



**GENDER AND CLIMATE CHANGE ADAPTATION IN SOUTH AFRICA: A CASE
STUDY OF VULNERABILITY AND ADAPTATION EXPERIENCES OF LOCAL
BLACK AFRICAN WOMEN TO FLOOD IMPACTS WITHIN
THE ETHEKWINI METROPOLITAN MUNICIPALITY**

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Science) in the School of Social Sciences, College of Humanities,
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December 2020

SUPERVISOR'S CONSENT

As the candidate's supervisor, I agree/do not agree to the submission of this thesis

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DEDICATION

I dedicate this dissertation to:

- ❖ Every young person from less privileged backgrounds who dare to dream and aspire to break structural limitations.
- ❖ All less privileged widows and single parents who, despite all odds, endeavour to be available for their children.
- ❖ Every person of goodwill that have been *deprivileged* in one way or another in the society.

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ABSTRACT

This dissertation contributes towards the scholarly debate on gender and climate change adaptation. This is done by exploring the vulnerability and adaptation experiences of local Black Africans to impacts of floods within eThekweni metropolitan municipality, KwaZulu-Natal Province, South Africa. Specifically, the discourse in the dissertation is framed within the context of being a local Black South African woman living in rural/informal flood-prone area of Durban and having to negotiate everyday lived experiences while adapting to impacts of floods and other climate-related disasters. The dissertation is premised on the assumption that local women's experiences of vulnerability and adaptation to climate-related impacts is significantly influenced by socioeconomic, cultural, sociopolitical, gendered, racial and other significant factors of power relations largely operating within the local context.

The dissertation applied a qualitative case study approach to research. Primary data for the study was collected through semi-structured in-depth interviews and focus group discussions with Black women from Inanda, Ntuzuma, KwaMashu (INK) and uMlazi localities of eThekweni metropolitan municipality. Purposive sampling was used to select local Black women who have had experiences adapting to flood impacts within the area. Personnel from the Environmental Planning and Climate Protection Department, ECPCD of the eThekweni metropolitan municipality were also interviewed. Data collection processes sought to garner data relating to the women's experiences of vulnerability and adaptation to flood impacts, as well as how the municipality addresses gendered vulnerability of Black women within the municipality to floods and other climate change-related disasters. The study adopted a thematic content analysis and was informed by three theoretical lenses: feminist political ecology, critical realism and the Theory of Change. These theories enabled an understanding of how

gender intersects with race and class to shape Black women's experiences as they adapt to climate impacts, as assessed within the contexts presented in this study.

The study found that while Black women negotiate their climate adaptation experiences from their varied individual standpoints, their overall adaptation experiences are further shaped by factors related to poverty, lack of 'intentionally gendered' approach to adaptation governance in the municipality, as well as socio-cultural normalisation of patriarchal tendencies by men against women which heightens the vulnerability Black women experience in adapting to flood impacts. To address the contextual vulnerability experiences of the women in the context of the study, the study recommends a collaborative governance model that intentionally seeks to address gendered vulnerability from the women's varied contextual standpoints.

Key words: climate change adaptation, vulnerability, local Black women, South Africa, eThekweni municipality

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CHAPTER ONE

INTRODUCTION TO CLIMATE CHANGE CHALLENGES, AND GENDER AND CLIMATE CHANGE ADAPTATION

1.1 Introduction

The frequency and magnitude of natural disasters and their negative impacts in the context of climate change over the last few decades have become issues of grave and heightened global concern. Natural disasters such as floods, cyclones, droughts and extreme weather events are increasingly posing various threats of varying magnitudes to countries, regions, communities and individuals, ranging from widespread diseases, loss of properties and displacement of people, to events as severe as loss of lives. Climate change, which is attributed as the cause of natural disasters (Intergovernmental Panel on Climate Change, IPCC¹, 2001, 2007) was first regarded as a scientific problem that required addressing the vulnerability of the physical environment. However, later assessments by the United Nations Framework Conventions on Climate Change, UNFCCC² (1992) have realised that addressing climate change does not only require addressing the susceptibility of the built environment to climate disaster, but it also constitutes imperative political concern. Most especially, climate change adaptation has recently been cited as an area that requires a deliberate and self-conscious interdisciplinary discourse on ways of responding to future climate change and other disaster risks (Adger *et al* 2009a, p.336; also see Bassett and Fogelman 2013).

The critical nexus between climate change and the impacts that climate change-related disasters³ pose to individuals and communities has been identified by Rai (2016 p.3), as an important and needed area of study in Political Science research. A focus on climate change research in Political Science discipline becomes more important if such study seeks to identify

¹IPCC is an intergovernmental body of the United Nations that provides the world with regular scientific information and assessments relevant to climate change: its implications and potential future risks. The regular assessment provided by the IPCC helps policy makers with the state of knowledge on climate change and aid their climate change adaptation and mitigation decisions.

² UNFCCC is an international environmental treaty that seeks to reduce atmospheric concentrations of greenhouse gases, which are attributed to be the cause of climate change. Through its frameworks, the body regulates states and non-states actions towards preventing dangerous anthropogenic interference with the earth's climatic system. Presently, UNFCCC has about 165 signatories, including both advanced, developing, and small island nations.

³Throughout this study, unless it is stated otherwise, the terms: climate disasters, climate-related disasters, and natural disasters will be used interchangeably

and address the socio-political and socio-economic factors underlying in people's experiences of vulnerability as they undergo the impacts of climate change disasters. A survey of the literature clearly reveals that many of the climate change risks that people and societies face today is a result of poor governance and other political and social dimensions of exclusion and injustices (see Rai, 2016, p.3, Williams *et al* 2019; Camacho, 2009; Ahmed, 2016 and Meintjes, 1996). In her article entitled, 'The Most Important Topics Political Scientists are Not Studying: Adapting to Climate Change', Debra Javeline asserts that "technical advances in adaptation are dependent on political factors for their adoption, implementation and effectiveness" (2014, p.421). Javeline's (2014) claim also positions climate change adaptation as an emerging and important focus of research in political studies. Javeline (2014, p.420) and Rai (2016, p.4) point out that "political science subfields such as political economy (costs of adaptation), political theory (justice), urban politics, public opinion and federalism constitute some key areas of critical thinking that have the potential to broaden the understanding of climate change adaptation". Moreover, the recent prevalence of floods which have posed disastrous political, social and economic effects to societies, especially poor societies, has also captured the attention of researchers who have explored how political dynamics, institutional and socio-cultural practices, and local level adaptation governance influence how people experience impacts of flood and other climate change risks (see Pradhan, 2018, p.iii).

As stated earlier, scientific evidence, including assessment by the Intergovernmental Panel on Climate Change IPCC, attribute the cause of floods and other natural disasters to climate change: an alteration in the earth's atmospheric condition over a considerable number of years (IPCC, 2007). In the past years, flood incidences have constituted one of the most prevalent natural disasters that have posed enormous negative impacts to different regions of the world, though the impacts are felt differently across regions, depending on contextual conditions (Goodrich, Udas & Larrington-Spencer, 2018, p.2) that underlie the extent of the impacts and the experiences of vulnerability by the affected people. Some studies, such as Williams *et al* (2019), Vincent *et al* (2010) and Babagura (2014) have documented several incidences of floods that have posed a significant level of vulnerability to poor people living in poor communities and rural settlements in South Africa. In some cases, the geographical or physical condition of rural or informal settlements is connected to the historical and socio-political contexts of the country or region. The national and local governance of adaptation to natural disasters in such communities also determines the extent to which their inhabitants are impacted by the disasters. In the context of South Africa, Williams *et al* (2019, p.158) mention

that “many local communities and settlements are located in floodplains, with poor drainage networks and poor waste management system”. Such conditions intensify the effects of natural disasters on people. The factors are also likely to be compounded by other social and political factors that marginalise some groups or communities, thereby heightening their vulnerability to climate impacts. Many studies (see for example Babagura, 2014; Djoudi *et al* 2016 amongst others) have identified women as being specifically vulnerable to the effects and impact of flood events. Claims such as this, therefore, make gender an important consideration in any climate change adaptation study, governance, or policy formulation.

In the context of gender, race and class are the intersectional variables, lending the dynamics which determine the extent to which an individual or a group experiences a more heightened vulnerability to climate disasters when compared to another. Understanding the intersectional social realities and factors that render some gender and racial groups more economically, socially, and politically disadvantaged, is critical—as arguably, such factors constitute the major determinants of differential experiences of vulnerability to climate impacts. Factors of intersectional social realities as mentioned above are shaped by social and political dynamics and power relations playing out mostly at the local level (see Goodrich, Udas & Larrington-Spencer 2018). As observed by Eriksen *et al* (2015), in the current climate change literature, adaptation conceptualisation has moved from a dominant structural/techno-centric focus to an increased recognition of adaptation as a socio-political process.

A close analysis of issues related to the political and socioeconomic factors which influence adaptation reveals that vulnerability is also, among other issues, inherently gendered. Moreover, many scholarly works on the differential impact of climate change disasters have paid close attention to how the vulnerability to the impacts of climate disaster is gendered (see Djoudi *et al* 2016; Macgregor, 2010; Babagura, 2014). Gendered vulnerability literally implies that experiences of vulnerability are dependent on one’s gender. In the context of adaptation to climate disasters, a socially, economically, and politically disadvantaged gender group is likely to experience a heightened vulnerability to climate impacts than another gender or group that is more privileged in these aspects. Evidential research, such as Babagura (2014), Djoudi *et al* (2016), amongst others, has shown that at various contexts, men and women experience climate disasters differently, and women usually experience a significantly heightened level of vulnerability. Vulnerability here entails the rate of exposure to the risk of climate disaster. Just like adaptive capacity, vulnerability also concerns the extent to which an individual, group or a system can recover from the shocks or the negative effects of climate disaster. Various gender

analyses of vulnerability show that women's heightened vulnerability to the risk of disaster is mainly caused by the social factors and power dynamics that define gender roles and relations between men and women, including differences in power relations, status, privilege, and needs between men and women. Consequently, even as a gender group, some women are more likely to be more privileged than others, depending on other intersecting factors as mentioned above. According to Goodrich, Udas & Larrington-Spencer (2018, p.2), the differential or heightened experience of vulnerability is due to the multifaceted nature of the factors or "contextual conditions" that determine vulnerability even within subgroups. Such multifaceted factors that determine differential vulnerability among a group of women is best described by Crenshaw's (1989) conceptualisation of intersectionality.

Kimberle Crenshaw, a feminist activist and scholar, coined the concept of intersectionality in identity politics in 1989 in her paper, entitled, 'Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Anti-discrimination Doctrine, Feminist Theory and Antiracist Politics'. In the paper, Crenshaw criticised the manner in which mainstream liberal discourses consider issues of race, gender, and other identity categories as mutually exclusive experience, and analyse them without taking their intersectional experience into consideration (1989, p.133). According to her, "because the intersectional experience is greater than the sum of racism and sexism, any analysis that does not take intersectionality into account cannot sufficiently address the particular manner in which Black women are subordinated" (1989, p.140). Crenshaw's discourse centred around Black women in the context of the US. She sought to criticise the manner in which the US's anti-discrimination law—which also reflected in feminist theory and antiracist politics in the US during the 1980's—was perpetuating injustice by grouping all women into a single homogenous category. In a piece entitled, *Kimberle Crenshaw Discusses 'Intersectional Feminism*, published by NMAAHC, Crenshaw explains intersectionality using an analogy as follows:

Consider an intersection made up of many roads. The roads are the structures of race, gender, gender identity class, sexuality, disability. And the traffic running through those roads are the practices and policies that discriminate against people. Now if an accident happens, it can be caused by cars traveling in any number of directions, and sometimes, from all of them. So, if a Black woman is harmed because she is in an intersection, her injury could result from discrimination from any or all directions (cited in Hayet, 2015).

What the analogy above illustrates is that it is problematic and ineffective to classify all women (and arguably, all men too), under one umbrella, especially in issues of development policy or planning. Such homogenous categorisation ignores the subset of marginalised group(s) within

a dominant marginalised group. Crenshaw noted that the problem with the way identity politics was viewed in the US was not only that it failed to transcend differences, but that it rather conflated or ignored the intra-group differences. Crenshaw noted that in the context of emerging violence against women, such “elision of difference in identity becomes problematic”, fundamentally because the violence that many women experienced was often shaped by other dimensions of their identities, such as race and class (1991. p.1243). Within a group of women, there are those that are more privileged than others based on their race group. For instance, past events in countries like the US and South Africa have shown that the White people were usually more privileged than Black people. Nevertheless, within a group of Black women, some are more privileged than others, based on class or the facts that they are wealthier. Therefore, in analysing the experiences of women, it is vital to consider the multiple densely intersecting factors that render some individual women or group of women more vulnerable than others—even when they belong to the same gender and discernible class category. Using the context of the US as a case study, Crenshaw (1991, p.1243) reiterates that making a policy based on the experiences of a large, socially-discriminated group is likely to obscure the possibility that within such a group, there may be a subset or subsets of multiply-burdened groups or individuals. According to her, failing to recognise such subgroups tends to erase the remediation of those who should be the prime focus of gender and class discrimination remediation policies (Ibid).

One rationale behind the US’s anti-discrimination laws of the 1980s that can be juxtaposed with South Africa’s post-apartheid context, is that both contexts sought to redress the long history of gender and racial discrimination that treated women and People of Colour as less equal than men and White people. Although quite different in many ways, the rationale behind the US’s anti-discrimination laws is quite comparable to the cessation of apartheid in South Africa. For instance, following the transition to democracy in 1994, the African National Congress-led government in South Africa introduced an affirmative action principle through its Employment Equity Policy to address the previous socio-economic imbalances (along racial and gender lines) caused by apartheid. The Employment Equity Act urges all employers to prioritise previously disenfranchised groups⁴ (including people with disabilities—also including White people with disabilities), in employment. A related policy to the Employment

⁴In the history of South Africa’s apartheid era, the disenfranchised groups were the classified groups of Africans, Indians and the so-called ‘Coloureds’.

Equity Act is the Black Economic Empowerment⁵ which emphasises the need for the employment, mentoring and up-skill of Black people at workplaces. Just like the anti-discrimination laws in the US, policies that address equity in South Africa (the most notable of which being the South African National Policy Framework for Women Empowerment and Gender Equality, adopted by South African cabinet in 2000), seem to do so on the basis of either race or gender. Arguably, little consideration is also given to class and other intersecting inequalities. For instance, experiences show that in many issues in the country, Black women tend to be treated as either Blacks or women, rather than as Black women. Yet, it is quite easy to elicit the difference—at least on socio-economic grounds—between a more affluent Black woman living in urban area, and a relatively poor Black woman living in a previously segregated and flood-prone area. Addressing equity in an effective manner means not only recognising, but also addressing the intersectional manners in which such the subsets of a marginalised group are multiply burdened. Such an approach to addressing inequality takes into cognisance the various social, cultural and political factors that shape inequality, and in the case of this study, that shape vulnerability to climate disasters. As Crenshaw avers, “the intersectional experience is greater than the sum of racism and sexism, and any analysis that does not take intersectionality into account cannot sufficiently address the particular manner in which Black women [multiply] are subordinated” (1989, p.140).

South Africa is arguably a progressively democratic nation. This is evident in the articulation of tenets of equality, fairness, and justice in the country’s post-apartheid Constitution and other related policies and legislations. However, though these tenets are theoretically articulated, the likelihood of discriminatory practices and inequality remains. Such inequalities play out in simple ways that are not readily noticeable, unless given a deeper look into the structures that help to sustain them. Natural disasters can compound the widen inequality of vulnerability of marginalised groups. Effective democracy means promoting ideals that mend the injustices of the past, and address issues that render certain gender, race, class, or a subset of these groups specifically vulnerable to impacts of environmental disasters. Unpacking the intersectionality

⁵ Black Economic Empowerment (BEE) was launched by the South African government in 2001 and implemented from 2005. The Programme aims to redress the inequalities engendered by the apartheid, by encouraging business to integrate Black people in the workspace, up-skill and mentor Black business and give back to poor Black communities previously disadvantaged by apartheid discriminatory policies. In 2007, the BEE developed into Broad Based Black Economic Empowerment in a manner that allows for some flexibility which each company and its legal commitments in terms of securing required representation of previously disadvantaged groups in the workspace.

factors that influence vulnerability to the local women, is essential to making informed and effective adaptation policies.

Additionally, the differential impacts of climate disasters are a result of the social and contextual factors that make one individual or group or region more exposed to the risk of the disasters than another whose “adaptive capacity” has been socially suppressed. The concept of “adaptive capacity” has been used in ecological system theory to describe the extent to which a system, community or individual can better adapt to climate impacts. Adaptive capacity as a concept has been assimilated and used qualitatively in climate change, vulnerability and risk/disaster management contexts in the social sciences to refer to the conditions that enable people to anticipate and respond to change, and recover from and minimise the consequences of change (see Adger and Vincent 2005; Adger *et al* 2007). The Intergovernmental Panel on Climate Change uses the term to describe the level of sensitivity and exposure of a system to climate impacts (IPCC, 2001, & 2007). The recent assessment of the IPCC, the fifth assessment, defines adaptive capacity as “the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences” (IPCC, 2014, Working Group II). IPCC also mentions that the attributes or properties of such a system provide it with the capacity to respond to and overcome the adverse impacts of any disaster (Ibid).

The relation between adaptive capacity, vulnerability and climate change adaptation will be discussed in detail in the later part of this study. Socio-economic determinants of adaptive capacity, including assets, education, and infrastructure give some individuals, groups, or regions an advantage to adjust to the shocks that arise from the climate disaster (Bohensky *et al* 2010 and Theisen, Bauhaug & Gleditsch 2008). On a systemic level, advanced technological nations, with less reliance on agricultural practices for survival, are more likely to be less vulnerable to climate disasters like floods, cyclones, and droughts than developing nations with a high dependence on produce from the land for survival (Levine, Ludi & Lindsey, 2010).

The societal and ‘cultural construction’ of gender assigns women subordinate positions within social relations in the society. The essentialist view of women still exists in some societies through gendered division of labour. In the homes, women are regarded as those naturally (sic) responsible for care jobs, including cooking, cleaning, fetching firewood, and taking care of the children. Research has shown that in some societies, women are less likely to engage in job migration, unlike men who are free to leave a disaster-prone location in search of jobs in

another location. For example, a study of the impact of the 2009 El Nino in Peru by Reye (2009, p.9) revealed that while many men traveled out of the disaster zone in search of jobs in the coastal areas, women remained in the disaster area to take care of their families. Many communities, cultures and traditions in Eastern Nigeria do not recognise or uphold women as rightful heirs. Many traditional institutions in the region also privilege men and deny women equal decision-making rights and opportunities, even on issues that directly affect women. Arguably, these practices increase women's chances of poverty, and afford them less adaptive capacity in the event of natural disasters.

One of the Sustainable Development Goals of the United Nations (SDG No. 5) is to address gender inequity in development policies. Addressing this inequity is important in realising the potential that women have in contributing to development. A survey of the literature shows that, in some cases of adaptation to climate disasters, women hold valuable local knowledge that may help in adaptation to the impact of disasters (UNDP, 2010; Rivera, 2018). Therefore, it is crucial to incorporate women's wealth of knowledge in a way that transforms the one-sided view of men as main decision makers. It is also crucial to understand how the socially-constructed differences between women and men prevent full utilisation of women's knowledge and contributions in adaptation governance. Such understanding needs to be intentional. Transforming gender inequities in climate change adaptation demands planning adaptation policies in a manner that moves women's needs from the margins to the centre of development planning and resource allocation. This is one of the key recommendations of Gender and Development literature (Ravera 2018, p.6).

Another key approach and recommendation of gender and development scholars is gender mainstreaming. The concept of gender mainstreaming was first introduced in 1985 at the Nairobi World Conference on Women. The concept entails an approach to public policy that considers both women's and men's interests, needs, and concerns as equally important. The Swedish International Development Agency, SIDA defines gender mainstreaming as a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes so that both women and men benefit and inequality is not perpetuated (SIDA, 2015).

More importantly, SIDA recognises that gender mainstreaming goes beyond merely integrating women's and men's needs into development policies—it further requires realising that different contexts may require different interventions that fit those contexts. A singular or

standard mainstreaming requirement for all interventions will not suffice. This is the argument that this study seeks to put forward. The study is approached from the perspective that gender equality, in the literal sense of equality, is not sufficient to address the differential vulnerability arising from the impacts of floods and other climate change disasters. It is explained that “gender equality is achieved when women and men, girls and boys, have equal rights, life prospects and opportunities, and the power to shape their own lives and contribute to society” (SIDA, 2015).

However, all women or all girls do not experience vulnerability to climate disasters in the same manner and extent. In other words, it is quite possible that women, depending on various contextual factors, have different levels of adaptive capacity. When analysing the experiences of Women of Colour in the contemporary US, Kimberle Crenshaw emphasises that race, class or sexuality are often as critical in shaping the experiences of women of colour and as such, a focus on the intersections of race, gender and class only highlights the need to account for multiple grounds of Black women’s identity when considering how the social world is constructed (Crenshaw 1991, p.1245). Apart from gender, other intersecting factors, including race, class, ethnicity, age, and socio-economic status also shape differential experiences of vulnerability among women. For instance, the experience of vulnerability of a rich White woman living in the suburbs of Johannesburg in South Africa is quite likely to be different from the experience of a poor Black African women living in the rural settlements of the country. It is quite likely that an affluent White woman’s experience of vulnerability may be very different and possibly less severe than that of a poor Black African man. Gender mainstreaming demands that all women and men have equal conditions for realising their full human rights and potential, can contribute equally to national political, economic, social, and cultural development, and benefit equally from the results. One shortcoming of applying a gender mainstreaming approach to climate adaptation seems to ignore the contextual factors and situational realities and factors that determine women’s vulnerability to climate disaster. Such factors, as mentioned earlier—which include gendered division of labour, cultural factors that inhibit women’s chances for opportunity, patriarchy, and structural inequalities that exacerbate women’s vulnerability—exist at various local levels, though they may vary across contexts.

Due to South Africa’s historical past of multiple injustices regarding gender, race, and class, these issues remain critical and are arguably ingrained into people’s everyday experiences. Gender, and racial and class segregation—even after the demise of apartheid in the 1990s—

still reveals itself in the daily interactions and policies in the country. Unequal access to resources and other effects of inequality are still felt in the country. According to a report by the World Bank⁶, South Africa is still one of the most unequal societies in the world, with the top 10% owning 70% of the nation's assets. A similar claim was made by CNN⁷ in the year 2019. Nevertheless, the daily experiences of poverty in the country also make it evident that much of the country's resources and wealth are in the hands of a few. South African Whites and males still occupy a position of privilege in the country. The impacts of climate change disasters aggravate issues of inequality regarding opportunities and render some groups or individuals more vulnerable than others. However, it is crucial to support this claim with evidential data to speak to the experiences of a marginalised group from their contexts. To understand the adaptation needs of a particular vulnerable group, it is necessary to study that group in their own context.

Eriksen (2014, p.5) asserts that political processes—specifically, struggle and negotiations between various actors and interests—often influence the adoption of adaptation options. Moreover, there is little evidential research that explores this nexus, especially in determining exactly *how* political process in society influences the kinds of adaptation policies which are chosen. Factors such as social power relations or configurations of political processes in a society significantly influence how certain groups of people experience vulnerability to climate change disasters. For instance, a society or government with gender or racial bias policies is likely to propose or implement adaptation policies that are not favourable to the marginalised group. Moreover, there is growing body of studies (for example, Adger & Barnett, 2009 and Barnett and O'Neill, 2010) which provide evidence that some measures proposed as adaptation actually turn out to be quite ineffective, and even detrimental to people's adaptive capacity to cope with the impacts of climate change-related disasters. In the context of gender, Nagoda and Nightingale (2017, p.85) assert that some adaptation measures intended to address gender inequity can in fact turn out to reinforce existing inequities, especially if such measures fail to take contextual factors of vulnerability into consideration. This assertion implies that it is necessary to study contextual factors that determine vulnerability, preferably at the most local context, in order to enhance any adaptation planning. In the context of South Africa, since adaptation policies are usually, arguably, implemented at the municipal level, it is essential to

⁶ <http://povertydata.worldbank.org/Poverty/Home>

⁷ (<https://edition.cnn.com/2019/05/07/africa/south-africa-elections-inequality-intl/index.html>)

study the political and social process within the municipality that shape vulnerability of the multiple groups of people.

Given the above explanation, this study is in turn, situated within the context of eThekweni municipality, KwaZulu-Natal Province, South Africa. The study explores the experiences of vulnerability and adaptation of local African women within the municipality to the impacts of natural disasters, and specifically floods. As already discussed, the various impacts of floods that this study focuses on include the multiple socio-economic consequences arising from flood disasters. These consequences can be negative or positive. For instance, negative consequences include damage to homes, properties, and loss of peoples' lives. Even though floods have been mainly attributed to negative consequences, they can also have positive effects. For example, people living on or near floodplains may depend on regular flooding to support their farming and therefore provide food for their families. Floods can bring water back to dry areas (e.g. along the course of River Nile in Egypt) to ensure people have water for irrigation and drinking. Though this study does not totally overlook the possibility of the positive consequences arising from flood events, its primary focus is on the experiences of vulnerability arising from the exposure of the study participants to the negative consequences of floods.

This study, positioned from the disciplinary field of political science, takes gender approach into its analysis. The study explores the intersectionality of 'contextual conditions' (Goodrich, Udas & Larrington-Spencer (2018, p.2), (including social and gender, political, economic and geographical location) and socioeconomic drivers of change (including technological advancement, educational advancement, urbanisation and infrastructural development) to understand gendered vulnerabilities experienced by Black women to flood events within the eThekweni municipality. As already articulated, understanding these women's experiences of vulnerabilities from their own contexts and words, has enormous potential to help address their vulnerability issues and inform the adaptation plans and policies of the municipality.

The ultimate goal of the study therefore, as Liverman (1990, p.29) articulates, is "not to further the semantic or theoretical debate", but rather to understand the underlying causes of why this particular group of women could possibly be more vulnerable to floods and other climate related natural disasters than other population groups. Besides the fact that little evidential study is available that pays attention to these critical dynamics in the context of the Durban

municipality⁸, Durban represents an important context for this study due to its various racial, class and other social diversities, including the municipality's growing need to incorporate rural communities and the previously disadvantaged groups into the growing network of the municipal development.

This study also examines how the municipality addresses the vulnerability and adaptation needs of women. The research focuses on local Black African women of selected localities in eThekweni metropolitan municipality of KwaZulu-Natal Province, South Africa. The study focuses on local Black women from four selected locations⁹ of the eThekweni municipality: Inanda, Ntuzuma, KwaMashu, and uMlazi. These localities have been selected for this study because they, amongst other localities within the eThekweni municipality, appear to have the most incidences of floods in the past ten years.

This study focuses on the social aspect of vulnerability (whether directly or indirectly), that local Black African women in these localities have experienced because of flood incidences. Social vulnerability refers to the stresses that an individual or group undergoes as a result of the power dynamics, including social, political, and economic factors, that render the individual or group vulnerable to a disaster (Cutter *et al* 2009, p.2-3).

This study therefore bases its argument from the a prior understanding that that there are *situational* and context-specific social and political-economic dynamics that shape the vulnerability and adaptation experiences of the local Black African women in the study contexts to the flood impacts in the areas. These dynamics are heightened because of issues related to the social and political history of South African gender and racial relations, especially the Group Areas Act of 1950,¹⁰ where the different racial groups were assigned different residential and business areas. Under the apartheid system in South Africa, different racial groups were given preferential treatment in a hierarchical manner, according to their race group, with Whites being given the best citizenry treatment, followed by Indians, then

⁸ Durban and eThekweni are used interchangeably in this study, as they refer to the same entity

⁹ In South Africa, the term, 'townships' also usually referred to as 'locations' (Beavon, 2012, p.3) describes the underdeveloped racially segregated urban areas. From the late 19th century up until the end of apartheid system in 1990s, locations were reserved for non-Whites, namely, Indians, Africans, and 'Coloureds'. Locations usually have poor infrastructural, and risky landscapes, and some of them were and still are prone to floods and other environmental disasters.

¹⁰ The Group Areas Act was enacted by the act of parliament in South Africa in 1950. The Act assigned different racial groups to different residential and business sections in different locations in urban areas.

Coloureds¹¹ and then Africans. The quality of the so-called assigned sites or ‘locations’ (in terms of topography and susceptibility to environmental disasters) was dependent on this racial hierarchy. Africans were assigned what seemed to be the most degraded and disaster-prone areas such as uMlazi, Ntuzuma, and KwaMashu and Inanda was mainly inhabited by Indians (SAHO, 2020).

The social and political dynamics considered in this study are also linked to the patriarchal beliefs and practices that persist in some African communities (for example see Islam & Sharmin, 2013, p.2). As asserted by Djoudi *et al* (2016:248), the social construction of gender in some societies has put women in disadvantaged positions, rendering them relatively more vulnerable to any actual or impending hazards. This study therefore offers insights into how social and political realities influence the every-day environmental realities and vulnerabilities experienced by the local Black women.

Furthermore, by exploring the experiences of vulnerability and adaptation of the group of women that form the population of this research, the study seeks to probe the underlying social, political-economic, and historical factors that shape those experiences. The study also examines how the eThekweni municipal climate adaptation initiatives address issues of vulnerability experienced by local Black women. There is arguably less literature on the social aspect of climate change adaptation, especially one that explores issues of intersection of gender with class and race to examine how social, political, and economic conditions influence the vulnerability of Black African women to flood impacts. Moreover, despite the growing need for interdisciplinary research that combine issues of the physical environment with people’s social experiences, not much has been explored on the topic of gendered vulnerabilities to flood impacts. This study contributes to the relatively small body of scholarly literature in social sciences that interrogates the social aspect of vulnerability to natural disasters.

1.2 Understanding Climate Change and its Related Challenges

Scientific evidence confirms that climate change is very real and poses disastrous challenges, both direct and indirect, to humanity (see IPCC, 2007; NASA, 2017). The direct challenges attributed to climate change by IPCC (2007) include, but are not limited to, incessant wildfires,

¹¹ In South Africa, and Southern African in general, the term, ‘Coloureds’ is used to refer to people from a multiracial ethnic group who have ancestry from more than one of the various populations or races inhabiting the region.

drought in some regions and excessive rainfalls in others, flood disasters and cyclones. Beyond the direct threats to the physical environment, climate change also poses social, political, and economic challenges to many regions of the world. For instance, the conflict which occurred in the Darfur region of Sudan in 2003 between pastoralists and sedentary farmers, was reportedly a result, in part, of the environmental pressures and changing land ownership patterns in the country. According to Theisen, Buhaug & Gleditsch (2008), climate change has also indirectly caused or escalated issues such as unemployment, human insecurity, food insecurity and violent conflict. Scientists predict that unless drastic measures are taken to curb the catastrophic effects of climate change, they will continue to have more disastrous challenges, especially for developing countries, due to their low adaptive capacity (NASA, 2017).

Efforts towards addressing the impacts of climate change are in two categories: mitigation and adaptation. Climate change mitigation involves taking action to reduce or stop the emission of greenhouse gases—the gases attributed as the principal causal agents of our changing climate—into the atmosphere. In this aspect developed countries, which are regarded as the principal emitters of greenhouse gas due to their heavy industrialisation, are urged to assume greater responsibility. On the other hand, adaptation involves taking steps to enable those affected by the catastrophic effects of climate change to cope, through measures such as improving funding, improving environmental protection, improving health and nutrition, and securing assets to enhance adaptive capacity of affected individuals and communities.

Although climate change poses challenges to many regions of the world, the extent of the effect differs among countries, regions, groups, and individuals. In other words, the vulnerability felt and the ability to adapt (recover from the shocks or make preparations) depends on various factors, including physical, environmental, and economic factors. Africa is reported to be the continent hardest hit by the impacts of climate change, and this is due to factors that lead to low adaptive capacity in the continent, including poverty, widespread diseases, low level of education and high reliance on land resources for living. Besides climate change affecting countries and regions differently, it also affects different individuals and groups differently and these differences are determined by social factors such as class, race, gender, age, and social status, as well as by the socio-political factors that influence inequality and engendered women's vulnerability.

Many studies on climate change, both within and outside the context of Africa, confirm that climate change impacts affect men and women differently (see Djoudi, *et al* 2016; Carvajal-Escobar *et al* 2008; Macgregor, 2010; Babagura, 2014). Women generally experience a much more significant level of vulnerability to the impacts than their male counterparts (see Babagura, 2014; Djoudi *et al* 2016; Islam & Sharmin, 2013; MacGregor, 2010; Polack, 2008; Esplen & Demetriades, 2008). Some studies conducted in some Southern African countries, including Mozambique and Botswana, report that women in rural areas were significantly more vulnerable to environmental disasters than other social groups (see Babagura, 2014; Islam and Sharmin, 2013). This, they submit, is as a result of the poverty and gender marginalisation experienced by these women, which weaken their adaptive capacity. According to Djoudi *et al* (2016:248), “vulnerability, as well as adaptive capacity, is shaped or influenced by asymmetrical power relations that determine access to resources, information, finance, and other capital”. The patriarchal nature of some societies suppresses women's voices and needs and denies them equal rights (Islam & Sharmin, 2013, p.2). Moreover, the socially-constructed identity attributed to women, especially in many African societies where women are usually associated roles like care-giving, farming, stay-back-at-home parent and water fetchers, amongst others (these roles are usually socially regarded as inferior), contributes to women’s experience of heightened vulnerability to impacts of environmental disasters, such as flood disaster.

The literature review reveals that adaptation to environmental disasters is primarily local in nature. This means that the impact of the societal norms and beliefs (especially those regarding social constructs of gender disparity, which influence women’s roles and experiences) are significantly felt at one’s immediate locality. These norms and beliefs are quite significant in shaping how one experiences the vulnerability and adaptation to natural disasters. In the same vein, adaptation governance, as already stated, is primarily implemented at the local or grassroots level. Even though broader adaptation policies may have been formulated at the national level, the actual implementation is carried out at local or municipal levels. Considering the local nature of adaptation, the onus of addressing gender equity in adaptation governance therefore rests on the local municipalities to frame their adaptation initiatives in a manner which takes the differential impact and intersectional nature of vulnerability of local women into consideration (see Babagura, 2015; Goh, 2012; Nagoda & Nightingale, 2017; Goh, 2012; Fajber & Ahmed, 2009; Polack, 2008; Djoudi *et al* 2016; Bunce & Ford, 2015). This is

necessary if these policies and initiatives are to be socially relevant and just, effective, and sustainable (see MacGregor, 2010; Polack, 2008; Esplen & Demetriades, 2008).

Scholars have also reiterated the need for locally-contextualised studies that draw evidence-based data from the context of the locality or municipality, to understand the climate change adaptation needs of vulnerable community members (see Demetriades & Esplen, 2008; Daoud, 2016; Resurrección & Huynh, 2017). In the past, Durban and some other South African regions have experienced severe flood events, which have caused significant loss of lives and properties. In the events of floods, there are always groups of people that face more effects than others, due to the social and economic factors that shape their vulnerability to such events. Examples of the vulnerable groups are usually identified to include women and girls. Vulnerability, therefore, becomes gendered due to factors that social construction of identity that do not readily provide women with equal opportunities to men. As such, the experiences undergone by the women are more likely to be different from those of men. Attaining gender equity in climate governance at the local level therefore requires exploring the contextual factors that shape the vulnerability of marginal groups. It seems that little attention addressing adaptation specific to Black African women experiences of flood impacts within the eThekweni municipality. Such a study is necessary, if the municipality is to address climate adaptation governance in a manner that is equitable, in seeking to redress the injustices of the South African past. This study therefore aims to achieve two objectives. The first objective is to explore the adaptation experiences of local Black women to flood impacts within the municipality. Secondly, the study will examine how climate change adaptation governance in the municipality, addresses issues that arise from the vulnerability and adaptation experiences of Black women within the municipality. A contextualised study such as this is important to informing municipal policymakers and climate change adaptation agencies of the adaptation needs of these women. Putting the adaptation needs of the particularly vulnerable group like local Black African women into consideration will help ensure an equitable and inclusive adaptation governance and help to empower local women to explore opportunities while adapting to the impacts of natural disasters.

