Navigating extreme weather events: An anthropological investigation.

Student Name: Ridah Perin

Supervisors:

Prof. Shannon Morreira

Dr. Amber Abrams

Table of Contents

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Chapter 1: Introduction

"After explaining about the fallen tree, the lady responded by saying that she wanted to look at the tree herself. She came out greeting me with a smile, thereafter asking me my name. She then turned her attention to the tree that had fallen. Laden with shock, she said that she did not even hear the tree collapse. She said that this must have occurred over night…, "oh my dear, we would just phone the council, and they would sort it out."

The above vignette emerged from a conversation during my research period, while I was collecting data around instances of extreme flooding. This conversation sheds light on the experiences of an elderly lady residing in Crawford, Cape Town, her experiences with heavy rainfall, and the expectations she had of the municipality/council in dealing with weather events. Crawford is located in what is known as the Southern suburbs of Cape Town, a ten-minute drive from the city centre. The area is situated in the upper middle class of Cape Town's socioeconomic conditions, where most households have access to electricity, running water, indoor toilets and formal sewage systems, as well as garbage removal. Crawford has a population of approximately 4000 people (Census, 2022) in an area of 0,73 square kilometres. The socio demographics of the area comprise primarily of people who identify as coloured; nearly 60 percent of the population in the suburb, with the remaining forty percent comprising of people from Black (4%), Indian(24%), and White (4%). The area is also prone to flooding caused by heavy rainfall.

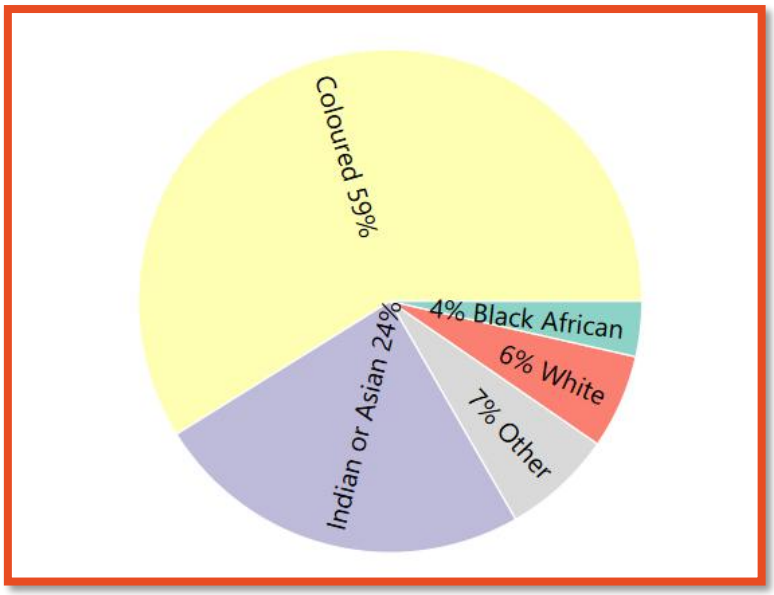

Figure 1: Demographic breakdown of Crawford[1]

[1] This chart displays how race still weighs as a social construct in a post-apartheid South Africa, which why I make reference to them in my intro.

The resident of Crawford narrating the above scenario highlights some of the ways residents respond to the impacts of (extreme weather events). Building on such sentiments, my work explores the human dynamics and responses by people experiencing flooding related impacts. For this study, I focused on heavy rainfall. This was selected from other weather events after observing the Cape Town CBDs weather patterns and how these patterns have impacted people on a day-to-day basis.

This work engages with research that culminates into what is known as vulnerability indices - often a compilation of data and statistics that display the consequences of a variety of scenarios. Whilst indices of vulnerability can do some of the work to address local resident preparedness, especially among neighbourhoods susceptible to extreme weather events, there are certain challenges and scenarios that require lenses from the social sciences. A phrase I heard quite often during my fieldwork was "Ons moet n plan maak," which translates to we need to make something happen. This mentality of "making do" has been forged by what is available to this community both from a structural and moral standpoint. From a schematic and structural perspective, one can view through the lens of De Certeau, in that what is availed to community members is imposed knowledge given to this community with them having not produced it (De Certeau, 1984; 32). This insight engages with the social history of Crawford and how it can be a tool to understand how residents plan, engage, and prepare for EWEs like flooding.

This dissertation argues for the need for a social analysis of the relationship between extreme weather and social relationships of the everyday. For example, if an elderly person, living alone, is stranded in his or her home without family nearby, to whom does he turn? Family, neighbours, 'the Council'? Practices in formal urban areas in South Africa are under-explored; it is with such thinking, that I argue that the exploring of relationships, practices, and procedures emerging from extreme rainfall should be investigated, specifically on the facets and relationships of everyday life. I argue that the most effective ways of gauging how relationships will unfold is by investigating a community's methods of individual and social reaction towards extreme weather, determining whether individual or social reactions are most effective in responding to extreme weather events like heavy rainfall.

Why Extreme Weather Events, Why Now?

The dimensions of weather forecasts and its impact on societies can be likened to an Islamic proverb that explains the religions' holy scripture the Quran which says, "the Quran is an

ocean of knowledge with no floor bed or beachfront.." Some anthropological thinking from the likes of Donna Haraway et al. (2016, 536) focuses on the experiences of climate, arguing for a reframing of "disaster." The authors suggest that there is value in viewing it as an experience, which can lead to the emergence of critical insights to shift away from "what the weather will be" towards "what the weather does to those affected" (ibid), to explore how residents embody these ideas within a solitary community while allowing for their perspectives to shine through, in tandem with looking at the consequences embodied by residents.

Furthermore, exploring an EWE in relation to local responses rather than with a disaster framing, could potentially have a significant impact on how we understand the variability of embodied experiences emanating from EWEs. This is not only important at the level of decision-making and academia but also on a civilian level, because the effects of extreme weather are often felt by those who are not in a position to engage and consult with the necessary experts on this subject matter. This can be attributed to extreme weather generating vulnerabilities that impact socioeconomic activities and how sociality is operationalised either within a communal or individualised capacity. This can recalibrate the "disaster" lens towards observing how strategies come about once a weather event has struck, providing an alternative angle to approach the impacts of EWEs within communities.

For this study, rainfall was observed in Cape Town, between January and August; this period was selected after observing the Cape Town CBD's weather patterns in past years. The questions that drive this thesis emerged for me during part-time work that I participated in from November 2020 to February 2021 as a research assistant in a project conducted by the Future Water Institute of the University of Cape Town, which aimed to develop a framework for a Health Vulnerability Index (HVI) specific to Extreme Weather Events (EWEs). Throughout my time working there, I was tasked with extracting data from a multitude of inter-disciplinary academic texts that were used to develop an evidence base to inform a draft framework for a health vulnerability index for extreme weather events which was then evaluated for further refinement – although that testing was heavily limited by the COVID context. The objective of this HVI was to assess the health implications and vulnerabilities that arose once an extreme weather event took place. The Water Research Council (WRC) of South Africa funded this research. When I finished the part time work for that project, it seemed to me that ethnographic work on EWEs within communities could yield interesting findings, and it was from this interest that the project I have undertaken here emerged.

Foregrounding a three-pronged approach of vulnerability, exposure, and adaptive capacity (concepts that will be defined in the literature review below), this research aims to contextualise the analytical limitations of vulnerability indexes (COCT and municipal/self) that have been developed to support community adaptation and resilience methods across diverse settings (Abrams et al., 2024; 5). Supplementing this would be a focus on whether communities embrace their agency of developing "community resilience."

Research Question:

The project aimed to unpack the impact of extreme weather events on social relationships in order to explore whether conviviality and personhood could be seen to moderate communal vulnerability. I situate conviviality and personhood under the dialectic of "making do;" or Bricolage, drawing on authors such as Michel de Certeau, Francis Nyamnjoh, and many others in order to examine not only the procedures, but the ideologies that govern societies' relationships with extreme weather. I have paid close attention to an area where heavy rainfall occurs frequently in Cape Town. The study aimed to investigate how one neighbourhood in Cape Town responds to the effects of EWEs, and to interrogate what outcomes people experience when an EWE takes place by observing the ways in which the selected neighbourhood mobilises before, during and after an EWE occurs. In collecting data, I compared different people's strategies and reactions to EWEs within one particular space.

Thus, the central research question of this study is, *what role does existing social relationships play in people's perceptions and responses to extreme weather events?* I was also guided by the sub-question of *whether or when individual and/or dividual forms of personhood were mobilised in relation to extreme weather events: can we see responses to crisis based on conviviality or in individualism?* In what follows, I begin with a review of the literature before moving on to an exploration of the field site, and findings from that site.

Chapter 2: Review of Literature

The literature provided below, offers some insights into varying perspectives on how residents of a community/neighbourhoods are expected to prepare, anticipate and address the consequences of an extreme weather event. The objective is to display how these inter-disciplinary analyses often understate the role that community structure, influenced by cultural perception, plays towards EWE preparedness. I begin by unpacking various epistemic understandings of vulnerability across multiple disciplines, thereafter exploring how these understandings of exposure play out in a practical setting with the potential to establish effective community adaptation.

Community exposure/vulnerability:

Exposure to various EWEs cannot be measured by taking a universal stance. The reason for this being that several environmental, economic, and social conditions influence the exposure of populations and livelihoods (Lwasa, 2018; 38). Shuaib Lwasa (2018), a scholar of climate-related vulnerability and exposure, defines exposure as the probability of a risk becoming a hazard based on location and temporal conditions (Lwasa, 2018; 39). For Lwasa, who has conducted extensive research on Uganda's semi-arid region, community-based exposure hinges on the relationship between climatic factors and high levels of vulnerability that ultimately "exacerbates vulnerabilities" (Lwasa, 2018; 42). This literature has served here as a theoretical foundation for exposure risks, adaptation, and potential effects of climate change upon vulnerable neighbourhoods' ability to deal with heavy rainfall.

When addressing the notion of exposure, one needs to acknowledge the different EWEs that produce different exposure risks. One of the most common EWEs that affects the broader Cape Town area is flooding via heavy rainfall. An indicator within fieldwork that points towards flood vulnerability is informal housing, a reality experienced by many who reside in impoverished areas. Rappold et.al., (2022) argue that in order to characterise a flood as an EWE, there needs to be an assessment of where a flood has impact (Rappold et. al., 2022; 6675). They argue for the use of an inter-disciplinary comprehension of flooding. Such methodology is an effective tool when investigating a community's adaptation to heavy rainfall, suggesting that hydrological definitions of flood do not necessary align with peoples' experiences. It assists in assessing a community's need for technological resources for apparatuses such as early warning systems. Rappold et al (2022) thus provide a foundation from which to compare how two or more vulnerable neighbourhoods practice adaptation to

an EWE such as flooding, and how we can use technocentric apparatuses within a social context.

Emily Chan et al. (2018) provide a different understanding to exposure contrary to the perspectives put forth by Lwasa (2018) and Rappold et al (2022). Lwasa and Rappold both define exposure as conditions that cause people to become susceptible to health risks, this includes populations or communities who reside in zones deemed as hazardous by government or civil organisations (Chan et.al., 2018; 2). Chan claims that exposure means individuals located in hazard zones who are at risk of health detriments. The distinction between the above explanations is that one group of scholars focus on the conditions people experience and the other school of thought focuses on the location of communities. This paper leans towards the definition provided by Chang (2018), as the area of Crawford serves as a key to unlocking what functions do existing social relationships have in dealing with flood events.

Hilary Bambrick's (2015) analysis of climate change-based vulnerabilities in the Ethiopian Rift Valley can also assist understandings of the concept of exposure. Bambrick defines exposure in relation to the health vulnerabilities faced, and suggests that these are being shaped by two factors (Bambrick, 2015; 1). The first of these factors are the health conditions faced by a community deemed to be at risk, and the second factor being what kinds of strategies have been employed by the community at large. Combining these two factors can be used as a reference point to investigate emerging scenarios once fieldwork commences. Bambrick (2015) thus provides insight into the effectiveness of qualitative methods when engaging with climate-related variables, offering a nuanced lens to observe forces of exposure. The literature above allows me to establish various understandings of exposure, with regards to health; hazards; vulnerability. In this effort, a question arose; how do these understandings of exposure play out in a practical setting to establish effective community adaptation? Do such perspectives of exposure even apply to the practicalities of community adaptation? To initiate an answer to these questions, I turned towards the realm of anthropological understandings in dealing with the idea of social capital. Specifically, I examine where social capital could potentially be unpacked within areas that have effectively responded to an EWE.

When it comes to extreme weather events, Mohan, Hardy, and Savitzky provide an illustration of the emergence of social capital in vulnerable neighbourhoods and how it is a key to unlocking dimensions of resilience to flood events in Crawford (Mohan et.al., 2020). The authors define social capital as interconnected networks of people living and working within a society allowing for that society to function efficiently. They argue that trust-based networks, community organisations, and reliance on civil institutions were instrumental in ensuring an effective community response when cyclone Haruna struck off the coast of Madagascar (Mohan et.al., 2020; 3). The idea of trust-based networks between healthcare workers and community members made the distribution of roles and tasks much easier, allowing for seamless coordination of activities to avert risk and ensure adequate preparedness whilst at the same time acting as a mechanism to identify who suffered the most (Mohan et al., 2020; 2). Such thinking proved useful in deciphering the resilience dynamics of Crawford, which displayed informal social networks based on individualism which eventually leads to a communal outlook when engaging with external stakeholders such as government services and emergency health workers.

