da estudante Holandesa, da International Institute of Social Studies (ISS), Erasmus University, centrada na governança comunitária relacionada às redes de drenagem. A FACE vem através desta carta solicitar a V.Excia a autorização para a realização deste estudo e para que possamos colaborar com os chefes dos postos, secretários dos bairros e chefes das unidades.

Em anexo a nossa carta, a carta escrita pela responsável pela pesquisa.

Antevendo o parecer favorável na colaboração e no envolvimento do Conselho Municipal da Beira, endereçamos os nossos antecipados agradecimentos.

Beira 07 de Agosto de 2024

Hélder Domingos
(Director Executivo)

Em caso de necessidade favor contactar Juvícia Gomes, Tel.:. 867155760- Técnica, E-mail: Juviciagomes@associacaoface.org.mz.

Serviço Autonomo de Saneamento da Beira
SECRETARIA GERAL
Entrada nº 817 Saida nº .....
Beira, 07 de 08 de 2024
Assinatura .....

07.08.24

2. Letter from the Beira Municipality acknowledging the information about my research.

MUNICIPIO DA BEIRA
CONSELHO MUNICIPAL
GABINETE DO PRESIDENTE

Exmos Senhores:
Associação Face de Água e Saneamento

N/REF: 2631 /MB/CM/GP/049/2024 Data: 06 /Setembro/2024

Assunto: **COMUNICAÇÃO DO DESPACHO**

Para conhecimento de V.Excia e efeitos julgados convenientes, cumpre-me comunicar que pelo despacho de 03 de Setembro de 2024, do Exmo Senhor Presidente do Conselho Municipal da Beira, exarado sobre a vossa carta n°FACE/HD/09, datada de 07 de Agosto de 2024, que: **Foi autorizado o pedido de realização de entrevistas com líderes comunitários, dos quais, Chefes dos Postos, Secretários dos Bairros e Chefes das Unidades, na componente de inundações e valas de drenagem nos Bairros, a estudante pesquisadora Shiba Kurian, para conclusão da tese de Mestrado.**

Cordiais saudações.

O Chefe do Gabinete

Basílio Luís Jone
/Técnico Superior N1

C/c:
- Assistencia aos Postos Administrativo e Bairros Municipais.

JAJ/JAJ

Annex 2: Notes from Beira

Beira's neighbourhood leadership and (hidden) power dynamics

The neighbourhood leadership structure in the city of Beira is a case of bottom-up governance, where the roles do not have distinguishable power. The hierarchy is more structural in nature, constituted based on the proximity to the residents. A household's first point of contact is chefe de quarteirão1 (leader of a block). "The block secretary is the one who knows the people who live there, as they are neighbours" (secretário da unidade, Munhava Maraza, 54, Male). The chefe de quarteirão, who takes irresolvable matters or those that need consultation (conflicts or documentation work) to chefe da unidade (leader of a unit), and then in turn, secretário de bairro (leader of a neighbourhood).

Beira Municipality defines the roles of each leader in broad strokes: "Their role is to assist the local communities in matters of administrative procedures and acts, and to issue information and guidelines from the municipal government, as well as to listen to and convey the concerns of the residents to the government structure at the top" (Email Communication, 2024). The only distinguishable characteristics were the salary (which only the neighbourhood secretary received from the municipality) and that the neighbourhood secretary took the final call. However, responses showed that the hierarchy was representative of flow of information from residents to the neighbourhood secretary. Each role was hierarchically placed not based on privileges and power, but for consultative purposes. For the interviewed leaders, following this hierarchy was important, for building a house or even cleaning ditches.

> "The bottom-up structure works here, that is, from the smallest leader to the highest officials. It is easier. Let me explain why. When you need to enter a zone, there is no point in calling the neighbourhood secretary if I am the block leader. That is my job. Present it to me; if I cannot handle it, then I will call the unit leader and ask for better explanation or give me good information" — Secretário da Unidade, Chota, 38, Female.

The existence of power struggle between the municipality and neighbourhood leaders, too, became apparent in the interview process. The frustration was palpable when *the posse* (a term used to refer to people with several connections and high financial status) circumvent the neighbourhood leaders and directly approach the municipality to get permission to build houses. The neighbourhood leaders, too, circumvent the informal social practice by letting a new individual buy the land without the consultative process (of including the neighbours in the boundary delimitation process) by taking a fee (Interlocutor 1).

> "We leaders lose power when someone from the posse appears. What can I do as an inferior?" (Chefe de Quarteirão, Munhava Maraza, 59, Male).

> "What really complicates things are those so-called "bosses" who handle all the documentation clandestinely, and not through proper channels here. We just see a house appear. When we try to intervene, the workers say, 'our boss does not care'. But we don't back down. Even if you are the president of the Republic, we have to stop" - Secretário de Bairro, Nhaconjo, 62, Male.

While all neighbourhood leaders are MDM supporters, a person from (ruling party) FRELIMO could also be a community leader in Beira. The latter gets space as a leader, but not necessarily treated as one of them, "because the leaders are the ears and eyes of the Mayor" (ibid.). Even to buy a house, politics play a role. If a person belongs to the opposition, their application could allegedly be sabotaged.

It is uncertain if the demolition order for houses built on ditches was driven by risk reduction efforts or the power struggle. Besides, during the conversation, the Beira municipality representative gave salience to the role of community-based organisations as the main actors in all community activities. Although the role of the neighbourhood leaders was acknowledged, they were mentioned sparingly during the conversation.