Feminist theorisation of gender and climate change adaptation has shown that local women are not always passive victims of natural disasters (see Carvajal-Escobar *et al* 2008, p.278). Women, especially local women, have been known to possess agency and enormous potential to explore adaptive mechanisms and use them in a manner that boosts the resilience of their communities and neighbourhoods to natural disasters (UNDP, 2010). Women often show

enormous agency in their ability to turn disasters into opportunities for new knowledge production on local adaptation issues. In many societies, women carry out a wide range of activities to meet the needs and demands of their families. They possess the potential to adapt to new situations and bring about their distinctive experiences to cope with climate disasters. Studies such as this one that seek to explore the experiences of local women, through interviews and focus group discussions, have a potential to provoke new knowledge and insights that are useful for adaptation to future occurrences of floods or other related natural disasters.

Moreover, evidence in the international contexts has pointed to the high agency roles that women play in helping not only themselves, but also the community to adapt to impacts of natural disasters. For instance, it is reported by Carvajal-Escobar *et al* that after cyclone incidence in Ginebra municipality, Colombia, women played major roles in seeking solutions to community survival after disasters (Carvajal-Escobar *et al* 2008, p.278). Due to the destructive impacts of the cyclone on the community's reliable source of drinking water, the women were found to have played a pivotal role in assisting the community to secure alternative sources of drinking water. The authors maintain that the women's vast experiences with medicinal shrubs around the community placed them in a better position to understand how to manage those shrubs to enhance the community's adaptive capacity in the events of any climate-related disasters. Moreover, as stated by Carvajal-Escobar *et al* (2008, p.278), the women were also quite knowledgeable when recommending which native shrubs needed to be protected from the damaging effects of the cyclone, including which social capital needed to be promoted. Such agency in ability and experience was vital in enabling the women to offer valuable advice on possible adaptation measures (see Carvajal-Escobar *et al* 2008, p 278). The above-mentioned roles were quite vital for individual and community adaptation and expressed the rationale on why women were significant players to be incorporated into the municipal adaptation planning and resource management portfolios in Ginebra municipality, Colombia, as reported by Carvajal-Escobar *et al* (2008, p.278).

In South Africa, a few studies have explored the gendered aspect of climate change adaptation. For instance, in the Limpopo Province, Goldin *et al* (2019) explored the gendered aspect of climate change adaptation in the Lambani locality of Limpopo Province. Goldin's *et al* (2019) applied the Capability Approach Framework to women and men in Lambani locality of Limpopo Province, capturing the multi-dimensionality of men and women's emotional responses (such as fear, anger, shock or shame) to climate variations such as extreme heat, droughts, or floods among. The study found that the vulnerability experienced by women in

Lambani locality of the Limpopo province was exacerbated by similar gender role expectations, which put double the amount of pressure on the women in times of natural disasters. In the KwaZulu-Natal Province, Vincent *et al* (2010) assessed how climate variability in general affects various aspects of life that involve women, including agriculture, health, and reproduction in the uMzinyathi district municipality. Vincent *et al*'s study found that gender roles render women solely responsible for reproductive tasks, including child rearing and cultivation to feed the family, and this makes women significantly more vulnerable to the impacts of climate variability (Ibid). A similar study by Babagura (2014) explored how local women adapt to climate change in the uMhlathuze district municipality of KwaZulu-Natal Province. These studies clearly evidence that adaptation to climate disasters is highly gendered and influenced by cultural norms in the context of how women experience vulnerability to natural disasters.

1.3 Research Problem

Literature on gender and climate change adaptation within Southern Africa (see for example, Babagura, 2014; Islam and Sharmin, 2013), and within the global South (for example, Carvajal-Escobar *et al* 2008) and also internationally (see Djoudi *et al* 2016; Djoudi & Bockhaus, 2011) has documented how women are specifically exposed to natural disasters due to their increased workloads and other pressures on women in terms of food production and care for the homes. Various scientific reports conclude that with continued incidences of global warming, the risk of flooding will further increase and will particularly affect some vulnerable communities; more specifically the residents of informal settlements across the Global South (Williams *et al* 2019, p.2; IPCC, 2007; IPCC, 2014, Working Group II). Experiences of flood events, especially across various informal localities in South Africa, including the uMlazi, KwaMashu, Ntuzuma, and Inanda (all located within the eThekweni municipality) represent a glimpse of insight into the actual and impending disasters caused by floods to local communities. According to the United Nations International Strategy for Disaster Reductions, UNISDR (2017), flood events presently account for over half of disaster-related fatalities and a third of economic loss resulting from all climate-induced risks. As mentioned earlier, due to socio-political and cultural factors that influence vulnerability, the impacts of these disasters are heightened for women in the local communities. Moreover, in the context of South Africa, paying attention to issues regarding dynamics of race, class, and gender gives a clue that local Black women are likely to be significantly more vulnerable to the impact of these disasters

than other population groups. Therefore, there is a need to prioritise studies which seek to address the vulnerability of such a marginal group.

Few of these kinds of studies, as reiterated above, have been conducted in other provinces and municipalities in South Africa. In other words, there is little self-evidential data or research in the context of eThekweni municipality and specifically, uMlazi, KwaMashu, Ntuzuma and Inanda that exemplify how contextual socio-economic and socio-political factors engender the vulnerability of local Black women, despite the many desktop analyses and municipal policies that emphasise the need to empower local women from previously disadvantaged groups. Such evidential study is essential to inform adaptation policies and programmes in the municipality in a manner that addresses issues of gender, race, and class equity.

1.4 Research Aim

The aim of this study is to understand how the local Black African women from eThekweni municipality adapt to environmental disasters, specifically the impacts of flood disasters within the Durban metropolitan areas, as well as how the municipal climate adaptation policies address the women's vulnerability to such impacts, in the context of gender, race and class dynamics. The study focuses on local Black African women from Inanda, Ntuzuma, KwaMashu (INK) nodal areas of the municipality, located in Northern Durban and uMlazi, which is located in South-west Durban.

The study employs feminist political ecologist and critical realist theoretical perspectives to explore the experiences of vulnerability of Durban women to flood impacts. The study draws from multi-disciplinary literature, including from natural sciences, development studies, geography, political ecology and feminist and gender studies, to help highlight the ways in which social inequalities and social power dynamics influence Black women's experiences of adaptation to floods in Durban, and the need for transformative adaptation planning that integrates gender and class justice.

The study also addresses a broader issue of the adaptation challenges faced by Black African women within the eThekweni municipality, KwaZulu-Natal Province, South Africa. The study frames the nexus between gender and factors relating to social power relations as fundamental elements that shape local women's ability to adapt to climate change related disasters such as floods. This study also explores the opportunities that adaptation processes which surface during flood incidents offer for questioning and addressing inequality in gender relations in climate change adaptation planning and implementation within the specific context of

eThekwini the municipality. In a broader context, the study represents a multidisciplinary social science analysis of the mechanisms by which development policies and interventions influence ability of marginalised groups in the society to adapt sustainably to climate change related natural disasters.

1.5 Research Questions

This study poses the following questions:

1. What are the experiences of vulnerability and adaptation for local Black African women concerning the impacts of floods within localities under the eThekwini municipality?
2. How do socio-economic, cultural and socio-political factors of gender inequality influence the vulnerability and adaptation experiences of local Black African women to impacts of flood events within the context of eThekwini municipality?
3. In what way do climate change adaptation governance within eThekwini municipality address the underlying factors of vulnerability of local Black women as well as respond to the local women's adaptation needs?
4. How can climate change adaptation governance be made to address the vulnerability of local Black African women to environmental disasters and engender gender equity in eThekwini municipality?

1.6 Research Objectives

The objectives of the study are:

1. To understand the nature and experiences of local Black African women to flood events within eThekwini municipality, including vulnerability experienced.
2. To examine the social, political, and economic factors that shape vulnerability and adaptation of local Black African women to flood impacts within the eThekwini Municipality.
3. To examine how the formulation and implementation of climate change adaptation programmes within eThekwini municipality address the vulnerability to floods disaster among local Black African women within the eThekwini municipality.

4. To suggest how climate change adaptation governance in eThekweni municipality can be made to properly address local Black African women's vulnerability to impacts of environmental disasters and ensure gender equity in eThekweni municipal Area.

1.7 Scope and Location of the Study

This study is carried out among local Black women of Inanda, Ntuzuma, and KwaMashu (INK), as well as uMlazi areas of Durban. The INK areas are in Northern Durban while uMlazi is located in South-West Durban. The INK nodal¹² economic development area was established in 2005. The establishment of this nodal zone was a response of the call by the then-minister of Provincial and Local government to develop an economic development programme of action for both urban and rural poverty nodes of the Durban metropolitan area. It was also a means to contribute to the new economic growth targets set out in the Accelerated and Shared Growth Initiative of South Africa (ASGISA)¹³. The aim of the establishment was to stimulate economic growth and development of such poverty nodes. It sought to explore the potentials inherent in the nodes, identify opportunities for investment, as well as identify barriers to economic activities within the nodes.

The establishment acknowledges recommendations for enhancing business, social, and institutional development of the node. Besides considering the call for recommendations for enhancing the holistic development of the INK, this area is chosen for this study firstly due to its rural and impoverished nature—as this study targets local Black African Women—and secondly, the INK area is chosen because of its numerous experiences with flood disasters over the past few years. It is reported that, despite the differences between the three individual areas, the three nodes share common challenges. They comprise residential areas of low levels of economic activities, backlog settlements, and are predominantly inhabited by local Black Africans in extremely poor living conditions. Besides these, other challenges reported for the area include lag in water provision, crowded informal settlements because of land tenure issues, low level of education and skills among residents, high crime rate, high unemployment (27%),

¹² In the eThekweni municipality's development agenda, the areas covering Inanda, Ntuzuma and KwaMashu is referred to as the INK node. Because of its history of injustices and neglect, the INK node now constitutes an important focal area that requires development by municipality.

¹³ The 'AsgISA was launched in February 2006 in South Africa to introduce policies and interventions allow the South African economy to grow enough to halve poverty and unemployment between 2004 and 2014 (RSA, 2008).

widespread of poverty, and high prevalence of HIV infection. INK area is reported as the most infected areas in the KwaZulu-Natal Province and South Africa in general.

1.8 Structure of Dissertation

Chapter One: Introduction and Background to the Study

This chapter conceptualises the issues surrounding gender and climate change adaptation. It presents the research problem which investigates the socio-political and cultural factors that influence differential vulnerability to climate disasters between men and women. In this chapter, the key research objectives, research questions, rationale, and aims of the study are outlined. The chapter also gives an overview of the study sites, which help to justify the location of this study within specific localities in Durban.

Chapter Two: Review of Related Literature: Gender and Local Adaptation to Climate Change

This chapter will first present a definition of key concepts related to climate change and Gender, which will include climate change, gender, Climate Change Risk, Gender and Vulnerability to Climate change, Climate Change Mitigation and Adaptation, as well as Adaptive Capacity. Thereafter, the chapter will present a broader review of related literature on gender and local climate change adaptation. Finally, the chapter will review works on gender and local climate change adaptation in Sub Saharan Africa.

Chapter Three: Research Methodology and Theoretical Framework

This chapter elucidates the methodology and theories used in this study. It gives a detailed discussion of the research approach, sampling strategy, data collection and analysis methods, as well as ethical consideration of the research. It also presents a discussion of the theories, including feminist political ecology and critical realism, and how these theories are articulated in the context of gender and local climate change adaptation. The chapter will also present a brief overview of the study location, which is the eThekweni municipal area.

Chapter Four: Vulnerability and Adaptive Capacity—Gender, Poverty and Knowledge.

This chapter presents the findings of the study. The findings presented in this chapter are those ascertained by the semi-structured face-to-face interviews and focus group discussions with the local Black women from the four study sites: uMlazi, Inanda, Ntuzuma and KwaMashu.

The chapter presents the experiences of local Black African women within the eThekweni municipality to the different incidents of floods, including the vulnerability experienced as well as adaptation strategies adopted. The chapter elucidates that poverty and knowledge constitute two significant factors that exacerbate the vulnerability of the women to floods impacts within their localities. The chapter locates poverty and knowledge as ‘real mechanisms’ of vulnerability, but that are linked to the wider socio-economic and socio-political circumstances of the local women, within the context being Black women in South Africa, and in eThekweni metropolitan municipality.

Chapter Five: Gender, Agency, and Vulnerability in the Context of Toxic Masculinity

The chapter presents more findings from the study, equally drawn from the face-to-face semi-structured interview and focus group discussions with the local Black women from the four study sites. Elaborated in this chapter are issues of toxic masculinity, expressed by men as one of the key factors of vulnerability among the women in the context of the study. Toxic masculinity expressed by the men relates to the socio-cultural belief (among the AmaZulu) of the man as a symbol of strength and authority. The chapter narrates that despite the vulnerability encountered by the women; they demonstrate significant agency in the adaptation to impacts of natural disaster.

Chapter Six: Local Governance and Responses to Gendered Vulnerability to Flood Impacts in eThekweni municipality.

The chapter will first present South Africa’s national policies on gender and climate change adaptation. Thereafter, and specifically, it will explore eThekweni Municipality’s approaches and responses to gender and climate change adaptation, with specific focus on response to gendered Black women’s vulnerability to floods. This will include the institutional structures responsible for climate change adaptation response. The chapter will also present eThekweni municipality’s climate response initiatives, including the work of GOs and NGOs, with specific reference to responses to floods.

Chapter Seven: Political Economy of Gendered Adaptation to Climate Impacts within the eThekweni municipality

This chapter will locate local Black women’s vulnerability and adaptation to floods within the wider sphere of political economy of South Africa. Feminist political ecology, which is the lens through which the data in this study is analysed, is a subfield of the discipline of political

economy. Research done within the political economic perspective usually describes the interplay between ideas, institutions, and interest. This chapter, therefore, seeks to locate Black women's vulnerability to floods within political and economic contexts. It will explore the interplay between ideas about vulnerability, the institutions that create vulnerability, and political actors with interest to Black women's adaptation within the South African political and economic ideologies.

Chapter Eight: General Summary and Conclusion

From the perspective of feminism, this concluding chapter presents Black women's experiences of adaptation to flood impacts within the eThekweni municipality as arising from the varied standpoints of the women. It is argued that to address issues of equity and fairness regarding Black women's adaptation to floods, adaptation governance within the eThekweni municipality adopts a model that is inclusive, collaborative, and seeks to address the vulnerability experiences of the women from their varied standpoints. In other words, the chapter, through a reflective summary of the entire study, presents how the researcher addressed each of the research questions, including new insights and recommendations arising from the study.

1.9 Conclusion

This chapter has attempted to foreground the study around the global scholarly discourse on gender and climate change adaptation. The chapter emphasised that impacts that arise from climate change-related disasters are not gender-neutral. Women usually experience a more heightened vulnerability to climate disasters than men, and this is a result of the power dynamics that enhances gender inequality in different societies. The chapter also emphasised that despite the global efforts to address the disastrous impacts of climate change-related disasters on individuals and communities, more scholarly empirical research that is focused on local socio-economic, sociopolitical and socio-cultural context is still required to understand and consequently addresses the vulnerability experiences of local women.

Furthermore, this chapter has highlighted the thematic and geographical focus of the study, including the specific problem that the study seeks to address as well as the research aim, research objectives, and research questions. The chapter also presented the scope and location of the study and the structure of the dissertation. The next chapter will review more extant

literature on gender and climate change adaptation in a manner that further contextualises the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE ON GENDER AND CLIMATE CHANGE ADAPTATION

2.1 Introduction

The focal point of analysis in this study is that gendered vulnerabilities associated with climate change-related natural disasters are determined by various ‘contextual conditions’ (Goodrich, Udas & Larrington-Spencer 2018, p.2), as well as other intersectional factors (including social and gender, political, economic and geographical location) and other socioeconomic drivers of change (including education, urbanisation and infrastructural development) at the local level. These factors are mainly local in nature. Therefore, documenting and analysing Black African women’s experiences of vulnerability to floods within the context of eThekweni municipality presents an enormous potential to inform the planning and implementing of climate change adaptation in a manner that is fair, just and equitable.

This chapter first presents broader conceptualisations of related concepts, including climate change risk, vulnerability, climate change adaptation and mitigation. Thereafter, the chapter delves into the broader review of extant literature on the wider issues of gender and climate change adaptation, including various issues of power relations (including socio-political and socio-economic processes of governance) that determine the vulnerability of local women to climate change-related disasters. There seems to be a dearth of literature that positions the discourse of gender and climate change adaptation within the disciplinary position of political science. Consequently, the literature reviewed in this chapter will adopt a more multidisciplinary approach within the broad discipline of the social sciences. However, this is not neglectful of the fact that the study and its related analysis is located within the political science discipline.

2.2 Understanding Climate Change Risks

Some scientific reports have conceptualised climate change and its related impacts—though in a quite technical manner, as can be seen in the various technical reports of the Intergovernmental Panel on Climate Change, IPCC (2001 & 2007); the US National Oceanic and Atmospheric Administration, NOAA (2007); the United Nations International Strategy for Disaster Reduction, UN-ISDR (2008) and the United Nations Framework Conventions on Climate Change, UNFCCC. According to IPCC (2007), climate change is an alteration in the

atmospheric climate over several years, which can either occur naturally or as induced by human activities, the latter also sometimes referred to as ‘anthropogenic factors. The UNFCCC (1992, p.7) defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability, observed over comparable periods” (UNFCCC, 1992: 7). As mentioned earlier, though these definitions have reflected the physical and built environment aspects of climate change, they fail to also reflect the socio-economic and socio-political information relevant to understanding climate change and its related impacts. The social aspect of vulnerability to climate change disasters will be elaborated on in the latter part of this study. For now, what these reports seem to ignore is the aspect of the ‘how’ of climate change causality. A report by the National Aeronautics and Space Association, NASA, fills this lacuna.

According to NOAA (2019), recent climate change records show the highest seasonal peak recorded at any point in millions of years. This recent drastic change in the climate is linked to the increase in human activities (both domestic and industrial) that emit GHG into the atmosphere in the recent era (World Meteorological Organisation, 2017; IPCC, 2012). Human-induced factors are said to take primacy over naturally induced climate variability (Trenberth, 2003; Barnett *et al* 2005; Alley *et al* 2003).

Human-induced climate change has been linked to a historical quest by humans to exploit their environment, particularly since the industrial revolution era (see Le Treut *et al* 2007, p.95). A report from the UK parliament also notes that human activities have contributed about 40% more CO₂ into the atmosphere compared with the pre-industrial revolution era (UK Parliament, 2011). However, this does not mean that human activities that deteriorate the condition of the atmosphere were absent before the industrial era. For instance, technical reports by the US National Oceanic and Atmospheric Administration, NOAA (2019) states that natural factors are also responsible for alterations in the earth’s climate. Also, according to Le Treut *et al* (2007, p.97), natural factors such as “major volcanic eruptions (which) can cause a drop in mean global surface temperature of about half a degree celsius that can last for months or even years”. These two assertions imply that before the rise of industrial activities, natural factors were contributing, though in relatively lower level, to changing climate.

Literary reports starkly demonstrate that the levels of anthropogenic activities which induce climate change vary across the different regions of the world, with the highest levels being

experienced in the industrialised nations (UNFCCC, 2007). However, according to UNFCCC (2007), though industrialised nations contribute greater percentage to climate change, developing nations such as those in Sub-Saharan Africa, Small Island States, suffer the most significant catastrophic impacts caused by the changing climate. Moreover, Theisen, Buhaug & Gleditsch (2008) maintain that the hostile impacts of climate change destabilise not only ecological systems, but also social systems and processes, and these effects are felt in different degrees across different regions of the world, depending on the region's adaptive capacity.

Closer to home, at the municipal level, climate change poses a significant threat to the eThekweni municipality, KwaZulu-Natal, South Africa. The effects range from social, economic, and political challenges, amongst others. A high-level scientific study commissioned in 2004 to look into the possible localised impacts of climate change in the Durban¹⁴ area indicated that the area is likely to experience a temperature rise that would lead to heat waves, heavy rainfalls, floods, or more extended dry periods and sea-level rise. According to an assessment by the eThekweni municipality (2007) the impacts caused by these changes are likely to lead to the following conditions:

- Increased health issues due to excessive heat waves
- Decreased water availability in cities like Inanda and Midmar, due to irregular rainfall and increased evaporation due to excessive heat
- Decreased agricultural productivity due to high temperature, decrease water availability, and the washing away of topsoil
- Increased flooding due to more intense rainfall
- Loss of biodiversity due to high temperature, erosion, floods, loss of indigenous species and increase in invasive alien species
- Damage to public and private infrastructures and residences due to sea-level rise and flooding (eThekweni Municipality, 2007, p.13).

More importantly, the Commission recommended that steps need to be taken by the national, regional, and municipal governments to contain these threats to climate change. Individuals should adhere to the use of drought-resistant crops, and hospitals and other health institutions need to prepare for climate-related health problems. More importantly, individuals and government should stop building infrastructures vulnerable to flood plains and coastal areas

¹⁴ Both 'eThekweni' and 'Durban' represent the same geographical entity and are therefore, used interchangeably in this study.

(eThekweni municipality 2007, p.15). What this means, in other words, is that it is necessary to reduce the vulnerability of the people affected by climate change. Reducing vulnerability is equivalent to increasing adaptive capacity. The following discussion will present further explanation of the concept of adaptive capacity.

2.3 Understanding Adaptive Capacity

Adger *et al* (2005) define adaptive capacity as the latent or actual ability of an individual or a community to adjust or cope with the actual or anticipated hostile impacts of a disaster. There is a direct correlation between adaptive capacity and vulnerability. The more adaptive capacity an individual, a community, or a group has, the more that that individual, community, or group can adapt to hostile impacts of environmental disasters like floods. Moreover, adaptive capacity is a determinant of vulnerability in that the more adaptive capacity an individual has, the less vulnerable it is likely to be to climate impacts and vice versa. According to Adger *et al* (2005), adaptive capacity may be latent, meaning it can be in potency and only actualised when an individual or a community is exposed to an actual or expected disaster. In such a case, adaptive capacity is realised when one engages in adaptation acts or attempts to adapt to the disaster.

Moreover, the nature of vulnerability influences adaptive capacity. This implies the availability and deployment of available political and economic interventions to assist a vulnerable group or community to adapt to the impacts of disaster. The availability of the required resources for adaptation and the efficacy of their deployments indicates the success of adaptation. This implies that ensuring the efficacy of interventions implies understanding the needs and the experiences of the intended recipients of the adaptation, for instance, the needs and experiences of local women's adaptation to environmental disaster.

Scholars such as Levine, Ludi & Lindsey (2010) and Bohensky *et al* (2010) have realised that adaptive capacity cannot be quantified. However, some factors that determine the adaptive capacity of a system, individual, or a community include the availability of technological innovation, good governance, improved institutional structure or entitlements, as well as the ability to exploit available opportunities to adjust to anticipated impacts (see Levine, Ludi & Lindsey, 2010, p.1). According to Theisen, Buhaug & Gleditsch (2008, p.25), the adaptive capacity differentials between an advanced nation and a developing nation lie in the fact that the latter have fewer adaptation buffers in resources, technologies, or resilient infrastructures, as compared to the former. This is also applicable to communities, and other individually-vulnerable groups like the local Black African women in some parts of South Africa. For

instance, such women's adaptive capacity is likely to be affected by multiple aspects of vulnerability: first, as Black people in a society where Black people were previously disadvantaged, and second, as women in a somewhat patriarchal African society. As Levine, Ludi & Lindsey (2010, p.1) note, determining adaptive capacity is more than just looking at what "a system [or an individual] has that enables it to adapt, it also involves recognising what a system does to enable it to adapt". In this regard, Lemos *et al* (2007), cited in Bohensky *et al* (2010, p.5), affirm that the availability of resources is an important determinant of adaptive capacity. The author adds investment in information and knowledge—and the means of disseminating these to the target group, as well as encouraging appropriate institutional arrangements—as a prerequisite to creating and enhancing adaptive capacity (Ibid). It is important to note that the whole essence of enhancing adaptive capacity is to reduce vulnerability.

2.4 Understanding Vulnerability

As noted earlier, the level of vulnerability experienced by an individual, a system, or a group, or a community to climate impacts is inversely related to the adaptive capacity at their disposal. A reduction in adaptive capacity leads to a more severe vulnerability. Studies have noted that the term 'vulnerability' to elicit different meanings across various disciplines (Cutter *et al* 2009; Fussel & Klein, 2005), Liverman (1990, p.29) relates vulnerability to concepts such as "resilience, marginality, susceptibility, adaptability, fragility, and risk". This depiction of vulnerability appears to elicit experiences that are related to the vulnerability of a certain marginal group of people to environmental hazards, where there is urgent need to develop resilience.

The¹⁵ IPCC (2012) defines vulnerability as a 'predisposition' (for individuals or groups or systems) to be adversely affected by the impacts of hazards. Wisner *et al* (2004), cited in Kreibich *et al* (2017, p.954) describe such predisposition as constituting "an internal characteristic" of the affected persons or society and the situations that influence their capacity to anticipate, cope with, resist, or recover from the adverse effects of the physical events." This definition and explanation also seem to show that vulnerability relates to adaptation, in that the more tools and resources available to adapt, the lower the degree of vulnerability. Kreibich *et al* (2017, p.954) studied a series of eight successive flooding events and discovered that

¹⁵ Resilience is the capacity to recover from the negative impacts of flood events. Resilience may be a product of one's innate or developed characteristics.

reduced damages caused by subsequent events, starting from the second, was as a result of increased risk awareness, preparedness, and enhancement in organisational strategy to manage such an emergency. Dow (1992) defines vulnerability as “the differential capacity of groups and individuals to deal with hazards, based on their positions within physical and social worlds” (cited in Paul 2013, p.3).

Another related definition of vulnerability to environmental hazards is that given by Cutter *et al* (2009). Cutter *et al* (2009, p.2-3) conceptualise vulnerability as “the susceptibility of a given population, system, or place to harm from exposure to hazard, and directly affects [concerns] the ability to prepare for, respond to, and recover from hazards and disasters”. Related to Cutter *et al*’s (2009) definition of vulnerability is the explanation given by O’Brien *et al* (2004b). According to O’Brien *et al* (2004b), social scientists use the term “vulnerability” as ‘an explanatory model’ to further an understanding of specific disastrous events, whereas natural scientists use it ‘descriptively’ to illustrate the effects of natural disasters on a system (cited in Fussel (2007, p.155). Nonetheless, scholars such as Blaike *et al* (2003) and Adger & Kelly (1999) assert that social vulnerability is either enhanced or reduced by factors such as poverty, inequality, marginalisation, food entitlements, access to loans and insurance, and quality of houses and other infrastructures.

Literature places vulnerability into four categories or types. The first type is physical vulnerability, which has to do with the susceptibility of the biophysical environment to disasters. This type of vulnerability could be a result of the environment's geographical location. For instance, places close to the sea, mountains, or hills are likely to be highly susceptible to environmental or natural disasters. Curbing physical vulnerability, therefore, requires a proper environmental and infrastructural planning, especially of commercial and residential buildings. In the same vein, Liverman (1990, p.29) describes physical vulnerability as vulnerability due to 'biophysical conditions' and explains that the people most susceptible to this type of vulnerability are those who live in floodplains and other areas that are likely to experience high sea-level rise, drier conditions, storms. Again, addressing such vulnerability simply means moving the people away from such areas or improving the environmental and infrastructural planning to avoid physical damages during climate hazards.

Nevertheless, people living in such fragile areas are probably those who do not have many options to afford a more secure location. They constitute the poor and probably the marginalised group in society. People may also live in such areas because of exclusionary

political or social conditions which marginalise them. For instance, during the apartheid era in South Africa, the Blacks were forced to live in the most marginal and dejected townships¹⁶. These townships are mainly floodplains, with poor infrastructures, and uneven and degraded landscapes. Other social factors, including political-economic situations can combine with the physical conditions to render a specific population or group vulnerable to disaster impacts.

The second type of vulnerability is economic vulnerability. Economic vulnerability is related to resource access. An individual or a community is economically vulnerable if it has insufficient access to natural resources necessary to sustain livelihood and enhance adaptive capacity. Another type of vulnerability, the attitudinal vulnerability, occurs when the attitude of individuals in a community towards change is harmful in a manner that the members are easily predisposed to conflict, hopelessness, and pessimism. A community is highly vulnerable attitudinally in cases of a disunited or individualistic community. The fourth type of vulnerability, social vulnerability, occurs when people are susceptible to discrimination based on race, gender, class, or religious affiliation, resulting in unequal participation of these people in decision making. Culture, local norms and values, traditions, political accountability, weak political leadership, and economic standard also play a crucial role in determining social vulnerability (M & E, 2019). Accordingly, some scholars that discuss socio-economic vulnerability (see for instance, Fussel, 2007, p. 158), likely combine both social and economic vulnerability to describe how the political institutions and local norms that determine access to resources assess the vulnerability of certain groups or individuals. The above description of vulnerability relates well to a neo-political economy approach to vulnerability analysis.

Liverman (1990) uses a neo-Marxist political economy framework to describe social vulnerability. Liverman (1990, p.30-31) explains that the exploitation of specific regions or groups—through resource outflow, land expropriation, exploitative labour conditions, and political oppression—aggravates the vulnerability level of those regions or groups. Social vulnerability, as described here, arises because of structures and institutions that determine access to resources or that perpetuate inequity. This approach helps to dig deep into the root causes of social vulnerability for policy interventions to reduce the vulnerability of a specific

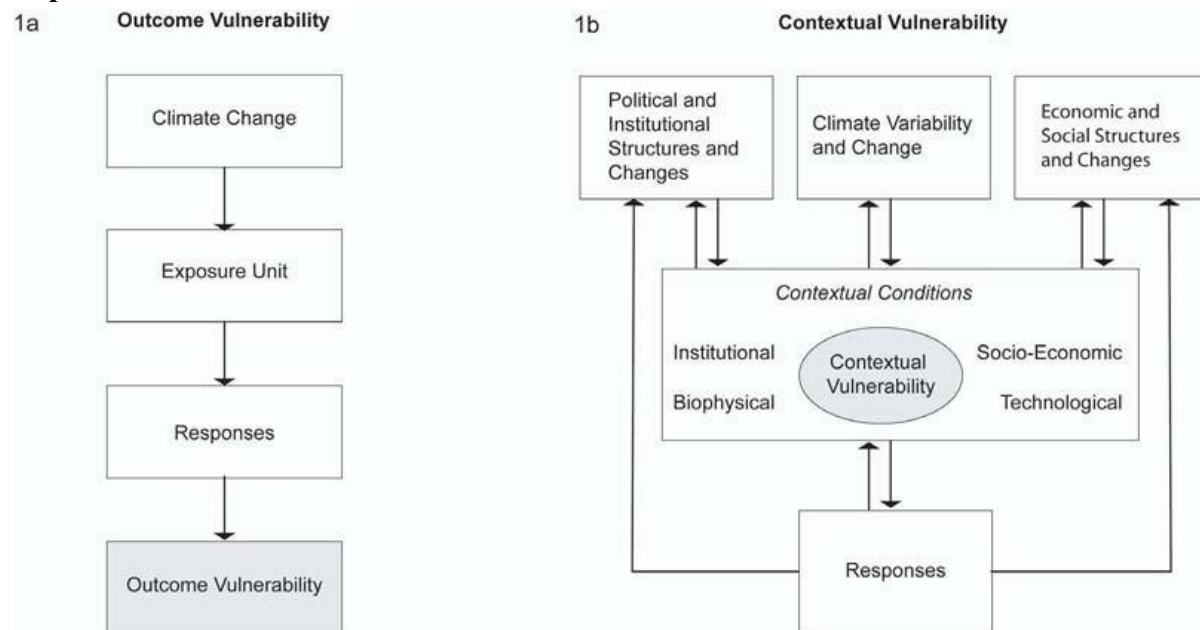
¹⁶ As explained by Godehart & Perneger (2007), the term 'township' or 'location' in the history of the South African geographic landscape refer to the often underdeveloped racially segregated urban areas that, from the late 19th century until the end of apartheid, were reserved for non-Whites, namely Indians, Africans and Coloureds. Townships were usually built on the periphery of cities or urban areas (Available at: <http://www.treasury.gov.za/bo/ndpdivisions//>)

population. Social vulnerability to natural disasters is common in many developing countries due to their less adaptive capacity. It affects explicitly vulnerable groups, including children, elderly, and local women, especially local women from marginal classes. Addressing the vulnerability of these groups requires first exploring and understanding the underlying factors behind their experiences of vulnerability. The current study explores the social aspects of vulnerability experienced by local Black African women to impacts of flood disaster in the context of eThekweni municipality.

Furthermore, Fussel (2007) explains that vulnerability can be viewed from two perspectives: vulnerability as an endpoint and vulnerability as a starting point. Quite similarly, O'Brien *et al* (2007, p.76) use the terms 'outcome vulnerability' and 'context vulnerability' to describe the two interpretations given by Fussel (2007). The author's explanation implies that 'vulnerability as a starting point' is viewed in a more descriptive approach. It entails the direct impact that an individual, community, regions, or group of people experience as a result of an environmental hazard. O'Brien *et al* (2007, p.76) define vulnerability as a starting point or outcome of vulnerability using the term 'linear vulnerability'. Linear vulnerability arises from projected impacts of climate change on a particular exposure unit. The exposure unit can be biophysical or social. The impacts of a linear vulnerability are those outcomes that are attributed to climate change. Natural scientists view vulnerability more as a 'starting point' by asking descriptive questions such as, "what are the impacts of a climate hazard on a certain population"?

On the other hand, the framing of vulnerability as an endpoint seems to take a normative or explanatory approach. Such an approach seeks to uncover what makes a specific population or group more vulnerable than others. Analysis from such an approach seeks to uncover the socio-economic or socio-political factors that increases the vulnerability of a specific group over another. For instance, from an end-point interpretation of vulnerability, one can ask what makes Black African women in a given locality more vulnerable than their White counterparts in the same locality, despite sharing the same geographical location and the same government. The figure below illustrates two interpretations of vulnerability.

Figure 1: Framework depicting two interpretations of vulnerability to climate change impacts...



Source: O'Brien *et al* (2007, p.75)

The above illustration shows that outcome vulnerability has a linear dimension, meaning that climate change leads to a disaster that exposes a particular unit to some adverse conditions, resulting in vulnerability. Contextual vulnerability, on the other hand, is multidimensional, meaning that a web of contextual (political, institutional, economic, and social) conditions determines the extent or level of vulnerability to which people or a group of people experience the negative impact of climate variability and environmental disaster. Though studies seem to attribute the two interpretations distinctively to two different scientific domains (O'Brien *et al* 2007; Fussel, 2007), it could also be enriching to combine the two interpretations in an analysis of a study. For instance, one study can explore the experiences of a particular group or class of people to a specific environmental hazard, and then investigate or analyse the socio-political or socio-economic factors that shape or influence those experiences.

Besides, there is a cross-related interaction between the biophysical outcome of people's exposure to climate variability and the context or the extent of the vulnerability they experience. Put differently, contextual conditions (socio-political or socioeconomic), determines the extent of vulnerability. It also shows that multiple factors influence the vulnerability of a group of people. Vulnerability can, therefore, not be exhaustively analysed using a single interpretation. Addressing end-point vulnerability entails developing ways of

adapting to future disaster occurrences, while addressing starting-point vulnerability entails confronting issues of equity and justice in climate change adaptation planning and implementation (O'Brien *et al* 2007, p.76). An integrative perspective or approach to vulnerability provides vital information to policymakers. Such an approach helps policymakers look holistically into the factors that make a particular group of people more vulnerable (to climate disasters) than others.