With this in mind, the aspect of attaining social capital is crucial to how neighbourhoods at risk prepare or respond to EWEs as a whole. Many disaster relief strategies that have been developed and implemented by local and national governments do not pay attention to this central facet of community adaptation. Whilst I acknowledge the importance of health risks and impacts of disasters such as floods, drought, storms etc., this is not the first point of attention for a community that has been ravaged by such an event. For these kinds of concerns, I draw on indicators developed during Future Water's HVI assessment (2024). Of the fifteen general indicators mentioned in the HVI assessment, I present two of these indicators to explore the objectives of my study.

The first indicator I wish to draw upon is referred to as "social cohesion." This indicator was divided into five tiers of engagement that ranged from minimal to maximum cohesion and deals with aspects such as civic engagement, interpersonal trust, participatory behaviour, and the inclusion of all marginalized groups in decision making (Future Water, 2022). Daniel Olago (2007), in his study of the climatic and socio-economic factors affecting the Lake Victoria Basin suggests that the local climatic environment, socioeconomic level, efficacy of governance and civil institutions, quality of public health infrastructure, and availability to relevant local information on extreme weather events and disease are determining factors in a community's ability and/or capacity to respond to a health risk (Olago et al., 2007; 350). Such

insights provides insight into how the cohesion of a community is impacted by the socio-economic forces that exert control on a society. These factors can either hinder or benefit a vulnerable community towards achieving optimum community adaptation in order to contextually respond to EWEs.

The distinction between the two is that social capital depicts the context of an area, whilst social cohesion is describing the conditions and capabilities of an area and its community member, respectively. The concepts of "social capital" and "social cohesion" are similar in its theoretical outlook and have been used in this study to apply the three-pronged approach mentioned in the beginning of this paper.

Communal Adaptation:

This section of literature aims to shed light on observations of the adaptive capacities people express. Most of the literature is based around ideas of health risks that stem from vulnerability, which can be operationalised as default themes of analysis for disaster research. We can ask; however, what kinds of multiplicity are opened by these factors? And what shortfalls that can arise? These perspectives take a broad view of observing vulnerable communities based on ill health, risk, and ecological conditions. Whilst these are not the main themes for this study, it is no secret that natural disasters including EWEs pose direct and indirect threats to human health and the living environment (Barwal & Gupta, 2016). It is thus of utmost importance to study patterns of behaviour looking at how people respond beforehand and prior to these natural occurrences taking place.

A good place to start is to observe and assess the emergence of ill health and disease before, during, and prior to heavy weather. Assaf Anyamba and Kenneth Linthicum (et al., 2012) provide an analysis of ideal ecological conditions for ill health to occur after an EWE has taken place. With the authors' study focusing on the east coast of southern Africa, they present an argument around adaptation presenting itself as a double-edged sword. The first facet of adaptation deals with Eastern Africa's population growth and urbanisation, with such population density acting as a breeding ground for illnesses to emerge after an EWE has struck (Anyamba & Linthicum et al., 2012; 3). The second aspect deals with how diseases respond to existing climatic and ecological conditions within a region.

The above papers serve as a foundation to reconfigure the understanding of adaptation and the adaptive capacity of vulnerable neighbourhoods. I argue that work on adaptation and vulnerability needs to pay more attention to the existing social conditions that create the

social arrangements which constitute a community's preparedness for an EWE, and not only on the health risks that may emerge. It also correlates with the understandings of Sarah Metcalfe (et al, 2019), who notes that the study of community experiences and perceptions are essential tool of knowledge collection in order to engage how human experiences and culture are shaped by climate change. Such theorisations in conjunction with the above works, serves as a critical juncture of inquiry where I feel a social science-based discipline like Anthropology can aid in the application of such critical strategies.

There is a clear necessity to change the way vulnerabilities are approached, observed, and scrutinised in order to rigorously evaluate the way neighbourhoods like Crawford readjust their livelihoods to respond to hazards stemming from extreme weather. As such, a vulnerability assessment that incorporates climatic exposures and accounts for communal adaption activities is required (Hahn et al, 2008; 75). Even within the same neighbourhood, various households may exhibit varying levels of susceptibility. Therefore, to present a community's disaster vulnerability in relation to their adaptability requires an analysis of a household's intra adaptability in relation to the broader community it is located in (Okaka & Odhiambo, 2019; 1008 – 1009). For example, if a flood occurs in a certain region, the most frequent adaptation strategies are to build sandbags around the house and clear trenches to unclog drainage routes. As appealing as these processes may sound, their effectiveness varies depending on the level of vulnerability that a household within a community faces.

In a middle-class suburb like Crawford, communal adaptation was largely operationalised though individualised forms of sociality, contrary to the kinds of adaptation I observed in other communities. I draw on what Michel De Certeau refers to as creating a battle between the strong and the weak (1984; 34). He referred to this in order to observe and understand the activities people engage in during times of crises, so that a pathway can be constructed between the physical and social actions that people make use of when an EWE hits their area. The above literature was thus critical in framing how I observed and collated data regarding how people adapted as a collective, even though the data collected produced contrasting results of individuality.

Adaptive capacity of vulnerable neighbourhoods:

Of the health vulnerability assessments literature I have engaged with for this study, I found that many scholars have decided to take a health risk and non-communicable disease approach towards investigating and measure a community's adaptation and adaptation to

EWEs (Chang et al., 2018; 2). Whilst this has provided critical insights into how neighbourhoods experience health and economic losses, an alternative angle is required to unpack the social intricacies that lead to understanding a neighbourhood's adaptation to EWEs. Emily Chang et al's (2018) analysis of health vulnerability in areas along China's Belt and Road Initiative (BRI) define adaptive capacity as the ways in which people develop mechanisms of adaptation based on susceptibility and lack of coping. Such insights around coping capacity further supports my stance that coping mechanisms for adaptation (and our understanding of these) should be developed around communal structures of kinship, conviviality, and sociality.

Furthermore, Merle Sowman of the University of Cape Town, provides an alternative approach to understanding vulnerable community's adaptive capacity (Sowman, 2020; 2). In her analysis of coastal fishing neighbourhoods, she argues that neighbourhoods which have a weak adaptive capacity to extreme weather lack the ability to access assets, finances, technologies, and knowledge to increase their adaptive capacity. I have acknowledged Sowman's observations during my own fieldwork sessions to further understand how this path to adaptation can be improved. I have drawn upon them in order to develop a lens of investigation to holistically explore wider societal aspects that collective make up a vulnerable community's adaptation.

Obrist at al argue that much of the contemporary research knowledge on vulnerability and risk tends to focus on physiological consequences (Obrist et al., 2010; 283). In the following section, I turn to anthropological literature to fill this gap that I have identified in this literature review so far, thinking beyond the physiological towards the role of the social with regard to adaptation to EWEs. In so doing, I present the theoretical framework for my thesis.

Theoretical Framework for Anthropological Grounding

In order to address the main research question of the role existing social relationships are affected by EWEs, I draw on a range of anthropological literature and in so doing situate this complex study within the discipline of Anthropology. My approach to the question and issues surrounding the question comes from ecological and social anthropology.

An anthropology of weather:

Michel de Certeau's (1984) *The Practices of Everyday Life* explores the countless ways of "making do" that happen in communities, and in so doing allows the observer to access the types of operations present within a community. An anthropological text of this nature

provides an excellent foundation to translate the three-pronged model of context, conditions, and capabilities used for this study. It provides a way to translate interdisciplinary ideas of exposure, vulnerability, and adaptive capacity by looking at the procedures and apparatuses that exist within specific society. Exposure can be translates as context, vulnerabilities as conditions and adaptive capacity as capabilities. This was done to unify the lenses of anthropology with the lenses of vulnerability research caused by extreme climate. Once the operations are established in a particular space, one can then observe the role the space itself plays a role in producing forms of convivial and/or dividual patterns of behaviour (De Certeau, 1984; 30).

Anthony Oliver-Smith (2013) argues for the need to consider applied anthropological perspectives. From an applied anthropological standpoint, our ability to deal with weather hazards is dependent on our society's ability to change human thought and behaviour when challenged with environmental factors beyond our control, focusing on how our ability to deal with types of risk is tied into our ability to function as a society. By identifying the types of risks that pose a threat, it allows the researcher to pinpoint the kinds of values and practices that formulate into a contextual personhood. In the case of Crawford, the above literature allowed for an identification of the cultural norms and practices are shaped by ones religious affiliation (human thought) and socioeconomic circumstances (behaviour) thus creating a contextual agency to respond to EWEs in specific mannerisms.

I reinforce this perspective by drawing on the works of Nicole Peterson and Kenneth Broad (2016), who argue research into vulnerability should include the relationships between economic, political, and social spheres of society. Peterson and Broad's understandings are relevant to this thesis, in that they place an emphasis on the space in which people operate, and how people use this to improve their resilience and adaptive capacity to an EWE like heavy rainfall. It also allows us to unearth the cultural codes and value systems that govern the existing social relationships and the ways in which people engage with and prepare for EWEs. The economic, political and social spheres of society, according to Peterson and Broad (2016: 73), are the keys to anthropological engagement with disaster research and cognition of such experiences, highlighting how anthropology's focus on social elements of disasters analyse situations of a community and social experiences in an effective manner. These factors can often define how a community may engage with a natural phenomenon like heavy rainfall. These three spheres presented by the above scholars , in my opinion, tie in with the general model of community resilience, vulnerability and adaptive capacity

(Peterson and Broad, 2016; 74). Modelling my investigations on such theory allowed for a transition from earlier works on climate change towards newer perspectives that highlight the impact of communal cooperation in comprehending uncertainty, as well as the significance that power and inequality play in the consequences and solutions to flood events that occur in Crawford. .

Thereafter, Karsten Paerregaard of Gothenburg University offers a unique analysis of the role anthropology plays in climate change research and communication (Paerregaard, 2020; 113). Paerregaard argues that anthropology and its research traditions can assist in making climate research more relevant to people in the developing world. Paerregaard's work resonates with the objectives of this study as it focuses on approaches from the ground-up, concentrating on how community members actively engage or try to prevent or lessen the effects of EWE events (Paerregaard, 2020; 122). In the case of Crawford, it allowed me to tap into characteristics of vulnerability that arose during fieldwork, which would translate anthropologically into conditions, uncovering the circumstances that created the forms of agency identified during the data collection process. My work led me to explore the kinds of decision making made by stakeholders within the neighbourhood, who were able to act to produce solutions that were either dividual or convivial in nature. These decisions were based on the existing social relations, that could only be uncovered via an anthropological analysis.

Such literature highlights by asking "who is at risk," allowing for an identification of specific communities whose social relations are either impacted or enhanced by EWEs and what kinds of social capital is available to develops forms of personhood and agency. Similarly, anthropologists such as Carla Roncoli (2016) have highlighted the ability to investigate the underlying ambiguities between scientific forecasts and local climate prediction practices in forecast transmission. By comparing diverse methods of interpreting weather and climate can show how political, and ideological positioning also influences information adoption either to create communal and/or individual responses (Peterson and Broad, 2016; 77).

The anthropological literature subsequently discussed in this section, offers a more holistic platform from which to explore how an EWE such as heavy rainfall impacts the lived experiences of a community. It is also important to note that the anthropological insights above were used to situate and crystalise the opinions and arguments around EWEs by tracking the existing social relations as means to unearth the forms of personhood as either being convivial or dividual. The dynamics of how the "social" is constructed at a neighbourhood level is often not the focus of HVI measurements resulting in the

homogenization and generalisation of experiences without considering the social and spiritual experiences. For instance, the role religiosity plays in responding to flood events can only be gauged by identifying the forms of personhood that exist within a community. I argue that taking an anthropological approach allows for the intricacies of those experiences to be studied closely, which could then speak more intimately to whether responses or either convivially or dividually operationalised. To operate within communities, anthropological projects have thus used newly developed applied anthropological approaches both at home and abroad such as ethnography and participant observation (Price; 2008, 31). I noted in the previous section that much of the literature on sustainable development and livelihoods focused on the physiological (cf. Obrist et al) often to the detriment of the social science perspectives.

With regards to the research question that shape this study, I argue that the above literature highlights the ambiguities that emerged during fieldwork where some residents mobilised individual solutions, whilst others mobilised convivial solutions. I have used the above literature presented as a theoretical foundation to display a need for further incorporation of vulnerability, exposure, and adaptive capacity as a combined entity to better understand the lived experiences of communities vulnerable to flood events. This will be attached with a focus on a middle-class community, where peoples social relationships and expressions of sociality can starkly differ from one resident to the next. However, I use my findings in this paper as a means of bridging the gap between socioeconomic levels that exist within Cape Town where these ideas can be used as a unilateral starting point to assist and strengthen all areas susceptible to flood events. These bodies of work will also be used to tie the concepts of agency, personhood and social capital together and how they come to life within the data collected. These excerpts of different literatures will be used not only to enter the study of extreme weather and climates into anthropology but also to display how insights in this discipline we love can be used in a practical manner to address real-world challenges and provide effective solutions

Personhood and Conviviality:

The following anthropological works have been specifically chosen to ground my findings within the nature of human nature (Ribot, 2022; 25) and how it influences the formation and/or continuations of existing social relationships. Ribot's understanding of established or newfound liaisons as embedded within the social norms of a community often differs from

context to context. This difference appears when a researcher is trying to identify the influence of social values in the choosing of deterministic frames, a practice that either influences or causes existing social relationships to change when EWEs takes place in a community. In thinking through EWEs and agency, the notions of personhood and relational dynamics were used to navigate shifts in social relationships and relationality and whether or not the social relationships present in the community of Crawford were convivial or dividual responses.