An assessment of the vulnerability of a population to climate impacts should take into consideration the multifactorial causality of vulnerability, in a specific place, at a specific period. This further suggests that the degree of vulnerability experienced could also be time dependent. Linking the pattern of the vulnerability of a specific group of people over a period with the intricacy of the pattern of institutional change can also reveal how institutional practices can contribute to vulnerability. The vulnerability may not be physically measurable with the use of any material instrument but describing the condition or situation of a people through a certain number of elements serve as useful indicators.

2.5 Understanding Climate Change Adaptation and Mitigation

While climate change adaptation involves coping with actual or potential risks or threats caused by climate change, climate change mitigation involves actions to reduce the emission of greenhouse gases into the atmosphere. In other words, while adaptation addresses the effects of climate change, mitigation addresses its causes.

The Intergovernmental Panel on Climate Change, (IPCC, 2001, 2007) classifies mitigation strategies into three portfolios: the short, the medium, and the long terms. Some of the options for short term reduction include afforestation, energy efficiency, and management of energy demand, investment in biofuels, and renewable energy technologies. The medium-term strategies involve a shift towards low carbon electricity generation option, carbon incarceration, and storage in the synthetic fuels industry, as well as seemingly simple strategies like lifestyle changes—for example, shifting from road or air transport to rail, and considering hybrid electric vehicles. Some long-term strategies involve countries benchmarking their national emission trajectory range, keeping a GHG emission inventory, and encouraging sustainable developments in all sectors of governments. The United Nations Framework Conventions on Climate Change (UNFCCC) has been the global body that supervises efforts towards climate change mitigation. This is due to the consideration that GHG emission is a global problem that cannot be addressed by states unilaterally, but instead requires global or

shared efforts from all nations to solve. Adaptation happens to be the only effort that nations, regions, or localities can manage unilaterally. According to the African Union's report entitled: "Agriculture in Africa: Transformation and Outlook", Africa has a high poverty level and heavy reliance on agrarian products, making the continent one of the hardest-hit continents by the disastrous effects of climate change (AU 2013).

Adaptation means an 'act' of making necessary changes or adjustments to cope with a potential or actual threat arising from an event. In technical terms, and in relation to climate change, adaptation is described as the "reduction of risk and vulnerability through adjustments in practices, processes, and capital in response to the actual or potential threat of climate change (IPCC, 2007, p. 28). Adaptation as explained above often involves changes in the decision environment, such as social and institutional structures" (Ibid). The United Nations Development Programme defines adaptation as "a process by which strategies to moderate, cope with, and take advantage of the consequences of climatic events are enhanced, developed, and implemented" (UNDP, 2005). The United Nations Environmental Programme defines it as "the process of adjustment to actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities. According to Smit *et al* (1996), adaptation to climate disasters involves all adjustments in behaviour that enable people to cope with changes in the climate system" (cited in Malik, Qin & Smith (2010, p.2). Stakhiv (1993) describes adaptation as "any adjustment, whether passive, reactive or anticipatory, that is proposed as a means for ameliorating the anticipated adverse consequences associated with climate change" (cited in Malik, Qin & Smith (2010, p.2). A common term that cuts across most definitions and conceptualisations of adaptation is that it is a process of adjustments.

Adjustments can be made either to a natural system, or social system, or both. Similarly, the adjustment can also be done to already existing damages, or happens spontaneously in a way that responds positively to changes in the ecological system, or planned through a government making deliberate policy decisions on its awareness of the realities of climate change. Adjustments can be made to infrastructure or facilities to reduce their vulnerability to potential storms or cyclones, or institutional or governance practices can be enhanced to strengthen people's adaptive capacity and prepare them mentally or emotionally to predicted environmental hazards. People also adjust their practices—for instance, farming practices—to cope with the uncertainties and the effects of changing weather patterns or other climatic variabilities. IPCC's Fourth Assessment Report uses the terms 'anticipatory', 'autonomous or

spontaneous', or 'planned' (IPCC, 2007A, p.869). Schimdt-Thome (2017, p.3) uses the terms 'proactive' and 'reactive' to describe anticipatory and spontaneous adaptation, respectively.

It is recognised by adaptation literature that structural and social systems highly influence adaptation. In other words, adaptation involves structural or procedural adjustments or changes aimed at ameliorating potential threats (Denton, 2002; IPCC, 2014). The adaptive capacity of a system or community or group of people, therefore, depends on the strength and effectiveness of structures and how they function to enhance the adaptive capacity of the system. Dixon (1996) points out that a range of factors, including technological innovation, level of education and skills, availability of and access to resources, availability of and accessibility to information, the availability of infrastructures, as well as the capacity of the political and administrative system to support adaptation, influence the extent to which a group may adapt to disaster.

2.6 Gender and Global Environmental Climate Change

The issues of gender in global environmental change research have increasingly gained the attention of researchers and social organisations since the mid-1970s, mainly focusing on issues of ecofeminism and Gender and Development (Arora-Jonsson, 2014). The term, 'ecofeminism' was first coined by Francoise d'Eaubonne in 1974, to refer to the interrelationship between feminist issues and issues of ecological concerns (cited in Ravera, 2018, p.5). The central discourse during this time was the connection between patriarchy and environmental degradation (Ibid).

The Gender and Development perspective debates on the impact that development policies in general, and environmental development had on people based not only on their gender, but also on their location, class, and socio-political identities. As asserted by ecofeminists, victimhood is a result of the oppression of women through patriarchy (cited in Ravera 2018, p.6). In both perspectives discussed above, women are viewed as a "static, uniform, and homogenous group" that is explicitly vulnerable to environmental change simply because of being women.

However, McGregor (2010, p.3) has noted that though ecofeminist theory has developed a crucial analytical lens to understand issues of gender politics of the environment, it has, however, failed to capture the social dimension of women's experiences of vulnerability to climate impacts. MacGregor's (2010) assertion is perhaps plausible because ecofeminist approach seems to rely solely on issues of eco-spirituality and adopt an essentialist conception

of gender. An essentialist approach depicts women as having a natural and unique affinity with the environment, thereby making them naturally vulnerable to environmental impacts. Such ideas are espoused by environmentalists like Wangari Maathai of Kenya. The lacuna in this kind of thinking is that it disregards the complexity of the social, political, and economic dynamics that shape how a particular group of people or an individual experience vulnerability to environmental disaster (McGregor 2010, p.3). The lack of capacity to consider the kind of political issues that society faces today has rendered ecofeminism somewhat insufficient in explaining issues of gender and climate change adaptation.

The view of women as being natural victims of environmental change (or degradation) was criticised in the 1980s and 1990s by the feminist environmentalism school of thoughts. For instance, scholars such as Bina Argawal (1992) have offered a well-grounded critique of the essentialist understanding of women-nature relationships by arguing that the social construction of gender has a role to play in women's experiences of vulnerability to environmental change. According to Argawal (1992, p.150), “women cannot be posited...as a single unitary category, even within a country, let alone across the Third World or globally”. She further explained that “the process of environmental degradation and appropriation of natural resources by a few have specific class-gender as well as locational implications (Ibid).

The feminist environmentalists’ approach to vulnerability sought to unpack the relationship between men and women by showing how gender, class, and ecological dimensions explain women's vulnerability to environmental change. The approach seems to aim at shifting attention from ‘women’, (as primarily understood by ecofeminists) to ‘gender’ (which is much of a social construct). The shift in conceptual use of the terms is to help understand how the roles society assigned to women interact to influence their relative level of vulnerability and experiences of adaptation to environmental disasters. In a similar vein, unlike the Gender and Development approach, which advocates for women's participation in environmental decision making (Nelson *et al* 2002, p.57), feminist environmentalism campaigns for a gender-responsive and gender-equity approach to environmental management, planning, and implementation.

In the mid-1990s, feminist political ecology was introduced as a new approach to examining the role of power dynamics in shaping the vulnerability of a particular group of people to global environmental change (Nigthingale, 2011; Rocheleau, Thomas-Slayter & Wangari, 1996). Feminist political ecologists view differential vulnerability in a manner that points people to

the common cause of women's greater vulnerability. This approach also emphasises critical issues of gendered forms of knowledge as well as gendered governance structures of the environment (cited in Rivera 2018, p.6). Recent approaches applied by feminist political ecologists have incorporated new theoretical frames to unpack how gender intersects with other identities to determine who faces the greater brunt of challenges to the environment, especially on issues relating to land, water, and other natural resource allocation (Nightingale, 2011). The issue of intersectionality was later discussed in Black Feminist thoughts (see Simien, 2004, p.84).

Nevertheless, one notes that the intersectionality approach to identity politics and antiracist analysis was first coined by Kimberley Crenshaw (1991, p.1243). Crenshaw noted that many contemporary feminist analyses of violence against women seemed to focus on a binary categorisation of male violence against women, without considering the intersectional identities of African American women and other Women of Colour in America. That is, Women of Colour had to face violence not just because of their gender, but within both identities of gender and race (1991, p.1243-1244). Since then, some feminist scholars have used the idea to explain how other identities (such as race, class, sexuality and age) interact with gender to shape how different categories of women may experience vulnerability to the same climate disaster differently (Arora-Jonsson 2011). Recent discourse on gender and climate change have mainly focused on adaptation, seeking to unpack the role of power dynamics in shaping women's greater vulnerability to climate change impacts. Much of the literature on this perspective also embrace an intersectional approach, as it focuses on how poverty interlinks with gender to reinforce women's vulnerability to climate impacts (Thompson-Hall, Pascual & Carr 2016; Djoudi *et al* 2016).

2.7 Gender and Climate Change Adaptation

There are four thematic points to understanding gender and climate change adaptation. They include the arguments on 1) the differential impacts of climate risks; 2) the structural root causes of the differential impact; 3) the need for intersectionality in gender and climate impact analysis; and 4) the need for locally-contextualised and evidence-based studies to substantiate gender and climate change adaptation analysis.

Climate change impacts usually arrive on an already-complex social environment, where different groups of people feel the impacts differently (Thomas *et al* 2018, p.4). The differential experiences of the impacts are usually related to a group's or an individual's ability to derive

benefits from the available natural and human resources (Ibid). Natural and human resources comprise both private and public goods that enable one to source for an alternative way of living in a manner that enhances adaptive capacity and reduces vulnerability. Some of the relevant resources that enhance adaptive capacity include private capital, assets, alternative housing, savings, food stores, migration support, information and communication networks, insurance, and durable and well-structured houses. Lack of access to some or all of these resources by a specific individual or group is usually a result of complex social and power structures that cause marginalisation of such an individual or group.

Sometimes the resources are available but due to existing power structures, a specific vulnerable group finds it difficult to access those resources. For instance, reports show that when Superstorm Sandy hit New York and New Jersey in 2013, over 100 people died, and many of them were older people because they lacked access to health care and transportation (cited in Thomas *et al* 2018, p.3). This means that the vulnerability experienced by these older adults was much related to the institutional capacity to locate health centres and transportation facilities at places which would assist some of the more vulnerable sets of individuals. Similarly, Hurricane Katrina in the US killed about 1,800 people in the impoverished coastal areas of Louisiana and Mississippi, most of the victims being poor Black people (Lekas, 2015, cited in Thomas *et al* 2018, p.4). The enormous impacts felt as a result of Hurricane Katrina were mainly due to failed infrastructure, poverty, and social segregation, which were very common in New Orleans (Thomas *et al* 2018, p.4). The general understanding here is that poverty tends to render people vulnerable. Poverty reduces people's choices of the location they would prefer to live, or how they would want to secure their livelihoods. It is reported that during the cyclone IDA and Kenneth which recently struck Mozambique and other parts of Southern Africa, women living in poor areas—such as Beira—were more affected than those in rich areas. The poor people in Beira living in poorly-constructed shelters and in the area more susceptible to floods were more severely affected, while rich people who lived in concrete houses—with stronger roofs and on a higher ground—found it easier to leave their houses when the flood was forecast (Sara & Vittorio, 2019). The authors also reported that poor pregnant women were more severely affected than other poor women who were not pregnant.

Differential vulnerability to climate-related impacts as a result of lack of access to resources is categorised into three aspects: economic, institutional, and political aspects (see Thomas *et al* 2018, p.5). If a particular population group does not have access to resources because they lack

the income or wealth, then such vulnerability is a result of a lack of economic capacity. If required resources do not exist at all in a place inhabited by a particular group of people, then such vulnerability is a result of lack of institutional capacity to evenly distribute resources across locations of social strata. Furthermore, if the group lacks access to resources because of exploitation or misappropriation, then vulnerability is a result of a lack of capacity to obtain or retain the resources or to influence governance decisions on the distribution of resources. In each of the cases, the experiences of differential vulnerability stem from a lack of access to resources, which is because of one kind of marginalisation or another. Though some groups may experience differential vulnerability because of one or two of the determinants discussed above—that is, because of economic, institutional, or political incapacity—some groups may experience differential vulnerability because of the combination of the three factors. A case is made of Bangladesh, where the protective benefits of an early warning system are not made available to dwellers of Dhaka's rural settlements due to their inability to obtain legal title to property or residence that would qualify them to receive early warning notifications (see Thomas *et al* 2018, p.5). This reflects a lack of institutional capacity. The residents are excluded from early warning initiatives or information because of laxity in the governance of resource distribution. It also reflects a lack of political capacity, as the residents are not able to claim legal status to legitimise their membership of the communities (Thomas *et al* 2018, p.5).

Though the root cause of vulnerability is poverty, some studies report that social hierarchies such as gender, caste, age groups, and race are also significant determinants of the level of vulnerability felt in climate impacts. In this work, much emphasis will be laid on gender; specifically, on the differential impacts of climate disasters on poor women.

2.8 Gendered Vulnerability to Climate Change Impacts

Several studies highlight that the impacts of change are not usually gender neutral. Women usually face greater vulnerability to the impacts of climate disaster than men (Nagoda & Nightingale, 2017; Goh, 2012; IPCC, 2007; Fajber & Ahmed, 2009; Polack, 2008; Djoudi *et al* 2016; Bunce & Ford, 2015; Manata & Papazu, 2009). Vulnerability is usually correlated with poverty. Poverty in this context indicates a deficiency of the necessary resources to boost one's adaptive capacity¹⁷ (Manata & Papazu, 2009, p.5). Women constitute a more significant percentage of the world's poor (Tschakert *et al* 2015; Anderson, 2011). Hence, the claim that women are usually more vulnerable than men to the dangers of climate change (Goh, 2012;

¹⁷Adaptive capacity simply refers to the ability to cope with the risks, in this case, climate risks.

IPCC, 2007; Polack, 2008). Other scholars and institutions (see Goh, 2012; IPCC, 2007; and Polack, 2008; and UN Women, 2018) have described local women as being particularly vulnerable to climate impacts. In *The State of India's Environment Report* in 1985, the Centre for Science and Environment (CSE), based in New Delhi, India, stated:

Probably no other group is more affected by environmental destruction than poor village women. Every dawn brings with it a long march in search of fuel, fodder, and water. As ecological conditions worsen, the long march becomes even longer and more tiresome. Caught between poverty and environmental destruction, poor rural women in India could well be reaching the limits of physical endurance' (cited in Dankelman 2002, p.23).

From a review of several literature sources on gender and climate change in arid and semi-arid regions of India and South East Asia, Yadav and Lal (2018, p.1) noted that the rural poor women in these regions were usually the ones to bear the most significant impacts of climate-related disaster in the regions. According to the sources (as cited in Yadav and Lal, 2018, p.1), poverty, gender inequality, social marginalisation, mobility restriction, and exclusion from key decision-making platforms were the main factors that exacerbate women's vulnerability to climate impacts. Women also suffer from a lack of assets, and a lack of education and training. These factors directly or indirectly lead to increased workload and, subsequently, increased fatigue. However, women were not just passive victims of climate impacts; they also acted as active agents, transforming local knowledge and ideas to aid adaptation to climate-related risks in the localities. Other vulnerable groups according to IPCC (2007), include the pastoralists, women, and physically- or mentally challenged persons.

2.9 Social and Political Economy of Gendered Vulnerability to Climate Change Impacts

Several literature articles—both local and international—on gender and climate change adaptation (including Goh, 2012; Islam & Sharmin, 2013; Bern *et al* 1993; Nagoda & Nightingale, 2017; and Arora-Jonsson, 2011) explain that women's greater vulnerability to climate change impacts is usually a result of the social, political, and economic power dynamics in the society that determine women's subjugation. These factors operate, either unilaterally or in combination, to determine women's unequal access to land, property, decision-making portfolio, education, training, skills, coping facilities, and (early warning) information. All these assets are necessary to enhance one's adaptive capacity pre- and post-environmental hazards such as floods. Once a particular individual, group, or community is denied or inadequately equipped with these resources—perhaps as a result of political, social, or

economic marginalisation—that individual, group, or community is most likely to be disproportionately vulnerable to any occurrence of environmental hazards.

The literature on gender and rural development has shown a pervasive and almost universal or enduring exclusion of women from decision making on issues of rural agricultural developments, ranging from households scales to the level of community development projects (Dankelman, 2002; Lambrou & Piana, 2006). This exclusion or inequality in decision-making is reported to go beyond simple issues like deciding on what crops to plant in the household subsistence farms to include restrictions on who sells at the market, rules on traveling to the markets, as well as other rules on mobility (Djouidi & Blockhaus, 2011; cited in Carr and Thompson, 2014, p.184). Even though such exclusion is reported to have impacted negatively on agricultural outcomes (Carr and Thompson, 2014, p.184), it is clear that such negative outcome can pose a ripple effect in a way that it affects other aspects of women's livelihoods and adaptation to climatic impacts like floods. Such situations can adversely endanger the food security of households, especially in those situations where women are the ones that bear the greater responsibility for family livelihoods and sustenance. The phenomenon of female-headed households, or households where the mother bears a greater percentage of the responsibilities for family welfare, is quite common among Blacks in South Africa. As asserted by Skinner (2011), the sparse inclusion of women in regional, national, and international climate-related conventions also points to the male-dominated structures which remain pervasive today, and often fail to reflect on, or attend to the concerns of women, especially the socially-marginal group of women, in their efforts to deal with issues of climate impacts (cited in Carr & Thompson 2014, p.184).

These patriarchal structures and beliefs (those beliefs and practices that deny women equal opportunities in society) constitute one of the leading social causative factors behind women's disproportionate experience of vulnerability to impacts of climate hazards. They either directly or indirectly put more burden on women in terms of their household duties and social role expectation; their adaptive capacity is reduced, rendering them especially vulnerable to any climate disasters that happen. For instance, Roy & Venema (2009) narrate how the local Indian women were excluded from using mechanised farming equipment, which happens to be the modern way of improved farming. Nevertheless, Agarwal (2001), cited in Roy and Venema (2009) also explains how the abandonment of Usufruct—an Indian practice that allows one to

own land—especially renders women vulnerable to any climate impacts, as they no longer had access to land, which is an excellent source of wealth.

Other parts of the Asian region, besides India, are also noted for the discriminatory gender roles and expectations that work against women. A study in the Piura community, Peru, by Rosa Reyes discovered that the local women were discriminated against, as they had lower access to education, specialised technical skills, and healthcare. These assets are essential for capacity building. Education improves one's access to information (in the context of adaptation, information related to early disaster warning), technical skills enhance one's financial capacity, and improved healthcare is vital for the holistic wellbeing of any person (2002, p.29). Reye's study mainly focused on the impacts of El Nino on women. The study found that El Nino led to an increase in migration of men into coastal areas in search of job opportunities, leaving women to head the households. However, the community did not recognise females as household heads. Men were mainly the heads of households. This situation leads to the increased marginalisation of these women and the denial of opportunities. Similarly, the migration of men left their women with increased housework, which restricted them from seeking paid jobs to take care of the households (Reye 2002, p.29).

In Bangladesh, Roy & Venema (2009) explain that during flood events, women quickly feel shame to leave the house, and move to public places to escape the flooding areas. This feeling is induced by cultural factors that restrict both male and female interaction, making women reluctant to assemble with men in the public cyclone or flood shelters. Besides, local Bangladeshi women take greater responsibility than men to care for their children, a situation that restricts their mobility during flood events. These claims of women's disproportionate vulnerability to climate hazards in Asia are not just theoretical; several empirical studies confirm the claims.

For example, Azad & Nazreen (2013, p.195) conducted a study to examine the dimensions of vulnerability experiences of local women during floods in the Northern region of Bangladesh. The research was conducted among local women who lived in flood-affected areas to understand what challenges they had faced as a result of the floods. The study used a survey questionnaire, participant observation, focused group discussions, and semi-structured interviews with the local women, as well as interviews with NGOs and Local Authority representatives. The finding of the study was that poor and disadvantaged women faced more enormous challenges as a result of the flood. The challenges faced included sexual and verbal

harassment on the road in trying to escape the flood zones or at community shelter, and difficulties finding safe water, fuel for cooking, and food. Some of these challenges faced by the women are related to the sociocultural construction of women's roles as cooks or caregivers, or factors making them ineligible to get equal access to land resources. Sexual and physical harassment happens because women are seen as weak people that are easily manipulated. One cannot ignore that these oppressive norms and unequal distribution of resources still hamper women today, rendering them differentially vulnerable than men to severe impacts of climate disaster.

Fatema (2017, p. 2873) conducted a study in Motlob Thana, a place described as one of the most flood-prone areas of Bangladesh, to ascertain the various types of vulnerabilities women experienced during the flood. The findings of what causes women's vulnerability to flood are mostly socio-cultural. The vulnerabilities experienced mainly included too much work pressure, malnutrition as a result of sacrificing food in the household for the husband and children, trekking long distances to fetch water, as well as insecurity and shame while living in the community-provided shelter during the flood. As reported by Fatema (2017), one of the participants in her study complained:

I eat at the last moment if there is enough food stored in the house. Because it is the tradition in our society that elderly family members, parent in-laws, the husband, and children will take the food first. Most of the time, I go to sleep without taking any food, especially during the flood. I suffer from gastric pain very often due to irregular food taking habits". The vulnerabilities experienced by the woman in this comment explicitly show how cultural factors and beliefs serve to enhance women's disproportionate vulnerability to impacts of climate-related disaster (pp. 2872-3),

According to Goodrich & Namchu (2018, p.4), "identities and identity-based (political) affiliations play a significant role in people's vulnerability and adaptation capacities". The authors studied how grassroots political affiliation in Darjeeling Hills, in West Bengal, was shaped by gender, and in turn, primarily determined who gets access to resources, contracts, as well as excellent infrastructures. They noticed that the distribution of resources, government schemes, and teaching jobs in the localities were highly politicised, as the political leaders were the ones in charge of sharing resources and giving out those contracts and government schemes. Women were usually left out from benefiting from these resources, as the political leaders tended to favour those affiliated to their parties—who were mainly men, since the close association of men with politics and decision making is one of the causal factors for the low participation of women in politics. Islam's and Sharmin's (2013) study showed that during the

1991 cyclone in Bangladesh, women's death tolls were five times more than that of men (Bern *et al* 1993). These differences, according to Islam and Sharmin (2013), were caused by inequalities in social, political, and economic situations in Bangladesh that denied women equal access to resources, property, decision-making portfolios, training, education, coping facilities, and (early warning) information.

To ensure just and fair adaptation practices and policies, it is crucial to examine the continual existence of this inequality in our local communities. According to Nagoda & Nightingale (2017, p.85), ignoring the role of power relations—which especially plays out during participatory development process of adaption projects implementation—have a strong tendency to reinforce marginalisation by excluding the needs of the most marginalised and vulnerable groups of people who are supposed to be the primary beneficiaries of local climate change adaptation programmes. It is essential to investigate how local climate change adaptation programmes take into cognisance the underlying institutional, structural, and political factors that reinforce local women's vulnerability to climate impacts. In undertaking an analysis of gendered vulnerability to climate impacts, it is also crucial to realise that focusing on gender analysis alone may not give a nuanced understanding of the issues behind women's greater vulnerability. It is also crucial to analyse other issues such as race and class that may intersect with gender to shape how a particular population of women, from one context, may experience more vulnerability than another group of women from the same context or locality. This calls for an intersectional analysis in order to provide a more nuanced understanding of gendered vulnerability. Many other studies on gender and climate change adaptation (including Carr & Thompson, 2014; Demetriades & Esplen, 2008; Djoudi *et al* 2016; 2013; and Thompson, Pascual & Carr 2016) advocate for an intersectional analysis of the vulnerability, as opposed to the men vs. women analysis found in studies like IPCC, 2007; Nagoda & Nightingale, 2017; Goh, 2012; IPCC, 2007; Fajber & Ahmed, 2009; and Manata & Papazu, 2009. A brief discussion of what intersectionality entails in gender and climate adaptation research will be outlined in the discussion that follows.

2.10 Intersectionality in Experiences of Climate Change Vulnerability

The importance of incorporating an intersectional approach to analysing issues of gender and climate change adaptation had already been touched on in the earlier section of this chapter when a brief outline of gender and climate change was given. Since a more significant part of this research unpacks issues of intersectionality, it is deemed essential to go in-depth on the

importance of applying the intersectionality perspective in analysing the root causes of women's differential vulnerability to climate impacts.

Scholars that subscribe to essentialist views often refer to women as a homogenous category. Some other authors have criticised such an essentialist view, pointing that such an outlook fails to reflect the possible differences based on social location of class and ethnicity, or geographical contexts (see Nagoda & Nightingale, 2017; Goh, 2012; Fajber & Ahmed, 2009; Polack, 2008). An essentialist's analytical approach is from the point of view that climate change impacts are distinguished based on the vulnerability of men vs that of women. In other words, they categorise 'man' and 'woman' as the principal means of capturing the differential and distinct vulnerabilities and experiences of climate change impacts. Against this backdrop, current feminist literature has shown the lacuna existing in such simplistic comparisons of 'man' versus 'woman' situations to explain the gender differential impacts of climate change. These groups of scholars advocate for an intersectional analytical approach to gender. They assert that binary categorisation fails to capture other complexities that intersect with gender to shape the extent to which the vulnerability experience of a specific population of women in a specific place to a particular climatic impact may be different from another population of women at another place (see Carr & Thompson, 2014 and Djoudi *et al* 2016). It is possible for the vulnerability of a wealthy woman to be of quite similar magnitude to the vulnerability of a wealthy man than it is to the vulnerability of another poor woman in a different location. Some scholars assert that classifying all women into a homogenous; subjugated group seems to suggest that all women are inherently victims of climate impacts (Arora-Jonsson, 2011; Resurrección, (2013). It fails to realise that vulnerability, including vulnerability to climate impacts, is much more a socially-determined phenomenon than it is intrinsic, that is if by any means vulnerability could account as an essential attribute of specific individuals or groups. Considering intersectionality in any climate change adaptation analysis, or in designing climate-related projects is suggested to constitute a much better approach than a broader approach of singling men and women out as two oppositional categories (Carr & Thompson 2014, 184). Binary gender analysis seems to lump people with different vulnerabilities and needs together. This grouping in view can hamper a proper analysis of how to execute developmental projects in a manner that identifies and meets the adaptation needs of the vulnerable groups it initially intended to address (Carr and Thompson, 2014, p.187).

Davis (2008, p.68) defines intersectionality as “the interaction between gender, race, and other categories of difference in individual lives, social practice, institutional arrangements, and cultural ideologies, and the outcomes of these interactions in terms of power”. Intersectionality involves investigating other factors that make a particular group of people at a particular place more vulnerable than another. It entails a realisation that women are not just intrinsically vulnerable, but that it is the social roles and responsibilities associated with their identity, as well as the “power dynamics that deny them equal access to resources, information, and education”, that contribute majorly to their vulnerability (Thompson-Hall, Pascual & Carr 2016, p376; Arora-Jonson, 2011). These factors, as described by Djoudi *et al* (2016) and MacGregor (2010), are based on social identity. Besides gender, other identities associated with women, such as class, also play a crucial role in their vulnerability (Resurreccion 2013, p.1).

Intersectionality evolves from a feminist theoretical understanding of power dynamics and knowledge production. For instance, Crenshaw (1991), who is known for using the term ‘intersectionality’ for the first time, used it as a criticism of White, middle-class women's perspective-taking dominance in the mainstream feminist movement. Kaijser & Kronsell (2014, p.419) illustrates that social categorisation, which often comes in the form of labelling such as, “working-class man, indigenous woman”, has become a ground for inclusion and exclusion, and also the criteria for determining what people consider as either acceptable or deviant in the society. Intersectionality in the feminist lens implies that where there are—for instance—gender-biased patriarchal contexts, there can be an associated class-biased. In the same vein, where there is sexism, there can be an associated hetero-sexism, or where there is homophobia, there is most likely to be a class interest in it. In the case of climate change, Kaijser & Kronsell (2014, p.420) affirm that “the responsibility, vulnerability, and decision-making power of individuals and groups concerning climate change can be attributed to social structures based on characteristics such as gender, socioeconomic status, ethnicity, nationality, health, sexual orientation, age, and place”.

Several studies on climate change impacts on a people have emphasised that developing countries, due to their inadequate adaptive capacity, are mostly affected by climate impacts. This narrative seems to assume that climate change poses similar effects on people from the disadvantageous geographical zones, mainly in developing or underdeveloped nations. However, as already mentioned, people from the same geographical location may experience

the impacts of a disaster differently. This points to the complexity in understanding what determines the severe impacts of climate change on a people. The focus of gender and climate change is to draw attention to the various dimensions in which climate change effects play out differently, not only on people in separate geographical locations but also those within the same locations. Put differently, just as factors that influence differential vulnerability across geographic areas are clearly identifiable, one can also unpack - through intersectionality analytical frameworks - why women are regarded as more vulnerable than men to climate impacts.

For instance, in analysing why a specific group of women from a particular place experience specific impacts of climate disaster, it is also crucial to ask how other intersecting factors, such as their racial group, combines with their gender to make them experience the kinds of impacts they do. This, in addition to the general consideration that poverty is the leading cause of women's experience of greater vulnerability to impacts of climate disaster. However, a woman's race or class (which is mostly exacerbated by social and political issues) can also determine why some women are more vulnerable than others. Ford (1998, p.2) argues that “a gender-sensitive analysis demonstrates that women in patriarchal societies are disadvantaged (socially, economically, politically) and women from lower social classes and Women of Colour even more so”. Therefore, it is important that any disaster management intervention should take into consideration the specific intersecting factors that contribute to women's vulnerability, enabling them to plan and implement an active pre- and post-disaster management intervention

Besides poverty, which most literature has affirmed as the primary causal factor behind women's greater vulnerability to climate impacts, the caste practice in India is an example of other factors that intersect with gender to increase women's vulnerability to these impacts. The caste is a system of social stratification where people belong to a particular class in society. The four main castes in descending order of superiority include the Brahmins, the Kshatriyas, the Vaishyas, and the Shudras. The caste system is a social exclusionary system where people live in a given location based on their caste. A study in Gujarat, India, by Roy & Venema, showed that the poor tribal groups were usually found to live in flood-prone areas on the outskirts of the cities (2009, p.46). Even though adherence to the caste system practices has recently declined due to increasing urbanisation and secular education, political offices in India are still allocated on a quota system based on caste (BBC, June 19, 2019). The main point here

is that the experience of the caste system in India explains how other factors intersect with gender to reinforce vulnerability. Women (who are usually at a marginal position in society) who belong to the lowest caste are likely to experience more vulnerability than those in the highest caste.

According to Kaijser & Kronsell (2014, p422), social categorisations need to be understood in their historical and spatial context, and as embedded in power relations. From a social constructivist perspective, “social categories are subjects of continuous reproduction and alteration”, hence, they need to understand how the historical marginalisation of a group can impact practical issues of adaptation projects (Ibid). According to MacGregor (2010, p.627). What is required by feminist ecological analyses of climate change is a focus on “critically analysing the historical forces, hierarchical power relations, and value systems that have caused, and are standing in the way of addressing the current predicament”. This implies that any climate change intervention needs to put into consideration (other) underlying factors that have made certain women vulnerable, other than putting all women in the same boat.

Avoiding such analysis as above has a tendency of ignoring the practical everyday realities - into which people are socialized - that determine how those in climate disaster management positions see them. Any climate disaster intervention needs to move beyond seeing women as victims to consider the contextual factors that make them victims, and mostly, move beyond victimhood to consider how women can become agents. Based on empirical data collected from a particular group of people, one can then ask, “Are there any observable implicit or explicit social categorisation issues that make a certain group represented in, or absent in a specific project?” Or “What type of identity serves as the primary driving force for climate adaptation action?” Or “Are there any identities that are neglected or deemed insignificant?” Such questions may help to address how historical marginalisation can still exist, even if unnoticed, in present practices and development interventions.

In analysing the experiences of women during the apartheid era in South African Society, Sheila Meintjes’s (1996, p.56) explanation of women’s gender roles expectations illustrates that apartheid discriminatory laws affected women differently, based not only on racial differences but also on their geographical locations. She states:

Gender was a key variable in the reproduction of all forms of economic and political relations in South Africa. For Whites and Blacks the experience was different. The key element in the maintenance of the rural homesteads was the labour and status of women.

They did most of the agricultural work, planting, weeding and harvesting of crops for exchange, as well as maintaining kitchen gardens for home consumption. White women were less involved in agricultural production, although their domestic responsibilities included running kitchen gardens as well. Women of all groups, however, were subordinated within strictly hierarchical gendered relations of power and authority embedded within custom and tradition, albeit very different ones (1996, p.56)

Meintjes further describes how the traditional system of governance that characterise many local African societies was also a factor in determining how urban and rural women were differently discriminated or affected. She explains:

Under customary law all African women, from both urban and rural areas, were denied adult status, and were subject to male control. The migrant labour system had given women in rural areas greater responsibility for ensuring the maintenance of subsistence production and for the upbringing and welfare of children. This placed a much greater burden on women. Yet women in rural areas were in many ways more disadvantaged than their counterparts in urban areas. They were directly affected by the authority of chiefs and customary law. As minors in law, women could not own or inherit land or moveable property, nor could they gain credit. Their access to means of subsistence depended upon their subservience to a chief and attachment to a male relative or spouse. Also significant was that whilst motherhood gave women great responsibilities, it did not provide women with rights over their children. Instead, custody and guardianship over children rested, in theory, solely with men (1996, p.56)

One important lesson from the above description is the importance of intersectional analysis in any policy initiative that seeks to address women's needs and to achieve gender equity. This suggestion is in line with some studies, for example, Djoudi, (2016) and Ravera *et al* (2016), that had earlier disregarded gender mainstreaming approach in climate adaptation planning and implementation for being misleading; their reason being that such approach can easily ignore or exacerbate existing social inequalities among groups.

Gender mainstreaming here implies considering the need for women or men as a single social category whose needs must be incorporated into planning. It is risky to ignore that even among women, there are multiple, and sometimes unnoticed, underlying historical factors of inequity in the access, use, and management of resources. In her emphasis on the importance of considering intersectional analysis above gender mainstreaming, Mary Thompson-Hall (2009) surmises:

More and more practitioners, decision-makers, and researchers are acknowledging that the explanatory power of preconceived assumptions around gender and vulnerability are limiting effective adaptation strategising. Intersectionality, thus, as resumed by Houria Djoudi: helps to overcome the simplified dichotomy of “men” versus “women” in the gender analysis of climate change and the view of women as unitary

subjects. It also helps to draw attention that vulnerability is not something we are born with because we are women. Vulnerability is related to the participation in decision making, access to resources, voice, which are all related to the positioning of individuals in their society or community. (...) Rather than creating a “vulnerability Olympics”: looking for who is the most vulnerable, it helps to understand the root causes of inequities and vulnerability (cited in Ravera *et al* 2016, p386).

In the view of Inesta-Arandia *et al* (2016, p.386) “by disputing pre-defined categories and positioning individuals in the context of power relations, the intersectionality approach may refine, unpack and enrich the understanding of vulnerability, resilience, and adaptation to Global Environmental Change”.

There are some practical instances whereby an intersectional analysis of gender has proven to be of utmost importance in the practical implementation of climate-related projects, depending on the needs of the beneficiaries of the projects. For instance, a study in Ghana by Codjoe *et al* (2011) showed that different preferences for adaptation programs ensued at an intersection of gender and livelihoods (cited in Carr & Thompson 2014, p.189). For example, when examining people's needs for adaptation to drought, the authors noted that women fishers preferred projects that addressed post-harvest technology and seasonal forecast. In contrast, men preferred the construction of fishponds, insurances, and fish culture technologies. These differences in preferences and needs show that even in adapting to the same climate disasters, men and women's preferences may differ, depending on how society has defined their roles, which justifies the necessity of considering gender analysis in any developmental projects. However, gender analysis alone was not enough to capture the adaptation preferences in the study area. The authors further noted that women producing charcoal also demanded seasonal forecasts but wanted new/more wells and boreholes in addition to this as well as technologies that would help in sedentary pasture management. This shows that women involved in different occupations had different vulnerabilities to the same climate impacts, and hence, different adaptation preferences and needs. Any adaptation intervention that might have put all the women in the same category would have failed to address an important issue of concern to the beneficiaries of such intervention. According to Mary Thompson-Hall (2009), “There is a need to be aware of largely unsupported assumptions that inform many current policies, programs, and interventions that focus on gender dimensions; especially those that address adaptation issues for men and women through broad generalisations” (cited in Ravera *et al* 2016, p.390).

It is therefore more enlightening and useful when analysis of gender and climate change adaptation moves beyond the men vs women dichotomy type of analysis, to embracing an

intersectional approach to analysis—that is, to explore how other identities (for instance, poverty or class) interact with gender to reinforce the vulnerability of local women. A study on the adaptation experiences of local Black African women offers an excellent opportunity for such intersectional analysis.

2.11 Climate Change Adaptation Governance

Historically, governments and some development agencies have mostly been adopting a top-down approach to climate adaptation governance. A top-down approach means that policy planning and implementation mostly takes place at the national level. For example, through the National Adaptation Programme of Actions (NAPAs)¹⁸, as well as other National adaptation strategic policies, for example, National Climate Change Adaptation Strategy of the Republic of South Africa. This approach to adaptation is common in countries with a federal governance structure. However, the challenge with a top-down approach to adaptation planning is that it has the tendency to rely on the scientific and technical aspects of vulnerability and overlooks the social aspect, which is also a vital aspect to look at in adaptation planning. In other words, such an approach can easily ignore the fact that vulnerability is exacerbated by contextual factors which act out at the local level and cause inequalities between social groups. Edna Wangui highlights the deficiency of a top-down approach as follows:

One persistent challenge is that nationally designed adaptation policies and practices receive political and financial support sometimes at the expense of community-based adaptation practices. This is problematic when such national policies and practices conflict with what is already going on in the community. Sometimes this occurs because national actors do not know what is going on in communities, a knowledge gap that researchers can fill (cited in Ravera *et al* 2016, p.389).

Considerable attention is given to local adaptation in recent years (Morrison *et al* 2011). This rapid proliferation and shift of attention towards adaptation is attributed to observations and claims from several sources. For instance, scholarly literature (see Djoudi *et al* 2016; Demetriades & Esplen, 2008; Daoud, 2016; and Resurrección & Huynh, 2017) has widely observed that adaptation is local in nature and that the impacts of climate disasters are experienced at a local level. Therefore, it is important that analysis of vulnerability to climate impacts is carried out at the local level and with full consideration of the contextual cultural,

¹⁸. NAPAs is usually a document submitted by Least Develop Countries to the United Nations Convention on Climate Change, to highlight their priority areas and needs to adapt to climate change impacts.

political and social situations that may shape vulnerability (Cutter *et al* 2009; Adger and Kelly 2009).

Some studies use the term ‘place-based approach’ to describe an approach to adaptation and vulnerability analysis that looks at a specific vulnerable population to understand how and why they adapt to hazards in a particular way, and what role local contextual factors play in the way they adapt. For instance, according to Cutter *et al* (2015, p.793), “it is crucial to understand the process by which poverty and group-based marginalisation are created and maintained”. Group-based marginalisation refers to a systematic marginalisation of a particular social group, for example, a specific ethnic group, gender group, or race group. Satterwhite (2007) argues that though the vulnerability of low-income populations is usually ascribed to poverty, “it is far more the result of government failures and limitations” (cited in Cutter *et al* 2015, p.793).

Since adaptation is local, it is therefore plausible, as Djoudi *et al* (2016) assert, that findings from studies of gendered vulnerability to climate change impacts in one locality may not be generalisable across contexts. This applies also even across the multiple African cultures or across cultural contexts within a country or region. For instance, within South Africa alone, there are various racial and ethnic groupings, with their distinctive cultural and institutional practices. The fact that the power dynamics that determine gender vulnerability are more forceful at the local level makes vulnerability nearly contextually determined. The contextual nature of vulnerability also justifies the need for context-specific studies to inform a local adaptation program. Many studies on gender and climate change adaptation within the Southern African region usually conclude that despite the similarity in findings, it is still requisite that adaptation policy actions in every locality or municipality should be informed by evidence drawn from that particular context.

For example, Angura (2014, p.4) conducted a study in two localities in Namibia: Epyshona village and Daures constituency to understand the relationship between gender and climate impacts. The questions asked by Angura’s research included the following:

- Does climate change differently impact women and men?
- How are men and women impacted by climate change?
- What are the physiological, political, economic, and societal causes of the differences experienced, if any?
- What are the current coping and adaptation strategies and capacities?

- How can the capacity of women and men be strengthened to better adapt to climate change and climate variability? (Angura 2014, p7).

The methods used in the study included participatory rural appraisal, role play, life histories, and semi-structured interviews. The local men and women (households), as well as crucial community officials, participated in the study. The study found that women and men in the study context experienced climate impacts differently. Women were more vulnerable than men, and that was due to the social construction of gender role expectations that saw women as the ones responsible for maintaining the households and other low-ranked domestic duties.

Similar studies to Angura's were conducted in villages in Mozambique and Botswana by Chauque (2015) and Omari (2014), respectively), using the same study methods and asking the same questions. The common findings among these studies are that women's greater vulnerability was a result of the power dynamics within the local contexts of study. It appears pertinent to source data from the adaptation experiences of the community members in contexts if one is to obtain informed and applicable findings from the context, as well as understand the climate change adaptation needs of the local community members (Demetriades & Esplen, 2008; Daoud, 2016; Resurrección & Huynh, 2017).

Few to no studies seem to be available exploring the experiences of local Black African women's vulnerability and adaptation to climate change within localities in eThekweni municipality, South Africa, with the exception of Babagura's (2014) study, which was conducted in the context of uMzinyathi and uMhlathuze municipalities, KwaZulu-Natal Province, South Africa. Babagura (2014, p.3) found that women's heavier workloads at home and the expectation of them to work longer hours in the office to get equal pay with men put extra stress on them and made them particularly vulnerable to climate risks.

Studies on gender and climate change impacts (for instance, Alston, 2010 and Fajber & Ahmad, 2009), conducted outside the context of Africa, seem to show different findings from that of studies done in the context of Southern Africa. For instance, a study in Australia by Alston (2010) and that in the Gujarat community, India by Fajber & Ahmad (2009) found that men were more vulnerable than women to the impacts of natural disasters. The findings here differ from those in African societies due to differences in societal norms and power dynamics, which all the more justify the need for locally fine-tuned studies that analyse the local social, political, and structural causes of gendered vulnerability.

This study seeks to explore how climate change adaptation programs in the eThekweni municipal area of KwaZulu-Natal Province, South Africa respond to the underlying causes of local Black African women's vulnerability to climate impacts in the area, with a specific focus on adaptation to impacts of flood disasters. In its 'Integrated Development Plan for 2030'¹⁹, the eThekweni municipality has reiterated its vision to transform unequal gender relations in the municipal area through recognising and supporting community initiatives and projects that promote gender equality and build women's capacity in the area (eThekweni Municipality, 2019). The municipality seeks to achieve this through women empowerment, social integration projects, gender machinery, and institutional development (Ibid). This study also responds to the broader United Nations' call for prioritisation of vulnerable local women in climate change adaptation action as a means of achieving the 2030 Sustainable Development Goal of ensuring Gender Equality (UNESCO, 2017; UN women 2018; UNFCCC, 2015).

2.12 Gender and Climate Change Adaptation Studies in Sub-Saharan Africa

Previous literature has linked women's vulnerability to climate impacts on poverty, basing their arguments on the fact that women constitute a higher amount of the world's poor. As poverty reduces adaptive capacity, women, therefore, assume the most vulnerable position. Other literature on Gender and Development has also argued that women have a strong connection to the environment, and hence, anything that affects the environment poses severe effects on women. These two groups of literature are associated with the argument on women's severe vulnerability to climate impacts in Sub-Saharan Africa. This latter scholarly group argues that 1) in Africa, women constitute a more significant percentage of the poor people, and 2) most women in Sub-Saharan Africa sustain their livelihoods through subsistence farming. Though these two concerns are interlinked, they both suggest that in Sub-Saharan Africa, women are more likely than men to face a heightened impact of environmental disasters.

Tibesigwa *et al* (2015, p.1) conducted a quantitative longitudinal study to determine the impacts of male-and female-headed households' reliance on agricultural and natural resources for livelihoods in a rural community Mpumalanga Province, South Africa. The study was a longitudinal quantitative study of the impacts such reliance had on the food security of both male-headed households and female-headed households who mainly relied on small-scale subsistence farming for livelihoods. They found that female-headed households were more

¹⁹ Integrated Development Plan is a South African post-apartheid development policy that is intended to provide strategic guidance to newly formed municipalities as well as coordinate many different sectoral plans and planning process.

dependent on agricultural and natural resources, hence, more likely than male-headed households to experience food insecurity in cases of climate change-related crop failures (Tibesigwa *et al* 2015, p.18).

2.13 Gender and Climate Change Adaptation in South Africa

The advent of democracy in South Africa in 1994 ushered in a much civilised and inclusive constitution that seeks to redress the ills of the past apartheid discriminatory policies. The new democratic constitution seeks to take the rights of every individual citizen of the Republic into consideration. However, it is perhaps possible to aver that despite the efforts to ensure inclusivity in the Constitution, there are still perhaps policies in some spheres of the country that fail to take gender equity, especially those of the previously marginalised women, as a priority.

A report in 2005 by Khamarunga Banda revealed that as of then, gender equity was yet to be mainstreamed into the climate policy of the country (Banda 2005, p.27). Considering that women's subordination was still a massive problem in the country at that time, one can imagine the impacts climate-related disasters had on the oppressed group. Banda (2005, p.27) reported that in climate change policy formulations, Black South African women were particularly doubly discriminated against—first on the basis of their race, and then on the basis of their gender. At times, the gender and class injustices that exist in adaptation policy formulation and implementation go unnoticed. This is clear if the victims lack the proper sensitisation to realise the inherent social or institutional factors that promote inequality. Although not focused on local women, however, Madzwamuze's (2010) study also clearly illustrates the need for a focus on the adaptation needs of vulnerable groups in the country. In her study, *Climate Change Vulnerability and Adaptation Preparedness in South Africa*, Madzwamuze observes:

The collective institutional capacity that exists in South Africa needs to be capitalised on to support the development of adaptation interventions at the local level. This requires the provision of support to Community-Based Organisations and local government structures that have an incredible responsibility to develop resilient adaptation strategies to climate change. Priority should be given to most vulnerable provinces and local governments, with little adaptive capacity such as Kwazulu-Natal, Eastern Cape and the Limpopo, all of which are faced with multiple stressors due to climate change and socio-economic challenges (2010, p.9).

It is crucial that the vulnerable groups or populations in those locations be given due attention through exploring their experiences of vulnerability and adaptation to floods and also bring such crucial contextual factors to the fore for the purpose of influencing adaptation

interventions. This is the task of this study, as it seeks to engage with factors that determine the vulnerability of local African women of eThekweni municipality, KwaZulu-Natal Province.

Further related to how a particular vulnerable group can be ignored in a development policy or planning is a study by Wright and Chersich (2019). The authors look at the role of the health sector in climate change adaptation in South Africa. The study uses a systematic review to investigate how the South African policies, example, the National Climate Change Response White Paper of 2011 and the National Adaptation Strategy of 2017, take into consideration the effects of climate-related disasters on people's health, especially the health of the vulnerable people, which consist of women, children, and the poor people living in flood-prone areas. The main findings from Wright's and Chersich's study are that failure to include health impacts of climate change in the policies fails to capture the dilemma faced by vulnerable people. It is also arguable that women constitute a group of citizens that need medical attention from time to time, especially during childbirth and other related matters. Local women who may not be able to afford expensive private care may also depend heavily on public health facilities. The authors also noted that wherever there is little effort in incorporating health impacts into climate adaptation policies, there appears to be a lack of coordination among different vital sectors and the local communities (2019, p.4). As asserted by Wright and Chersich (2019, p.3), for a successful adaptation to take place in South Africa, the local communities which the adaptation aims to target should be included both in the planning and implementation of said plans.

2.14 Gender and Climate Change Adaptation within the eThekweni Municipality

Few studies seem to be available that examine the issue of gender and climate change adaptation in the eThekweni municipality. One of those few works is the work of Wright and Chersich (2019). Wright and Chersich conducted a systematic review of literature on the role of health sectors in climate change adaptation in South Africa. Part of the reviews of their study revealed that in the case of eThekweni municipality, KwaZulu-Natal Province. However, there are few emerging climate change advocates among the local politicians and civil servants. Wright and Chersich (2019, p.4) maintain that most political decisions taken at the municipal level fail to take cognisance of disaster issues.

Currently, there is a programme within the eThekweni municipality called Gender into Urban Climate Change Initiative (GUCCI). The programme seeks to assess and promote the inclusion of women's adaptation needs into municipal climate change policies. From my discussion with one personnel member working in the office of the Premier of KwaZulu-Natal Province, and

also one of the organisers of the GUCCI programme, revealed that there is a desktop assessment used to reveal the level of gender inclusiveness in climate change policies in the municipality. However, she mentioned that there is no primary study that uses interviews or any other primary data collection methods to understand the needs of the local women of the municipality in adapting to different climate-related disasters (PC, 2020, Pietermaritzburg, South Africa).

The Durban Adaptation Charter (DAC) is the strategic document that lays out the climate adaptation plan of the eThekweni municipality. The Charter was signed in Durban during the Conference of Parties to the United Nations Framework on Climate Change 2011 as a partnership between eThekweni municipality and other local governments across the world, but mainly from developing countries on issues of climate change adaptation at city local government levels. The main goal of the partnership is to strengthen cities' efforts towards knowledge sharing between cities and to enhance ecological, social, and economic challenges associated with climate change adaptation.

The Durban Adaptation Charter has laid several key policy goals to tackle climate change adaptation in the city. The goals include, amongst others, issues of mainstreaming adaptation into local government planning, ensuring inclusive adaptation strategy, recognising the needs of vulnerable communities, and promoting partnership and knowledge sharing across cities (eThekweni municipality, 2012). This Charter is one of the strategic adaptation policy documents of the eThekweni municipality. The Charter states that the municipality aims to ensure inclusive adaptation and reduce the vulnerability of vulnerable communities. However, it fails to explicitly mention gender inclusivity as an issue of vulnerable local women as one of its goals. The omission of such an essential element can be taken to suggest that the municipality does not give singular and exceptional attention to understanding how climate disasters such as floods—which have ravaged the municipality in the past years—have affected marginalised groups of women within the municipality. Hence, this study can act as a stimulant to bring such an issue into the fore of the municipality's climate adaptation agenda.

2.15 Conclusion

This chapter has attempted to review and contextualise extant literature on gender and climate change adaptation. The chapter first presented a broad conceptualisation of concepts related to the study, including climate change, climate change disasters, climate change risks, vulnerability, and climate change adaptation and mitigation. Thereafter, the chapter reviewed

extant literature, from various contexts, on broader causative links between climate change-related natural disasters like floods and gender. The chapter noted that in many contexts, women experience vulnerability to climate related disasters quite differently from men. It shows that women are more vulnerable to impacts of climate-related disasters than men. To explore the factors behind such gendered differential impacts, much of the scholarly literature reviewed engaged in a robust debate on the various contextual socio-economic socio-political factors that determine local women's heightened vulnerability to the impacts of natural disasters.

Furthermore, the chapter noted the interconnectedness between adaptive capacity and vulnerability. Individuals or communities with low adaptive capacity are likely to experience a more significant vulnerability than those with high capacity. However, despite such claims, and the many claims that climate disaster affect local women the most, it is essential to consider the contextual factors that influence the vulnerability of any particular group of women. Focusing such study on a particular context is important to planning and implementing climate adaptation initiatives in a manner that ensures equity of the marginalised group

The chapter highlighted the many studies on gender and climate change adaptation at the international, continental, regional, national, and other local levels. However, there is no evidential study that focuses on gender and climate change adaptation in the Durban metropolitan municipality. The study is therefore situated to fill this gap by exploring the experiences of vulnerability and adaptation to flood impacts by local Black women in the Durban Metropolitan municipality. The study will also examine the different social, political, and economic factors that shape the experiences of these women, as well as how the municipality addresses the vulnerability of the Black women to flood impacts. The study adopts an intersectional approach to analysis, considering that race and class intersect with gender to determine how local Black women experience the impact of flood disasters.

CHAPTER THREE

THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

3.1 Introduction

The aim of this study was to critically analyse the ‘contextual conditions’ (including gender, socio-economic, socio-political and cultural) that determine the adaptation experiences of local Black women to flood disasters within the context of eThekweni municipality. To achieve this the first chapter of the study presented a conceptual background and introduction to the research global issues surrounding gendered differential vulnerability to climate adaptation. The second chapter of the study presented international and local literature on gender and climate change, thereby providing the context and the justification for the study.

The current chapter elucidates the different theoretical frameworks (critical realism, feminist political ecology and Theory of Change) that form the lenses through which the literature and primary data in the study are analysed and the research methodology and methods used. The chapter is divided into two sections. The first section presents the theories used in the study. This section explains how critical realism and feminist political ecology as theoretical frames are used to unpack the factors that engender differential experiences to climate change related disaster. The section also conceptualises the linkage between critical realism and feminist political ecology as theoretical frames, and their relevance for understanding the underlying factors underpinning the adaptation experiences of local Black women within the eThekweni municipality to impacts of floods. While critical realism is used to interrogate the root causes or underlying factors that determine women’s adaptation experiences, feminist political ecology explains the *why* behind the experiences. Theory of Change, ToC is the third theory used in the study. The chapter, therefore, shows how the Theory of Change can serve as a theoretical frame to planning and implementing climate adaptation in a manner that addresses local women’s vulnerability to flood incidences.

The second section of the chapter presents the research methodology and methods used in achieving the research aims and addressing the research problems. In other words, the section presents the research design, data and data collection methods, sample and sampling strategy, the ethical issues observed in the collection and analysis of the research data and the limitations

of the study. In this section, a detailed discussion of the paradigm and philosophies that undergird this study and the choice of methods adopted is also presented.

3.2 Theoretical Framework

As noted in the introductory section of this chapter, the study employs three cognate theories in its analysis, including critical realism, feminist political ecology, and Theory of Change. Critical Realism is applied in questioning the underlying institutional, political, and social factors within the eThekweni municipality that shape local Black women's vulnerability to floods and other climate related disasters. Feminist political ecology is a subfield of political ecology and is useful to understanding how power relations interplay with climate change adaptation policies and initiatives to shape gendered vulnerability to climate disaster. According to MacMahon (2017), vulnerability is produced by social, economic, and political processes, and influences how differently people experience climate change effects, depending on their social and economic situations. This study explores the vulnerability experienced by eThekweni municipality's local Black African women, as well as examines the institutional, socio-political, or socio-economic factors within the municipality's climate adaptation governance's influence on their vulnerability. This rests on the assumption that during flooding events and other disasters within the Durban area, women are most likely to experience greater vulnerability, and that this is influenced by socio-political and socio-economic factors within the municipality. The third theory is used as a theoretical lens to explore the best practice approach to adaptation planning and implementation, in a manner that addresses underlying factors that determine the vulnerability of the study participants to flood events in the area. In-depth discussion on the three theories used in the research are explicated below.

3.1.1 Feminist Political Ecology

The recent attention given to women's significance and contributions to economies, culture, and politics has witnessed a convergence of interests in issues of environment, gender, and development, both at the global and local levels. Different scholarly schools of thoughts posit different views pertaining to how gender influences the way people relate to and are affected by issues of environmental change. Ecofeminist scholars such as Wangari (2007) take an essentialist position, asserting that women's identification with the environment stems from nature. Such an essentialist assertion implies that women are naturally (sic) more connected to the environment than men, and hence, anything that affects the environment poses a greater impact on women than men. While the latter part is true, the former part of the assertion may

be problematic. To this end there are other ecofeminist scholars such as Mark Stoddart and David Tindall (see Stoddart and Tindall, 2011), who assert that women's connection to nature is merely a social construct adopted by the patriarchal institutions and dominant western culture to foster oppression of women (see also Rocheleau & Thomas-Slayter, 2013). Studies on gender and climate change adaptation, for example Vincent *et al* (2010), Babagura (2014) and Resurrección (2019) also establish the interconnectedness between social construction of gendered roles and women's heightened vulnerability.

Feminist Environmentalism, as advocated by Argawal (1991), cited in Rocheleau, Thomas-Slayter & Wangari (1996, p.3) emphasises that women's interests in nature and some natural resources stems from the different daily roles that women perform every day. For instance, in some societies, differentiated gendered roles depict an essentialist view of women as those responsible for certain duties such as cooking, fetching water, and general house care. In the same vein, social feminism²⁰ believes that women's connection to the environment has to be with the political economy of production and reproduction, where male and female roles differ in the production economy. For instance, women—who are mostly child bearers—are seen to be natural nurturers. Feminist post-structuralists, for example, Harding (1986), explain that gender differentiated experiences of environmental change is a result of the manifestation of the “situated knowledge regarding different dimensions of identity”, for instance, differences in gender, race, class, age group, and ethnicity (cited in Rocheleau, Thomas-Slayter & Wangari, 1996, p.4).

Feminist post-structuralists and feminist political ecologists' perspective on gender, environment and development are related. Feminist political ecologists emphasise that gendered division of rights, responsibilities, and environmental risks manifest in how women, especially women—and especially local women from rural areas—experience the impacts of environmental degradation differently from men. For feminist political ecologists, these differences in experience are a result of inequities in social and political structures. Feminist political ecology forms the theoretical framework for this study. It will be explicated in detail. But before exploring what feminist political ecology entails, it suffices to briefly mention what political ecology, of whose Feminist Political Ecology is a subfield, is concerned with.

²⁰ See example the work following works *Social Feminism: A Strategy for Women's Movement* by Both *et al* (1972) and other women's socialist organisation such as Radical Women (<https://www.radicalwomen.org/>); and the Freedom Socialist Party (<https://www.radicalwomen.org/>).

Minch (2011, p.24) describes Political ecology as the study of “the intersection and relationship between the political, broadly understood, and environmental and ecological phenomena”. Put differently, political ecology studies the interrelationship between politics, culture, and nature or the environment. According to Rocheleau, Thomas-Slayter & Wangari (1996, p4), political ecology is concerned with the decision-making processes, and the social, political, and economic factors that shape the formulation and implementation of environmental policies and practices. This explanation sheds light on the assumption of this study which is that political, economic, social, and cultural forces affect, and are affected by, ecological and environmental concerns. This study aims to explore the complex relations between environmental issues (specifically floods and other related natural disasters), politics, culture and other social dynamics, through analysing how these factors influence access and control over resources, and the implications this has on people’s livelihoods. Robbins (2004, p.116) opines that political ecology—as a discipline and as a theoretical lens—has a rich base of theories for researches, ranging from constructivist and post-structuralism, by providing ideologies, discourses and understandings for deconstructing environmental realities, and the ways in which ‘ideas and narratives about nature and society are mobilised’. Bryan & Bailey (1997) point out the postulations of political ecology as follows:

- One, environmental changes or disasters do not affect society members homogeneously: political, social, and economic differences account for unequal distribution of costs and benefits and,
- Two, the unequal distribution mentioned above unavoidably reinforces or reduces pre-existing social and economic inequalities in the society.

Feminist Political Ecology is a subfield of Political Ecology. Dianne Rocheleau (1996, p.4) describes Feminist Political Ecology as “a feminist approach to political ecology, where gender becomes a main category analysis in relation to understanding how decision-making practices and socio-political forces influence environmental laws and issues, as well as access to and control over resources”. Feminist Political Ecology serves to incorporate issues of gender into Political Ecology scholarship by analysing how the social construction of gendered relations, including socio-political and socio-economic factors, interacts with issues of environmental concerns to disproportionately disadvantage women. The richness of using Feminist Political Ecology as an analytical lens is in the fact that it also focuses on racially diverse societies, which could range from rural to urban or industrial to agrarian societies to

understand the gender dimension seen in the acquisition and control over land resources. It incorporates ideas from cultural ecology²¹, political ecology (Rocheleau 1996) and political economy²². Feminist political ecology emphasises the role of gender as a critical variable in shaping resource access and control, and interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change and the struggle of men and women to sustain ecologically viable livelihoods.

Feminist Political Ecology was popularised in the 1990's by Dianne Rocheleau and her colleagues from Clarke University, USA. In the book, *Feminist Political Ecology: Global Issues and Local Experiences*, edited by Rocheleau and colleagues in 1996, the authors illustrate how certain issues of environmental degradation are gendered. Especially, it showed how certain environmental challenges had more negative effects on women than men (Rocheleau *et al* 1996). This book offers a refreshing perspective to political ecology, as it introduces gender as a critical variable that interacts with race, class, culture, etc. to shape how people get access to resources and other assets in order to sustain viable livelihoods during environmental change (Rocheleau *et al* 1996, p.4).

The application of feminist political ecology has drawn attention to the ways in which social, structural, and political factors interact with issues of the natural environment to shape women's vulnerability. For instance, recent application of feminist political ecology perspectives by scholars include Resurrección (2019), who employs the perspective to analyse how everyday gender relations influence the differential experiences and vulnerabilities of women and men to environmental changes in the Hindu Kush Himalaya. Gender differences, feminisation of roles and responsibilities are products of social constructs which can change depending on contexts: culture, race, class, geographical location. These different categories are also dynamic, capable of changing in line with shifts in governance and social structures. By regarding gender as dynamic, feminist political ecology therefore seems to deconstruct the traditional binary construction of gender that classifies men as dominant, powerful, and visible while women are weak, passive, and invisible. As noted by Clement *et al* (2019), such construction of gender is caused by complex historical processes that are shaped by economic,

²¹ Julian Steward is the main proponent of cultural ecology, a theory which proposes "that cultures interact with their environmental settings... to allow people to best pursue their livelihoods (See <https://www.britannica.com/topic/cultural-ecology>)

²² Political economy can be understood as the study of how a country—the public's household—is managed or governed, taking into account both political and economic factors (See <https://www.britannica.com/topic/political-economy>)

social, and cultural institutions and which deeply inform social, political, and economic decisions.

In most of our societies today, gender is a determining variable that shapes access to resources. This research explores local women's experiences of, and adaptation to, the environmental flood disaster in eThekweni municipality. It assumes that these experiences are shaped by social, structural, and political factors within the municipality. According to MacGregor (2010, p. 225), people's responses (adaptation) to real-life manifestations of climate change are shaped by social and political factors. This study will focus on the ways in which social inequalities craft and are crafted in relation to flood disaster.

3.1.2 Critical Realism

Critical Realism is the second theory used in the analysis of the research. Critical realism acknowledges the link between objective reality and a strong focus on social structures such as gender, equity, adaptive capacity, and agency (Easton, 2010). One tenet of critical realism, according to Collier (1994), is that reality consists of deep, actual, and empirical levels. The deep level comprises the underlying structures and generative mechanisms that wield power and interact under certain situations. According to Collier (1994), the generative mechanisms in the deep world interact spontaneously. The occasions in the deep world occur in the actual world, where events are either perceived, or may not be perceived. The empirical level then accounts for where the occasions turn into observable reality, which people then experience within specific geographical and contextual triggers (Parr, 2015). As stipulated by Easton (2010), the role of social scientists is to consider these generative mechanisms that generate social reality and everyday experiences and then apply meanings to them. According to Parr (2010), social realities exist only in the sense of possessing some causal powers that are situated alongside some physical realities. Critical realism provides an ontological and epistemological stance on which issues of political ecology and feminist political ecology can be analysed. For example, it provides a lens to analyse issues of the power dynamics that shape women's experiences of natural disasters in a specific geographic context.

Moreover, in a critical realist perspective, knowledge is produced through social practice. According to Denemark *et al* (2007), critical realism lends itself more towards intensive approaches to qualitative research that aims to investigate a small number of cases for the purpose of generating a causal explanation for social occurrences. This study will employ a qualitative approach to research and will seek to use semi-structured interviews and

participatory methods of data collection to generate rich textual data capable of explaining social reality about the study localities.

3.1.3 Applying Critical Realism and Feminist Political Ecology as Analytical Frames of the Study

The two theories, critical realism and feminist political ecology are interrelated in the sense that both place gender—which is a product of social and political construct—as a key variable of analysis. Gender is negotiated through everyday interaction with the environment, such as through farming, and food production (Nightingale, 2011). Gender intersects with other factors like class and age, to determine a woman's differential experience of climate change (Alston, 2010; Babagura, 2015; Goh, 2012). Feminist Political ecology does not only offer an analysis of how gender interacts with climate change, but also offers a theoretical perspective on equality and change.

As noted by Macmahon (2017), feminist political ecology has three underpinnings, including a focus on inequities inherent in gender arrangements; an assumption that gender is socially constructed and is subject to change, and a normative commitment to gender equity. Authors such as Sunberg (2015) and MacGregor (2010) note that any attempt to solve climate change problems without reasonable attention to gender analysis is insufficient, unjust, and unsustainable. This research seeks to reflect on the ways that gender is considered in municipal adaptation programmes, hence the use of a feminist political ecology perspective.

The choice of critical analytic theory was also informed by the analytic framework employed in the study. The study employed a thematic analytical framework. Thematic analysis involves forming patterns and themes from the participant's own experiences. The participants' own experiences here serve as the codes, which represent the real-life experiences of the participants. This explanation is consistent with Richards' & Morse's assertion that "coding is not just labelling, it is linking: it leads you from the data [the raw data or the experiences of the research participants] to the idea, and from the idea to all the data pertaining to the idea" [the secondary literature, the theory, the researcher's own meaning] (2007, p. 137).

The codes derived from the participant's experiences were categorised into meaningful patterns and themes. Some of the patterns and themes represented the researcher's own interpretation or meaning given to the participants own experiences as narrated by them. Put differently, the analysis involved the researcher abstracting ideas or themes from the participants' own words. This is informed by the ontological principle that participants are rational subjects who are

capable of describing their real-life experiences in their own words. It is moreover informed by the epistemological stance that knowledge makes much sense when it is contributively generated both by the participants and the researcher. In the analysis of this study, the researcher progressed from the real to the abstract, and showed how the abstract explained the tangible.

In critical realist perspective, ‘reality’ is referred to as phenomena which applies not only to objects that can be perceived by the five senses (Gibbs, 2007, p.7). Rather, ‘real’ encompasses qualitative issues such as social class, political power, gender dynamics, historical events, group attitudes, reference groups, state laws, and social status (Ibid). Just like a physical object, the second category of realities are independent of us and even though they cannot be directly seen or felt, they have certain effects on people (see Gibbs 2007, p.6). The conception of reality by critical realists also differs from that of the constructivists/idealists. In constructivist perspective, everything we experience or say constitutes human constructs or ideas (See Gibbs 2007, p.7) and do not reflect any actual or real-life existence.

However, this study is of the hypothesis that the experiences of the local Black African women in study contexts are reflective of the underlying power dynamics and power relations existing and shaping their gender, race, class, and other intersecting identities within their social and environmental context. These power dynamics are real and have their manifestations in the adaptation experiences of the local Black women that form the participants of this study. Such realities include the social, economic, and political realities in the South African state in general and within the eThekweni municipality. In applying the critical realist perspective in the analysis of this study, the research will attempt to use the ‘how’ of the themes arising from the participant’s own experiences of adaptation, and juxtapose them against the socio-economic and socio-political realities or ‘contextual conditions’ that influence or determine those experiences.

3.1.4 Theory of Change

The third theory used in this study is the Theory of Change. Though in recent years there have been various evolutionary changes to the Theory of Change (ToC), its root is traced to the United States in the 1990s, when it was mainly used to improve evaluation theory and practice in the field of community development (Stein and Valters 2012, p.3). Since its inception, ToC is reported to have evolved into two streams of development and social programme practice: evaluation and informed social practice (Ibid). The evaluation perspective involves using ToC

for programme evaluation analysis. On the other hand, its application in the development field is traced back to the 1970s tradition of logic planning models used by practitioners to consciously reflect on and/or develop informed social practices in community development (Stein and Valters 2012, p.3).

Different scholars conceptualise ToC differently, though they all seem to point to a similar implicit meaning of the term. Weiss (1995) defines ToC as “a theory of how and why an initiative works” (Cited in Stein & Valters 2012, p.3). In a more detailed manner, a Theory of Change is described as a comprehensive description of how and why a desired change is needed in a particular context (Centre for Theory of Change). Theory of Change involves mapping out what is apparently missing in a particular programme or initiative that could have spurred the initiative to achieve a desired goal or intervention. It does this by first identifying what is desired in a certain situation and thereafter, identify all the conditions that must be met or put in place—and how these conditions causally relate to one another—for a certain goal or change to occur. It is mapped out in an Outcome Framework. The aim of the Outcome Framework is to provide the basis for identifying the type of intervention that will lead to the desired goal. ToC approach provides an understanding of how change actually happens through an intervention.

In a nutshell, developing a Theory of Change involves identifying what you do, who your action targets for results, reasons and the methods of doing it, as well as what you expect to achieve from performing the action. Theory of Change is useful in clarifying how change happens, factors that account for change, resources needed to create change, the right questions to ask, what data to collect, as well as what decisions are likely to yield better outcomes.

The different explanations offered to Theory of Change shows that it is not a theory in the real sense of theories. That is, it does not have an explanatory power to illustrate a social reality or a cause-effect relation. It also does not have specific variables that could be measured to explain a social reality. ToC rather describes “both a process and a product” (Vogel 2012, p.1). In other words, it involves applying certain procedural events of actions in order to arrive at a desired or premeditated outcome. The outcome is the Change. ToC seems to provide some models to achieving a real-life developmental plan. It has the capacity to be applied in various perspectives, depending on what is sought to be achieved. In other words, Theory of Change can be developed in multiple ways. In this study, the Theory of Change is useful in suggesting appropriate and effective ways of developing eThekweni municipal climate change adaptation

initiatives in a manner that responds to the vulnerability and adaptation needs of the local Black women to the impacts of flood disasters within the localities. According to Stein & Valster (2010, p.4), articulating a Theory of Change commonly “involves exploring a set of beliefs or assumptions about how change will occur”.

Researchers who have applied Theory of Change in gendered adaptation to climate impacts used it in a participatory model of climate governance (Fisher & Shakya 2018; Jost, Kristjanson & Ferdous 2015). Through participatory model of governance practices, gendered voices, or the needs of the most marginalised groups of people, are included in climate change adaptation governance through participatory engagement of all the stakeholders involved. The stakeholders here imply the climate adaptation implementation officials who actually execute adaptation projects, as well as the beneficiaries of the initiatives, which in the context of this study, are the local Black women.