Tamuka Chekero and Shannon Morreira, in their paper on the concept of "Hushamwari" as mobilised by Zimbabwean migrants in the South African border town of Giyani, provide contextual definitions of the concepts of personhood and conviviality. The above authors define personhood as the ways in which "social persons are created in different social contexts" (Chekero & Morreira, 2020; 36). This definition provided aligns with the general understanding that one inhabits social realm and subsequently develop perceptions about what it means to be a person within a particular realm or space. The authors adopt Francis Nyamnjoh's understanding of conviviality, which he defines as the restoration of human interactions with both other humans and the non-human world, as opposed to their rejection. I use these conceptions of conviviality and personhood as a theoretical base from which to argue that in Crawford, the mobilising and forsaking of one's personhood in favour of community mobilisation is a method to diminish vulnerabilities and improve adaptive capacities to flood events. Communal places of worship such as the mosque and churches in the area were used to draw on the existing social relations in the wake of precarity caused by EWEs. Networking and communicating with the congregants were used as a way of operationalising techniques of a convivial nature and apply it to dividual circumstances.

Karsten Paerregaard (2019), in her paper investigating the effects of climate change argues in favour of how cultural practices serve as a means of forging critical relationships (Paerregaard, 2019; 115). To communicate with those in your community is not only a means of attaining information. It is also a means to validate and characterise social order (Paerregaard, 2019; 116), particularly in times of crises, when there is a need for knowledge of the social order in order to avoid conflicts. Employing such an anthropological approach would allow for an analysis of the cultural and social dynamics that shapes the forms of personhood that formulate the existing social relations and how it impacts one's ability to address the vulnerability, resilience and adaptive capacities to flood events. It also shaped the manner in which I conducted ethnographic research, through the forging of relationships

improved my dimensions of access to provide detailed rapport of the experiences of the residents during flood events.

Other elements of the vast collection of literature compiled by the esteemed scholar Francis Nyamnjoh are also useful here. Nyamnjoh, in his paper titled "Fiction and the reality of mobility in Africa" argues that personhood gains agency through the way people traverse with their habitus (Nyamnjoh, 2013; 660). This has a profound impact on people's capacity to respond towards and perceive new experiences. This paper highlights the benefit of gauging people's experience with EWEs with the selected foregrounding of notions of exposure, adaptive capacity and resilience. These yardsticks of enquiry could be reconfigured to include theories of the social in order to highlight particular patterns and configurations that lead to varying levels of community resilience.

In Nyamnjoh's 2017 paper "Theorizing agency in and on Africa", the author urges researchers to identify the conviviality they wish to seek by making use of "intersubjectivity" (Nyamnjoh, 2017; 3) and an awareness that researchers assume community membership among the researched, as opposed to merely observing. This literature situates the modus operandi I have taken to my research.

By inserting oneself into the neighbourhood, you discover the structures they reproduce, transform, and produce should an event like extreme rainfall occur. Furthermore, Nyamnjoh also fervently discusses the idea of conviviality, and how it is among competing perspectives for "ways of knowing" (Nyamnjoh, 2013; 671). This idea of ways of knowing is a concept that has been harvested by the likes of Tim Ingold, focusing on how the Anthropocene engages with the environment, including how we as anthropologists should move away from comparing ethnography and narrative and migrate towards how we can view the two ideas as "mutually enriching and complementary." I have taken these reflections and applied them to the varying ideas of social capitals from a cultural and social perspective to obtain what it means to be human when an event such as heavy rainfall appears within a society. This compilation of literature has moulded my approach to the area studied, particularly from a convivial standpoint, even though the ethnographic data steered away from initial lens of observation. I offer with this compilation of literature that searching for patterns of dividual personhood and conviviality may result in contrasting findings in relation to what you set out to observe. This is all dependent on the social dynamics of the neighbourhood being studied where you will either find vast expressions of conviviality or glimmers of it in an individualised world.

Furthermore, Noah Walker-Crawford in his paper titled "*Climate change in the courtroom: An anthropology of neighbourly relations"* argues for the need to study the nature of social relations in reference to climate change (Walker-Crawford, 2023; 77). The concept of neighbourliness can be used as an analytical framework for investigating social claims regarding reciprocal responsibility. Examining climate change from this angle reveals how it broadens the scope of how social relationships either benefit or hinder a community's capacity to respond and adapt to EWEs. During his study on the impact of climate on agriculture in the Andes, a neighbourly approach to climate change was used for an ethnographic investigation of the relational connections at play in response to climate issues. As an analytical framework, considering neighbourliness can be used as a means to observe how social life and climate change shape and are mutually shaped by one another.

The literature presented above has aimed to display the anthropological pathway for this study. I have shown that a neighbourhood's lived experience and their cultures, traditions, customs, and beliefs play a key role in how an affected area adapts and responds to an EWE based on the personhood of residents forged out of existing social relations. This literature thus offers an alternative perspective in relation to literature that will be presented further in this study, providing a new avenue of approach to extreme weather, which could also be applied to existing universalised frameworks of disaster studies which tend to focus on the physiological and psychological impacts at the expense of the social. By observing how people's shift to individualism is embodied through their resilience, adaptive capacity, and exposure, one can distil weather notions of conviviality and personhood are present in particular realities.

Chapter 3: Methods and Materials:

Dissecting the study site: dynamics of Crawford

The paper draws on ethnographic data collected over a period of seven and a half months. Initial groundwork began from February 2023 and final collection ended towards the middle of August 2023. The data collection process took place in three cycles of approximately 8 weeks per session, with 2 sessions held per week. Methods used included participant observation leading to ethnographic data, focus groups, digital communication for participant procurement and photographic addendums of spaces in the neighbourhood hit by flood events, and structured and semi-structured interviews that were conducted both in person and virtually, leading to verbal data to supplement findings from participant observation. In these focus groups, residents and community leaders such as priests and imams were brought together to participate in the discussion around how social relationships played a role in combating extreme weather in Crawford.

The participants hailed from a variety of backgrounds which included chemical engineering, Islamic studies students and business owners who held prominent roles within the community. What was advantageous for this study was that I knew a large portion of the Muslim population personally, allowing me to access experiences and recollections in depth. Seven participants were questioned to learn about how weather is incorporated into everyday behaviours in Crawford. Participants were recruited using social media platforms namely WhatsApp and Facebook, and word-of-mouth. The study required four interviews over a monthly cycle to capture fluctuations in weather expressions throughout the year, relying on participants' willingness to take part.

I took the aid and counsel of three interlocutors based on the positionality they held within the area, in order to access participants within Crawford. They were also participants in the broader study, but were contacted based on their social expertise to act as a guide for me in the area to generate subjective perspectives of the lived experiences and strategies used in case of a flood event. These interlocutors took the shape of religious leaders and community activists. Individuals who are engaged with the area’s day to day affairs were relied upon in order to gain access. I met these three interlocutors through being a member of the mosque congregation, having conversations around weather patterns and how it connects to existing

social relations. Once the spaces were accessed, I inserted myself within the day to day lives of the selected participants, specifically observing their patterns of behaviour before, during, and after heavy rains took place.

Before I was able to vigorously engage with members of the neighbourhood of Crawford regarding their experiences with heavy rains, some groundwork needed to be laid. This was done through taking the first few visits to establish a connection with the neighbourhood as a whole. Timing was also crucial in the compiling of data as it needed to be in conjunction with heavy rainfall, thus leaning on my local knowledge of the area to identify places of vulnerability. I also assessed the socioeconomic positions within the neighbourhood in order to have an income range with which to work with. Aside from identifying knowledge gaps this allowed me to adjust my investigations where necessary in order to attain information relevant to the overarching research question. This was achieved by adopting participant observation, semi-structured interviews, and focus groups which will be dissected in the following chapters.

Participant observation

Many scholars are of the opinion that the foundation of anthropological data collection and research is ethnography. It remains a vibrant and popular option to gain insight into the neighbourhood dynamics of Crawford. The ethnographic technique relies on direct, often informal engagement with the people being researched in order to provide the best opportunity for learning about their society and culture (Kearney, 2013; 38). Participant observation is a key method in ethnographic data collection. I thus entered an upper middle-class community in order to gauge how the Crawford communities practice resilience to the EWEs that affect them.

Crawford is a middle to high income neighbourhood situated just outside of the CBD, bordering the famed Cape Flats, an area created during apartheid under the group areas act of 1950, to relocate people of colour. The area was chosen for three reasons. Firstly, being a resident of this area allowed me to lean into my positionality of knowing where to identify areas of vulnerability to investigate residents' resilience and adaptive capacities to damaging rainfall on individual and communal infrastructure. Secondly, the area comprises of public and private stakeholders who impact the social relations of the area. These stakeholders included the local government and its representatives (i.e., the ward counsellor), the board of

trustees for the mosque and three churches, and private security companies who operate across various parts of the community. Lastly, this community was selected as the conditions were suitable to gauge whether the community as a whole were actively participating in the planning for the possibility of extreme weather (Garner & Lewis, 1996; 121). Through this I could then probe how "community "is defined and imagined within the context of Crawford, and how the needs of its residents are intertwined within power dynamics that create varying degrees of vulnerability.

The sample selection used for this study were based on male and female individuals between the ages of 19-45, firstly focusing on individuals who were actively engaged within the community from a theological perspective, as religiosity played a key role in how participants perceived the scenarios brought forth to them, which will be further expanded upon in the chapters to follow. Hence community leaders like Imams and Pastors/Ministers were chosen, as they had a balance between preaching respective religious ideals and were often congregants first point of call when aspects of crisis or challenge entered the lives of the congregants. This applied to both the imams and pastors/ministers who dealt with a range of issues such as domestic, marital, and notably assisting people in damages to their property related to weather. The sample selection was focused on individuals who moved in and out of the area, these were residents who would leave Crawford to get to work, members of the municipality who responded to infrastructure issues and general amenities such as the cleaning of waste bins, and local neighbourhood safety societies and private security companies who often roamed around the area as a whole.

The field site:

I begin with a background of the area of Crawford, a residential area situated in the Southern Suburbs of Cape Town. There are approximately 3500 – 4000 people living within this area according to recent census statistics (Stats SA, 2011). It is a middle to upper working-class area, with most residents working in and around the CBD (central business district) as per semi-structured interviews that were piloted with local residents prior to field work taking place. It is an area comprised of people stemming from various cultural and religious backgrounds. The racial demographic of the area is predominantly people who identify as "coloured" with a small population of white people who have resided in the area prior to 1994. It is home to a large Muslim population, focused on a mosque situated within the centre of the area (see figure 2). There were also two churches in the area, one Anglican and one apostolic church. Residents predominantly identified as Muslim and Christian. Historically,

the area was originally legislated by the former apartheid government as an area for people of European heritage. From 1996, people of "colour" were permitted to move into the area without requiring special permits to enter. All South African citizens were to free access the area, correlating with the recollections of some residents, who make mention of how they needed to be accompanied by a white resident if they wished to use the amenities such as parks for example or if they were interested in buying a property in the area. Fast forward more than two decades later, the area is now a thriving neighbourhood home to a multiplicity of cultures and traditions.

I surrender to the fact that my positionality influences the way I interpreted the space. As a resident of the area, I am familiar with the layout, areas of interest and a large portion of the Muslim community. This could create a subliminal bias in my findings and data collection. In order to combat this, I decided to explore this area via all three entry points. There were three major entry points used to access the area. The first being from the Kromboom roadside with the landmark being Spar supermarket. The second entry point was via Landsdowne road into Clive road, adjacent to the train line. The third entry point was via the Jan Smuts main road into Lawson road. This takes you into the centre of the area. The road also took you to the mosque of the area.

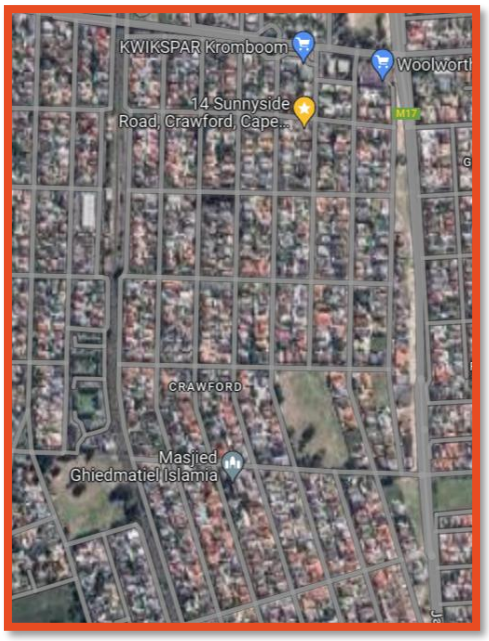

Figure 2: Cartographic view of Crawford (Source: Google Maps)

Rather than navigating the space as if I were a resident, I decided to place myself in the shoes of a person visiting the area in order to gain the different vantage points of people's mobility within and out of Crawford. Mobility is one of those concepts that allows for a deep dive into the notion of belonging, a means to understand how one can access communal and personal tools to improve one's social capital for either an individual or convivial output of a residents choosing (Brudvig, 2014; 92). How mobility can be used as a framework for envisioning an embodiment of citizenship in times of precarity. This also allowed me to gain a panoramic view of the areas that were potentially junctions for EWEs to have an impact social relationships.

The findings were collected by making use of a three-phase model developed by anthropologist Michael Kilman during his research of virtual environments within computer games, which is based on what Kilman refers to as the 3 C's: context; conditions and capabilities. I thus applied this lens of understanding in order to operationalise an effective application of participant observation in order to assess how the context, conditions and capabilities of an area are impacted by phenomena such as heavy rainfall, and how such a natural occurrence impacts the existing social relations that exist within Crawford. Having this framework in mind, I have displayed how unpacking the social experiences of a resident is crucial to understanding how people prepare, respond to, and adapt to EWEs. I use the above-mentioned criterion to investigate the main research question, how preparedness for

times of crises (extreme weather) is inseparable from wider political, cultural and social processes. “neighbourhood,” within this context is defined by spatial, religious and convivial dimensions, as I explore the sections to follow.

Semi-structured interviews: Crawford

Semi-structured interviews were conducted to provide insights into how selected communities respond to extreme weather events as a whole, and how a community mobilises during such a period. The aim here was to access the opinions of those who are actively focused on the risks extreme weather pose as well as those who are, so to speak, unconcerned. The selection process for participants was based off community advertising in spaces of worship, community hotspots such as the convenience centre on the main road, digital advertising on the platform WhatsApp and through word of mouth.

All of these meetings took place in professional and public settings. The aim of this chapter was to extract situated meanings of how a person’s social relationships and identity within the selected spaces are impacted by events such as heavy rainfall. It also sheds light on the seeming individuality applied to adaptions for heavy rainfall in relation to qualitative metrics namely spent in the area, usage of neighbourhood space, municipal reliance, and the periods of the year when heavy rainfall occurred. Using these tools as a grounding for my interview questions produced results drawing on human experiences to produce methodological yet individualised adaptations to heavy rainfall.

Chapter 4 Ethical Quandaries

In the following chapter, I discuss the ethical implications of my research, including the ways in which I negotiated access to the field site and some mistakes I made. I move from there to an analysis of verbal data as found in interviews, before moving on to an analysis of more ethnographic findings from participant observation.

The ethical rules and norms of conduct for anthropologists published by Anthropology Southern Africa (ASNA) in 2005 have been drawn upon during this study. The University of Cape Town’s Faculty of Humanities Guide to Research Ethics was also consulted throughout the study. This code of ethics requires researchers to obtain informed consent from selected study participants, disclose all relevant information about the research endeavour, and notify them of any potential damage, such as the risk of unintended research data exposure to research assistants. Moreover, anonymity of participants who resided in Crawford was

maintained, particularly in the preparation of fieldnotes and during the write up process of this dissertation.

Informed consent:

The primary interlocutors for this study were also the residents of Crawford. Whilst the area did not offer a wide variety of demographic and religious affiliations, my aim was to remain as reflexive as possible during data collection. Initially, the adaptive capacity, resilience and exposures of the residents were not apparent. This meant that I relied on word of mouth in order to obtain insights. These exchanges went one of two ways, the first path trotted down an air of interest and willingness to engage. The second path led to community members often being unresponsive and difficult to engage. The second scenario painted usually arose when people were scrutinising the idea of consent. When this occurred, I made sure to state that each participant had the option of dropping out of the research process at any time of their choosing and was not bounded by any responsibility. Reassuring participants I engaged with during my fieldwork had a palliative effect, as it allowed for easier dialogue and exchanging of resources. But there were a few participants who did not find this reassuring. The reason for this difficulty boiled down to the age we live in. In a time where digital discretion and access are considered to be indistinct positions, I needed to ensure that the digital tools that I made use of during my research were concealed from public view. This was a concern resting with participants under the age of 35. I addressed this situation by ensuring that if the participant so wished, I would conceal their identity both in my digital data capturing as well as in my transcribing of this study.

Another issue that emerged during the research process were participants understanding of informed consent. This was diligently noted on my part, as I was aware that I would encounter and work with individuals on various levels of understanding. And whilst this does not serve as chastisement, I highlight this issue in order to familiarise other emerging scholars in academia to ensure that their notions of consent are clear and legible. This would allow for a seamless transition of your research objectives from paper to a practical setting. During my engagement with this matter, I addressed the issue of misinterpretation in two ways. The first technique I deployed involved me using my positionality within the community as a whole. As a resident of Crawford, I was able to use my social capital in order to simplify the aims of this study. This was implemented through colloquial dialogue, which comprised of a mixture between English and Afrikaans. The second technique deployed involved physically displaying my research proposal as well as the above-mentioned code of ethics. The general

pattern of conversation comprised of me stating my research questions. After explaining how I would investigate existing social relationships, I supplemented this statement by describing how I observed everyday norms in order to generate various sets of causes. This eased the confusion prospective participants had at the time in order to offer their consent.

Furthermore, in the discipline of anthropology, much has been written on what constitutes informed consent. Because what do we define as consent? And does consent have a particular template that can be applied across any research scenario? Here, I have inclined towards a continuous collaboration between the researcher and participants allows for clarity of objective in terms of research and transparent ethical research apparatuses being applied. I strove to create trust with the study participants over time. These ties were solidified through me being stationed within the field site for an extended period of time. This immersion into circles with varying groups of people enabled me to better comprehend the thoughts, actions, and daily patterns of individuals within a collective capacity, all of which were influenced by social, political, and economic factors. I have applied such thinking to the time spent with the selected community for this study.

Overstepping of boundaries with participants:

During the research process, I engaged with people within Crawford to identify patterns of existing social relationships that contribute towards responding to weather related events. However, these interactions have led to a variety of scenarios forming in the field which caused me to check my reflexiveness as a researcher. These scenarios included entering a participant's homes and asking complex questions around the effects of an EWE. This led to circumstances that changed a participant's attitude towards the project as a whole. There were moments during this study where certain participants needed to be omitted completely out of concern that tensions might escalate. One incident was particularly fraught. This incident was largely caused by participants misunderstanding my language usage. I asked a then potential participant a question around the sanctity of religious buildings and how it contributed to existing social relationships, at which point the man began going on a rant around how I should not be poking around other faiths so that I do not become "alienated." Flabbergasted by his statement, I immediately hit back by claiming that this was purely academic. This dialogue eventually escalated to a debate around Islamic theological matters which completely sidetracked the objective of that particular fieldwork session. After a very confrontational engagement, I decided to lick my wounds and apologise to the man for crossing the line.

The above ethical challenge was a direct result of two things. The first being my personal relationship with the area as a whole, which made me a shareholder of social capital. This positionality within the area often created conflicting scenarios because the older community members whom I engaged during fieldwork, often emphasised their affiliation with my family, causing the data collection process to become complex. At times I needed to be quite timid in certain engagements to avoid offending certain individuals. For example, a man passed a comment *"hey, weet jou pa wat beteken die goed"* , which translates to how does my father interpret this study. Such references towards my family's approval meant that my reflexiveness was intertwined between a personal and academic purview. Meaning that how I engaged certain participants affiliated with my family had repercussions within my personal life.

The second factor was caused by a lack of trust by residents of Crawford. I noted how a person, walking around with a book and pen was immediately vilified. When asking participants and bystanders about this belittling, it stemmed from a fear generated from home invasions that occurred via criminals impersonating civil servants in order to gain access into your home. This generated wariness whilst requesting to enter a person's home. This has resonance with Jess Auerbach's (2020; 184-185) engagement with local communities in Angola. She too had some precarious engagements during her fieldwork, where she struggled to enter into the community through general sense-scaping. Rather, she needed to analyse the ways in which residents mastered the art of social interactions (Auerbach, 2020; 184); how individuals were able to interpret a specific encounter and use it to his or her advantage. This can be categorised as a negotiation of power structures in order to remain in control of one's environment. Auerbach's encounter resonated with my own, in that I experienced similar behavioural traits albeit in a different socioeconomic context. This added a layer that needed to be peeled off in a manner that did not cause any harm or discomfort.

When such incidents occurred in the field, I informed my participants prior to any research conducted or data collected, that the safeguarding of participants from any physical, psychological, or social/racial harm and suffering was of primary importance. Drawing on the mandate of UCT's ethics guide, interpretations of relations within specific contexts needs to be adequately vetted. This ensured that no harm was done to the public image of the neighbourhood as well as the participants involved in this study. These scenarios depict how notions of presenting physical and emotional vulnerability and precariousness need to be addressed within contextual manners. My learned knowledge, over years of living in

Crawford provided a sense of the social and moral codes of Crawford, which aided me in navigating through challenging encounters.

Consulting with stakeholders in different areas and losing contact:

During the proposal stages of this study, the aim was to develop a comparative study between a low-income area and a high income area. When preparing to conduct fieldwork, a number of areas were contacted to provide a comparison to the Crawford area, with a keen eye on how the convivial relations generated a type of personhood that further forged relations. The aim here was to showcase how day-to-day relationships create various occurances in terms of practice that emerge within a particular area (Morreira and Chekero, 2020; 36). These practices, as found within the area of Crawford, generate formal, mutually beneficial friendship partnerships that remove some of the ambiguities and doubts surrounding vulnerability and adaptive capacity towards heavy rainfall.

The first area in which I hoped to conduct research alongside Crawford was the Macassar enclave, colloquially known as the “kramat”. A kramat is a shrine in Islam that honours a holy person, especially within South Africa. In the indian sub-continent, it is known as a Mazaar (mauseleum) which is another term for kramat. Muslims pay their respects and appreciation at the sites. A kramat is a tomb or grave that is often surrounded by a modest structure. The Macassar kramat lies in a neighbourhood in between Khayelitsha and Strand, a twenty five to thirty minute drive away from Cape Town CBD. It is an area known to be prone to heavy rainfall and subsequent flooding, making it the perfect area to conduct research. After consulting with community stakeholders such as elderly residents who have lived in the area for more than four decades, to religious figures such as imams and priests, I was primed to begin fieldwork investigation. However, during my consolidation of my fieldwork schedule, things took a complicated turn. The lady through whom I had organised access to this community had a personal matter that emerged. Her late husband passed during the time we were scheduled to meet. According to islamic legal theory, a woman who is widowed may not socialise with strange men (with the exceptions of her son, sister’s son, and her brothers) for approximately 90 days, which can be rounded off to around four months of solitude. This is a custom, forged out of the framework of sharia law, to allow the wife to aptly mourn the passing of her husband. This period also allows for her to remarry afterwards should she wish to do so.

Out of respect understanding of her predicament, I decided to not proceed with the collaboration in order for her and her family to see to their needs. I also considered the personal ramifications of being insentive, as my parents have close ties to her and her family. I thus turned to the community's local mosque preacher (imam), who is a well respected man not only in the kramat region, but across the broader cape Muslim public. As such I considered him to be an admirable replacement gatekeeper. I liased with him through his son, a man also well respected for his vast knowledge and insights into islamic theology after studying in Cairo, Egypt at the famous Al-Azhar university. Things seemed to be heading into the right direction, after having a meeting at their family home. On the scheduled date of our initial tour of the area, however, it was postponed by both individuals to a later date, which never materialised. Taking into consideration their busy schedules, I decided not to push and find an alternative research site.

Figure 3: flooding in the macassar area located near the mausoleum of Sheikh Yusuf of Macassar. Flooding of the entire rugby field located opposite the mosque of the area.

I then turned my attention to a non-profit organisation which I had visited during a course I studied in my first year of Masters. It was a place called "Where Rainbows Meet", an NPO operating out of the informal settlement of Vrygrond. They focus on community development through various projects which include a daily soup kitchen, skills empowerment for women and a vegetable garden providing essentials to the local community (see figure 4). During my preparation for fieldwork, this location seemed adequately postioned to study exisiting social relations and how they were affected by climatalogical changes, particularly when you take into account how heavy rainfall created difficulty within the area. The rain created challenges to people's homes, flooding the interiors of these corrugated corrugated iron structures. It created mini landslides due to the amount of debris and rubbish laying on the pavements and streets. However, access to this community was also not possible. The project manager for the organisation I had links to did not respond to calls. After one brief meeting which lead

nothing conclusive, I sent several follow up emails to which I received no reply. I thus pursued another location in which to construct my proposed comparative study. I now move on to an analysis of my findings in the one site in which I was able to spend sufficient time in: that of Crawford.