The challenge that may arise from such participatory engagement is how to enable local women to become involved in decision making or to influence practice. This is because there may be a technical knowledge gap between the highly informed policy practitioners and the local women, who may not have the required policy procedures and technical knowledge of how policy is implemented. However, such a barrier can be overcome through a representative form of participation, where the policy personnel partner with representative of different local women organisations, who should represent the interests and needs of their groups at the technical policy discussion fora. Such partnership has the capacity of enhancing knowledge co-production and social learning²³, and consequently effect change in the day-to-day lives of the local women involved.

In the same vein, Fisher and Shakya (2018, p.8), note that participatory models of climate change adaptation governance at local level should involve elements of “collective organising” through groups such as women’s saving groups, forest user groups etc., to strengthen their voices and amplify messages to decision makers. Participatory process can help to incorporate lived experiences of local women’s vulnerability and living conditions into different policy fora, to influence the kinds of decision made which involve the local people. This is also important as the local people, who pass through the experiences, are in the better position to express their adaptation needs and concerns. Though it can be a challenge for policy makers to

²³ Social learning is learning that takes the form of a situated and collective engagement with others (Collins & Ison, 2009; cited in Fisher & Shakya, 2018, p.8)

understand and respond appropriately to the people's experiences, this process also seems to offer a vital opportunity for the policy makers to get in touch with the lived experiences of the people their policy seeks to impact. This approach can cause a transformative effect in a research engagement, such as this one.

3.3 Research Methodology and Methods

This section elucidates the overall methodology and methods applied in carrying out the study and answering the research questions. The section presents the research methods, research paradigm, research design, sample and sampling techniques, data collection and analysis methods, the ethical considerations observed in the conduct of the study and finally, the limitations of the study. At every point during the discussion, the researcher attempts to give detailed justifications of the methods applied as they align with the research aims.

3.3.1 Research methods

This study was explorative in nature. This design was chosen based on the consideration that the study seeks to explore how climate change policies and initiatives in eThekweni Municipality addresses the underlying issues of gender vulnerability, with specific focus on local Black African women's experiences of vulnerability and adaptation to climate impacts. This study employed a qualitative method to research. Richie *et al* (2014, p.2) describe qualitative research as an "interpretative approach to research, that seeks to explore a phenomenon in from the inside out, taking the perspectives and accounts of the research participants as the starting point".

Qualitative research methods also entail understanding some aspects of social life using words as currency for analysis (Patton and Cochran 2002, p.2). Some scholars characterise qualitative research in terms of the kind of designs that characterise a study as qualitative. For instance, van Wyk (2012) opines that qualitative method is most suitable for studies that ask 'what', 'how', and 'why' questions, rather than seeking to ask, 'how many' (cited in Richie *et al* 2014, p3). Qualitative research is flexible in the nature of its design. This means that a qualitative study may apply different designs. Moreover, specific data generation methods—including semi-structured interviews, observation, and in-depth interviews—usually align well with qualitative approach to research. Qualitative research aligns with an interpretative paradigm to study. In such a study, the researcher's interpretation of research data needs to be informed by the personal meanings the participants attached to their experiences.

In applying qualitative methods to this study, the researcher's focus was an in-depth understanding and explanation of the social world of the research participants, including their circumstances, their histories, and their perspectives as narrated by them.

Furthermore, a qualitative method was deemed appropriate for this since the study involved exploring people's experiences, as they give subjective meaning to them. The study never sought to measure or quantify any variables but rather asked questions regarding people's experiences. As clearly indicated, the study set out to explore of the experiences of local Black African women's vulnerability and adaptation to climate impacts, as well as to investigate how institutional, political, and social factors interact to shape such experiences. In terms of the design, the study asked questions regarding 'what', 'how', and 'why', and generated data through semi-structured interviews and focus group discussions to respond to the research questions.

Qualitative methods aligned with the phenomenological approach employed in this research. Neubauer, Wiktop & Varpio (2019, p.91) define phenomenology as an approach to research that seeks to explain the essence of a phenomenon by "exploring it from the perspective of those who have experienced it". This implies that phenomenology seeks a detailed study of an individual, groups of individuals, societies, or objects to discover information or new understandings about them. The goal of phenomenology, in this case, is to describe what certain experiences mean, both in terms of the phenomenon that was experienced, how it was experienced, and then link it to the contexts of the people that experience it. This study explored the phenomenon of flood events as experienced by local Black women in the Durban municipality, in order to understand the link between the vulnerability experiences of these women to the flood impacts, and the social and political realities of local Black women in South African societies in general, and eThekweni municipality in particular.

A qualitative research method and phenomenological approach also aligned with the ontological and epistemological stances of the study. Ontology is the study of the nature of reality or the kinds of things that exist. The basic ontological question concerns whether there is a social reality that exists outside of the human minds. In other words, whether there is a single reality existing out there independent of the human perceptions or interpretation, or reality is multiple, depending on the different interpretations that humans give to it. Epistemology, on the other hand, is concerned with the best way of acquiring the knowledge of reality. This is considering that how we know things depends on the nature in which that

thing exists. Phenomenology also underlies the philosophy that the lived experiences of a person is an interpretative process that can best be described by that person. However, since knowledge can be gleaned from multiple perspectives, it also means that an observer (the researcher in this case) can also interpret those experiences, though not in a bias-free manner. The observer interprets those experiences from an outsider point of view, and in relation to other available evidence.

The ontological stance adopted by this study is that reality is multiple: it depends on the interpretations and meanings given to it by human beings. Critical realism, which is the philosophy that informed this study, is described by Gibbs (2007, p.7). According to the author, reality consist of multiple levels: the empirical, which comprises our experiences; the actual, which exist regardless whether we experience them or not; and the real, consisting of underlying causes and mechanisms that determine our experiences. In line with the theorisation of critical realism explained above, this study is of the perspective that reality is interpretative, multiple, and context specific. In the context of this study, this means that the experiences of the study participants are opened to multiple interpretations from different perspectives, and each interpretation depends on the context (including social, political, geographical, and racial).

This study theorised from premises that the knowledge is collaborative and needs to be generated through the collaboration of the research and the participants, hence, the use of interviews and focus group discussions. Richie *et al* (2014, p.6) use the word ‘abduction’ to describe a research strategy where the researcher (using a second-order concepts or the researcher’s technical language) describes everyday activities, ideas, activities, and [experiences] of the research participants using their language and meanings (or first-order concepts or the participants lay language). This is the strategy that this study adopts in addressing the research questions.

3.3.2 Research Design

This study adopted an exploratory case study design. According Baxter and Jack (2008), a case study design is used in a study when the aim is to explore a phenomenon in depth and from multiple perspectives using various sources of evidence. Creswell (2013) states that a case study uses multiple data collection methods to study a phenomenon in context. Case study design is also necessary where the application of a single perspective is not enough to offer a complete account or explanation of the phenomenon studied. This claim is in line with Richie

et al (2014, p.67) assertion that a case study is used where “understanding needs to be holistic, comprehensive and contextualised”. This study fitted into an exploratory case study design since its aims combine attributes of both exploratory and case study research. That is, the study used both face-to-face interviews, focus groups discussions and secondary document analysis to study adaptation to flood events in the context of Black women from Inanda, Ntuzuma, KwaMashu and uMlazi of eThekweni municipality. As noted earlier, these localities represented apt context within the eThekweni municipality because in the past years, they have experienced various incidences of incessant flooding. The fact that these localities are mainly inhabited by Black people, the majority being Black women, made them suitable as case sites for this study.

Moreover, the focus on Inanda, Ntuzuma, and KwaMashu (jointly referred to as the INK nodal within the eThekweni municipality) as the sites for this study also intentionally aimed to contribute to the quest for increased development in the zone. In its recent development agenda, the eThekweni municipality has expressed its commitment to enhance the development of the zone and improve the standard of living of the residents of the areas. Due to the nature of this case study, the findings of the study were peculiar to the study participants. However, though researchers have argued that it is unwise to generalise findings from qualitative case studies, in terms of transferability, Roberts *et al* (2004) posit that insights from a case study can be transferred to other situations that share similar conditions. Therefore, the findings from the study also provided some insights into the adaptation experiences of Black women in other municipalities, with similar contexts as eThekweni, for example, other adjacent municipalities like uMzunduzi (local) and uMgundundlovu (district) municipalities; and arguably other metropolitan municipalities within the country.

3.3.3 Research Paradigm

A research paradigm covers the philosophies or worldview that undergird a research study. The paradigm adopted also informs the methods and design that the study uses to answer the research questions. This study was designed within the interpretivist paradigm. The philosophical assumptions of the interpretivism paradigm can be traced to the ideas of Emmanuel Kant in his *Critique of Pure Reason*, published in 1781. In contrast to the position of earlier philosophers such as David Hume (1711-76), Auguste Comte (1798-1857), who thought that the only way to attain knowledge of things was through the sense experience, Kant argues that humans can attain knowledge of things in the world through ‘understanding’, which

is derived through reflecting on what happens, not just from having had certain sense experiences. Just as this study seeks to achieve, such ‘understanding’ as described above can be attained by exploring the ‘lived experiences’ of a people in order to show the link between the social, cultural, and historical aspects of their lives, and to reveal how the context in which these factors manifest and in which they live sheds light on the reason behind their experiences. This study was based on the assumption that the underlying ‘mechanisms’ that shape the adaptation experiences of Black women within the eThekweni municipality can be understood by exploring the social, political, cultural, and historical contexts of these women within the municipality. The study also believes that intersecting issues of race, gender, and class, amongst others, within the South African society can give in-depth explanations of the social realities and lived experiences of the women. The interpretivist paradigm has also been used widely in qualitative research in the social and human sciences.

The study also lent itself towards a transformative paradigm to research. According to Creswell (2013, p.27) a transformative paradigm is also located within the wider assumption of postmodernism, which emphasises applying multiple perspectives of gender, race and class to understand people’s daily experiences. From an epistemological stance, this paradigm claims that knowledge is produced through the collective engagement of all stakeholders involved in a project—in this case, the researcher and the research participants. Ontologically, the essence of such knowledge and the essence of research itself is to bring about change in thinking and in praxis. Therefore, the use of Theory of Change in this study to prescribe the best practice approach to attaining gender equity in climate adaptation planning is aimed at challenging and or addressing any existing praxis that breeds inequity. Creswell uses the term advocacy research to describe the type of research that seeks to raise participants consciousness to a certain issue and aim at “advancing an agenda for change to improve their lives” (2009, p.9). The philosophy that guides this study is that the research participants are not just objects to be studied; they are co-producers of knowledge that can transform existing social realities. This explanation also lends credence to the endeavour of the researcher to use the term, ‘fieldwork’, rather than just data collection, to describe the process of eliciting primary data for the study. This is because data collection seems to suggest only obtaining information from the participants, without any intention of seeking to affect their lives.

During the fieldwork in this research process, the researcher visited the locations of the local women and empathised with their conditions, especially as the researcher listened to them narrate the manner in which their house and properties were flushed away during the flood

incidents. It is pertinent to note that though this research design follows the interpretivists paradigm, relying on providing meanings and explanations to the constructed realities of the participants (Ritchie *et al* 2010, p.18), the transformative aspect of it, the practical change it causes to the lived condition of the participants, cannot be totally ignored. This philosophy also informed the use of the focus group discussions as a data gathering method in this study. Rather than the participants being merely information producing commodities, they act as co-producers of knowledge. Focus groups, in the context of this study can be likened to what Gobo & Marciniak describe as “participatory, critical, and collaborative ethnography”, which according to him, aims to achieve the following:

Revisit what could be, identify obscure influence of power, control and inequality; contributes to emancipatory knowledge and social justice; probes possibilities of challenging institutions and social practices that constrain individuals and communities [or groups] and; unites needs of people with goals of research (2016, p.112).

In this study, the potential or actualisation of the above attributes of participatory, critical, and collaborative approach to research described by Gobo & Marciniak (2016, p.112) was not totally ignored as part of the focus of the study. The study then could be described, in a way of continuum, as adopting a transformative-interpretivist approach to research.

3.3.4 Reflexivity

Since this was qualitative research that adopted a phenomenological approach, the entire research process was undergone reflexively. The researcher constantly reflected on the essential themes occurring from the participants’ experiences while at the same time reflecting on my own position and experiences in relation to both the participants and the phenomenon. As the researcher, I regularly reflected on my relationship with the participants, and how this relationship influences the quality of data obtained and the objectivity of the research analysis. Reflexivity was necessary for this research in order to unpack how power dynamics (male-female relationship during interviews) could influence the openness of the research participants to freely give out information necessary to shape the research analysis.

After every field experience, the researcher constantly looked back to evaluate how my own biases and ignorance could possibly interfere in the meanings I put to the discussions. The researcher is a male, interviewing women, and from a distinct cultural background. Some of the local women interviewed shared emotional lived experiences that were touching to me. Such emotions had the possibility of distorting my analysis of the findings of the research,

possibly rendering it less critical. However, the value of always standing back, dissociating the researcher's emotions from those of the research participants', enabled the researcher to analyse these experiences as an outsider, in a more neutral and objective manner.

As a male researcher, the researcher understood the influence that power relations could play in such a study as this. For instance, the gender difference between the researcher and the participants could restrain the participants from freely sharing information. The researcher, therefore, intentionally sought to ensure the participants felt comfortable and relaxed before each interview began. The presence of the female research assistant—a native who could fully communicate in the mother language of the participants—was also helpful in making the local women participants relaxed, thereby offering information freely and openly. During the interviews, the researcher strove as much as possible to maintain an empathetic body language and listening ears. After every field experience, the researcher endeavoured to keep a personal diary of events, including implicit and explicit feelings during each personal interview encounter. This was a routine throughout the whole field experience of that day. I also made a habit of, from time to time, having a debriefing session with experienced and trusted colleagues from the School of Social Sciences to elicit other perspectives. Moreover, during documentary analysis, the researcher strove to check for credibility, authenticity, and the meaning in every document.

3.3.5 Sample Size and Sampling Technique

The researcher adopted a purposive random sampling strategy. 25 local women and 5 municipal personnel were involved in the face-to-face interviews. The 25 women participants were distributed across the four study sites. Unlike in quantitative research, qualitative research experts do not have a definite number of participants required for qualitative study. Determination of sample size in qualitative study depends on various factors that define the study. According to Vasileiou (2018, p.2), the sample size chosen for a qualitative inquiry depends on the methodological, theoretical, and the paradigmatic approach used in the qualitative inquiry. Sandelowski (2001, p.183) recommends choosing sample sizes that are large enough to provide rich qualitative data for analysis of the phenomenon under study, but small enough not to preclude important insights regarding the phenomenon studied. Morse (2015) posits that the more useable data collected from each person, the fewer participants are needed. Other factors that determine the chosen sample size include the design and complexity of the study, the accessibility of the participants, and the scope of the study. Amongst others,

saturation and the richness of the data were among the important considerations in choosing the sample size for this study. The 25 participants in the study provided rich enough data for the analysis of the study and to answer the research questions. Moreover, for the local participants, saturation was reached after interviewing about 24 participants. Focus groups also help in determining the saturation of the study, as most of the experiences shared in focus groups resonated with those of one-on-one interviews. A total of eight participants took part in the focused group discussions. Two focused groups were conducted with local participants from uMlazi (four participants) and KwaMashu (four participants). Some of the participants in the focus group discussion also took part in the one-on-one interviews. Similarly, five municipality personnel from both the Environmental Planning and Climate Protection Department (EPCPD) and the Disaster Management Department of the municipality participated in the study through online interviews conducted via zoom.

Recruitment of the municipal officials was done through recommendation by the departmental managers of the municipal department concerned. Each of the face-to-face interviews with the local participants took 20 to 35 minutes, while that with the municipal personnel took about 40 minutes each. The researcher visited the study sites approximately five times within the months of January to March 2020. The interviews with the local women were carried out mostly in their houses and some in their offices and shops, as depending on what was convenient for both the researcher and interviewee. However, the participant's convenience was considered a priority. Since the focus group discussions were for triangulation purposes—to confirm the information gathered personal interviews—the same set of questions was used for both the one-on-one interview and the FGD. Due to the eventual lockdown of South Africa due to the coronavirus pandemic, the researcher was not able to reach the municipal personnel through face-to-face interviews, as initially proposed. But an online platform (Zoom) was used to interview some of them while others participated through written responses to the interview questions. They sent their responses to the researcher by email. At every stage, every participant had signed the informed consent document.

The researcher briefly explained the ethical issues in the consent form to the participants, as well as advising the participant to sign the form. The researcher tried not to let his own preconceived thoughts interfere with each research interview. To develop trust with the local women and to assist with language interpretations, the researcher sought the assistance of a local African female research assistant during the interview processes. Where necessary, she

also assisted in language interpretation. The research assistant—who had been trained on the skills of qualitative research interviewing—also assisted in conducting the interviews where the participant (either due to inadequate English language proficiency or as a matter of choice) chose to respond to the interviews in the local language. The interview schedules and the informed consent document were translated into the local language (IsiZulu) for the sake of participants who were not able or willing to communicate in English. Transcripts of any interview conducted in the local language was transcribed and translated back into English by a local research assistant. Moreover, as a male interviewer, the researcher intentionally attempted to establish a cordial relationship with the participants to ease any tension that might occur during the discussion. The interviewer will play the role of a facilitator.

3.3.6 Data and Data Collection Methods

The study sourced both primary and secondary data. The secondary data will be sourced from scholarly journals, books, and documents from the eThekweni municipality's webpage, www.mile.org.za/pages/conference-Reporting.aspx. Secondary sources of data comprised articles on gender and climate change adaptation, as well as eThekweni municipality's initiatives and responses to climate change. Secondary data, which included policies on climate change adaptation within the eThekweni municipality, were important to assess the level at which the municipality attends to issues of climate change adaptation so far. Secondary data also gave insights into some of the initiatives that the municipality does, or proposes on how to address climate change adaptation issues, including policies on how the municipality incorporates, or proposed to incorporate gender, and the experiences of vulnerable communities or groups into its climate adaptation policies. Secondary data was useful as a starting point for the exploration in this study.

The primary data used in the research was collected through Focus Group Discussions (FGD), and semi-structured interviews with two sets of participants: 1) local Black African women from KwaMashu, Inanda, Ntuzuma; and 2): personnel from the Environmental Planning and Climate Protection Department (EPCPD) and the Disaster Management Department (DMD). The four local communities were selected based on their experiences of climate disasters. The use of two data collection methods for this group of participants was to ensure triangulation and data reliability. The local women provided information relating to their experiences of climate change adaptation, vulnerability, and their coping strategy, while the municipal personnel will give in-depth information on the municipal climate change adaptation policies

and initiatives as well as the measures put in place to ensure gender sensitivity during disasters and emergency management. While EPCPD deals solely on issues of climate change adaptation planning, the DMDs duties cut across responses to all forms of disasters and emergencies within the municipal areas.

The choice of interviews for this study was motivated by the study's aims. The study sought to understand the experiences of vulnerability and adaptation to climate impacts by the local Black women within the eThekweni municipality. One-on-one interviews were important for the opportunity they offer in terms of clarification and in-depth understanding of each participant's experiences and the impacts the flood incidences had on them. Richie *et al* (2014, p.56) are of the opinion that "understanding people's motivations and decisions, or exploring impacts and outcomes, generally requires the detailed personal focus that one-on-one interactions allow". A semi-structured form of interviews was chosen because of the flexibility it offered to explore the participants' experiences, and asked for clarifications where necessary, for better understanding. The use of semi-structured interviews was also aligned with the philosophical and epistemological stances of this study: reality is multiple, context-specific and knowing such reality means being open to interpretative, multidimensional aspects to its meanings.

The focus group discussions method was used in the study for the purpose of triangulation, and to elicit new insights arising from group dynamics. Firstly, the focus group discussions offered an opportunity to compare and verify the data collected from the semi-structured interviews. The transformative paradigm adopted in this study also meant that the study is not just for knowledge's sake but seeks to proffer solutions that enhance the situations of the participants. According to Richie *et al* (2014, p.56), "focus group interaction is useful to generate creative thinking, solutions, and strategies". As implied earlier in the paragraph, the use of focus group discussions in this study was also to bring to the fore some of the issues that the participants might have forgotten to raise during their one-on-one interviews. The researcher conceived that since all the participants in the focus groups had similar experiences, it was possible that group discussions, and listening to other women's experiences, could bring them more insights and stimulate their thinking on the issues they might not have raised during one-on-one interviews. Information gathered from group discussions was useful to enrich and validate the findings from the interviews. The same people that participated in the one-on-one interviews also formed the participants in the focus groups.

3.3.7 Data Analysis

The analysis of the study was done from the perspective of critical realism. A critical realist approach to data analysis seeks to examine the connection between observed patterns or phenomena, and the generative mechanisms that underlie in those phenomena (MacMahon, 2017, p.75). As already stated in the earlier part of this work, a critical realist perspective seeks to unpack the generative mechanisms which undergird a certain events or conditions. Part of the aim of this study was to explain any conceptual bridge between the local Black women's experiences of vulnerability and adaptation to flood impacts, and the social, political, and economic structures that shape, or in other words, create those experiences.

There are two identified analytic or reasoning strategies to research: induction and deduction. Induction means drawing a general conclusion and justification based on particulars—in other words, based on lots of particular experiences but with similar circumstances. Induction, on the other hand, is when experiences are used to explain or justify a general phenomenon, theory, or ideology. Gibbs (2007, p.5) explains that “a lot of qualitative research explicitly tries to generate new theory and new explanations. In that sense the underlying logic is inductive”. This is different from having a preconceived theories and hypotheses, and then go on to collect data to either confirm or refute those hypotheses—the approach widely employed by quantitative researchers.

This study widely relied on an inductive approach to analysis. That is because the study sought to put meaning to the experiences of the research participants based on some theoretical explanations which were already preconceived. The research therefore employed inductive analysis. However, deductive analysis was also applied in this study. The researcher relied on the experiences of each of the individual participants to draw the general population of the study. Moreover, though the study did not set out hypotheses and seek to test them in the sense of quantitative research; it had some preconceived theories that shaped the research process and also influenced the inferences the researcher drew from the participants' experiences.

Practically, the study applied a thematic content analysis method. Patton (2002) defines content analysis as “any qualitative data reduction and sense-making effort that takes a volume of qualitative materials and attempts to identify core consistencies and meanings”. Thematic analysis, similarly, involves identifying core themes and patterns from a data corpus. Mortensen (2019) asserts that thematic analysis is suitable for an explorative study that uses semi-structured interviews as a data collection method. This study was explorative in nature,

as it sought to explore and understand women's experiences of vulnerability and adaptation. Data from the interviews and the focus group discussions conducted were transcribed and then coded using *in vivo* software to elicit the main categories and then themes related to the experiences of vulnerability and adaptation to floods in the case of the local women's responses. Those interviews conducted in IsiZulu were first translated into English language by a native IsiZulu speaker who is also a postgraduate student of the IsiZulu language. All municipal personnel engaged in the research gave their responses in English. Their responses were analysed in the similar manner as that of the local participants. From data collected from the various interviews and focus discussions, the researcher will be able to draw out patterns and themes arising from the interviews for the purpose of interpretation. With the use of this technique, the researcher descriptively analysed data from both primary and secondary sources systematically and objectively, making valid textual inferences from them by relating the adaptation experiences of the Black women that formed the context of the study. Though qualitative research is not totally devoid of the researcher's biases, especially in the context of this study because of the researcher's distinct gender, language and other cultural differences from the research participants, the subjectivity in the researcher's interpretation of data was however believed to have been reduced through a critical engagement with both the primary and secondary data to draw insights about the whole concept of gender, vulnerability, and climate change adaptation. Gibbs (2007) also suggests that qualitative reliability is obtained through constantly checking transcripts to ensure that they do not contain noticeable mistakes made during transcription, and making sure that there is no drift in the definition of codes, or a shift in the meaning of the codes during the process of coding. This can be accomplished by constantly comparing data with the codes and by writing memos about the codes. In this study, the researcher constantly compared the themes with the manuscripts to ensure the themes, and any interpretation given to them represented the participants' viewpoints. The transcribed data was also given to another native speaker for audit and cross examination for consistencies and accuracies.

The data analysis method employed in this study aligns with the approach adopted in the study. In a phenomenological approach to study, the analysis process involves capturing and writing reflections that are robust and nuanced, bearing in mind that the data or parts of the data contribute to evolving the understanding of the phenomenon of study as a whole (Neubauer, Wiktop & Varpio, 2019, p.92). The researcher's role then is to reflect on the essential themes occurring from the participants' own experiences, as they explain the experiences themselves.

This philosophy shapes the choice of the methods of data collection and analysis employed in this study.

3.3.8 Ethical Considerations

Ethical considerations have become an essential element of human and social sciences research. Observing ethics is vital, especially in research that involves human participants. Being ethical in the conduct of research demands that researchers treat the participants well, with respect and dignity. Some of the ethical issues observed in this study included the following:

- The research should be scientifically valuable and should not make unreasonable demands on the participants.
- Participation in research should be based on informed consent.
- Participation should be voluntary, free from coercion and pressure.
- The risks of harm should be known, and adverse consequences of participation avoided.
- The confidentiality and anonymity of participants should be respected.

Before delving into the ethical considerations observed with participants, it suffices to mention that the researcher had secured a gatekeeper's permission from the eThekweni Municipal Institute of Learning (MILE) to conduct the research within the municipality's jurisdiction. An ethical clearance approval letter was also issued by the Human Sciences Research Ethics committee of the University of KwaZulu-Natal. The discussion below illustrates how other ethical considerations were adhered to with the research participants during the research process.

3.3.8.1 Voluntary Participation and Informed Consent

The purpose of the research and the risk involved in participating was clearly explained to the participants prior to commencement of the research interviews. Participants were clearly informed that participating in the research was voluntary, and that they could choose to withdraw at any point if they wished to do so. The consent form was presented for them to sign to show their approval to partake in the research. In the case of local women who had challenges understanding English, the research assistant explained the content of the informed consent form to them in IsiZulu. Permission was sought from both the local women and the

municipal officials for the interviews to be recorded. The participants were also informed that the recording would not be used for any other purpose except for that of the research. They had to give consent and sign for the interviews to be recorded. They were informed that the recordings and/or any notes taken during the interviews would be kept in a safe place by the supervisor and discharge in due time, according to the University of KwaZulu-Natal's research ethics policy. Before each interview, the participants had to choose which language between English and IsiZulu they were most comfortable using to respond.

3.3.8.2 Non-Maleficence

The researcher was a male interviewing female participant (in the case of the local women participants and some of the municipal officials, too). Even though I was assisted by a local female assistant who accompanied me to every interview, I attempted to create an atmosphere of trust and openness by emphasising to the participants that they would not be judged for whatever lived experiences they may share. The presence of a local female research assistant during the interview also assisted to elicit trust and openness from the participants.

3.3.8.3 Protection from Harm

The researcher ensured that the participants were not exposed to any form of physical or psychological harm. Such harm could include embarrassment, mimicking, mockery, sleep deprivation, undue physical or emotional stress, pressure to participate, invasion of privacy, unemployment, loss of personal dignity, etc. The researcher always made all possible effort to be respectful towards the participants during the interviews. The participants had to decide what time and place they were comfortable with to participate in the interviews. Participation, then, was much at their convenience. Most of the participants invited us to their houses for the interviews.

3.3.8.4 Confidentiality and Anonymity

The researcher informed the participants that whatever information they revealed was confidential. They were clearly notified that even when the research findings would be communicated to the municipality, no identity of any single participant would be revealed. It would rather be reported as general findings. In terms of anonymity, the researcher had to obtain consent from the participants for the disclosure of any personal information or identity during research analysis and presentation. For those who did not consent to such disclosure, the findings were anonymously presented with the use of alphabets to label the respondents'

responses. Once the research was concluded, the participants' responses were kept in a safe place. The participants were clearly informed that they had the freedom to refuse their identities being disclosed.

3.3.8.5 Beneficence

The researcher made clear to the participants, especially the local women participants, directly changing their lives or living conditions or offering any benefits was not the goal of the research. However, they were informed that the findings of the research would be communicated to the municipality, and that such findings had the potential of shaping the municipal's climate change adaptation policy on climate change for the good of the participants. They were clearly informed that it was not in the power of the researcher to effect any change—especially as some of them, after the interviews, requested that the researcher help inform the municipality about their vulnerable conditions. The participants were also informed that the outcome of the research could be shared with them at their request or consent.

3.3.8.6 Benevolence

The participants in the semi-structure interviews were notified that there was no material or monetary remittance for participating in the interview. However, some refreshments were offered during Focus Group Discussion, as a sign of appreciation for attendance.

3.4 Limitation of the Study

As noted earlier, due to the eventual lockdown of the country due to the coronavirus pandemic, only a few participants from Inanda and Ntuzuma were interviewed. 80 percent of the participants in the study were from uMlazi and KwaMashu. Perhaps the unequal distribution of sample size across the sites did not alter the quality of the analysis in the study. This is because the information provided by the few participants from Inanda and KwaMashu were seemingly repetitive of the experiences shared and information provided by participants from the other two sites. It might be argued that contextual factors (including demographic and arguably, social and environmental factors) surrounding the four study sites and populations are quite similar.

3.5 Conclusion

This chapter was divided into two sections. The first section critically presented the three theories employed in the research, including critical realism, feminist political ecology, and

Theory of Change. The chapter illustrated that these theories serve as lenses for the analysis of the adaptation experiences of the local women that formed the context of this study. While Theory of Change is applied to analyse the best practice approach to attaining gender and class equity in climate adaption planning, both critical realism and feminist political ecology were described to show how they provide lenses to explore the underlying mechanisms and factors that shape the local women adaptation experiences. The chapter illustrated that while linkage between Critical realism and feminist political ecology pertaining their emphasis on issues of identities as the primary factors that determine vulnerability to environmental disasters. While critical realism emphasis issues of identity on a general perspective as determinant of vulnerability, feminist political ecology harmonises this analysis by drawing home how gender identity is a primary factor that influence Black women's experiences of vulnerability to environmental disasters.

The second and last section of the chapter presented the methodology and methods adopted in the analysis in this study and in attempting the research questions. The chapter presented the research methods, research paradigm, research design, sample and sampling techniques, data collection and analysis methods and finally, the ethical considerations observed in the conduct of the study. A critical analysis of qualitative methods as applied in the study was presented. In consonant with the qualitative methods were the interpretivist-phenomenological research paradigm, the thematic content analysis, explorative case study design and the various strategies (including face-to-face in-depth interviews, focus group discussions and document analysis) used to elicit data for the study. At every point, the justification for choosing any particular approach was presented.

CHAPTER FOUR

VULNERABILITY AND ADAPTIVE CAPACITY—GENDER, POVERTY, KNOWLEDGE

4.1 Introduction

According to Adger *et al* (2005), vulnerability describes the capacity of an individual, a group of people, or a community to respond to the stress placed on their livelihoods and wellbeing. Vulnerability also describes the extent of sensitivity and exposure of individuals, groups, or community to environmental disasters, and their capacity to cope with these disasters. Manata & Papazu (2009, p.5) highlight poverty as a critical factor that reinforces vulnerability to environmental disaster. Poor people have fewer resources to boost their adaptive capacity and grant them wellbeing and food security. As will be highlighted in this chapter, the rural areas of KwaMashu, Ntuzuma, and Inanda are prone to particular environmental challenges which have posed serious challenges to the women residents in these areas. Some of the challenges are deeply rooted in the social and political-economic history of South Africa that is associated with land grabbing and segregation of the Blacks. These environmental challenges are in turn exacerbated by flood incidences, which scientists have shown to be caused by climate change.

Literature has also established the link between lack of knowledge and vulnerability. For instance, studies by Homer-Dixon (1996); Reyes (2002, p.29) and Thompson-Hall, Pascual & Carr (2016, p.376) have shown that technological innovations, levels of education, availability and access to information influence the extent to which people adapt to any disaster. People's ability to access information necessary to prepare for impending disaster or adapt to existing ones can be significantly influenced by socio-political and socio-economic factors. Ahmed (2006) highlights lack of knowledge, limitations in governance, poverty, and limited investment in agriculture as barriers to effective adaptation. Arguably, limited government investments on technological advancement and information access to remote areas is likely to disadvantage residents of such areas. Thompson-Hall, Pascual & Carr (2016, p.376) and Arora-Jonson (2011) have also considered the links between poverty and vulnerability, situating vulnerability because of unequally distributed resources. As already noted, factors that determine poverty are usually social and political in nature, and are linked to issues of identity, be they racial, gender-related, or other.

A case study of women's and men's experiences of climate disaster in uMzinyathi and uMhlathuze municipalities, KwaZulu-Natal Province, South Africa, by Babagura (2014) revealed that gendered inequalities associated with social construction of gender constitutes some of the main factors that exacerbate women's vulnerability to climate disaster. Other related case studies from other contexts within and outside South Africa—for example, Codjoe *et al* (2011); Chauqe (2015); Omari (2014) and Angura (2014)—reveal similar findings. Moreover, findings from this literature suggest that women's vulnerability to flood impacts is reinforced by social, political, and economic factors that are socially determined. In some societies, women are denied land entitlements. Analysis of entitlements examines the resources available to individuals or groups, as well as their access to those resources. Such analysis pays close attention to the manner in which resources are distributed within communities or among vulnerable individuals and groups. According to Cutter *et al* (2009); Adger & Kelly (2009), analysis of gendered vulnerability examines the basic setting within which entitlements are produced, contested, and distributed. The basic settings referred here indicate the contextual social and political factors that shape the vulnerability of a community or group of people—in this case, local Black women—within the study contexts. This chapter seeks to address the research question: how do social, political, and economic factors of inequality shape the experiences of the local Black African women to flood impacts within the eThekweni municipality?

The findings presented in this chapter draw on the semi-structured face-to-face interviews and focus group discussions conducted with the local Black women from the four case study sites. Two key issues (extracted from the data) will form the analysis in this chapter. Firstly, poverty, which narrowed the opportunities to resources and livelihood, exacerbated the vulnerability of the women. Secondly, limited knowledge regarding floods management posed huge constraints on the women, limiting their opportunities and capacities to adapt proactively. Additionally, poverty and knowledge were found to interact with gender to determine the heightened vulnerability of the women to flood incidences. The discussion in the chapter demonstrates that the vulnerability experienced by the women is not a natural process; rather, that some biophysical disasters interact with social, cultural, political, and economic power relations—including gender—to influence how flood disasters impact the women in the study context.

4.2 Gender, Poverty and Vulnerability

Reports by the United Nations Development Programme, UNDP (2011, p.1) have shown that there is a direct link between gender, socio-economic class, and climate change. For instance,

the analysis by UNDP mentions that “women are disproportionately vulnerable to the effects of climate change, which could, in turn, exacerbate existing gender disparities” (Ibid). In explaining how climate change relates to poverty and gender, the feminist political ecology perspective seems to offer a more convincing explanation than other theories that adopt an essentialist view of women. For instance, feminist political ecology explains that women’s disproportionate vulnerability to environmental change is highly influenced by socio-economic and socio-political factors related to gender and class bias (Nightingale 2011; Rochelau *et al* 1996). Juxtaposing feminist political ecological analysis against lived experience, especially those related to injustices related to access to resources, lands, and other livelihood opportunities, arguably strengthens the explanation of women’s disproportionate vulnerability as stemming from social or political rather than natural process. In other words, women’s heightened vulnerability—rather than being explained as due to women’s unique closeness to nature or environment—is understood as a result of bias in policies, social practices, cultural norms, and social relations. Unfavourable policies could also influence social practices, norms and gender relations in explaining women’s heightened vulnerability to climate disasters.

For instance, recent studies devoted to adaptation to climate change (including but not limited to Wright and Chersich 2019; Nightingale, 2011 and Madzwamuze, 2010) highlight the role that the choice of adaptation policies could have in terms of either increasing or decreasing poverty and inequality, through the exposure of vulnerable people to impacts of climate disasters. The findings of the above studies also relate to the recognition of existing linkages between climate change and the Millennium Development Goals 1 and 2, eradicating extreme poverty and promoting gender equality, respectively.

Poverty and gender are seen to be related and they both relate vulnerability to climate disaster. But again, there is need to emphasise that just as ‘women’, in terms of their gender, is not equivalent to vulnerability, disaster vulnerability too, is not equivalent to poverty or social class. Both gender and poverty relate to vulnerability because of socio-economic and socio-political processes. For instance, as explained by MacMahon (2017, p.141), poverty relates to a lack of access to resources and a narrowing of people’s options. In many societies, people’s relative ability to access or control key resources or explore opportunities is also significantly shaped by other factors such as age, citizenship status, social/ethnic and cultural group. Therefore, just as the above-mentioned social factors influence the vulnerability of different groups of people in a disproportionate manner, so too is the vulnerability of women (which in most cases, intersect with other social factors) influenced by social determinants. As stated by

Lambrou and Piana (2006, p.16) “experience has also shown that people who are socially excluded or economically disadvantaged in any community represent those who are least able to have access to, or control over, strategic resources during and in the aftermath of natural disaster”. The authors have also observed that “gender relations, through their evolution and change across history and cultures, have determined social conditions that leave millions of women around the globe in substandard housing, socially marginalised, impoverished or economically insecure, overburdened with caregiving responsibilities, and lacking social power and political voice” (Ibid). Lambrou’s and Piana’s (2006) assertion above is quite significant in analysing the experiences of Black women in South Africa, where gender and race determine a person’s socio-economic status and in turn, their level of exposure and vulnerability to environmental disasters. In South African history, race and gender constitute significant determinants of one’s ability to access strategic resources or choose the location in which to live.

There is a critical nexus between gender, poverty, and land. Some feminist scholars and writings (see Argawal, 1996; Makhado & Pellizo 2016; UN Women, 2016) have argued that unequal land rights [and this was the case in many African societies in the past] constitutes a mechanism through which female subordination and poverty is sustained and reproduced. Experience has shown that in many African countries, though women constitute the majority of people living in rural areas (Williams *et al* 2019; Makhado & Pellizo, 2016), and represent the highest number of people working on the land for subsistence purposes, the number of women with access and rights to their own land remains significantly poor compared to the number of men who are landowners. This experience is common across several African countries including Tanzania, Mozambique and Nigeria. But the critical nexus between land and women’s poverty is not unique to Africa. A 2014 study by the UN Women (2016) in 21 provinces in China found that 18 percent of married rural women lack documented rights in both their parental village and their husband’s village. Similar instances were recorded in Cambodia, the Philippines, and Bangladesh, Myanmar, through a case study by Landesa²⁴. According to the UN Women (2016), “globally, more than 400 million women farm. In sub-Saharan Africa, 60 percent of employed women work in agriculture. In South Asia it is 70 percent. Yet, women and girls constitute 60 percent of the world’s chronically hungry people”²⁵. Women’s land ownership is usually tethered to male figures: fathers, sons, brothers,

²⁴ <https://www.landesa.org/why-land-is-a-feminist-issue-blog/>

²⁵ <https://www.unwomen.org/en/news/in-focus/commission-on-the-status-of-women-2012/facts-and-figures>

brothers-in-law in cases where the husband is dead, and other male relatives. Due to such patriarchal norms still existing in some societies today, women experience heightened vulnerability in the event of natural disasters.

In the context of South Africa, though the relatively progressive nature of the constitution has granted women rights to own land, many rural women still may not be able to access good land that can assist them in securing their livelihoods. The field experience in this study, which takes a case study approach, confirms this point. Though many women interviewed confirm that legally, they had rights to land title deeds, many still were not able to afford lands in good locations. It was also observed that many of the flood-prone areas were predominantly inhabited by poor Black women. Many of the women interviewed during this case study were Black women, whose history of social and economic disadvantages still left them with fewer or no options in choosing livelihood opportunities, including even the choice of where they would live.

Poverty constitutes a complex phenomenon which can also be understood in a relative manner. Poverty could also be interpreted differently depending on the context in which it is used. Jensen (2009) classifies poverty into six types as follows, which are all found to be related to the experiences of participants in this study.

- Situational poverty – caused by sudden crisis such as climate disaster, violence and pandemic that renders people vulnerable to the impacts of such disaster.
- Generational poverty – where poverty recycles in a family over generations due to lack of necessary tools to move the family members out of poverty
- Absolute poverty – total lack of basic needs such as water, shelter, and food
- Relative poverty – when economic status or basic income is not enough to meet society's average living standard
- Urban poverty – where inadequate resources of urban residents causes manifest in complex issues such as overcrowding, violence, noise, and dependent on large city's inadequate services
- Rural poverty – occurs in nonmetropolitan or rural areas where individuals or households often have inadequate access to essential services and quality education opportunities.

It can be difficult to ‘measure’ poverty. However, the definition of rural poverty given above seems to encapsulate the experiences of the local women participants of this study, though not exclusive of other forms of poverty mentioned above. The word ‘poverty’, unless stated otherwise, is used in this study to refer to the state of lacking necessary resources needed to secure a relatively decent livelihood or attain one’s basic needs, including needs such as proper housing, good nutrition and clean water. A person with limited financial resources who cannot afford nutritious food at least two times a day can be classified as poor. Limited financial resources, in this sense, influence how people respond to disaster. For instance, poverty limits people's choices of where they would want to live or how they would want to secure their livelihoods, given sufficient resources.

Poverty is also relative depending on the region and the contextual conditions of the region. For instance, in 1985, the World Bank benchmarked the poverty level at an earnings of \$1 per day for the poorest countries, \$2 per day for Latin America, and \$4 per day for the transitional economies, and \$14.4 per day for the US and some OECD countries (cited in Knight, 2017, p.49). However, this benchmark is not static due to conditions changing with time. The changing condition of a country at a specific period, for instance in a time of inflation, also influences how a certain amount of resources at one’s disposal can still not afford them decent livelihoods. Poverty also affects different regions and different people differently. For instance, according to the United Nations, in 2018, 55 percent of the world’s population lived below the poverty line (with no access to at least one social protection benefit), and most of these people belonged to two regions: Southern Asia and sub-Saharan Africa (www.un.org/en/sections/issues-depth/poverty). The United Nation’s report also states that there about 122 women aged 25 to 34 living in poverty for every 100 men of the same age group. Of these, a great percentage of them live in extreme poverty, struggling to fulfil the most basic needs like health, shelter and access to water and sanitation (Ibid).

As mentioned, poverty constitutes a critical contributing factor that exacerbates an individual or a group's vulnerability to a disaster. Poverty reduces people’s adaptive capacity while increasing their sensitivity to the exposure to the stresses of climate disaster. In terms of vulnerability, Adger & Kelly (1999) aver that poverty affects the ability of communities and individuals to respond proactively to risks or recover from extreme events. In the same vein, Blaike *et al* (2003) maintain that social vulnerability is either enhanced or reduced by factors

such as poverty, inequality, marginalisation, food entitlements, access to loans and insurance, and quality of houses and other infrastructures.

In the study context, in the context of the eThekweni case study, poverty was found to have left the women with diminished options for forward planning or opportunities to diversify livelihoods. For instance, some participants in the study areas expressed that they had no choice in relocating from the flood-prone area to a better location because of a lack of money. Some, due to lack of alternatives, seemed to have grown used to the challenges of living in their flooded homes. One participant (UA) retorted, with a heavy sigh, “It has happened that a part of the house collapses and we rebuild that part. As for moving, if we were to move, where would we be moving to? We have gotten used to it collapsing now, especially at the back.” Another participant (UB) in uMlazi, when asked if she had the resources to relocate to a better residential location, responded that there was nothing she could do, and there were no resources to choose where she would like to live. According to her, “We stay in our homes and endure.”

The correlation between poverty, gender and vulnerability is not limited to the experiences of women in the study context. As noted earlier, case studies in other countries, both developing and developed countries have also established similar connections, illustrating how poverty exacerbates the negative impact of an environmental disaster on marginalised people in general, and studies such as Tschakert *et al* (2015) and Anderson (2011) have shown that women constitute a greater percentage of the world’s marginalised social group in society.

An example of studies that show the correlation between poverty and people’s vulnerability to climate impacts is that of Thomas *et al* (2018, p.14). In their analysis of people’s experiences during Hurricane Katrina in the United States, the authors discovered that the people of New Orleans constituted the group that felt the most significant impact, and this was because of the degraded failed infrastructure, poverty, and segregation common in that State. Besides, poverty also constitutes a critical factor of vulnerability during incidences of natural disasters in many developing countries. An example is Sara’s & Vittorio’s (2019) case study of cyclone Ida in Mozambique. According to reports by Sara & Vittorio (2019), people who were mainly affected by the impacts of cyclone Idai were the poor people from Beira community living in poorly-constructed shelters in areas susceptible to floods, and a significant number of them were poor pregnant women (Ibid). In developing nations, women generally seem to constitute a more significant percentage of populations of rural settlements. This could be explained by several factors related to gendered constructed of roles, men’s labour migration, and other

patriarchy-related social factors. For any disaster that affects the rural settlements, women must surely constitute a significant population of people to experience the impact.

Poverty experienced by Black women in the context of this study was mainly linked to various political, economic, and social factors. For instance, the participants listed the precarious economic conditions they were facing to include, amongst other pressing challenges, the crisis of unemployment and limited work available which would otherwise enable them to secure their livelihoods. During times of floods, these challenges become compounded, worsening their vulnerability and leaving them with an inadequate capacity to adapt. For instance, during a focus group discussion, the majority of the participants complained that they were not working and much of the time were not even able to afford enough groceries to feed themselves and their children (FGD1 – K). Most of them were single mothers who relied solely on child grant to provide. Though the majority of the participants did not attribute their lack of jobs to any gender discrimination in the labour force, literature that looks back on the gendered manipulations of labour has shed some light on how Black women were economically and politically disadvantaged during the apartheid era. For instance, in her analysis of the experiences of women during the apartheid era in the South African Society, Sheila Meintjes recounts that gender was used as a “key variable for production and reproduction of all forms of economic and political relations in South Africa” (1996, 56). Meintjes further explains that economic and political relations were different for both Blacks and Whites. Despite this, White women were treated better than Blacks. The key element that was used to maintain rural homesteads was labour and status of women (Ibid). Meintjes states:

They [the women] did most of the agricultural, planting, weeding and harvesting of crops for exchange, as well as maintaining kitchen gardens for home consumption. White women were less involved in agricultural production, although their domestic responsibilities included running kitchen gardens as well. Women of all groups, however, were subordinated within strictly hierarchical gendered relations of power and authority embedded within custom and tradition, albeit very different ones (1996, p.56).

The above explanation illustrates how apartheid’s discriminatory laws relating to gender role expectations affected Black women differently. Meintjes further describes how the traditional system of governance that characterises many local African societies was also a factor in determining how urban and rural women were differently discriminated against or affected. She explains:

Under customary law all African women, from both urban and rural areas, were denied adult status, and were subject to male control. The migrant labour system had given

women in rural areas greater responsibility for ensuring the maintenance of subsistence production and for the upbringing and welfare of children. This placed a much greater burden on women. Yet women in rural areas were in many ways more disadvantaged than their counterparts in urban areas. They were directly affected by the authority of chiefs and customary law. As minors in law, women could not own or inherit land or moveable property, nor could they gain credit. Their access to means of subsistence depended upon their subservience to a chief and attachment to a male relative or spouse. Also significant was that whilst motherhood gave women great responsibilities, it did not provide women with rights over their children. Instead, custody and guardianship over children rested, in theory, solely with men (1996, p.56).

The above statement illustrates the gendered nature of women's vulnerability during the apartheid period. As shown, gender and racial prejudice constituted a significant aspect that shaped women's vulnerability during the apartheid era. However, one would expect such prejudices to change during the current democratic era, especially as many post-apartheid policies in South Africa—including GEAR, RDP, and NDP—have reiterated the need to redress the past racial, class and gender inequities in the country.

Since the inception of democracy in South Africa, Black people, including women, have been granted development opportunities. People who were disadvantaged because of the discriminatory policies of the apartheid regime now have equal opportunities. Most notably, Black people seem to have been given more opportunities than other races to recover from the many disadvantages they suffered because of apartheid policies. Though former residents of locations now have opportunities to acquire the houses built by the government due to the Reconstruction and Development Programme (RDP houses), many of the residents, due to one condition or another, still live in enormous poverty. One participant in Ntuzuma (N1) recounts the unfortunate situations of women in the Ntuzuma area:

I come from a shack, and my sister and I were responsible for building the former house that we stayed in. You look around, and you see people who were battling and are still battling, and it is usually households headed by women. Some of those women were there when I was growing up. They have kids, but their kids did not have opportunities that I had, maybe because they did not know. You have to be close or live in the community to realise that those people are really suffering. The grant money [referring to social grant allowance] is never enough. You cannot use the grant money to pay school fees, buy food, pay for water and stuff like that (N1).

The above statement illustrates that there have been structural changes that have taken place in the Ntuzuma community over the years, especially in terms of the children of poor Black women having the opportunity to receive a formal education. Despite breakthroughs out of poverty experienced by some individuals and households due to the opportunities granted to people from previously disadvantaged backgrounds, many Black women have still not accessed these opportunities. It seems that despite the sense of communalism existing in locations like Ntuzuma (and KwaMashu assumes more of a communal setting) disparities among the residents still exist. For some of them their poverty level has reduced, while some—either due to lack of awareness or any other factor—are still stuck at their initial poverty level.

Poverty is related to vulnerability to climate disaster. Poverty entails lack of or insufficient essential resources for livelihoods. Poverty manifested as lack of or insufficient resources to secure one's livelihoods decreases people's adaptive capacities to adjust to any disaster. Sometimes, poverty is a result of deprivation of equal rights and opportunities for women and men. For instance, the most recent study by the UN's Women stipulates that globally women do thrice as much unpaid care and domestic work as men (UN Women, 2019). This situation increases women's chances of securing decent livelihood for themselves.

However, it is important to note that the statistic given by the UN women (2019) varies across regions, cultures, and societies. For instance, in the 2018 report by the International Labour Organisation, ILO stipulated that women do four times more unpaid care than men in Asia and the Pacific. The ILO report recognises the contextual and locational differences in the level of women's burden of unpaid care and domestic work. For instance, it stipulates that while the global average hours of women's unpaid work as of 2018 was 76.2 percent, in Asia and the Pacific, the figure was 80 percent. The ILO report noticed that unpaid care work was the main barrier preventing women from getting into, remaining, and progressing in the labour force.

4.3 Poor Infrastructure, Vulnerable Locations and Women's Vulnerability

The study sites, including KwaMashu, Ntuzuma, and Inanda, are mainly informal settlements and townships where Black people were assigned to reside during the apartheid era. In the 1950 Group Areas Act passed by the Parliament of South Africa, different racial groups were assigned to live in different residential locations. The apartheid policies rank each race in the country in a hierarchical structure. Each racial group was treated according to their position in the hierarchy. The Whites occupied the top of the hierarchy, followed by Indians, then

Coloureds, and at the bottom of the ladder was the Black race. The Blacks were assigned what seem to be degraded and disaster-prone areas of the country.

Most shelters in the study sites are poorly built. Most of them are shacks that were constructed for the residents during the apartheid era, to push them out of the city centres. However, the end of apartheid in the 1990s and the introduction and implementation of the Reconstruction and Development Programme (RDP)²⁶ during Mandela's presidency has seen many houses in these locations improved. The government has now built what is described as RDP houses, which are leased or given out for people to live. Many of the RDP houses are strong and built in a modern structural style. Despite that, there are many RDP houses, and other improved houses built by individuals for themselves in these locations, approximately fifty percent of the residents still live in shacks. The nature and quality of their houses render them quite vulnerable to any incident of flood in the area. During the face-to-face interview, a participant complained that

When it is flooding, since the walls are made of mud, they collapse, and the trenches which we have dug that assist in directing the water away from the house close up, and that leads to water entering the house, which is what happened with the last heavy rain—the house filled with water [UB].

Participants who expressed that the municipality helped them repair their flood-damaged buildings complained that the repair job was not correctly done. As such, their houses were still not able to withstand pressures caused by subsequent flood incidents. According to participants at (UC), “they [referring to the municipality] had built a wall around the house for safety reasons, and just before they were done, we experienced a flood, and the wall collapsed”. Also pointing to the poor quality of the houses, another participant in KwaMashu (K2) shared: “Whenever it rained, the wall fell.” A participant (UA) in uMlazi expressed the intense anxiety she experiences because of the quality of her house. In a noticeably anxious tone, she expressed: “I am really scared when there are floods, because water enters into the house

²⁶Reconstruction and Development Programme (RDP) is a South African socio-economic development policy framework initiated and implemented in 1994 by the African National Congress under the presidency of Nelson Mandela. The programme intended to bridge the gap between the rich and the poor and amend the ills of apartheid segregation by providing previously disadvantaged Black people with rural housing, electrification, land reform, clean water, public works, and improved healthcare.

through the roof and other open spaces. These houses are not of the best quality, so water easily gets inside the house, and we have to try and do damage control until the rain stops” [UA].

The nature of the locations resided in by the women also heightened their vulnerability. When the locational problem is combined with the infrastructural problem caused by the fragile structures in which they live, the women's vulnerability appears to heighten. Put differently, poor infrastructure in a poor location causes a double vulnerability. It is one thing to live in a shack and another thing to live in a shack that is in a disaster-prone location. It means facing a double vulnerability. Most of the participants in the study locations were facing this double vulnerability. According to a participant in uMlazi,

When it is flooding, since the walls are of mud, they collapse and the trenches which we have that assist in directing the water away from the house close up, and that leads to water flowing into the house. For instance, with the last heavy rain, the house was filled with water and I had to remove it myself. Sometimes you even have to go outside while it is pouring to try and open up those closed trenches. Life is tough during those rainy days. This area is not the best in terms of weather conditions; they can be really rough [UD].

In suggesting what could be done to avert the issue of houses getting flooded, the participant further reiterates as follows:

Since we live near a riverbank, I think it would be best that they surround the riverbank with stones or some form of reinforcement to keep them in place because when there are heavy rains the soil on the river bank erodes into our yards. As time goes by, if these rains continue, this might cause our houses to be flooded away. That is what scares us the most. So, if they can do that for us, it would help.

Although it is not exclusively the case, it can be argued that the women's vulnerability, as shown above, corresponds to what scholars describe as physical. The physical vulnerability occurs due to the environment's geographical location; for instance, locations close to sea, mountains, and hills are susceptible to any environmental disaster. Liverman (1990, p.29) describes physical vulnerability as vulnerability due to “biophysical conditions” and explains

that the people vulnerable to this type are those living in flood-prone areas and areas likely to experience the high sea-level rise, drier conditions, storms. Reducing such vulnerability simply means moving people away from such locations or improving the environmental and infrastructural planning to avoid physical damage during climate hazards. This type of vulnerability can also be curbed through more proper environmental and infrastructural planning, primarily commercial and residential buildings.

4.4 Gender, Knowledge and Vulnerability

Education emerged as one of the key factors that influenced the vulnerability of women to flood impacts. Lack of education of the natives deprived them of the basic knowledge needed to enhance their adaptive capacity. Past studies have found that technological innovations, levels of education, availability and access to information influence the extent to which people adapt to any disaster (Homer-Dixon, 1996; Reyes, 2002, p.29; Thompson-Hall, Pascual & Carr 2016, p.376). Education enhances one's chances of accessing information. Access to information regarding disaster is quite vital to enhancing adaptive capacity. Such information as early disaster warning and knowledge of some preventive measures to floods empowers one to prepare for disaster eventualities.

Knowledge of basic principles of flood management is quite important in flood adaptation and preparedness. Lack of such knowledge therefore constitutes an important factor in that it shapes the vulnerability of a people to flood impacts. Lack of skills or knowledge of basic flood management, such as how to divert running water from flowing into houses, was found to constitute a significant aspect of what made the participants in this study vulnerable to flood impacts. Some of the participants attributed their low or lack of awareness of basic flood management skills to limits in governance. They reiterated that municipality and the ward council had failed to provide basic training on simple strategies of flood management. Some participants suggested that the simple act of managing drainage systems and blockages around the homes would go a long way to help women put simple preventive measures in place to manage floods. She suggested that just like people, including those from rural areas, were thoroughly educated about the health security threats posed by HIV/AIDs and how to prevent it, similar measures can be applied to educate people on flood issues. Many avenues need to be used to reach and enlighten people on simple preventive measures to avert excessive damages due to floods. The statement below is the suggestions of the participant:

You need to be taught where it starts. If I am not getting workshops to inform me, how do I know? It is like HIV/AIDs, for example, sorry to go out of topic but I'm just trying to make comments about comparisons in the past. With HIV and AIDS, people were not educated about it, and you know, it was when people started teaching people about HIV that everyone knew about it. With floods, not that we can prevent them from happening, but we can try. For example, some people have drainage systems in their homes. So, even when floods come, they can know how to redirect the water, exactly. We are not educated about it. There are no wishes about that. Maybe if we can have those types of things. Women are smart these days [FGD, K3(1)].

Lack of education limits the women's awareness of what it entails to secure household insurance. Insurance policies are very useful securities against the time of disaster. Despite the fact that many of the women were living hand to mouth and might not have been able to afford the insurance policy, it seems crucial for them to be aware of such policies. Many participants reported not knowing what household insurance entails. A participant in KwaMashu expressed some comments on the status of the experiences of other Black women regarding household insurance. She commented as follows:

I do not think people are even educated about that because, you know, if you have household insurance, if something does get damaged too because of floods or thunderstorms, you can get insurance on that. Most Black people do not have insurance policies. Black people are not educated about that. So, you need someone who may be from the government that can educate people on that and how to go about how it. Because I feel as if when there is a flood, the only thing that they ever think of in this life is their personal belongings. And you ask me. These floods happen when people are at work. The things that happen, it is a lot [FGD, K3(1)].

Education is also about access to information, as well as the ability to understand and utilise available vital information at one's disposal. We live in a digital age where information on events and happenings is crucial to keeping one alert and vigilant with happenings in the world. The information provides a sense of security and enhances one's adaptive capacity. Information capable of boosting one's security and, consequently, enhancing adaptive capacity includes information on early disaster warnings, weather or climate forecasts, flood predictions, and flood preventive and management measures.

Getting information on early disaster warnings is quite vital to helping people prepare for the eventuality of a flood. Early disaster warnings include those issued by the government's Department of Environment and are aimed at informing citizens of any disasters forecast. However, it becomes a challenge if people, due to a lack of awareness or lack of access to sources of information, are left behind on such a forecast. It deprives them of the chance to prepare and put preventive measures in place to evade or reduce the possible damages of any disaster. As a participant in KwaMashu explained:

Some people are not even aware... some people are not aware at all. Some people get called while at work, and they would be like, 'Oh, my God. I have to go back home'. I just do not find the right way to describe it. I feel as if everything goes around Education. That is any form of education. [FGD, K3(1)]

It is understandable that in remote villages, access to information can be a challenge simply because there is no access to means of such information. We are living in a digital age where most information is passed through social media, digital television, and other mediums that make use of the internet. Access to these mediums could be a challenge to older women in the interior villages. To address such challenge, a participant from KwaMashu suggested reverting to the local means of disseminating information to villagers. She suggested:

At wards, at council wards, they have councillors. They have cars that have those announcements' machinery. They can go around and announce. When they want us to come and vote, they take out the car: "We are going to be having a voting station, come around and vote." Why don't they do that on specific issues? Yeah, because they can announce other irrelevant things. Why cannot they not do that equally for important things? [FGD, K4(1)]

While some participants had no clue how the challenge of access to information in the rural areas can be addressed, some participants who were enlightened and formally educated had quite exciting suggestions. Drawing from history and past experiences, participants suggested that in the village settings, information regarding flood forecasts could be disseminated to parents through schools. Information, maybe in the form of information leaflets, could be distributed at schools to children who would take them home to their parents. Some parents noted that this strategy worked quite well for them in the past. One participant in KwaMashu

(K3 (1) noted that conveying information to parents through their children has a potential to be effective in awareness creation. According to her, this is because parents, especially mothers, are more likely regard any information or notice paper that children bring home from school as important. She stated:

The best place you could ever convey a message in a village is through school. Because that is how some of us get information; that is how some of us are able to know that something is happening in the area... As soon as the child returns home, we are going to see this attachment on their homework [referring to issuing out announcement pamphlets to pupils]. You would be like, "What is this?" If you are a parent, you have to see the homework. Even if you do not see the homework, your child will inform you about it. When you hear something from a child, then you know it is really serious. [FGD, K3(1)]

She further reiterated:

It is just a matter of us being strategic about things, sitting people down, telling them properly, we are going to do this, we are not going to do this, and stuff like that. I feel the best thing... communication is going to convey messages, especially in rural areas. In our community, that is how things are done. My community in a rural area is developing. It recently just got electricity. So, people do have television; they do have radios, but they still believe the old news travelling system of conveying messages through kids from school. Because I do not want to lie to you, you see, when you hear something from a kid, you know it is really serious. You take it seriously because you know it has been conveyed by the people that were there and gave them the information [FGD, K3(1)]

4.5 Gendered Differential Vulnerability to Flood Impacts

Literature on gender and climate change adaptation maintains that men and women experience climate disasters differently (Thomas *et al* 2018; Chauque 2015; Omari 2014; Angura, 2014; Alston, 2010; Babagura, 2015). Women are usually more vulnerable to the same disaster than men. The differential vulnerability is a result of the social construction of gender, whereby women are socially expected to take specific responsibilities differently from men. Most of the time, and in society with persistently patriarchal beliefs and practices, women are more likely

to be subordinate than men. For instance, in a home, women are expected to assume roles such as cooking, firewood fetching, and stay-at-home parenting. Beside these kinds of jobs putting too much pressure on women alone, they are also likely to expose women to hotspots of environmental disasters. For instance, in the case of a flooded house, they are expected to be the cleaners. In a case of drought, they are required to trek long distances to fetch water for the home.

There were differing views and experiences from the study participants as to whether men were likely to be less affected by the impacts of a flood than them. Some of the women did not think there were any differences in impacts based on gender. Many of them believe that the impacts are the same regardless. For instance, a woman in KwaMashu expressed her opinion as follows:

I feel it affects everyone in the same way, irrespective of whether you are male or female. I think it is the same way. During the day water came into the house, it is going to cause damage. Irrespective of whether you are the man of the house or she is the breadwinner of the house; everyone gets affected by the event. [FGD, K3(1)]

Some participants think that the differential impacts of the flood on men and women are dependent on the kinds of roles each gender plays, especially as a response to a flooding incidence. For instance, a participant in KwaMashu explained:

As I said, it can be more in women, but everyone is going to be affected differently. I can be a stay-at-home mom, yes. I may be affected because I live here, and I am a stay-at-home mom. But the person that is going to feel more pressure is the one that is not at home because they do not know the damage. They do not know how many things are damaged and how much damage is going to cost to fix things. I may have a problem because I live here. However, those that do not live here would be much more affected because they do not know what is going on. [FGD, K3(1)]

Some participants expressed their views concerning the relationship between vulnerability and social construction of gendered roles from the standpoint of people who know their human rights regarding gender equality and are ready to defend those rights. For those participants, their experiences of vulnerability seemed to have sprouted from personal family experiences. For example, a participant from KwaMashu commented that vulnerability was not really a

factor of social construction of gendered roles division that assigns inferior roles to women within the family, but rather, who experiences more pressure (and consequently, heightened vulnerability) depends on which parent is the main source of income in the family. She stated:

There is this theory that men are superior, and we should have more responsibility. I feel as if that has gone down the drain. After all, everyone is equal. If it affects me, it is going to affect you. If I can be the woman of the house, I can cook and clean every day. Maybe you are the breadwinner; it will affect you more because you will be taking out money to replace things that have been damaged. I feel everyone is affected, but the effect is different for different people. [FGD, K3(1)]

Many of the participants reported that impacts of floods were gender neutral. However, this assertion seems to be refuted by the widely acclaimed observation that women are almost always more vulnerable than men. Nevertheless, the claim from the women in this study context could be a consequence of their feeling of resilience. During the interviews, the women usually expressed themselves as agents rather than victims. It was common to hear women saying, “we are strong” [K3] and “women are stronger than men”. [U7]

4.6 Conclusion

Poverty constitutes a primary factor that influences vulnerability. Poverty, though defined from various perspectives, generally relates to lacking the resources needed to enhance people’s adaptive capacity. As a primary factor in influencing women’s vulnerability to floods in the study contexts, poverty constraints narrow the women’s chances of choosing alternative sources of livelihood. For instance, poverty was found to limit the women’s chances of relocating from the flood-prone areas to other viable locations to live. From a feminist political ecology perspective, poverty is usually influenced by socio-economic and socio-political factors of marginalisation. Therefore, factors such as race and class interact with gender to heighten the experiences of vulnerability of local women to flood impacts.

The chapter also found that limited knowledge or information constitutes a key factor in the vulnerability of the women in the study context. Just like poverty, limited knowledge can be linked to historical and contextual injustices that have restricted women in interior locations from gaining meaningful access to information. Information—such as that relating to early disaster warning systems—is vital to facilitate a proactive adaptation process. Information in this regard is also a major source of empowerment, as it enhances people’s adaptive capacity

and reduces their level of vulnerability. The lack of access to necessary information therefore becomes a contributing factor to the vulnerability experienced by local women. As noted in the chapter, poverty and knowledge interact with gender and class to determine the heightened vulnerability of Black women to flood incidences.

CHAPTER FIVE

CLIMATE CHANGE ADAPTATION: PAYING ATTENTION TO GENDER, AGENCY AND VULNERABILITY AND THE CONTEXT OF TOXIC MASCULINITY

5.1 Introduction

Literature on gender and climate change adaptation has established that that climate impacts arrive on a gender-differential manner (Alston, 2010; Babagura, 2015; Goh, 2012; Thompson-Hall, Pascual & Carr, 2016; Arora-Jonson 2011). The differences in impacts are influenced by some social, political, and economic factors that endangered women's daily survival, thereby reducing their adaptive capacity while enhancing their vulnerability. The previous chapter sought to answer the research question: how do the social, political, and economic factors of inequality shape the experiences of local Black African women to flood impacts within the eThekweni municipality?

The insights presented in the chapter were drawn from the semi-structured face-to-face interviews and focus group discussions conducted with local Black women from the four case study sites in eThekweni. The discourse in the chapter showed that the vulnerability of local Black African women is influenced by factors relating to gender, poverty, and knowledge. The chapter showed that the historical factors that had impoverished the Black women in South Africa in the past were still at play, and still constituted some of the structural factors that limit the women's opportunities to enhance their adaptive capacity.

This chapter details more findings from the study, equally drawn from the semi-structured interviews and focus group discussions with the local women. This chapter discusses how gendered expressions of masculinity which manifest in women increase unequal workloads and responsibilities, constituting some of the social factors that determine local Black women's vulnerability to climate-related impacts in the study context. Specifically, the chapter exposes issues of toxic expressions of masculinities and gendered violence by men as key factors that shape the vulnerability of the women in the study contexts. These issues are mainly a result of societal constructions of gender, which in many societies, leads to female subordination. The chapter also demonstrates that women, despite being the ones mostly affected by climate impacts, usually adapt from the position of agents rather than succumbing to the societal

construction of women as weak and vulnerable. The agentic abilities demonstrated by women in adapting to the impacts of floods in the study contexts were mainly linked to their quest to take responsibilities for their family (mainly their children) welfare.

5.2 Gendered Vulnerability to Flood Impacts among local Black women in Durban

A significant body of scholarly works on development and disaster management has described the greater vulnerability faced by women due to climate change and natural disasters (Adger and Vincent 2005; Adger *et al* 2007; Adger *et al* 2009a, p.336; Bassett and Fogelman 2013). Women's vulnerability due to climate impacts usually pertains to:

- the immediate risks to their lives and security during climate disasters,
- the challenges they face as a result of the climate disaster, and
- challenges they face in adapting to the impacts of the disaster.

Poverty and disadvantaged position in terms of access to education and information was shown to have constituted key factors to the vulnerability of women in the study context. Poverty and poor access to education are a result of historical socio-economic and structural injustices experienced by Black women in South Africa. According to Djoudi *et al* (2016), women's vulnerability emerges from underlying gendered power relations, including social, political, and economic dynamics which existed even before any events of natural disaster. As argued in this chapter, understanding these dynamics provides insight into the different mechanisms under which women's greater or heightened vulnerability emerge, as well as informs a just, fair, and equitable adaptation planning that responds to the immediate risks experienced by the local women.

Two of the 'mechanisms' that emerged from the data that influences the Durban local Black women's heightened vulnerability to flooding impacts are discussed in this chapter. Firstly, the women's socially constructed and circumscribed roles and responsibilities make them particularly exposed and sensitive to the impacts of flood. Secondly, demonstrations of masculinity—which at some points result in gender-based violence—put the women at high risk and tamper with their adaptive capacity. Globally these factors, amongst others, enormously influence women's heightened vulnerability to climate and other forms of disasters.

5.3 Women's 'Roles', Responsibilities, and Vulnerability

According to Lambrou and Piana (2006, p.16), “The traditional configuration of gender roles means that men and women have multiple responsibilities in the home, at the workplace and in the community.” Gendered roles are of course societal constructs rather than natural. Role constructs assign women ‘lower-class’ positions in many societies, with higher responsibilities and workloads. Such gendered configuration poses several constraints on women in terms of the ability to engage in other constructive activities that can impact their lives, such as taking part in politics and other decision-making processes. In the event of natural disasters, such unequal distribution of roles leads to women having severe sensitivity and exposure to risks.

Feminist political ecology has also established the relationship between the gendered division of rights and responsibilities, and vulnerability to environmental disasters (Rocheleau (1996, p.3). According to Rocheleau (1996, p.3), such “unequal distribution [which also accounts for unequal distribution of costs and benefits] unavoidably reinforces or reduces pre-existing social and economic inequalities in the society”. It was observed during the interviews for this study that socially constructed roles and responsibilities constituted a significant factor in influencing women's heightened vulnerability to climate disasters. Women are also usually seen as the ones to take up menial jobs in the society. Some of such so-called menial jobs—including taking care of the home, cooking, caring for the elderly, and fetching of firewood for the homes—are usually unpaid jobs. Such social construction and feminisation of duties places unnecessary burdens on women. They also reduce their adaptive capacity to adapt to any potential or actual climate disaster.

Critical realism as a perspective also emphasises how underlying social structures such as gender, equity, agency, and adaptive capacity interact to explain people's experiences. In the context of this study, the underlying social structures such as remnants of patriarchy-based socialisation are still evident in both formal and informal workplaces, and they constitute strong forces that influence women's adaptive capacity. The relevance of both critical realism and feminist political ecology in this study is that the two theories place gender—a product of social and political construct—as a critical variable of analysis. Feminist political ecology posits that women's experiences of the issues of environmental change are influenced by social, political, and economic factors that interact with gender, class, and race to shape women's vulnerability to impacts of environmental disasters. Critical realism unpacks the various underlying mechanisms that shape women's everyday actual experiences. Both theories assume that

women's gender is negotiated through everyday interactions with the environment, such as through farming, food production, and caring for family (Nightingale, 2011). Gender intersects with other factors like class, race, and age, to determine a woman's differential experience of climate change (Alston, 2010; Babagura, 2015; Goh, 2012).