Chapter 5: Residential perceptions of extreme weather:

Semi-structured interview findings:

In this chapter I discuss the verbal data that emerged from interviews. I do this in order to show the ways in which participants were able to verbalise their experiences of EWEs – what they said they did - before moving on in later chapters to present other forms of ethnographic data that showed what I observed participants to do in the moment, when facing an EWE. I argue that these interviews showed that the amount of time a person had lived in the community had a significant impact upon their experiences of extreme weather, as a result of their social networks; and that social capital and community were presented and imagined in various ways in interviews that reflected the positionality of the people being interviewed. Religion was found to play a strong role in the formation of community. The interviews conducted were also designed to accompany the ethnographic findings presented, as a means of allowing residents of Crawford to expand on their experiences during heavy rainfall. The questions were asked with a particular outcome in mind. The first facet of this outcome was assessing the precariousness of extreme weather within a communal setting (Ribot, 2022; 3). In other words, how residents were able to engage with the precarious circumstances heavy rainfall brought with it?

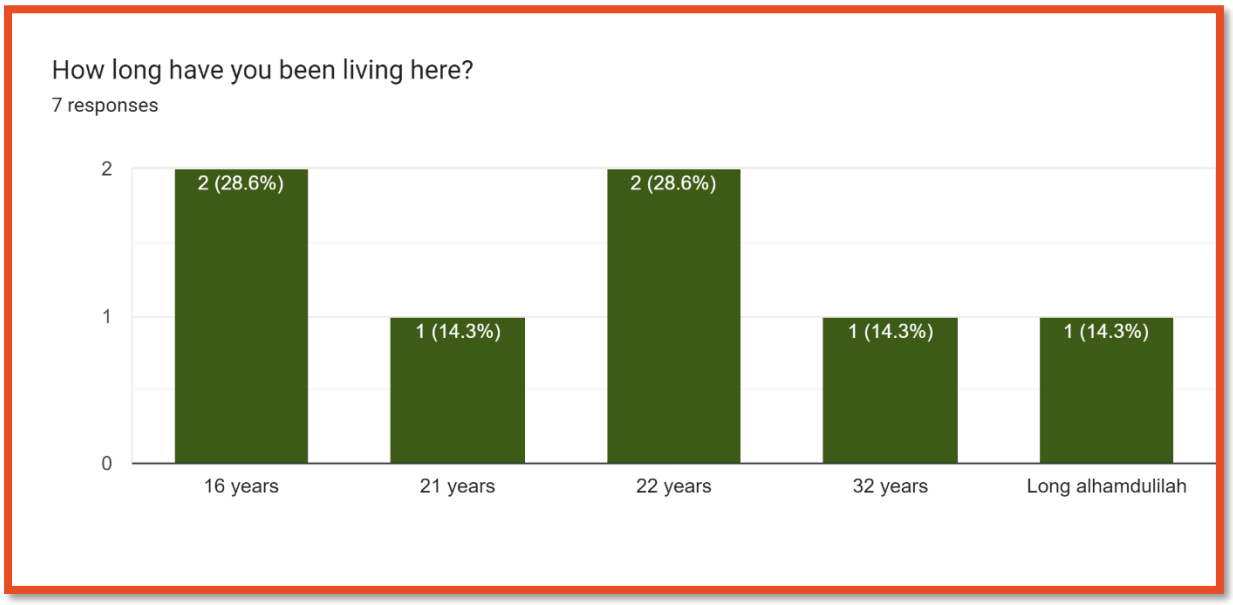

Figure 4: Data collected on residents time period in the area.

I also asked general demographic questions. Time spent in the community emerged as a factor that influenced participant's experiences. The time spent in the community ranged from 16-32 years (see figure 5). Two of the residents had spent 16 years in Crawford, and two had been living in the area for 22 years. The residents of 16 years both claimed that extreme rainfall rarely impacted their day-to-day experiences, whilst the residents of 22 years, both provided accounts of how the roads became inaccessible if it rained for long periods of time. I also unearthed a subtle dimension based on the demographic drawn up during the apartheid era. All three participants who had lived in the area for more than twenty years described to me the difficulty they had settling in the area. The area of Crawford was originally designated a white area. One of the participants (who wished to remain anonymous), who has lived in Crawford for 22 years recalled how tense the atmosphere used to be. "The old residents used to look at us with shifty eyes. Almost as if we did not belong here." He further expanded on when flooding occurred in his home "back in the day," he and his family were basically on their own. This recollection highlights how forms of hierarchy influenced the manner in which one is able to function within a space (De Certeau, 1984; 30). Here, we see a system based on the colour of one's skin influencing the ways of operating within a particular space. The participants who have lived in the area for a long time lamented on the lack of conviviality that was availed to them. However, all three of the above-mentioned experiences, have found that the social stratification that once existed is, as of the time of writing, almost non-existent. We see here a reorganisation of temporality via an observation of the "now" versus "then" through the lens of those who have engaged and invested in the social capital of this area.

I found these perspectives on the societal transition of the space to be quite interesting, particularly in relation to the main question of this study. The amount of years living in the area shows how changes in climate has impacted the resident's social experience. One point worth noting is that from when residents first moved in until present day (i.e., the day on which the interviews took place) the area has become more urban. Another of the participants, who was a community imam of the mosque in the area, has lived in the area for approximately 32 years, his entire life, citing that he had not lived anywhere else. The cleric's perspective on the community was shaped by his Islamic studies but also by constant community engagement. He also possessed a great deal of responsibility in terms of dealing with community affairs, such as neighbourhood squabbles, marital challenges to name a few.

In Cape Town Muslim circles, the responsibility to deal with socially stratifying challenges generally falls on the shoulders of the Imam of the mosque situated in the neighbourhood. But this was not only limited to a neighbourhood level but rather can expand to a broader communal level. In the case of the mosque of Crawford this neighbourhood's place of worship had three registered imams, though I only managed to schedule an interview with one of them due to their intense schedules. After expanding on how long he had lived in Crawford, he detailed to me a "normal day." A typical day for him would begin anywhere between four and six o' clock in the morning. This time of activation in the social sphere was dependent on the time of year because the first prayer of the day called "fajr" commences early during summer and later during winter. He then would move on to teaching at an Islamic institute in the next area. From after midday, his attention would then turn to children's classes known as "madrassa." Once this was completed, he would then return to the mosque for the evening prayers, only thereafter returning home.

When comparing this to the other six participants, it displays how each participant was situated differently within the social fabric of a particular space with each participant coming from a different background in terms of their occupation (Brudvig, 2014; 52). This was also in accordance with one's time situated within the area of study, because the longer a person lived in the area, the more social capital he/she had to draw on. Social capital and the capacity to generate convivial relations emerged as linked to time spent/lived within Crawford.

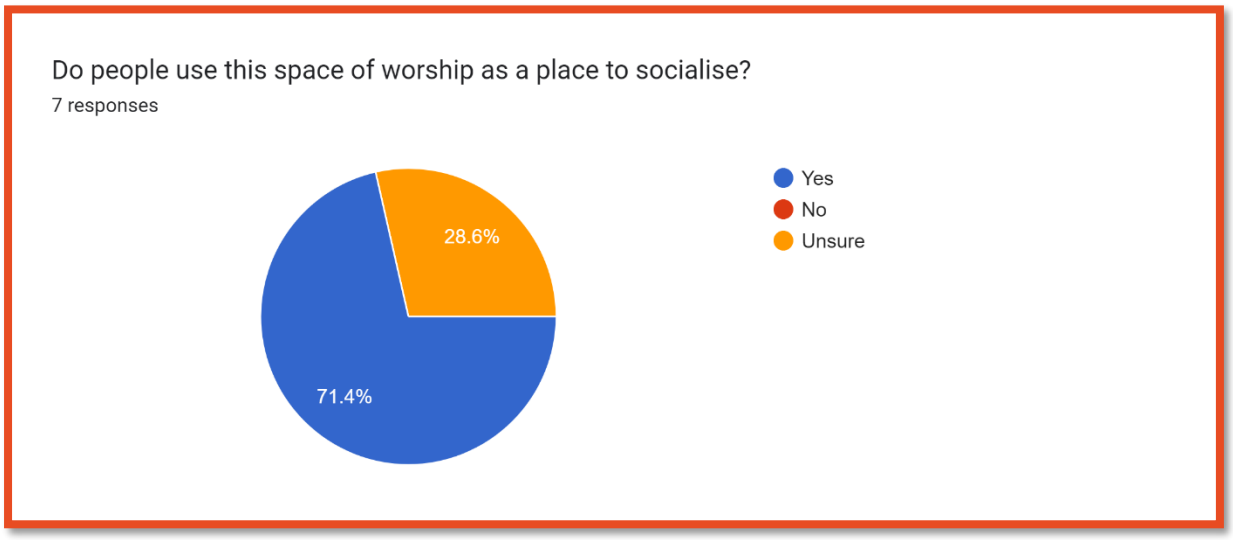

Figure 5: Pie chart displaying percentage of participants perceptions of Crawford as a space to socialise.

The interviews thereafter looked into the participants' positionality within the area, which emerged to be governed by an ethnic or religious identity. Whilst this was the first sitting of interviews that took place, it garnered perspectives around how each participant viewed social relationships and the impact of dangerous weather. One question posed was "Do you utilise spaces of worship in order to socialise?" Of the seven participants selected, 71,4% (5 participants) answered yes (see figure 6). Another of the participants, an attorney by trade, mentioned that the mosque was central to this community. "When people go to mosque for the five daily prayers, it is primarily for God's sake and his alone. But the underlying dynamic is that men (over the ages of fifty) use the space as means to socialise, hangout with their friends and often to just get a breather from the household as a whole." Contrasting this answer to a Christian participant who says "Uhm, for church on a Wednesday and Sunday, it is mostly around prayer and invoking the power of our lord and saviour Jesus. Not much happens in terms of socialising and after service activities. This could be due to the numbers within our congregation." These answers highlight how religion is a contributing factor in the discourse of difference in culture and identity through the creation of different lifestyles (Brudvig, 2014; 61). When the above participants were asked how they feel about the other religion in the area, each participant was quick to answer that they respect and tolerate one another's religious beliefs. I was beginning to gain a sense of fluidity of multicultural identities. One that was based on assimilation and mutual tolerance for religious beliefs in the area. At this point, things were taking a step in the right direction towards unearthing how the dimensions of conviviality was not necessarily being operationalised in harsh weather like heavy rainfall. This was partially influenced by my positionality within the community, being a resident in the neighbourhood provided intimate access to other residents and also increased the depth of engagement during these interviews This took up a broad scope of the lens I used to use conduct research of an interdisciplinary nature.

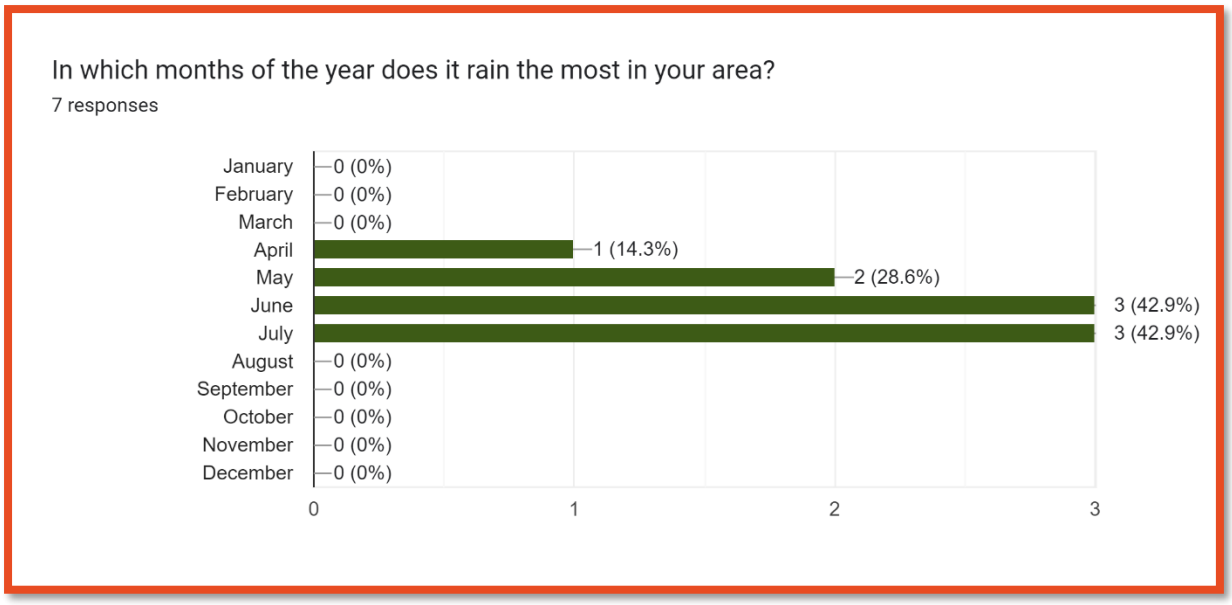

Figure 6: Graph displaying frequency of rainfall in the area according to residents.