During the field interviews with the local women participants in this study, it was observed that the women were more concerned about the welfare of their children than that of themselves. For many of them, successful adaptation means their ability to protect and provide for their children. Moreover, they seem to see taking care of children as their primary responsibility. The women first see themselves as mothers before anything else. Such socially constructed roles and responsibilities, which they seem to have been internalised, now become a significant factor influencing their vulnerability to natural disasters. For them, motherhood meant responsibility to care and nurture, and the first objects of their nurturing are their children.

In explaining how she managed to put up preventive measures against flood around her house, a woman in KwaMashu explained: "And the swamps are too close. I have to dig drains for them and make concrete and put in pipes because I have children here." [FGD, K4 (1)] Many of the other female respondents also expressed that their capacity to take proactive measures to adapt to impending flood events was from the realisation that they had many responsibilities related to caring for their children and family. This was exacerbated by the fact that most of them were single parents. In the context of this study, single parenting was one of the critical factors reported to have influenced the level of vulnerability and adaptive capacity of the women in the study areas. It was observed that every one of the women interviewed were single parents. Some were single parents because of divorce, while some were single parents by circumstance. Furthermore, being a single parent—especially in a context where most of the residents are poor and/or without a job—puts a much-increased load and level of responsibility on the women.

A participant (FGD, K3) from KwaMashu reported that "single parents, women have suffered greatly. They experience much pressure as they remain the only player". Another participant (FGD, k3) in KwaMashu reiterated that even though there are some households with male figures as the single parent, many of the households in the area are headed by women. Emphasising why the women are single parents, the participant added that they are single parents for different reasons. In some cases, the kids do not have fathers. For some, the fathers

do not take responsibility, and that is worsened by the fact that some of those fathers are not working around the community. They work at a distant place and only visit home once in a blue moon. Moreover, such an attitude puts women under pressure because they must do everything to take responsibility for the child while the other parent is away and negligent of his parental duties. A participant (FGD, K2) in KwaMashu observed that older and single-parent female-headed households tended to suffer the most impact whenever there is a flood in the area.

5.4 Toxic Masculinity and Gendered Vulnerability

Toxic expressions of masculinity, poverty and disadvantaged knowledge constitute critical factors that shape the vulnerability of local women in the impacts of floods and other natural disasters. The toxic expression of masculinity manifests in two different ways, each of which exacerbates women's vulnerability. The first way is through men's negligence of family and parenting responsibilities. During the field interviews for this research, the researcher observed that a significant percentage of the women in the study areas are single parents. Mostly, their being single parents is caused by the negligence and irresponsibility of the men who, after getting the women pregnant, leave them to care for the kids alone. As a result, many of the women ended up engaging in whatever menial jobs they found to help them care for their kids. This situation puts a lot of pressure on the women who now have to take care of not only themselves, but their children and their daily survival needs. This pressure exacerbates the vulnerability to flood impacts experienced by the women. The vulnerability becomes worse when toxic expressions of masculinity take the form of gender-based violence.

The second form of men's expression of toxic masculinity towards women manifests in the form of gender-based violence. Although the fieldwork for this study took place in pre-Covid 19, the issues surrounding gender-based violence that unfolded during this period of lockdown in South Africa due to coronavirus pandemic are a pointer to the plight of women, especially the local women resident in rural settlements. Gender-based violence has reached a disastrous level this year during South Africa's lockdown due to coronavirus pandemic. On the 48th evening of the country's lockdown due to the current challenges of coronavirus pandemic, South Africa's president, Ramaphosa exclaimed, "Men in our country have declared war on our women" (The South African News, 2020)²⁷. Ramaphosa's exclamation proceeded from

²⁷ Available at: <https://www.thesouthafrican.com/news/gender-based-violence-gbv-increase-lockdown-cyril-ramaphosa>

reports by the South African Police Services that about 87,000 gender-based violence calls were reported during the first week of the lockdown (cited in Chotia, 2020). As reported by The South African News, this number included those who only expressed fears that the lockdown might worsen gender abuse incidences. Still, in the first three weeks after the lockdown started on 27 March²⁸, more than 120,000 victims had called the South African National helpline due to gender-based violence (see Chotia, 2020). It is quite plausible to aver that these incidents constitute part of the multiple embedded factors which, in the event of any natural disaster, are mostly likely to worsen the vulnerability of the already-vulnerable groups in the country—here specifically, Black African women in flood-prone rural settlements.

South Africa's government and other Civil Society Organisations in the country have put in some efforts to curb the problem of gender-based violence in the country, both before and during the lockdown. Since December 2019, the South African government has also been reported to have refurbished about ten State-owned buildings and converted them into havens for abused women. Similarly, at the early stage of the lockdown, The National Shelter Movement of South Africa and other partner organisations had devised a lockdown safety plan for victims of domestic violence. The plan mainly involves advising victims to call for help, either from neighbours or appropriate government-designated help centres. Despite these measures being put in place by the government and civil society organisations, it seems that for these interventions to be equitable, special attention needs to be given to the plight of local women, especially Black women residing in the rural settlements.

Rural women arguably are at a greater disadvantage in getting help from gender-based violence interventions. It was noted that the local women in the study sites: uMlazi, Inanda, Ntuzuma, and KwaMashu, due to the nature of their locations, are less likely than their urban counterparts to readily gain access to news media through which most interventions are publicised. Women in urban areas stand a better chance of being educated and enlightened, which increases their adaptive capacity. Besides, many rural women—due to lack of awareness—are also less likely to report abuse. Reports by some of the participants also revealed that besides the fact that many of the women are afraid of not being believed if they openly talk about abuse, especially that perpetrated by a close family member, many fear secondary victimisation from their perpetrators, with whom—in the long run—they will continue to live alongside in the home or

²⁸ The lockdown of South Africa due to the coronavirus officially began on 27 March 2020, as was announced by the country's President Cyril Ramaphosa.

in the rural community, since they do not have any opportunity to relocate to a safer place, or to build a home at another location far away from the rural areas.

Feminist political ecology illustrates the relation between culture, gender, and vulnerability to environmental disasters (Rocheleau, 1996). In other words, dominant cultural beliefs constitute a significant determining factor of women's vulnerability to the impacts of natural disasters. Sometimes, cultural norms are not institutionalised but rather, remain a de facto belief by many as something embedded in everyday practices of certain social groups. For instance, in the study context, men's negligent attitudes towards family responsibilities remained one of the contributing factors of women's heightened vulnerability to flood impacts. Men's negligence towards family responsibilities manifest in different ways, such as denying responsibility for women's pregnancy or refusing to provide for their children. As mentioned above, though such attitudes may not constitute an institutionalised Zulu culture, it has become a norm to the extent that some women now regarded it as being embedded in AmaZulu culture. In other words, men's nonchalant and negligent attitudes (as repeatedly mentioned by the participants) is a norm that has been tolerated among the women to the extent that some now regards it as a 'culture'. As one woman (N1) in KwaMashu recounted:

In Zulu culture, you would find, in many instances, Zulu men would make you pregnant and leave you and then go to the next one and the next one... you end up with three kids. Moreover, who is going to take care of them? You just have to raise your kids, find something to do to raise your kids. Many women are just domestic workers, or they are unemployed, or they collect stuff like papers and cardboards to sell at stores; and that is how they raise their kids. A lot of those women you find that their houses are not in good shape [N1].

As noted by the Women, Gender and Development Organisation, WEDO (2001), "attitudinal barriers are deeply rooted in patriarchy-based socialisation, where men are considered superior to women—a systematic disempowerment that [leaves] women with little presence in decision-making bodies, resulting in the exclusion of their issues and concerns from the policy agenda" (cited in Lambrou & Piana (2006, p.16). Views of feminist post-structuralist's (Harding, 1986), which is also related to feminist political ecologists' (Rocheleau, 1996, p.4) perspective on gender, environment and development, also emphasise that gendered division of rights and responsibilities creates a "situated knowledge" which manifests in how women, especially women from a lower-class, experience heightened vulnerability to environmental disasters.

Following from Lambrou's & Piana's (2006, p.1) views as expressed above, one can posit that besides the exclusion of women's issues of concern from policy agenda and decision-making bodies, patriarchy-based socialisation can easily cause women to internalise oppression from men over time, thereby easily excusing men's oppressive attitudes as normal. Such seemingly abnormal normalisation of men's attitudes puts extra pressure on women. In this case study context, when men constantly refuse to take part in their responsibility, the sole responsibility now rests on the women who in usual situations would not want their children to suffer. As single mothers, single-handedly taking care the homes, including their children, increases their pressures, which when combined with the pressures brought by natural disasters like flood, place double the burden on them. Therefore, their adaptive capacity is tampered with, and their vulnerability increased. Besides avoidance of child welfare/home responsibility, men were also reported to spend much of their income on trivialities and alcohol, which also constitutes a disadvantage to many women in many ways. During a focus group discussion in KwaMashu, a lady explained:

Some of them [referring to men] are not working. However, some of them may have their job, but they like to drink. However, myself as a woman, I get a temporary job in which I get paid 300 Rands per month. From that 300 Rands, I have to do groceries. I have to buy clothes. I have to give my child bus fare, whereas the man or my husband, or my boyfriend, or the father of my child, gets a salary of seven thousand Rands per month and all he does is to drink and go out with friends. [FGD, K4(1)]

A participant [FGD, K3 (3)] in KwaMashu said that women are the ones working to cater to the household's needs. According to her, "most of the time women are working, and the males are in the house doing all the 'wrong things'. They do not even take care of the children." Some of the men prefer to buy alcohol rather than food, and this puts pressure on women who are concerned about feeding their children. Some of the women have resorted to putting up with the men's irresponsible attitudes because they are afraid of being abused should they confront or reprimand the man. During a focus group discussion in KwaMashu, one participant [FGD, K3(2)] asked why she would not caution her man of his irresponsible behaviour towards family, she exclaimed, "Woooooo! I cannot approach the man because if I tell him to buy this or buy that he would hit me or instead of that, he will stop buying even that small thing. Maybe he was buying the bread, and he may even stop buying that bread." She further stated that even

though alcohol is not a solution to hunger in the house, she does not see the reason for telling the partner what to buy and what not to buy because this will fall on deaf ears.

The inability of flood adaptation responses to understand the differential needs of men and women constitutes a challenge to women as they adapt to floods. For instance, it was reported that when there is a flood, the municipality usually provides temporary shelters, sometimes in the community town hall, for the affected victims. However, in the temporary shelters, women's accommodations are not separated from those of men. This creates an uncomfortable environment for the women in utilising such opportunities as they are not able to have any privacy for themselves. The situation becomes more concerning for women who go there with their children because they fear being abused. A participant from (U I) reported that she once took refuge in the Town Hall that was provided for flood victims in the community. However, after staying there for about two weeks, she was not comfortable because she went there with her girls. According to her, the main point of concern was that some of the men who were also taking refuge there were not working, and that was a point of concern for the safety of her girls. She narrated other reasons that made her uncomfortable, including the fact that the Town Hall had no bathroom. They had to use the toilet room to take a bath.

In South Africa, there is a provision for a woman to approach the maintenance court to demand from the father of the child for the welfare of the child. However, this system seems not to work in favour of all women, especially in instances where the baby's father is not working. Even if the father may be working, the fear of the consequences—the fear of violence from the man—still deters some of them from approaching the court. A participant from Ntuzuma explained her situation and the ordeal of other women she had observed:

People can go to the maintenance court. But I know for a fact some of them are scared. I went to the maintenance court to get my second child supported. I still receive that money for maintenance. But some women are scared. They would be like, 'No, what if he kills me? What if he kills the child?' And some would say, 'What if I go there and approve whatever and then he resigns and take the package?' [N1]

The above narrative illustrates some of the ordeals that women experience because of men's negligence of their responsibility. Such negligence further puts pressure on the women who would not want to abandon their children or fail to cater for their needs. Such pressure is worsened when the men go beyond just being negligent of their responsibility, to inflicting

violent abuse on women. A participant in KwaMashu explained that fear of further violence constitutes one of the reasons women do not report abuse to the police or the court. She narrated that many men in the locations happen to be violent. Moreover, it is difficult to report them because instead of making things better, there is a likelihood that the violence they experience would increase.

Some women find it challenging to approach the court amidst incidences of perpetual threats from the men. When asked why they would not approach the court for a protection order to deter the man from threatening her, one participant (FGD, K4(2)) interjected, “²⁹Aibo!!!!!! The protection order does not help. When he has beaten me, I will go back and say this is my protection order.” According to her, she would rather remain a single parent and endure the pressure that comes with taking care of the children than approaching a court to seek justice or relief. Another participant in that focus group had this to say concerning the situation:

You have to be alone when you are going to court. And you are going to see this guy. When you are going to the taxi station, you see that guy, and you become enemies. He can beat you up. The protection order will not help you because when you are going to the police station and say this guy did this and this, they say you must have a warrant of arrest. A protection order does not help. [FGD, K4(1)]

Many women fear that reporting the men would create enmity between them and the men. Moreover, such enmity would only lead to continuous and more violence and abuse from them. During times of floods, such a continuous threat of violence exacerbates women's vulnerability. Vulnerability is further worsened by a weak and complicated justice system, which does not ensure women's adequate protection and security. In some other cases, there was a critical nexus between poverty and violence. Some poor women are afraid that if they report their perpetrators, they may stop providing the little assistance they used to provide for them and their kids. Some expressed that they would rather endure being harassed by the men because if they report them to police, they would still come back and cohabit in the same home or in the same community with these abusers, who would keep abusing them the more. When asked why she would relocate to a different city, one participant reported that she could not afford the high cost of securing land in a better city. [FGD – K2]

²⁹ The word, 'Aibo' is an exclamation in the Zulu language that expresses a surprise, a shock, or disbelief. Sometimes it is used to mean concepts like, 'they are not,' 'you do not', and 'it is not true.'

The critical nexus between poverty and violence is and should be an important consideration in any disaster intervention for rural women. In the context of South Africa, the historical disadvantages of many rural women still expose them to gender violence because despite having the rights, they do not have the means to acquire land. Ownership of land increases their choices and gives them power—making them potentially less vulnerable. A study in West Bengal in India and on the outskirts of Yangon in Myanmar by the UN Women (2016) observed that women who own land were eight times less likely to experience domestic violence. Land ownership increases women's agency to adapt to impact of natural disasters.

5.5 Gender, Agency, and Adaptation

Despite multiple embedded challenges, the women in the study areas were found to show much resilience. Their attitudes towards adaptation were quite positive. Many of them adapted to floods as agents rather than as victims. Despite the many losses and tragic experiences encountered because of their houses and properties being washed away by floods, many of the women interviewed expressed feelings of strength. Many of them reported that they needed the government's support in educating them on simple flood management so they could reduce the impacts of flood around their environments themselves.

Additionally, it is believed that local women can shape their community using adaptive mechanisms in the vulnerable areas (UNDP, 2010). This can be best achieved if the local women are given appropriate education and empowerment related to flood management. Moreover, it suffices to mention that one important factor in shaping the resilience and strength of women in adapting to flood impacts was their children. Many of the participants expressed that the floods in the areas affected their children and as such, they had to focus on finding ways to avert these effects. It therefore seems that women, because of their affiliations to family responsibilities, are better positioned to enhance the resilience of the vulnerable community, if appropriate context-specific education is made available to them.

Moreover, in contrast to the popularly held misogynistic or essentialist misconception of women as 'soft' people, many of the women interviewed expressed that they were strong, especially when they compared their strength to that of men. One participant from KwaMashu expressed that 'women are smart these days', and given the opportunity of education on simple strategies of redirecting drainage systems, they would be able to redirect water from flooding their houses during flood [FGD, K3 (1)]. It was quite common to hear other participants

expressing strength and resilience. For example, a participant at KwaMashu who was in her 70s expressed these comments:

However, we were very smart before [responding to a participant, a younger aged lady who said that women are smart these days]. Our granny, our granny, I am talking about my Umama [mother], she was doing things by herself. I was asking myself when I am old, will I do this? She was feeding plenty of people in one home, even at ninety years old... That is all because of my mother's aunties; they were widows. My grandfather used to bring them in one home with the kids. But nothing was wrong with this. Their life was perfect because our aunt, her granny, was well educated and went to college to become a teacher before she got married. That is why I am saying in ages things were happening better than this. Yeah, there were floods; there were women left by men going to Joburg, working in mines, others they came back, others they do not. But life was fine. [FGD, K3(2)]

The above narrative shows that women have been demonstrating agentic abilities over the years. Taking responsibility and demonstrating resilience are not singular attributes of relatively younger women. That is, the narrative refutes the view of one participant from KwaMashu who opined that “women of nowadays are smarter than women in the past” (K4). As noted earlier, many participants had also reiterated that given the opportunity, they would like to be educated and empowered to learn simple flood management skills. Therefore, it is important that any adaptation planning takes the women’s contextual needs into consideration, if such adaptation planning, as MacGregor 2(010) and Polack (2008) suggest, is to be “socially relevant, socially just, effective, and sustainable”.

According to MacMahon (2017, p.203), “a socially just and sustainable adaptation requires specific attention and consideration of the agency of women themselves”. Failure to do so risks maladaptation and follows enduring patterns of patriarchy and exclusion of women’s needs by municipalities and NGOs that intervene in climate-related disasters. A gender sensitive adaptation also requires an examination of Black women agency. This follows Coutthard’s (2012) postulation that “acknowledging that there are negotiations that go on between wellbeing and resilience” that can lead women to suffer (cited in MacMahon (2017, p.203). However, it is to be noted that while much development and empowerment literature commonly attributes agency only to those actors who take up initiatives outside of established societal structures, the understanding of agency in this study is quite different. The expression

of agency by the women in the study resonates with Rashid's (2013) and Mahmood's (2005, p.8) views, who have sought to conceptualise agency in a way that does not presume western, liberal conceptions of autonomy, resistance and emancipation but rather in a way that expresses resilience that sprouts from within and is shaped by one's experiences. According to Mahmood (2005, p.18), agency should be understood not as "resistance to relations of domination but as a capacity for action that historically-specific relations of subordination enable and create".

From the interviews, it was deduced that women themselves acknowledged and valued the contributions they make, and want to make, to family income and food security, and in adaptation processes. As discussed, during times of floods, many women were able to make some contribution through house cleaning and attempting to divert running water gutters away from flooding their houses. Many women said that their family would not be able to survive without their contributions, considering the income and resources they gathered as essential. For instance, a participant from Ntuzuma, who was a single parent of two, when asked how she coped with juggling between her job and taking care of the household, retorted, "I have no other option, I have to be strong for my kids" (N2).

There was also a widespread view that women were active as earners outside their homes, even when this did not align with local realities. A participant in KwaMashu who narrated the experiences of her female co-workers said she had seen many of her female co-workers whose husbands were stay-at-home parents while the wife works to provide income for the family upkeep. Also, during a focus group discussion around changes in key social norms and construction of gender roles and responsibilities over the past 25 years, a participant (FGD – K3) reiterated that women's ability to work outside the bounds of the home and village had improved over the years. As some of the participants viewed it, this was a result of improved education and empowerment of women over the years. However, as already noted, for women, their perceptions on their ability to work outside of the bounds of their home was more closely linked to their home and family requirements, in particular, the need to support their families or care for their children. Their contributions to adaptation processes also were situated within the wellbeing and responsibilities to their children, rather than a reaction to community services. One participant in KwaMashu, when asked how the flood was affecting her, spontaneously retorted, "it affects our children". Despite the immediate concerns of women when seeking for solutions to floods is their children, there is no doubt that given appropriate education and skills, they can help proffer adaptation measures that benefit the entire

community. It is therefore important that NGOs and others that intervene in flood events put collective or community women empowerment into consideration in their adaptation planning.

5.6 Conclusion

The analysis in this chapter, as in the previous chapter, was drawn from both semi-structured interviews and focus group discussions with the local women from the study sites. We note that women's heightened vulnerability to floods is linked to socio-economic and socio-political factors which define women's roles in the society. As highlighted by feminist analytical perspective, differentiated gender roles and responsibility are results of social constructed which in some societies, have been sustained from the long past. Gender role expectations continue to shape the daily activities and roles expected of women, which in most cases, involve unpaid care jobs. Toxic expressions of masculinity were also noted in perpetuating violence against women. Though toxic masculinity as described here is not directly related to flood vulnerability, it is however, from the point of view of critical realism, one of the underlying factors that shape women's experiences of vulnerability in the events of floods. It is also noted that women in the study context were able to develop, at least through expressions and acts, showed resilience that enabled them to adapt to flood impacts as agents, rather than as victims. The agentic abilities demonstrated by the women was linked to their quest to take responsibility for their family's (mainly their children's) welfare.

CHAPTER SIX

CLIMATE CHANGE ADAPTATION IN SOUTH AFRICA: CONTEXTUALISING 'eTHEKWINI' WITHIN GENDER AND VULNERABILITY, AND THE NATIONAL IMPERATIVES OF GOVERNANCE

6.1 Introduction

The previous chapter sought to respond to two research questions: 1) What are the experiences of vulnerability and adaptation of local Black African women to floods and other climate-related natural disasters within the eThekweni Metropolitan municipality? 2) How do social, political and economic causes of vulnerability shape the experiences of these women? It was in turn found that the women's experiences of vulnerability and adaptation revolved around deeply entangled issues of poverty, poor infrastructure/location, poor governance/response to flood emergencies, as well as toxic enactments of masculinity by men against women in the situated study context. Earlier, it was argued that to appropriately respond to the vulnerability of a particular group of susceptible or vulnerable populations, it is critical to understand the adaptation experiences *and* needs of the people in their own context. Such a *situated* understanding enables adaptation policy to be in turn tailored to address the needs and experiences of the community intended to benefit. This chapter seeks to address the research question: How does the formulation and implementation of climate change adaptation initiatives within the eThekweni municipality, take cognisance of the underlying causes of the vulnerability of local African women, as well as address their adaptation needs?

To address this question, this chapter first presents an overview of what adaptation and adaptation governance should entail, specifically in the context of the many recent climate-related natural disasters around some South African regions. The chapter argues that to effectively address the particular challenges it was intended to address, adaptation governance needs to be tailored to a particular context and should seek to address the adaptation needs of the most vulnerable populations in that context. The chapter also presents an overview of South Africa's National policies on gender and climate change adaptation, including relevant national policies that seek to address issues of adaptation to climate disasters. It seeks to locate how issues pertaining to the vulnerability of Black African women from rural uMlazi, Inanda Ntuzuma, and KwaMashu rural areas—particularly their vulnerability to climate-related disasters—are articulated in the policies.

Since national climate adaptation policies are arguably implemented at the local levels, especially as adaptation is said to be local in nature, the chapter therefore examines how eThekweni Municipality's approaches and responses to climate-related natural disasters address gendered vulnerability of Black women. In doing this, the chapter evaluates 1) how the national policies reflect and are actualised at the local level and 2) how eThekweni municipality considers other local contextual factors that shape Black women's vulnerability to floods.

6.2 Understanding Adaptation

It is rightly asserted that climate change and its related disasters are of significant and immense concern to many countries and regions across the world. As already emphasised, Africa remains one of the most 'hard hit' continents by the impacts of climate-related natural disasters. It has also been reported by Williams *et al* (2019, p.158) that in South Africa specifically, climate change-related natural disasters are expected to increase in both frequency and intensity and their effects are also expected to be dire, especially on poor regions, communities, and individuals. Many disasters have already hit some Southern African countries, wreaking disastrous impacts on people's lives and properties. As shown in various case studies internationally (Djouidi, *et al* 2016; Carvajal-Escobar *et al* 2008; Alston, 2010; Fajber & Ahmad, 2009; Roy and Venema 2009; Fatema 2017 and Reye, 2009; Azad & Nazreen (2013, p.195), within the African continent (Codjoe *et al* 2011) and within the Southern African context, including South Africa (Babagura, 2014; Tibesigwa *et al* 2015; Omari, 2010 and Ribeiro and Chauque, 2010), women have been identified as a 'group' that is usually impacted in a more heightened manner than men (although of course women are far from a homogenous group, as detailed in earlier chapters).

Furthermore, the poor state of infrastructure and susceptible geographic location/s that characterise many rural areas have rendered residents of the areas highly susceptible to natural disasters. Combined with other socio-political and socioeconomic factors that endanger women, the deteriorating state of infrastructure and susceptible geographic patterns in the rural areas have been identified as key factors that make rural women highly susceptible to the impact of climate disasters. For example, the recent cyclone Idai that made the landfall at the port of Beira in Mozambique and some parts of Malawi and Zimbabwe—which was reported to have led to the loss of several lives and properties—illustrates the level of danger that climate change-related disasters pose to poor women, especially those in relatively poor nations and

communities. According to the United Nations Office for the Coordination of Humanitarian Affairs OCHA, as a result of cyclone Idai, more than 600 lives were lost, about 1,600 were injured, and close to 2.2 million people were left in need of urgent assistance during and after the cyclone (cited in UN News, 13 March 2020). Mozambique's poorest, and women, particularly pregnant women, are reported to have constituted those most impacted by the disaster (Ibid).

Similar events of casualties were recorded during cyclone Kenneth, which occurred a few months after cyclone Idai. Though not as severe as cyclone Idai, cyclone Kenneth was also reported to have caused significant damage at the northern region of Mozambique and some parts of Comoro Island and Tanzania. According to Global Catastrophic Recap (2019), cyclone Kenneth caused about 52 fatalities, with an estimated 100 million USD damages, with rural communities experiencing the greatest impact. The United Nations weather agency Chief, Petteri Taalas describes the devastation across Mozambique as a 'wake-up call' for vulnerable countries [and of course, communities and individuals] 'to build resistance against high impact tropical storms, coastal flooding and intense rainfall caused by climate change (cited in UN News, 13 March 2020). Building resistance or resilience against the disastrous impact of climate disasters constitutes an essential component of adaptation.

In the context of this study situated within the eThekweni municipality, adaptation should involve the building of resistance or the strengthening of Black women's adaptive capacity to withstand the impacts of floods and other climate-related disasters or prepare for any future occurrence of such disasters. Flood incidences have posed disastrous effects to communities around Durban over the past years and have posed significant challenges to the residents, especially children and impoverished Black women. The recent flood events which occurred in 2019, were reported to have caused at least 60 fatalities, with more than 1,000 people displaced (BBC News, 24 April 2019). As already mentioned, in any events of disasters, the impacts are usually not experienced in the same way across all groups. Some social and demographic groups usually experience greater intensity of the impact. A typical instance is the experience of a Durban flood survivor, who described how his children were affected during the flood incidences. Narrating how the flood incidence affected his children, Thamsanga Dlamini narrated:

I heard my children screaming from the bedroom. I tried to rush to help them, but the strong water current forcefully pushed me into another room, and I was under the

collapsed wall. I remember hearing the screams of the children, neighbours tried to get us out, but we could not save the children (cited in BBC News, 24 April 2019).

Furthermore, though the specific effects posed to women by the Durban flood is not recorded, it is widely acclaimed that rural women usually constitute one of the groups most vulnerable to floods impacts. As mentioned earlier, it is the structural, socio-economic, and socio-political factors of vulnerability that combine with the physical effects of natural disasters to exacerbate the heightened vulnerability experienced by the local women to the disaster. Moreover, as the flood-prone areas around Durban are predominantly inhabited by black people, with a significant number of black women, it becomes essential that the municipal adaptation planning and governance takes these specific challenges of the women into consideration.

6.3 Understanding Adaptation Governance, Gender and Justice

Adaptation governance is usually carried out through various initiatives and policies developed to create appropriate institutions and infrastructures to offer guiding principles on responses to impacts of climate-related disasters. In developing countries, such initiatives and policies are usually reflected in the National Adaptation Plans of Actions (NAPAs), with funding from the United Nations Framework Conventions for Climate Change. In the context of South Africa, a draft National Climate Change Adaptation Strategy (NCCAS)³⁰ was issued in May 2019 by the South Africa's Department of Environmental Affairs requesting public input. How NCCAS addresses the vulnerability of local Black women will be discussed later in the study. For now it is important to point out, as noted by Nightingale (2017, p.11), "National Adaptations Plans of Action in developing countries generally follow the UNFCCC template and begin with vulnerability assessments to chart existing biophysical hazards, and then evaluate who is most at risk from them". Nightingale's assertion seems to observe the misfit existing between UNFCCC's drawn adaptation template and the local or context-specific nature of adaptation.

According to Nightingale (2019, p.11), though such an internationally guided approach may not be completely wrong, they may not fit perfectly into the political and social realities of the local contexts where adaptation or vulnerability is experienced. Moreover, the traditional approach of political ecology has pointed out that environmental changes are usually connected to, or mediated by, a variety of socio-economic and socio-political factors. These factors

³⁰ A draft of South Africa's NCCAS can be accessed at:
https://www.gov.za/sites/default/files/gcis_document/201905/42446gon644.pdf

operate within local context to determine the vulnerability of people within that context. This study is informed by feminist political ecology, which argues that that vulnerability experienced by women to environmental challenges is usually a factor of contextual social, economic, and political mechanisms operating mostly at local levels. The study, therefore, argues for the necessity of an effective adaptation governance to take cognisance of the entangled socio-political contestations, including the livelihood and adaptation needs of the people whom governance seeks to aid.

The study is also informed by the ‘Theory of Change’ and according to Stein & Valster (2010, p.4), articulating a theory of change, commonly “involves exploring a set of beliefs or assumptions about how change will occur”. Since adaptation usually requires adjustments in an existing condition, any governance that aims at maintaining equity in its response to the challenges of the most vulnerable group—in the case of this study, the local Black women in Durban—needs to understand the kind of structural, adaptive et.al capacity that the women require. Such governance needs to be informed by the contextual factors that shape women’s vulnerability.

As mentioned earlier, adaptation measures require significant changes or adjustments across many sectors, including health, agriculture, water policy and conservation. The essence of the adjustment is to build and sustain the resilience and capacity of people to cope with any actual or potential danger posed by climate disasters. Put differently, adaptation entails measures taken to achieve resilience or increase the adaptive capacity of people and communities. Though adaptation can take place on an individual level, the government has a significant role to play in ensuring that citizens are well equipped, and their adaptive capacity strengthened to reduce any vulnerability associated with climate-related disaster. In addition, though the government is regarded as the central agency in leading adaptation governance and interventions (Huitema, *et al* (2016, p.1), the task of helping vulnerable communities and individuals to adapt to impacts of climate disaster have also been a pivotal part of the work of non-governmental organisations, Civil Society Organisations, volunteer groups and private enterprises. As highlighted by Huitema *et al* (2016, p.1), “the governance of climate adaptation involves the collective efforts of multiple societal actors to address problems, or to reap the benefits associated with impacts of climate change”. For example, the World Food Programme, the International Committee of the Red Cross, the Catholic Relief Services, and several other organisations played instrumental roles in helping poor communities adapt to the impact of cyclone Idai in Mozambique, Malawi, and Zimbabwe. In the wake of cyclone Idai, the

Southern African regional director of the United Nations office for the Coordination of Humanitarian Affairs, Ms Lola Castro commented that “boosting Mozambicans” ability to withstand the impacts of increasingly severe drought and flooding was the core of our work before the cyclones struck” (cited in UN News, 2020). However, what most adaptation governance such as this may tend to ignore is the issue of effectiveness, justice, and equity in their interventions.

As stated by Huitema *et al* (2016, p.3) “adaptation might be characterised as an issue of equity and justice, either within countries where disadvantaged groups may be particularly vulnerable, or between the groups of countries, whereby wealthy countries invest in the protection and economic development of less-wealthy countries”. Huitema *et al* (2016) also emphasise that adaptation governance must aim to create and strengthen the institutions, rules and organisations that seek to address climate vulnerability of the most marginalised and vulnerable population. To achieve this vision and aim, it is imperative that such institutions created to address the adaptation experiences of the marginalised population take contextual factors of vulnerability into consideration. This is important to avoid exacerbating the injustices or inequalities of those who have already been disadvantaged by the social, institutional, economic, and political factors that influence vulnerability to climate disaster. One important approach that has frequently been highlighted by literature on gender and climate change adaptation is the issue of justice.

Justice in climate change adaptation entails addressing not only the physical aspect of vulnerability to environmental disaster, but also addressing the social, structural, and political factors that tend to sustain inequity and inequality. According to Huitema *et al* (2016, p.1) “governance measures have wide distributional consequences, including the potential to amplify existing inequalities, access to resources, or generating new injustices through distribution of risks”. To avoid exacerbating the already-existing (structural and socio-cultural *et al*) injustices experienced by local women (in the context of this study), it is vital that adaptation governance within the eThekweni municipality takes note of the contextual factors of vulnerability of Black women. The women in the contexts of this study reside in the peripheries of Durban, where floods have posed serious threats. Therefore, ensuring appropriate response to the plight of the women also implies that actors involved in governing climate change adaptation, as well as policies and initiatives on climate governance in South Africa, and in eThekweni municipality, must inevitably engage, both theoretically and in

practice, in making intentional choices. This would in turn entail contextualising governance efforts—for instance, on jurisdictional levels, on modes of governance and on the timing of interventions—in a manner which addresses the particular challenges faced by Black women living in flood-prone areas.

A contextual adaptation governance is also in tandem with the proposals of the Theory of Change regarding appropriate response to an equitable climate adaptation governance. Some researchers, for example Fisher & Shakya (2018) and Jost, Kristjanson & Ferdous (2015), who advocate for the application of the Theory of Change in adaptation governance, recommend a participatory model kind of climate governance. In their White Paper entitled *Gendered Voices for Climate Action: A Theory of Change for the Meaningful Inclusion of Local Experiences in Decision*, Fisher and Shakya (2018, p.3) argue; “bringing the perspectives of local women and men who have experienced climate impacts into relevant policy arenas is seen as key to just decision-making and meeting the Paris Agreement³¹ commitment to a country-driven gender-responsive approach”. In the context of this study, applying the model proposed above implies practices where gendered voices, or the needs of the most marginalised groups of people are included in climate change adaptation governance through participatory engagement of all the stakeholders involved. The stakeholders referred here include the personnel who practically execute adaptation programmes, as well as the beneficiaries of the programmes, which in the context of this study are the local Black women within the eThekweni municipality that are facing challenges relating to flood disasters.

Another justification for an argument that adaptation governance needs to be contextual is the fact climate change is not the same everywhere, and therefore the disasters posed by climate change do not present a uniform vulnerability across contexts. As noted by Carr & Thompson (2014, p.184), costs and benefits of climate change impacts are unevenly distributed. This also means that what is problematic for some might present an opportunity for others. Therefore, governing adaptation effectively entails maximising the benefits that come with climate disaster, while at the same time reducing the costs associated with it. Achieving such goals involves an in-depth study of the people who are affected by climate impacts or people whose

³¹ The Paris Agreement is one of the Agreements within the United Nations Framework Conventions on Climate Change, UNFCCC that stipulates the global response to issues of greenhouse-gas-emissions mitigation, adaptation, and finance. Even though Paris Agreement was formally signed in 2016, the consensus for it was reached during the 21st meeting of the Conference of Parties to the UNFCCC held in Paris, France in December 2015.

challenges governance seeks to address. Studying the needs of the people is also important to understand and align any intervention with their adaptation needs. Jordan *et al* (2010) highlight how actors often engage in struggles to present, or frame, particular phenomena into problems that suit their pre-existing political interests or policy competences. Such political interference and interest can hinder a proper response to the differential needs of various vulnerable groups in the events of a climate disaster.

For instance, a study in Ghana by Codjoe *et al* (2011) showed that different preferences for adaptation programmes ensued at an intersection of gender and livelihoods (cited in Carr & Thompson 2014, p.189). For example, as noted earlier, when examining people's needs for adaptation to drought, fisherwomen in the Ghanaian region studied by Codjoe *et al* (2011) preferred projects that addressed post-harvest technology and seasonal forecast. In contrast, men preferred the construction of fishponds, insurances, and fish culture technologies. These differences in preferences and needs show that even in adapting to the same climate disasters, men's and women's preferences may differ, depending on their socially-defined roles, which justifies the necessity of considering gender analysis in any developmental projects. However, gender analysis alone was not enough to capture the adaptation preferences in the study area. The authors also noted that women producing charcoal demanded seasonal forecasts, but also wanted new/more wells and boreholes, and technologies that would help in sedentary pasture management. What this implies is that the choices taken for adaptation governance need to consider the needs of the people most affected and that *they* should be the stakeholders deciding their adaptation needs. According to Massey *et al* (2015), the choices left for nation-states regarding climate change adaptation "are about deciding what roles national, regional, and local governments can play; the degree of their involvement; and the interactions between them" (cited in Huitema *et al* 2017, p.3).