Building on these initial questions, I asked each participant in which months it rained the most (see figure 7). Most of the participants presented their answers between the months of April and July. The most frequently mentioned months were June and July (42.9%). Whilst the outlier of the data set presented above was one participant mentioning heavy rains commencing during the months of April. Whilst this rainfall variability cannot be used to calculate the rise of droughts or floods, it does provide insight into a particular strand of study that views vulnerability, exposure, and adaptive capacity as a social endeavour (Ribot, 2022; 6). Because how did these participants come about their answers to this question? Not through sophisticated technology or algorithms, but through the humanistic endeavours of experiencing and socialising to develop a caricature of practices and routines that ultimately became a system to address and adapt to heavy rainfall.

The above sentiments used to gain rapport on how people embodied vulnerability in either a convivial or dividual capacity. I proceeded to ask questions about the kinds of shared exposure present, as indicated by the participants of this study. Some academics in the quantitative realm argue that the impact of patterns of rainfall and temperature within a local environment are hard to predict, as they are often caused by socioeconomic and structural anomalies that impact day-to-day life, this is a sentiment I share and have implemented to further expand the impact of social science rapport gathering in climate research. The components focused on during the first interview were the drainage systems operated by the local municipality. A network of drainage systems ran adjacent to the homes of the participants (see figure 15). One participant, Kevin (renamed to preserve his anonymity)

recalled how the drainage systems were often under maintenance, he explained how there were closures and blockages of roads often barring residents from entering their homes. “You see my boy; the council enters through the copper drain covers found in the middle of the road. Jirre, this is sometimes a real pain in the backside. Because you cannot even get into your driveway if they busy working.” Such frustrations demonstrate how pre-existing socioeconomic vulnerabilities, along with unequal exposure to external influences, result in specific patterns of infrastructural, human, and environmental risks in communities (Chu et al., 2019; 17). A blend between lack of service delivery and inability to access one’s personal space, causing a person to be exposed to the heavy downpour that may take place. These types of exposure were shared across the board with all participants from Crawford. One example is the manner in which residents’ entries into their homes were damaged, garages and driveways laden with water and in some instances even covering entire sections of tarred road.[2]

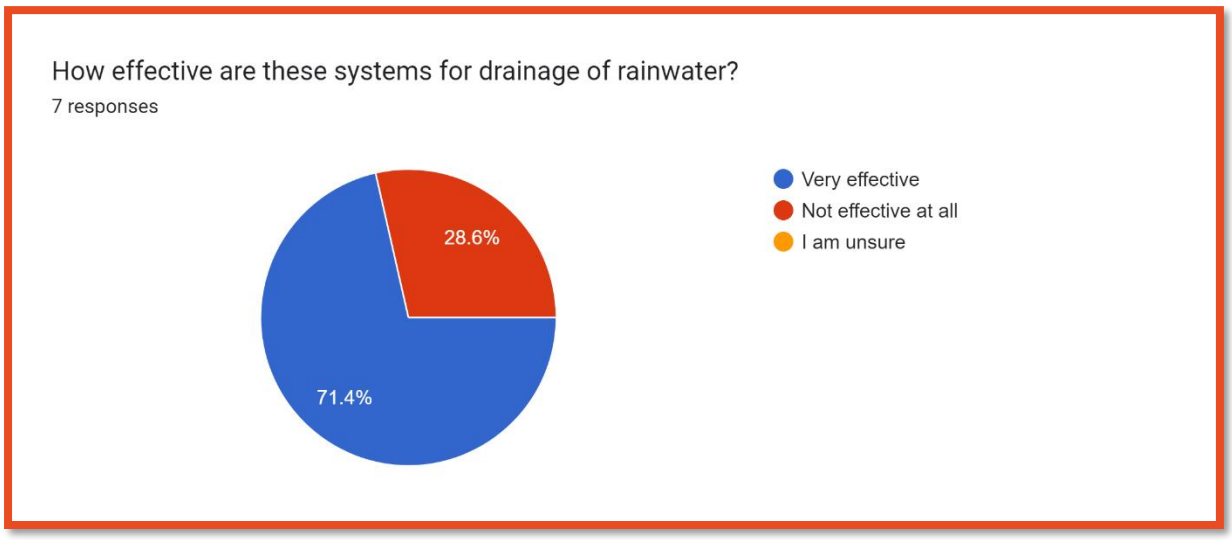

Figure 7: Pie Chart displaying the effectiveness of drainage systems.

After discussing the services present in this middle-class community, I then specifically engaged with the participants on how effective they felt the local drainage systems were in their capacity to remove rainwater during a heavy downpour, thereby initiating an avenue of enquiry into the adaptive capacity of the area. 71.4% of the participants believed the drainage systems present were highly effective (see figure 8) whilst 28.6% believed the drainage

[2] See figure 14 for visual representation.

systems were not affective at all. These answers received were also based on where a participant was located within the area, indicating a clear correlation between locational constraints and adaptive capacity. This resulted in varying forms of damage to both individual and communal properties in the area depending on the drains effectiveness to collect water (see fig.9). It is also important to note that these drainage systems were installed and in use prior to the entry of the participants into the area as residents

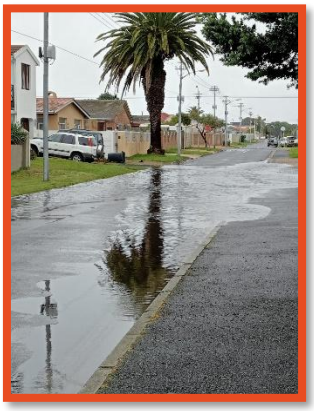

Figure 8: overflow of drainage systems

Emergent Themes:

The above findings in conjunction with the literature provided political brought forth three themes of analysis as to how existing social relations materialised through lived experiences of handling flood events. The first theme that emerged from this study was that of exposure, i.e. what was identified as exposure and how it correlated to existing social relationships. Yankson et al. (2016; 664) defines exposure as the extent and period being exposed to climate-related events. He argues that localised investigations are crucial to adaptation strategies for communities dealing with flooding. In his paper investigating the risks coastal communities face, the author and his colleagues argue that strategies are location specific and depends on the level of exposure people experienced (Yankson et al., 2016; 663). In the case of Crawford, exposure can be narrowed down to people's movements and agency within the area, thereby positioning residents in specific areas where movement and agency could be deployed. These exchanges were not always harmonious and beneficial in terms of dealing with flood events, however it afforded me the opportunity to examine how the existing social relations were used as a form of response to flood events. This response was operationalised in convivial ways in communal hotspots like mosques and in other instances it was much more dividual like in the case of dealing with existing infrastructure and exchanging with

outside actors to further enhance one's response. During my ethnographic data collection, I often engaged with mosque congregants finding out how they approached being exposed to flooding. The responses I received were very much dividual grounded in a convivial way of thinking. What I mean by this is that whilst it was often mentioned in sermons and lectures that we should work together as a community to reduce scenarios of precarity, the responses people took were often very much reactionary and only addressed the problems caused by flooding in the short term before outside stakeholder help was required (i.e. CoCT). For example, opening up drainage systems in their homes with screwdrivers and makeshift elevation techniques to allow the water to run away only addressed their individual exposure, but flooding in the streets left them unable to act together as a community. .

Bridget Obrist (2010; 288), defines agency as the structuration of practice to investigate the dialectic link between human action and capability. In the context of flood events, participants interviewed portrayed a specific usage and investment of the social capital they had at their disposal, displaying a hybridity of individual and convivial patterns of sociality. By social capital, I mean a commodity that shaped their agency and ways of describing their environment before and prior to a flood event (Obrist, 2010; 289). The descriptions given lean towards an individualist of addressing the challenges EWEs present, emphasising how the structure of the community causes people to prioritise their own wellbeing first before addressing the needs of their fellow residents. These explanations run a parallel course to the findings of the likes of Nyamnjoh (2007; 1), who highlight that researchers assume individualised notions of agency. The idea that external forces effects local agency has some truth, but to dismiss the idea of individualism within the makeup of agency is simply unfair with a lack of consideration for the context in which a form of agency arises. The data collected off interviews and focus groups suggest that Crawford is a context where a person's movements is intertwined with his/her agency, creating unique and individualised social capital. For instance, if a resident frequented a particular intra-social network, it reflected in one's agency and ability to respond to their own needs and communal needs during flood events, hence substantiating the above theme that existing social networks varied according to the participants positionality.

The second theme these interviews highlighted was the ways of operating within Crawford, with regards to the context before and after heavy rainfall took place. The questions asked were aimed at unlocking the core amenities that measured Crawford's capability within a neighbourhood context. Whilst asking about amenities such as drainage systems does not

rank at the top of the list for researchers, it is a method to identify how extreme weather can impact a community at a social and structural level. Heavy rainfall in the area also reconfigured and transformed the social relations in the community at a social level in particular. because it prevented many participants from enjoying their habitual pastime which was to attend daily prayers at the local mosque and weekly congregations for church goers. The absence of access to customary social venues, such as mosques and churches, created a profound sense of loss among people, as these places of worship served functions beyond just spiritual practices in their daily lives.

Hence, the third theme that these initial findings highlight was that people in areas such as Crawford were more concerned about the capacity to exert agency within a space, which in its own right forms a big part of adaptive capacity. How is one able to ask for assistance or practice community-based resilience if he/she has no formulation of relationships? How is one to prepare or repair after heavy rainfall if one is not part of a community? These insights regarding access and the relationship to internal and external stakeholders provide a conjecture into the resilience and potential capabilities the community has. How these capabilities coincide with resilience in the form of amenities and infrastructure used by residents in order to establish a resilience portfolio when extreme weather occurs was then further explored during ethnographic observations.

The three themes discussed in this section not only displays the effectiveness of interviewing participants, but also the context the researcher creates in order to extract the necessary information required for the study. By asking questions based on access, application, and existing resilience factors, these findings ascertain that existing social relationships are impacted by both social and structural positionalities in order to create adaptive capabilities that often leads to moderate resilience depending on the intensity of rainfall. In the following section, I explore what emerged in a second round of detailed interviews with participants.

Detailed interviews: Practical Theorisations of Adaptive Capacity

The second round of interviews aimed to position each participant within the community of Crawford, including explorations of how their agency may be influenced by their positionality in relation to the ways of being they may draw upon in order to address the potential risks that emerge with heavy rainfall. From the seven selected participants, three were chosen for the follow-up interviews. The basis for their selection was grounded in two

factors, the suitability of the answers given, and their various positions within the community of study. These positions provided a wide spectrum of positionality within the community, allowing for the interviews to draw on diverse perspectives correlated with the existence of ways operation. These were used to recollect the existing and emergent social relations within Crawford.

I decided to approach each participant by asking them to provide a brief biography about themselves. The participants occupations ranged from taking a gap year after high school to an academic at a tertiary institute. This wide scope of activities came with its own unique knowledge production and symbolism. A symbolism based on the power dynamics each participant engaged, these dynamics were also dependent on age, who you interacted with on a daily basis, and where in the area of Crawford you were positioned. The age of the participants selected for this portion of the study ranged from 19-28.

Furthermore, all three participants subscribed to Islam as their religion with each one being born into Islam. I note that the participants were not selected based on their religious preference, but rather on their answers given in the first round of interviews and their availability to conduct their respective interviews. One of the participants, a student at an Islamic institute in the neighbouring suburb of Athlone, opened up regarding his relationship with Islam. During our interview he said, “I was born Muslim but only in my later teen years I decided to research in depth and fall in love with my religion and truly understand what it is to be a Muslim.” When asked to expand on this statement he answered by saying “The realisation to study the religion of Islam was also influenced by the passing of my mother. I had this realisation due to the lifestyle choices I made. I was living a life that was not congruent with the teachings of Islam nor was it a good reflection of the good home and community I came from. With the new lease on life, I found that I can make a positive impact on our community, not just religiously but in general day to day activities.” This student of Islamic knowledge thus took it upon himself to engage with community members if it was necessary, inserting himself within the community to promote a feeling of togetherness in times of ease or difficulty, a personal mission that had broader communal implications (Zahari, 2013; 500).

This pronouncement by the above-mentioned participant was shared by the other participants. Having anticipated this might be the case, I proceeded to ask how important is the place of worship for religion on a day-to-day basis? The answers I received were varied, two of the answers were detailed whilst one of the answers were short and straight to the point. One of

the participants answered, “It's very important, it's a place where you find peace and solace and it's where you feel connected to your Creator and like-minded individuals in the community who either you are able to help and assist or they help aid and assist and help you grow in your connection with your Creator.” This perception of places of worship correlated with a portion of my fieldwork findings where I observed how community members would frequent places of worship such as the mosque when there was bad weather, such as strong winds or heavy rain, despite having access to shelter elsewhere in their homes nearby. People would therefore frequent such spaces as a means to establish or continue convivial relations that existed before extreme weather entered the fray.

After capturing these responses, I was able to get a sense of how each participant was moulded by the environment they had grown up in. I then proceeded to ask questions that was focused on the central research question in order to decipher whether or not existing social relationships play a role in people’s perceptions and responses to extreme weather events or whether there were social relationships at all and, if so, how they might arise. I therefore asked each participant to describe the social structure of their community. I was asked by one of the participants to clarify, and thus asked him to discuss with me the main pillars that the community was built upon. The answers I received were from varying positionalities providing insight into how they viewed the idea of “community.”

The first answer I received was from the participant pursuing Islamic studies. He said, “people coming together with their time, money and efforts to draw close to Allah and his messenger (peace and blessings be upon him).” This was achieved, in his opinion, through using the mosque as a central part of daily life. For this respondent, then, community lay in the mosque. The fact that there were Christian people and churches in the area did not seem to influence his idea of community. Such an answer illustrates how one is nurtured via a specific social capital which influences how community is understood. It also illustrates his grounding in Islamic education. The second response I received to the question above, was somewhat more balanced. An academic in his own right Maghmood acknowledged other faiths within the area. He also made mention of the presence of a neighbourhood security company. Whilst their establishment was based on ensuring the safety of this community, they were also on hand to assist in times of extreme weather.

After establishing varying ideas of community, I asked each participant during the interviews how much time they spent pondering dangers of extreme weather, including the possibilities of it taking place and how they would address it. Two of the participants stated that they

thought about it quite often. The other participant, named Ismail, did not the feel the need to think about such issues. His response to this question was greatly influenced by his age. Having recently completed high school, his focus at the time of the interview was trying to establish himself as a young man within the community. I often found myself talking to him about personal matters, such as the challenges of growing up in an Indian-Muslim household.

I then proceeded to unpack each participant's understanding of the services provided by the CoCT. Each participant agreed with the notion that they lived within local government purview. I then asked each participant how many times a week do the CoCT come and collect waste, with each participant answering every Thursday. These were subject to change and/or delay if logistical pathways were impacted by disruptive rains. Maghmood, one of the interviewees, mentioned during our interview how it would often be delayed up to three days. This caused a pile up of rubbish within the homes of residents. He also mentioned his access to running water and electricity, amenities provided by the "council." During our interview, he recalled an incident that took place in his road. After a heavy storm accompanied by strong winds, the drainage was unable to contain the amount of water flowing, causing its foundation to crumble. It led to the water being turned off by the CoCT in order to address the situation. The water was turned off for two days, forcing his household to use bottled water for their needs.

I found this to be quite interesting, because whilst speaking to a member of a community not too far from Crawford, I found that the CoCT would often take weeks to collect waste and sewage. This area was classified by its resident, who requested not to be named as an "informal settlement." This meant that they did not have access to the amenities that were availed to my interview participants. What was even more peculiar was the fact that this informal settlement was located on CoCT property. This conversation speaks to the idea that domestic space assists in understanding how people prepare, react, and respond to climate related impacts (de Vet, 2013; 203). In this case, the availability of services provided by local government can be viewed as "spatially contingent." What this means, is that depending on a person's location within the broader cape metro area, a person is able to access certain amenities that assists in their response towards heavy rainfall. Whilst certain areas were availed services such as rubbish collection, there are many areas like the one discussed above which are left unaccounted for.

A finding of note extrapolated from the interviews was established around people's engagement with weather, namely how often was extreme weather thought about in their

daily lives. Out of the three participants, two of the participants stated that they thought about the effects of rainfall quite often. Specifically, around how each participant and their neighbourhood would be affected by heavy rainfall. This corresponds with the findings of Noah Walker-Crawford (2023; 76). He discusses the concept of neighbourliness which can be used as a paradigm for investigating the moral stakes of social relationships. Like the above-mentioned author, I found that peoples' experiences in relation to bad weather were influenced through gossip (Walker-Crawford, 2023; 91).

Lastly, the interviews uncovered the ways in which people used the home as a space for resilience measures to be implemented. Eliza De Vet and Lesley Head (2020; 270) argue that the home provides a controllable environment in which major adjustments to the weather could be created. During their investigation of urban weather responses in the city of Melbourne, the authors identified that housing styles and living arrangements influenced people's responses to weather. The dominant style of housing within the area of Crawford that I worked were single storied abodes made of clay bricks and concrete. The roofs were either of cast iron or porcelain tiles, with the tiles generally found on double-storied houses. The participants who received follow-up interviews all lived in cast iron roofed homes. Appended to this observation was that all participants noted heavy leakage during rainfall. The solutions applied by each were of a similar description. Participants adjusted to the leaks by placing buckets in the areas of the home where water was flowing. This remedied the situation temporarily, but the leakages created further problems. Issues such as damaged furniture, building materials such as cement, and ruining of internal ceilings. More drastic measures were described by participant Imran, who detailed how he and his family needed to open the drain in their backyard. This was done by lodging two screwdrivers at an angle for the water to escape (see fig. 9.)

Figure 9: Homemade solutions to flooding caused by heavy rainfall.

The findings above laid the groundwork to visualise how members of this community engage with heavy rainfall. By asking the participants certain questions regarding their methods of adaptation, it allowed for each participant to be stimulated towards expanding on their own positionalities within the area, expounding upon their ideas of space, and differentiating between social and personal space. The discussions also unearthed how the placement of DIY barriers positively impacted participant's behavioural patterns towards heavy rainfall. Ingrid Brudvig (2014; 51), argues that space can be used as an architect to form habitus within a particular community-based on the communal, convivial and cultural norms of an area a production of shared knowledge occurs. In the case of Crawford, this shared knowledge manifested in the form of digital preparedness. Notifications were distributed on the community WhatsApp groups, such as the neighbourhood watch, mosque, and church platforms. A warning was announced to mosque attendees when heavy rainfall or extreme weather was forecasted. In the case of the mosque, they had a broadcast chat that distributed announcements about programs taking place. These examples indicate an existing framework of social relations, used to expand the possibility of resilience within the mosque community. By exploring contextual understandings, I argue that the research tool of interviewing was pivotal in ascertaining the notion that exposure and resilience to heavy rainfall are supported by each other through the existence of communal relationships. In this chapter, I have begun with a presentation of the findings from the research as they were presented to me verbally by

respondents; I now move to a more ethnographic discussion of behaviours I observed and interpreted when immersed in Crawford.

Chapter 6: Thinking about Weather Ethnographically: Conditions and Community

Having to date presented verbal data as gathered during research, I now move slightly deeper into the data gathered during observations. This allows me to explore what people did, in addition to the earlier exploration of what people said they have done when heavy rainfall took place. In this chapter I thus present more ethnographic findings in order to observe how different variations of data can be used to observe how the Anthropocene interacts with extreme weather such as rainfall.

During my preparation for fieldwork, I received a peculiar request, from one of the selected participants. The participant, who wished not to be named, asked me if he could accompany me on one of my walkabouts around the area. He found my work and profession (Anthropology) interesting and wished to know more about the broader objectives of this study, as it aligned with his interest in water filtration. A chemical engineer by trade, he accompanied me on a day that was designated for looking at the types of communal capabilities present. He mentioned that he had never seen such sporadic rainfall, finding it to be quite unusual, and explained it as "a sign of the times we're living in." I asked him to expand on this statement, to which he responded by saying "this is a direct result of our heedlessness regarding our climate."

Whilst walking around with a notebook in hand, I began to ask him about the social constructs that made up this community. He answered me by saying that this community was comprised of Muslims and apostolic Christians. There were two churches and one mosque, with the mosque embodying a duality as both a place of worship and a social hub where people congregated. He noted that attendance at the mosque was well received on a daily basis, referring here to the five obligatory prayers that are prescribed upon all Muslims. As I was also a regular congregant of the mosque he advised me to go and observe the space when heavy rains fell. This was a great idea indeed, as it proved to be a useful means of gaining insight into people's behaviour during heavy rainfall.

When in the Mosque during rain, I asked how people understood the advent of heavy rain. To my surprise the responses I received from congregants were mixed. Some understandings of heavy rainfall and its impact on the community were grounded in Islamic theology, drawing on the concept of cause and effect. This is something that is core to the beliefs of any Muslim, in that God is the creator and bestower of all things in existence such that everything

happens by his decree and if he so wills. This was a response I received from many of the elders within the congregations. One uncle told me, “My boy, we can view the effects of heavy rainfall how we want? If Allah decreed it as such then it will be and nothing in existence can stop it.” The role religion has in this area is indicative of how people perceived climate events and how they socialised within a public space like a mosque. This provides a subjective clarity as to how does a portion of the Crawford engage and prepare for EWEs like flood events, an entanglement of the secular and theological ideologies that inclines one to a convivial approach towards adaptation.

Figure 10: Image of mosque after downpour of rain

Accessing the area:

Whilst navigating the area through the various entry points, three themes of temporality emerged. The first theme one gets a sense of is that there are varying viewpoints of accessibility. This access impacted the holistic evaluation of the impact of heavy rainfall in this precarious yet calm setting (Ribot, 2022, 3). Because depending on where a resident accessed the area, could potentially put a halt day-to-day activities. Such as accessing the main roads on either side of the area (Kromboom road) that leads to Claremont, a commercial suburb that houses leafy neighbourhoods and is also an intermediary stop-off for public transport use before busses and taxis head to the city centre. Or even to leave one’s home

would prove a challenge, as the sidewalks and driveway entrances to the home were completely flooded.

Conditions; Community Exposure.

My fieldwork notes regarding the conditions of the area were divided into two sections. The first section observing the processes and practices of the area during heavy rainfall, followed by the aftermath of a heavy downpour.

During rainfall:

As I walked through area, drenched to the bone, I noticed that people struggled to exit their gated driveways. One of the roads that was common on my route became flooded causing people to remain in doors until the rainwater drained away. But in some cases, the water needed to be drained by local government services. These utilities provided by the DA-led Western Cape Government were often referred to in the local jargon as "the council." It was also used as a form of affirmation by community members. Both participants and non-participants whom I spoked to use this catch phrase as a means of affirmation which reflected a generalised reliance on the civil services. Phrases such as "phone the council, the roads are blocked" and "when is the council (i.e. the City of Cape Town) coming to unblock the drains" were commonly used during my engagement with residents. [3]

During the initial phases of data collection, the rainfall was often sporadic and unexpected. This caused roads to become blocked by the resulting rainfall (see figure 12). Interestingly, when the City of Cape Town (CoCT) staff did arrive it created a very tense environment where residents would often come out of their homes and become aggressive with the workers. People who were simply "doing their job" now became the brunt of people's pent-up frustrations. These frustrations stemmed from the fact that their entire schedule for that day was turned completely upside down. One resident, whose entire driveway was flooded as well, mentioned to me how they were unable to attend an important meeting. After receiving his permission to document the meeting in my notes, he stated that the meeting he missed would have finalised the tumultuous divorce he and his wife at the time was going through. Such was the stress on his face that one was able to see a vein protruding from his forehead right down to his eyebrow. On top of this difficult ordeal, he was also unable to attend a

[3]Though I was unable to spend as much time at Vrygrond as I would have liked, it is worth noting that the Council played little role in that much more marginalised place, and was unlikely to be called in such a fashion during rain.

house viewing on the other side of the city, an upmarket area desired by many of Cape Town's upper working class.

I thus investigated the conditions before the CoCT maintenance staff arrived. There was almost no activity by residents whose homes were flooded. It was as if they were disinterested with the pool of water that had accumulated outside of their homes. Nobody came outside to try and address the situation. It was as if these residents delegated the problem to external actors. This heavy reliance on civil services immediately reminded me of the paper "violent silences: framing out social causes of climate-related crises" by Jesse Ribot (2022). We see here an eery silence that dismisses the social aspect of extreme weather. Whilst not on par with the literature itself, the lack of social interaction during such rainfall raised some interesting insights. That when hazardous weather enters into a state of precariousness, damage can occur (Ribot, 2022; 3).

A separate incident unfolded on a chilly evening as I walked past one of the churches in the area (see figure 13), a muddy brown structure with different coloured windows. I have walked past this church for more than twenty years, but due to me following the religion of Islam, I have never been inside. The church was surrounded by a silver sharp-spiked fence, with the main gate being locked by a metal chain with a huge brass padlock of around seventy-five millimetres in diameter. My eye for lock sizes comes from my part-time job in the tooling trade, where brass padlocks is a common commodity being traded for the securing of gates within industrial premises. There was also a small catering hall located on the premises, a yellow-walled copper building with white-framed glass frosted doors. During my observation of the church and what was situated on its premises, I turned my attention to the tree that had blown over directly opposite from it. It had fallen with its long thick branches languishing in the road. Whilst the base and the trunk fell on the grass embankment and pavement adjacent to it. At first it did not seem to cause an issue as I looked at my watch and the time read about just past noon. There was not a person in sight who came to observe the fallen tree, apart from me of course. This was due to most of the residents of the area being at their places of occupation or perhaps this was due to people having other obligations to address? Perhaps most of the residents left the area early morning? I decided to pursue this further.

I rang the doorbell of the neighbour that stayed opposite the church. A lady named Shirley answered the door. After explaining about the fallen tree, the lady responded by saying that

she wanted to look at the tree herself. She came out greeting me with a smile, thereafter asking me my name. She then turned her attention to the tree that had fallen. Laden with shock, she said that she did not even hear the tree collapse. She said that this must have occurred over night. After explaining why I was roaming, I asked what strategies would she and her family's put in place if the tree that was on their side of the road fell over. Her answer was, not to my surprise, "oh my dear, we would just phone the council, and they would sort it out." Shirley, who did not want her second name to be mentioned, also remarked to me that they recently renovated their double story home. A beige wooden extension with a silver, modern chimney was pointed out to me. She claimed the reason for the renovation and subsequent extension of the home was caused by constant leakage leading to flooded areas within her home.

The above extraction of data seems to demonstrate a functional urban sociality from the outset, given that there are systems in place to call upon should extreme weather occur. The context here is vastly different to what I saw from my short time in Vrygrond, and quite different to spaces in Southern Africa where urbanity is not so functional. Morreira (2015) has argued that communities in the middle-class socioeconomic bracket in Harare, Zimbabwe, found alternative means to deal with situations of precarity in order to maintain a particular lifestyle when municipal services collapsed, including developing new forms of community. (Morreira, 2015; 277). In Crawford, this was not necessary, in the face of a functional City: residents relied heavily on the CoCT maintenance staff to alleviate difficulties such as mobility in and out of the area. Whilst it is not an innovative technique from the community members, it is the modus operand of low-density suburbs like Crawford during times of extreme weather, and meant that households could operate at a level of individualism that would not be possible if the City had not stepped in to assist with extreme weather. This is a contrast to what I found during previous stints in the area of Vrygrond, where the city was not present, and the community displayed ample convivial relations due to the density of the area and lack of municipal services available to them.

In the case of the scenario involving Shirley, it seems that everything has been addressed from a vulnerability standpoint. However, from a social aspect the lack of residents present during working hours may cause potential vulnerabilities. During my data collection, I received accounts from individuals like Shirley about how many elderly people often remained alone in their homes. In some instances, there would be a carer to see to their needs. I followed these up with some of the elder congregants of the mosque, asking six men who

were well over the age of 75. One of the congregants who, wished no to be named, jokingly told me to make his age 21. Two of the "uncles" (uncle is an affectionate term used in the Cape Malay community to show respect or veneration to someone older than you) recalled an incident where water entered the homes of residents in the area while an elderly individual was in the home. The rain was so bad that it entered the main house and the small cottage at the back of the property. In the cottage, an elderly man laid asleep, upon him waking up he realised his room was flooded, and his lounge area. He was unable to contact his son for help as his telephone cable was damaged from the water in his rooms. It also happened to be on the day the domestic cleaner of the property was on leave. He then recalled how he proceeded to shout "hello, can someone help," to which the next-door neighbour and her son responded to his plea. The young man "Jumped over the Viber Crete wall that separated our homes, he and his mother helped me to empty out some of the water with buckets they brought over. We also tried to take what we could to prevent further items being damaged. In times like that I was grateful to my neighbours for assisting, but who knows what I would have done if they weren't there."

Figure 11: Image of church in Crawford area

When I returned to the fallen tree by the church in the afternoon, at the time when schools usually come out, the tree had become a major hindrance. Residents in their cars were struggling to manoeuvre around it. I noticed the brands of cars that were driving on this road: fancy SUVs from major German car manufacturers. BMW, Mercedes, and Audi were the

ones that drove past most frequently. As I paced up and down next to the church, I observed the agitation that was brewing on the faces of people (see figure 11). The tree had fallen in such a way that only one car at a time could drive around it. There was lots of hooting with people even rolling down their windows. The tree gave a glimpse into the capacities of the social actors present within this communities. Whilst it does not represent the entire community's adaptive capacity, it provides insight into residents' attitude towards resilience. Not only how people cope with and adjust to harsh conditions, but also seek for and generate alternatives (Obrist, 2010; 289). resulting in enhanced ability in dealing with a threat. One of the alternatives I observed being generated was the area security company known as "Shaza Security" trying to remove the tree stump by tying a thick tow rope around it and attaching it to the back of one of their trucks. Five members of the security staff tried but failed to remove the tree stump as the weight of the tree extended past the load capacity of small Nissan pickup truck. Such an attempt is what Brigit Obrist (2010), refers to as the meeting of reactive and initiative-taking capacities. Reactive, in the sense that people needed to adjust to this new factor in their social pattern. And proactive, in that people needed to create new options for themselves. One of those options I have observed was that people took alternative routes, turning off into other roads that run adjacent to the one I was positioned in.

Once the rain had subsided, this would usually be the time when municipal stakeholders would enter the fray. Such an incident took place during my fieldwork sessions. The incident took place in the same space where the image of the flooded road above was taken (see figure 14). Shortly after this image was taken, a CoCT maintenance vehicle pulled up, with two workers exiting the white bakkie with CoCT insignia on. Both men seemed to be in a jovial mood giving the conditions they were working in. The constant trickle of drizzle paired with a strong wind did not seem to deter them.

Figure 12: Flooded roads during heavy downpour in Crawford

Observing from the opposite pavement, they meticulously began opening up the dark-brown drain covers that was positioned in the middle of the street (see fig. 12). One of the men climbed in the drain suited up in an orange with silver lining rain suit. They began toiling away at this tedious task. During my observation, I approached the driver of the vehicle. I began asking him about his shift. I asked him how long was his shift, how many days a week he worked, did he work overtime? The gentleman, who wished to remain anonymous, told me that he and his team worked on average worked around seventy hours a week. Racking up nearly three hundred hours a month. He also remarked to me with a smirk "and I'm not even giving you the hours when I'm on standby." The gentleman was referring to when members of staff would remain available at any given time, including on weekends when a person is generally relaxing with the family.

I proceeded to explain once more why I was walking around. After getting past the usual pleasantries of "so what do you study?," the man seemed quite interested in what I had to say and what I was observing, particularly when I mentioned social and convivial responses to weather. He thereafter proceeded to pass one of his trademark humorous yet sarcastic remarks. He said to me "well you not gonna find such practices here, ou bru." Based on my own positionality within the community, I was well aware of his statement being somewhat factual. But on the other hand, I knew that the CoCT was not the catalyst to underpin existing social relationships.

Strategies deployed after heavy rainfall:

Whilst these men from the above excerpt were toiling away at unclogging the drains, a woman approached them. This woman exited her light blue coloured house draped in a grey gown with matching slippers. She marched out of her rolling garage door screaming “what the bloody hell is this, you people only come now!.” Perplexed by the whole situation, I observed how the CoCT staff remained calm throughout this entire exercise. The driver I spoke with was donning this grin.as if to say that he had seen this movie before. The angry resident even acknowledged this smirk by saying “you’d better wipe that smirk of your face, ek issie jou laaitie nie.”

The above observations of during and after heavy rainfall has been put forth to display two things. Firstly, to identify the conditions that emerge when rainfall takes place. Secondly, I have aimed to display practices of conviviality or lack thereof. By observing economic interdependence, social capital, and local governance systems all play a role in how relationships are contextually forged (Brudvig, 2014; 47). What I found was more of a socialised adaptation. One that did not require people to scoop the water from out of their homes. No requirement of them to seek assistance from the neighbour to move their belongings over. No reliance on one another’s social resilience respond to a particular problem. This is in part caused by the position of privilege many people found themselves in. Gated double-storied homes, high walls donned with cameras. This not uncommon as a I walked through the area. Whilst I again refer to my positionality in the area as a main point of access, these anecdotes displayed above show how social responses to weather were displayed as a combination of individuality and social isolation. Here, social networks and capital mattered, in that one was only able to gain access to this interdependency if he or she fit the criteria of social behaviour and etiquette. Conviviality, therefore, was not immediately apparent in people’s responses to rain.

Chapter 7: Conclusion: Drawing together the threads.

The above excerpts from the semi-structured interviews, formal interviews and ethnographic data have brought together three themes of engagement with extreme weather and its impact on social relationships used to answer the overarching research question of this study. The first of these themes was that one's religious affiliation affected how an individual was able to respond to a weather-related incident. During my fieldwork observations, I witnessed how the Muslim members of Crawford mobilised in particular displays; as briefly touched on above, the mosque's board of trustees would send out notifications for congregants to be vigilant or if able, for example to travel to the mosque in groups. When asking a trustee member about such access, he made it clear to me that such an amenity was only made available to "people who we were familiar with." One's religious affiliation within Crawford, hinged on the notion of who you knew in order to receive access to a space designated for communal usage.

Two of three participants also had similar engagements with the board of trustees, where they were required to schedule a meeting with all members in order to propose a youth development project. What this signifies, is that from a Muslim's perspective, social capital is rationed according to one's positionality within the mosque congregation. I justify this claim with my own positionality within the mosque, being a regular attendee allowed me to scope out the intra social dynamics with the mosque's administrative setup. The idea of access to particular spaces were availed to a select few, which impacts residents' resilience and adaptive capacity to flood events. This created an imposed move towards dividual response to flood events for those who were not granted access, as the potential for a convivial response was cut off by certain stakeholders in the community (i.e., inclusion, allowing people to make use of the space as mediated by whether the person was understood to be a member of the local Muslim workshop groups), causing the burden of vulnerability, resilience, and adaptive capacity to be dealt with in an individual manner.

The second theme of engagement critical to this study was the schematic nature of the area itself. The area was not built in a manner that took into account the ever-changing environmental conditions which created an array of challenges that added to the residents ability to react to extreme weather events. The participants relied heavily on the urban planning and service delivery provided by CoCT, diminishing the chances of creating systems of conviviality. At surface level, there were no strategies apparent during my

discussions with each participant to suggest that the existing social relations were either damaged or annulled, but rather they were reconfigured according to the individual needs of each participant. This was due the embodiment of actions and resources that mobilised adaptation through individualised means. These insights display the positionality of being a member of a municipality, and speaks to the ambiguous nature of municipal service reliability across the Cape Peninsula (cf. Morreira, 2015; 277). With specific reference to Crawford, this ambiguity had both positive and negative connotations. Positive in that it allowed for each participant to effectively address structural issues that arose during heavy rainfall. Negative, if you were to look at it from a perspective of communal adaptive capacity, in that it went against a communal approach to addressing scenarios formulated by heavy rainfall.

The third theme that emerged from the detailed interviews is that the structural and social dimensions of Crawford influences what is viewed as relevant. Locally produced forms of sociality are not unilateral developments within in a particular context. They are products of engaged interpretations built upon meticulous understandings of the environment around them (Nyamnjoh, 2015; 49). These are apparatuses associated with academia, but manifested itself in "layman" scenarios. I draw on the account provided by one of the participants (see pg. 38-39), who needed to tamper with existing infrastructure in order to allow for excess water to flow out of his home. Once doing so, he then proceeded to inform his neighbours about this technique of adaptation in order to improve resilience. Such an account not only sheds light on a kind of sociality present within the area, but also a type of personhood based on cultural values and understandings. Whilst I have only homed in on a small fraction of the diverse population that exists within the area, such analysis I believe can be a cornerstone towards improving resilience and adaptation within the broader Cape Town CBD.

The above themes that have emerged out of the ethnographic research conducted points towards contextual ideas of resilience and adaptation. What binds these three points is the types of exposure members of this community embody. Whilst these may come across as mundane everyday tasks that do not seem life threatening, I argue that providing such an analysis shows the importance of looking at the organisational capacity of a community in responding to EWEs such as heavy rainfall that may lead to flood events (Mohan et al., 2020). By doing so, it allows for one to determine if a community converges or remains individualistic in response to weather related incidents, identifying a system can be linked to a contextual disaster response plan. This allows for an increased community resilience in the

face of future extreme weather disasters. The above findings can be effective when applied to policies of risk management. These policies and protocols which may include enhanced flood forecasts, improved early warning systems, improved communications, and support for risk-mitigation techniques (Olago, 2007; 356). These insights correlate with one of the emergent themes in the ethnographic data collection, grounded in an amalgamation individuality and reliance on the municipality, with conventional policies of engaging with extreme weather, one is able develop a hybrid strategy that can work in a multitude of contexts allowing for detailed discussions around how the role of existing social relationships intersects with conventional ideas of climate resilience and mitigation.

Examining existing social relationships within a particular neighbourhood provides an important avenue of insight into how people prepare for and endure extreme weather events. The evidence gathered eludes that existing social relationships emerged in two dimensions. The first dimension is that social relationships within a community have already existed, and have been exacerbated by the arrival of heavy rainfall. Secondly, social relationships were necessarily considered in a community but have formed as result of extreme weather, making heavy rainfall the catalyst for people to construct personhood in order to deal with risks and vulnerabilities. These relationships include formal relationships with the municipality, and are at times hostile.

A social analysis of the relationship between extreme weather and existing community relationships shows that residents rely on both social capital and their own individual capacities to adapt to situations brought forth by heavy rainfall. Secondly taking an intra-comparative approach to the area of Crawford has highlighted how reactions and strategies of residents differed according to their level of social engagement with residents, religious institutions, and external stakeholders. If a resident's engagement was intensive with the above factors, then their ability to improve their vulnerability and adaptive capacity to rainfall improved allowing them to take the necessary steps to mitigate future exposure to the harms of heavy rainfall. Lastly, the practices of conviviality and access varied according to one's willingness to engage in acts of reciprocity, allowing for a sharing of the commodity to govern the space of Crawford according to the intensity of rainfall.

Such findings thus generate a thirst for acquiring knowledge around strategies and tactics of "the social," and how it can be applied to observing how people cope with extreme climate conditions. For this study, I have chosen to anthropologically concentrate on the

vulnerabilities, resilience, and adaptive capacities people deploy when heavy rainfall takes place.

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