Such a collaborative mode of governance as mentioned above is also a key component of the Theory of Change's approach to climate governance. For instance, according to Fisher & Skakya (2018, p.9), in a Theory of Change approach to climate adaptation governance, local engagement is necessary to improve local, national, and international climate decision-making. Some of collaborators that should be included in climate change governance planning include but are not limited to: local women and men, community-based organisations, customary institutions, other civil society organisations, other local networks, NGOs, and other donors. The inclusion of NGOs and other donors in such collaboration also ensures that the values

aspirations of the donors and the NGOs, who, in many cases, engage in local response to natural disasters, are practiced not in isolation but in tandem with the needs of the beneficiaries.

During the fieldwork for this study, some of the questions the researcher asked the participants concerned their experiences with NGOs and other civic organisations' intervention in flood adaptation around the study sites. Responses by the participants of this study revealed that they were not aware or had not experienced any intervention by any NGOs or any civic organisations at any point in time during flooding events in the areas. Some of the participants also mentioned that they had not at any point been asked what their adaptation needs were or informed of the proposed adaptation plans by the municipality. This revealed that the interventions during flood emergencies around the municipality do not directly impact on the lived experiences of the beneficiaries.

6.4 The Nature of Climate Change Adaptation Governance in South Africa

According to South Africa's Department of Environmental Affairs, DEA (2019), the national climate change governance in South Africa has undergone a gradual policy evolution over the past two decades and has been shaped by an elaborate landscape of executive policies, strategies, regulations, and institutions. The formulation of national climate governance in South Africa began in 2004 when the National Climate Change Response Strategy was formed. This was followed by the formulation of South Africa's National Climate Change Response White Paper (NCCRWP), approved in 2011. The approval of the NCCRWP formed the foundation of national climate policy in the country. South Africa seemingly took a giant step towards climate governance when, in 2012, climate change (mitigation and adaptation) issues were incorporated as key issues into the National Development Plan 2030, during the Presidency of Jacob Zuma. The key considerations of climate change adaptation, especially those related to addressing the vulnerability of the most marginalised populations of the country, will be highlighted in the latter part of this section.

As noted by Averchenkova, Gannon & Curran (2019), The South African Department of Environmental Affairs (DEA) is the main coordinating body responsible for establishing overall targets, frameworks, and overall implementation of climate policy in South Africa. However, though the DEA is responsible for formulating the country's climate change policy, the goals of the NCCRP were informed in line with other national and international commitments, including the South African Constitution, the Bill of Rights, the National Environmental Management Act, the Millennium Declaration, and commitments made under

the UNFCCC (Averchenkova, Gannon & Curran 2019). The multi-sectoral alignments of climate policy is meant to ensure that the needs of every sector and every tier of government is included in the formulation of the policy. Moreover, the NCCRWP recognises that to ensure sustainable development and a just, managed transition to a low-carbon society, policies need to be aligned both vertically (from national to local levels) and horizontally (between national departments) (RSA, 2011, p.11). As already mentioned, while the Department of Environmental Affairs is charged with overall implementation of climate policy, the South African government has created a federal department (the Department of Cooperative Governance and Traditional Affairs, CoGTA), to facilitate cooperative governance between national and sub-national levels. Even though the onus to address specific adaptation challenges rests on municipal government, the CoGTA is therefore mandated to oversee municipal integration and to coordinate cooperation among the national, provincial, and local governments (DEA, 2019, p.28). However, it was observed during the fieldwork of this study that the local women affected by floods did not have necessary knowledge of how adaptation governance works, or who is to do what, when, and how. For instance, when asked which department (either in the provincial or municipal level), was responsible to intervene during flood emergencies, many of the women reported not being aware. As reported by them, “sometimes people come from the municipality, sometimes people come from the Provincial level” [U9]. However, though many of the respondents were aware that the councillor was the closest person to contact, many of them did not have the contact details of the ward councillor—who they further reported was mostly not accessible in office. Such lack of awareness regarding simple governance structures constituted one of the key factors that affected flood impacts on the women.

Currently, climate change governance in South arguably adopts a bottom-up approach to governance. The bottom-up approach, in the context of South Africa, implies that the three tiers of governance—despite working collaboratively or interdependently—has a degree of autonomy to enact certain rules and guidelines of their own regarding climate change adaptation. This is different from the approach adopted during the apartheid era, when the three tiers of government: central–provincial–local was seen to operate hierarchically, meaning that that national policy was often not implemented at provincial and local levels. According to Tapscot (2015, p.71), such governance practice had led to policy incoherence where “the policies of the different strata of government were frequently not aligned”. The post-apartheid constitution of South Africa defines local, provincial, and national governments as separate,

yet interrelated, spheres (Petrie *et al* 2019, p.25). This is important as it grants the local government—where the adaptation governance is implemented—the authority to frame their climate adaptation governance in a progressive manner that corresponds to the real socio-economic and socio-cultural contexts of their people. A bottom-up approach to governance is much more democratic than it is hierarchical in its approach. This is because, as already stated, it enables local governments to address their own contextual challenges without much structural bureaucratic imposition. A bottom-up approach also facilitates the collection of evidence and data on the needs and contexts of the individuals and communities most affected by the impact of climate disasters.

Furthermore, the flexibility of a bottom-up approach to adaptation governance in allowing local government to tailor their adaptation initiatives to their own contextual circumstances and priorities is beneficial to allow for a broader participation in adaptation decision making. It allows for broader participation in the sense that it enables local government to frame their adaptation initiatives in a manner that is meaningful to every group. In that way, local government is able to figure out the most vulnerable populations and attain to their adaptation needs in a manner that is just, fair, and equitable, and responds to the adaptation needs of the most vulnerable group or community. In other words, a bottom-up approach facilitates more representation in decision-making of those interests most affected by climate change disaster and by measures to address climate change, including individual citizens and communities. Such an approach seems to prove quite more valuable than a top-down or a more decentralised approach, where the decision making at the central unit of governance may not be able to accommodate every local contextual factor that causes vulnerability.

Quite importantly, the National Climate Change Response White Paper succinctly states the importance of developing bottom-up strategies and calls for a coordinated approach between the three levels of government (Government of South Africa 2011: 11). However, local governments are not bound by mandate to enact municipal, or implement national, climate-specific policies (Wolpe and Reddy 2015). Schedules 4B and 5B of the Constitution endow municipal governments with authority to establish regulations, codes and plans regarding spatial, transportation and economic planning; air and water quality controls, and water, waste, electricity and gas reticulation (Reddy and Wolpe 2017). The Constitution further states that municipalities are “to provide democratic and accountable government for local communities; to ensure the provision of services to communities in a sustainable manner; to promote social and economic development; to promote a safe and healthy environment; and to encourage the

involvement of communities in the matters of local government” (paragraph 152). The duty of the Provincial governments is to ensure that municipal governments fulfil their mandates and intervene in the case of serious issues concerning climate change governance (Petrie *et al* 2019, p.29). The Constitution further endows municipalities with the mandate to provide democratic and accountable governance for local communities, and to ensure provision of services to communities in a manner that is sustainable, fosters socio-economic empowerment, promotes a safe and healthy environment, and involves communities in matters of local governance (RSA, Constitution, para. 152).

The bottom-up approach to adaptation governance works in tandem with the equity response to the plights of the most vulnerable groups in a population. In South Africa’s case, one of the principles guiding the country’s response to climate change disasters is the mandate given to local governments to consider the special needs and circumstances of people who are particularly vulnerable to the adverse effects of climate change, including vulnerable groups such as women, and especially poor and/or rural women; children, especially infants and child-headed families; the aged; the sick; and the physically challenged (RSA, 2019, p.12). Moreover, the Policy also states as its overall approach the “employing of a wide range of different types of adaptation and mitigation approaches, policies, measures, programmes, interventions and actions consistent with the principles outlined above, but in particular, that meet the special needs and circumstances of those most vulnerable as well as being specifically tailored to the potential, best available solutions and other relevant conditions related to the specific actor, organisation, sector or sub-sector concerned” (p.13).

The formulation of a climate change adaptation strategy recognises the spatial arrangements in the country, resulting from Apartheid Group Areas Act, which persist. Many poor Black Africans still live in poverty-stricken and environmentally degraded locations. South Africa’s Department of Environmental Affairs has various proposals to show its apparently intentional effort to address climate change adaptation challenges is in tandem with the economic differences still very visible in South Africa. Firstly, the Department advocates that local government should pay attention to urban and rural settlements deficit in infrastructure and provision of services. Secondly, it recognises that climate change disasters impact different populations differently, and the extent of the impact is related to a settlement’s type and location. Last but not least, the Department states that informal settlements and the residents therein are the most exposed population to the impacts of climate disasters (RSA -DEA, 2019, p.5). Nevertheless, one important point mentioned by the Department of Environmental Affairs

aimed at addressing the plight of local Black women is the issues of equity and gender sensitivity. For instance, the Department states that 1) the development and implementation of the NCCAS should support and promote equity in South Africa, and 2) the development and implementation of the NCCAS should promote the participation of women, take gender differences in vulnerability to climate change into account, address the needs and priorities of both women and men, and seek to not exacerbate gender inequalities (RSA, DEA, 2019, P.6). Considering the interdependent nature of governance in South Africa, it therefore means that the onus lies on the local government and other sectors responsible for climate change disaster and other risk management to identify the individuals and communities at most risk from climate change within localities in the municipality, and deliver targeted climate change vulnerability reduction programmes for the most vulnerable individuals and communities (RSA- DEA, 2019. P.34).

6.6 South Africa's National Response to Climate Change Adaptation in the National Development Plan Vision 2030

South Africa's National Development Plan, NDP³², recognises that climate change poses a serious threat to South Africa, especially as it threatens South Africa's ability to realise its environmental, socio-economic and development objectives. A document by South Africa's National Planning Commission³³ which details South Africa's plan to transit to a low carbon economy, affirms that failure to address issues related to climate change can possibly inhibit an effective actualisation of South Africa's developmental goals as set out in the NDP. As will be discussed later in this section, some of the goals of the NDP include transiting South Africa to a low carbon economy while at the same time creating jobs and reducing the high poverty and inequality in the country (NDP, nd). South Africa has placed much emphasis, though apparently more theoretically than practically, on articulating how the country seeks to tackle issues of climate change, through mitigation and adaptation.

³² The National Development Plan 2030 is South Africa's development map that was launched on 15 August 2012 during the presidency of Jacob Zuma. The aim of the Plan is to eliminate poverty and reduce inequality by the year 2030. According to the Plan, South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society (<https://www.gov.za/issues/national-development-plan-2030?gclid>)

³³ Available at:
https://www.nationalplanningcommission.org.za/assets/Documents/NDP_Chapters/devplan_ch5_0.pdf

South Africa's response to climate change takes place in the context of the historical injustices and inequalities resulting from Apartheid rule. It recognises the huge economic divide between the Black and White populations in the country caused by the apartheid discriminatory policies. Although apartheid ended in 1990, and South Africa formally declared a democratic state in 1994, the legacies of apartheid is still visible in the country. This is apparent in the high unemployment, illiteracy, poverty, and lack of resources among the majority of the Black people in the country. In tandem with the response to climate change is the necessity to address poverty, inequality, and unemployment (often described as a 'triple challenge'), while pursuing sustainable development goals (RSA, n.d.).

In addition to addressing the triple challenge—which also implicitly includes tackling issues related to climate disaster—the NDP categorically states as one of its goals the delivery of environmental protection that attends to issues of equity and addresses the past injustices of apartheid in the country. South Africa's adaptation strategy in the NDP states that a large population of South Africans has low resilience to extreme climate events. This statement is specifically attributed to rural areas, who have been confirmed inhabit majorly poor black South Africans. The NDP states that over one-third of South Africa's population live in the former "homelands", and a large proportion of this group is economically marginalised (RSA, n.d.). Because this population has a low adaptive capacity, they become significantly vulnerable to any natural disaster. Compounded by experiences of poverty, the high burden of disease, inadequate and poor housing infrastructure, and degraded locations, any climate disaster presents a heightened vulnerability to them, which may not be experienced by those living in cities and other well-planned locations.

As illustrated in the previous chapter of this study, the issues mentioned by the South African Adaptation Strategy have been confirmed by the field experience of this study, in the context of the vulnerability and adaptation experiences of the local Black African women residing at the rural settlements in the country, to floods and other natural disaster impacts. As a significant development pathway policy for South Africa currently, the National Development Plan, NDP recognises the intensity of climate change, as well as their dire need to strengthen adaptation, especially through empowering residents from former 'homelands' areas in the country. Amongst several considerations stated in the NDP, the following proposals are directly related to adaptation of the most vulnerable residents in rural settlements of the country:

- Upgrading informal settlements on suitably located land

- Prioritising infrastructural development of rural communities
- Reshaping South Africa's rural settlements with projects to address the existing spatial divides between cities and rural settlements
- Improving education of the poor
- Integrating diffuse funding flows into a single fund for spatial restructuring to reduce spatial settlement patterns that exclude the majority (RSA, 2012)

Though the NDP sets out the needs and urgency of addressing issues related to climate change disasters, it however does not seem to test the sensitivity of achieving these goals considering climate change and variability. Finance set aside for development needs to incorporate climate change so that infrastructure and communities are resilient to future climate impacts. Furthermore, climate change needs to be mainstreamed into budgetary processes in all spheres of government (RSA-DEA, 2019, p.4). A sector where significant strides have been made in the integration of climate change adaptation is disaster management. The Disaster Management Amendment Act, 2015 (Act No. 16 of 2015) is a critical piece of legislation that directly responds to climate change adaptation. The Amendment Act assigns responsibility to national, provincial, and local government to invest in disaster risk reduction and climate change adaptation interventions for their respective jurisdictions. Each organ of state is required to develop disaster management plans that include climate change risks and responses. (Ibid). As noted by Lervik & Sutherland (2017, p.4) after South Africa's transition to democracy in 1994, environmental management became a mandate of the city government. This implies that local governments or municipalities are important players when it comes to addressing the tremendous challenges associated with climate change, including responding to climate change adaptation challenges of communities within the municipality.

6.7 eThekweni Municipality's Response to Black Women's Vulnerability to Floods

According to Taylor *et al* (2013), eThekweni Municipality is a leader in terms of its position in the international arena of governance, including climate change adaptation governance. There are arguably some instances used by Taylor *et al* (2013) to support their claim. Firstly, they state that the city of eThekweni played a host to the seventh session of the Conference of Parties to the United Nations Framework Conventions on Climate Change, held from November 28 to December 9, 2011. According to Taylor *et al* (2013), this internationally-renowned conference specifically put Durban among the world's recognisable cities in terms of response to climate

change. Moreover, the city of Durban is also a signatory to various international coalitions responding to climate change issues, for example, the C40³⁴. These multiple international collaborations in climate change action is meant to give the municipality an edge in upholding a response to climate change adaptation that is equitable, just, and takes the plight of the most vulnerable populations into consideration. However, the city's climate adaptation leadership does not seem to translate into practice, in terms of these mentioned issues, as will be shown later in the study.

In the eThekweni municipality, environmental management issues are handled by the Environmental Planning and Climate Protection Department (EPCPD). The department is responsible for ensuring equity and justice in the municipal response to the adaptation needs of its most vulnerable populations, which arguably comprise poor Black women from the flood-prone rural settlements. A review of the state of environmental and climate governance in eThekweni municipality by Williams *et al* (2019) shows that there has been a pattern of change from broader environmental governance towards a more specific focus on climate change governing. Williams *et al* (2019) also maintain that while the focus of the EPCPD is still largely directed towards biodiversity and conservation, the focus on awareness raising and education on climate change and protection has increased. However, though overall governance of climate change might have developed within the municipality, it is pertinent that such governance addresses the structural inequality which characterises most adaptation challenges of rural settlement dwellers, especially that of poor women. Being aware of the adaptation needs of this set of women and addressing them in their context is pertinent to ensure equity and justice in the municipal response to issues of gendered vulnerability experiences of the vulnerable population of the municipality. However, evidence shows that this does not seem to be the case.

For example, there is currently a programme within the eThekweni municipality called the Gender into Urban Climate Change Initiative (GUCCI). The programme seeks to assess and promote the inclusion of women's adaptation needs into municipal climate change policies. A discussion with one of the pioneer coordinators of the GUCCI programme, who is working in the office of the Premier of KwaZulu-Natal Province, revealed the municipality is not quite aware of the need for an intentional response aimed at addressing the specific challenges faced

³⁴ The C40 is a global coalition of major cities that have taken enormous leadership in their responses to climate change issues. The group comprises 96 cities from various countries around the world.

by Black women in the municipality. According to her, though there is a desktop assessment of the level of gender inclusiveness in climate change policies in the municipality, there is no specific primary study that uses interviews or any other primary data collection methods to understand the needs of the local Black women of the municipality (Key Informant Interview 1, February 2020). Similarly, other personnel from EPCPD also confirm that “there is lack of information or there is gap between government programmes and rural women” (Key Informant Interview 2). Some other key informants in the study confirmed that some women from the rural areas affected by floods are not aware of the interventions which are put in place as a response in the case of flooding incidents. These responses revealed the existing laxity between the municipal adaptation governance and direct response to the plight of local Black women.

Furthermore, an exploration of the Durban Adaptation Charter (DAC), which is the strategic document that lays out the climate adaptation plan of the eThekweni municipality, shows a lack of intentional focus on the specific adaptation needs of the local Black women within the municipality. The Charter was signed in 2011 in Durban during the Conference of Parties to the United Nations Framework on Climate Change. The Charter articulates the significance of a partnership between eThekweni municipality and other local governments across the world, but mainly from developing countries on issues of climate change adaptation at city local government levels. The main goal of the partnership is to strengthen cities' efforts towards knowledge sharing between cities and to enhance ecological, social, and economic challenges associated with climate change adaptation.

The Durban Adaptation Charter constitutes one of the strategic adaptation policy documents of the eThekweni municipality. The Durban Adaptation Charter has laid down several key policy goals to tackle climate change adaptation in the city, even though some of the goals have not been put into practice. The goals include, amongst others, issues of mainstreaming adaptation into local government planning, ensuring an inclusive adaptation strategy, recognising the needs of vulnerable communities, and promoting partnership and knowledge sharing across cities (eThekweni municipality, 2012). The Charter states that the municipality aims to ensure inclusive adaptation and reduce the vulnerability of at-risk communities. During the development process for the Durban Climate Change Strategy in 2011, Debra Roberts, the Deputy Head of the Environmental Planning and Climate Protection Department, EPCPD, stated:

We know that in Durban, the poorest of our people will be the most at risk from these changes, and we need to assist them with adapting to climate change. The Durban Climate Change Strategy will bring together ideas from different sectors, and engage with vulnerable communities to establish where their concerns lie, and prioritise adaptation measures that ensure that the municipal vision can still be met under climate change conditions (Cited in eThekweni Municipality, 2011).

Regarding ensuring inclusivity in the climate change adaptation governance, Roberts Further stated:

In order to develop the Durban Climate Change Strategy, the municipality has proposed an inclusive and participatory process so that the views of all stakeholders in the eThekweni Municipal Area are incorporated in the strategy. The success of the Durban Climate Change Strategy will depend on how inclusive the process is, so that all voices of our City are represented (Ibid)

Though the above call has reiterated the need to ensure inclusive adaptation, it however fails to explicitly mention gender inclusivity or issues pertaining to the vulnerability of local Black women within the municipality as one of its goals. This is, first and foremost, an important aspect of proposing a climate change strategy that is responsive and seeks to address the vulnerability of the most marginalised population in the municipality. Intentionally reiterating such issues in policy is arguably an important starting point towards a gender transformative adaptation that follows a Theory of Change approach.

As articulated by Fisher and Shakya (2018, p.21) some potential “pathways” for change [in any governance approach] include, though are not limited to, the considerations:

- Increased communication and circulation of gendered experience supports gendered framing of policy issue in formal spaces
- Local voices ground technical discussions and challenge policy jargon to move beyond business as usual framings
- Diverse forms of knowledge are accepted as valid and considered in policy
- Strengthened relationships, coalitions and networks—both formal and informal
- Increased understanding of issues
- Increased emotional connection and motivation to integrate gendered differences
- Relationships with others interested in the issues

As stated, the above-mentioned considerations are prerequisites in assessing an adaptation governance that takes the Theory of Change approach into consideration. However, the findings from the study seem to suggest that most of the elements were either lacking or applied

in a manner that did promote justice, equity and collaboration in flood interventions. For instance, the first point highlights that increased communication and circulation of gendered experiences supports gendered adaptation framing. However, findings show that there was a lack of communication between stakeholders (the local women affected by floods, and the disaster management sections of the municipality) regarding flood prediction. As discussed in chapter 4 of this study, many participants complained that flood events took them by surprise, and this was due to a lack of information regarding early warning forecasts. As noted by some authors, socio-economic determinants of adaptive capacity, give some individuals, groups, or regions an advantage to adjust to the shocks that arise from climate disasters (Bohensky *et al* 2010; Theisen, Bauhaug & Gleditsch 2008).

There seems to be no record of early warning of several flood incidents in Durban in the past. This does not mean that the eThekweni municipal governance is totally lacking in providing early warnings to residents but considering the challenges of Black women residents in informal settlements in disseminating such information is quite crucial for equity and justice. For instance, in October 2020, the South African Weather Service warned of a severe thunderstorm and heavy rainfall that could lead to “flooding of settlements, both formal and informal, as well as overflow of low-lying bridges is possible”³⁵. Consequently, the eThekweni municipality’s disaster management unit issued a warning (through mainstream and social media outlets) to residents around the projected areas and appealed to residents to “stay indoors for safety if possible” after the warning³⁶. One downside of disseminating information through new technology is that it easily restricts information access to the context of some interior rural settlements who, due to poverty or geographical location, might not have equal access to the new technology. As argued by Jones *et al* (2007), adaptation is also influenced by a wide range of situational or context-related factors because it is location-specific. Jones noted that the choice of adaptation, should be informed by factors relating to the following:

- Where: For instance, where are the specific areas of interest or the affected localities?
- What: This concerns phenomenon or risks to which adaptation need arises, e.g., flood, drought, and cyclones

³⁵ <https://www.timeslive.co.za/news/south-africa/2020-10-03-durban-emergency-services-on-high-alert-after-warnings-of-stormy-weather/>

³⁶ Ibid

- Who: This answers questions relating to the stakeholders, including the assessing body and the affected population, communities or region in relations to whom vulnerability is assessed?
- Why: This answers questions relating to the underlying conditions of vulnerability and why there is a need to manage them
- How: This answers questions relating to what extent, the level of, as well as the best method of vulnerability risk management (2007, p.686)

During the interviews for this study, many participants said that most of the damages they incurred from floods were due to lack of early warning information. Therefore, the disaster took them by surprise. Some studies have shown that in addressing women's inequity, it is important to realise the potential women bring in contributing to development (UNDP, 2010, Rivera, 2018). A study in Ginebra municipality, Colombia, by Carvajal-Escobar *et al* (2008, p.278) revealed that the local women of the municipality had valuable knowledge to contribute to climate change adaptation planning. Drawing from history and past experiences, some local women participants of this study suggested that in the village settings, information regarding flood forecast could be disseminated to parents through schools, perhaps in the form of information leaflets distributed to their children to take to their parents. Such an approach (including other possible approaches to forecast warning) that take contextual factors of vulnerability into consideration, are important in responding to adaptation needs of local Black women living in interior and flood-prone areas of Durban. As reported by Ramadas (2019, p.106), there is however a flood early warning system within the eThekweni municipal area, managed by the Coastal Storm Water and Catchment Management Department of the municipality. The report shows that the system was developed in 2011 for flood forecasting, although the municipality has now applied it for forecasting of other events and amenities, including storm water and risk assessment (Ibid). As noted by Ramadas (2019, p.106), the eThekweni municipality's early warning system is essential for "risk zones", including "electricity substations, water management stations, rural settlements, and priority economic nodes". However, from findings of this study, it seems the warning system has not been of considerable benefit to Black women from the study sites. This is because, as reported by the participants, many of the women are still taken unawares by eventualities of flood. Many of the women are also unaware of the existence of such a system. Therefore, it is quite essential that the municipal adaptation practitioners find appropriate means of communicating to the local women these early warnings regarding floods. Adaptation practitioners can also include distinct ways in which women from the interior localities can interact and communicate,

including the informal networks for influencing that they may have, which may not be as visible.

Furthermore, adaptation governance in eThekweni needs to ground local voices into “technical discussions and challenge policy jargon to move beyond business-as-usual framings” (Fisher and Shakya (2018, p.21). In commenting about the paradox of knowledge regarding climate change, Dan Kahan, a Yale Professor of law noted: “Never have human societies known so much about mitigating the dangers they faced but agreed so little about what they collectively know” (Kahan, 2015, p.1). As asserted by Fisher (2015), “one aspect [or challenge] of bringing lived experience of climate change into different policy fora is the disjunct between local experiences...and living conditions, and the broader climate debate, which can seem far removed from day to day life” (cited in Fisher and Shakya, 2018, p.8).

Similarly, according to Hendricks (2017), “for scientific evidence to shape people’s actions—both personal behaviours like recycling and choices on policies to vote for—it’s crucial that science be communicated to the public effectively”³⁷. One of the challenges faced in the study sites which, in the researcher’s opinion, contributed to increased incidents of flooding, was the waste management issue. When gutters are blocked with waste, running water that is supposed to run through is likely to be re-channelled into people’s houses, and this was the experience of many participants. Even though the residents may know that improper waste disposal is disastrous to the environment, they are most likely to lack adequate knowledge of how such disposal causes climate change. To strengthen adaptive capacity and reduce exposure of the women, it is necessary that institutions responsible for disaster management communicate, in a most effective and comprehensive manner, the effects of improper waste disposal. It is also necessary to increase public understanding of what climate change means, including its related disasters and their effects on the people. Such discussions need to be done in a way that is comprehensive and contextual, taking the peoples ‘location’ and value system into consideration.

In a nutshell, in the eThekweni municipal climate adaptation planning, a participatory model of governance (Theory of Change approach) that seeks to address the adaptation challenges of Black women should seek to collaboratively engage with the women from their own needs and points of view. Many of the emergency responses offered during flood emergencies (the

³⁷ Retrieved from: <https://www.climaterealityproject.org/blog/communicating-climate-change-focus-framing-not-just-facts>

predominant ones identified during the interviews included sharing of blankets, sharing of food parcels and relocating the victims of floods to a makeshift shelter) were also identified by some participants as not being their priority needs during those times. Therefore, to align flood emergency responses to the needs of the beneficiaries, to have collaborative engagement with the community members and to understand their daily livelihood experiences, can help them make informed choices in responses to future floods. It is also essential that such engagement is done through a participatory model of governance, deepening the women's sense of involvement in the decision-making processes of issues that directly affect them. When people at the grassroots level are involved in governmental structures on issues that affect their daily lives, they can also feel empowered to act as agents rather than as victims of events.

6.8 Conclusion

This chapter presents a general overview of climate adaptation governance. It discusses what constitutes climate governance that seeks to respond to the challenges of the most vulnerable population in any context. Ensuring equity and justice in any adaptation governance addressing the contextual factors that influence the vulnerability of the most vulnerable and marginalised population. In the context of the study, equity entails that the South African National Climate Change Adaptation Strategy takes issues of local Black women in the country into consideration. In doing so, such governance is able to take the contextual factors relating to historical racial, class and gender injustice in the country into consideration in its governance of climate adaptation. It is noted in the chapter that though the national policies on climate change adaptation have reiterated issues of specific response to the plight of the local Black women in rural settlements in the country, these policies do not seem to translate into action at the local level where adaptation programmes are implemented. An assessment of the municipality's response to flood emergencies within the study sites has shown that there is little intentional attention given to the specific adaptation challenges faced by Black women. This points to a laxity in governance of adaptation within the municipality, especially laxity in addressing issues of gendered justice and equity which constitute the moral principle of democracy in South Africa. Therefore, the discussion in the chapter has attempted to show how the eThekweni municipality ought to respond to the vulnerability experiences of Black women within the municipality in a manner that is transformative, equitable, just, inclusive and follows the Theory of Change approach to gender adaptation governance.

CHAPTER SEVEN

POLITICAL ECONOMY OF GENDERED ADAPTATION TO CLIMATE IMPACTS WITHIN eTHEKWINI MUNICIPALITY

7.1 Introduction

Discussions in the previous section conceptualised adaptation and adaptation governance (both proactive and reactive) in terms of policies or programmes put in place to reduce social and economic vulnerability (or to enhance the resilience) of local Black women to flood impacts within eThekweni municipality. Adaptation governance constitutes specific intentional policies or interventions geared specifically towards addressing the unique adaptation needs of the women, taking into consideration their location, and includes the contextual socio-economic and socio-political factors that influence their vulnerability to climate-related natural disasters. Analysis of adaptation governance in eThekweni municipality revealed a distressing ‘gender-negligent’ approach to adaptation governance because of an apparent lack of consideration of the socio-economic, historical, and socio-political circumstances of the local Black women who arguably constitute the most marginalised population in South Africa and in eThekweni municipality.

This chapter seeks to explore the interplay between institutions, ideas, and interest involved in the choice of adaptation governance in eThekweni municipality, and attempts to unpack how these factors influence the vulnerability of Black women to impacts of flood within the municipal areas. As argued by Dolsak and Prakash (2018, p.318), “given the intensive international and policy focus on climate action, and the high level of technical expertise being devoted to climate action, governance of adaptation policies is likely to be informed by technical and economic considerations”. In other words, the government’s choice of adaptation is most likely [following the principle of rational choice theory³⁸] to be influenced by political and economic processes shaped by intervening interests. According to the Dolsak & Prasak, governance units will probably seek to adopt adaptation policy mix that reflects the prevailing scientific and economic wisdom” (Ibid). This implies that there is a possibility of a subjective choice of adaptation policy since it is most likely to reflect the interests or ideas of who propose(s) it.

³⁸ Rational choice theory states that in making choices, individuals weigh their options and choose which one will serve their best interest.

Feminist political ecology scholars (Veuthey & Gerber, 2010 and Nightingale & Ojha, 2013) have discussed how governance of collective action can influence attainment of social justice and how subjectivities regarding gender influence governance choices. Though collective action governance mostly applies to climate change mitigation, adaptation governance can also be located within the sphere of collective decisions. Whether governance of collective action attains gender equity or social justice depends on exactly whose views, interests, ideas, or needs are represented or ignored. Perhaps economic and political beliefs also intersect with gender to determine how choices of development interventions targeted at climate change disaster reflect the adaptation needs of the most vulnerable population. This chapter, therefore, attempts to locate the political and economic factors that shape choices of adaptation governance in the eThekweni municipality, and how the development practices addresses gender vulnerability to climate disaster within the study locations (uMlazi, Inanda, Ntuzuma and KwaMashu areas of eThekweni municipality).

7.2 Interlinking Perspectives: Political Economy and Feminist Political Ecology

Political economy is a subfield of Political Science. Related to the eighteenth and nineteenth centuries' moral philosophy (such as the thoughts found in Thomas Paine's *Common Sense* (1776), Adam Smith's *Wealth of the Nation* (1776) and Jeremy Bentham's *A Fragment on Government* (1776), political economy perspective articulates the belief that "political considerations—and the interest groups that drive them—have primacy in determining influence and thus economic outcomes at (almost) any level of investigation" (see Serrat, 2017, p.208). As a reaction to rational-choice theorists, who assert that political behaviours regarding policy making are inherently self-interested or 'value-neutral' (Petracca, 1991, p.239), scholars of political economy attempt to understand how ideas (such as ideas regarding rural development), norms, and values, rather than self-interest, shape policy making (Campbell, 1998, p.377). Institutions, ideas, and interests that influence choices of development or programme largely determine the outcomes of such development or programmes. For instance, choices of adaptation governance are likely to have enormous impact on how governance addresses the adaptation needs of the most vulnerable population to climate change risks. Moreover, in the case of gendered vulnerability, the impacts that governance choices have on women is a pertinent issue to explore, especially from a specific contextual perspective.

Furthermore, related to political economy is a key insight of historical institutionalism, the theory of constraints (Hall, 2010; Fioretos, 2011; Pierson, 1994), which attempts to describe how ideas and institutions limit the range of possible solutions that policymakers are likely to consider when trying to resolve policy problems. As noted by Campbell (1998, p.378), historical institutionalists specifically stipulate that “underlying normative structures restrict the set of policy ideas that political elites find acceptable, and formal institutions mediate the degree to which the elites transport different ideas into policy-making arenas for consideration”. Though one may argue that either idea or interest may shape policy decision and outcome, Shearer *et al* (2016, p.1200) contend that it is the interaction between the two that counts. As asserted by Campbell (1998, p.378), “some types of ideas are endogenous to [the] policy processes”.

Feminist political ecology, which is the theoretical framework that informs this study, is closely related to, or is a subfield of political economy. In short, feminist political ecology seeks to analyse gender and environmental issues in relation to the broader perspective of political economy. In the context of this study, both perspectives are applied to unpack the complexity of socio-economic and socio-political decision-making processes regarding local women’s adaptation to climate disasters. Nevertheless, though feminist political ecology is has a particular framework feminist analysis environmental change, the two perspectives (political economy and feminist political ecology) approach their analysis from a Marxist-post-structuralist perspective to identify the effects of ideas, institutions and interest on shaping inequality and poverty in the Global South. Feminist political ecology discusses the contextual conditions and power dynamics that shape adaptation practices and how these affect gender equity and women’s vulnerability to climate disaster. One notes that at times, informal governance architecture (or traditional social justice system) may prevent formal institutions from functioning optimally or achieving its desired goals. At other times, the ideas, institutions, and interest within a formal adaptation governance structure may pose unintended negative consequences on gender equity; that is, instead of addressing vulnerability and adaptation needs of local women, they further exacerbate existing inequality. Therefore, in any decision of adaptation policy or programme aimed at addressing gender equity, it is pertinent to address competing interests, ideas and/or institutions and their interplay in order to determine whether such a policy or programme addresses gender inequity or rather exacerbates it.

From a macro-level of analysis, Liverman (1990, p.30-31) uses a neo-Marxist political economy perspective to describe social vulnerability to climate change impacts across developed and developing/underdeveloped regions. Liverman's study bases its analysis on how exploitation of specific nations or regions—through resource outflow, land expropriation, exploitative labour conditions, and political oppression—aggravates the level of vulnerability of those nations or regions, thereby creating inequality and differential vulnerability (Ibid). From a micro-level of analysis, and from a more recent study by Serrat (2017, p.219), a political economy perspective is utilised to analyse how the choices of approach to environmental management adopted within the floodplain region of Himalaya, Bangladesh were causing what he terms as a “man-driven” increase in vulnerability and inequality. According to Serrat (2017, p.220), this was because the structural responses to flooding in the area was exacerbating inequality in many economic, social, ecological, and institutional ways that tended to affect the poorest most severely. Serrat (2017) states that the poorest people were the most severely impacted because “they are not empowered to participate in making the decisions that shape their lives” (Ibid).

In this chapter, political economy perspective is used within the framework of feminist political ecology, to analyse how the choice of development regarded as a response to flood by the eThekweni municipality affect the rural informal rural/informal economy in the study sites (Inanda, Ntuzuma, KwaMashu and uMlazi), which historically, were and are still populated mostly by local Black women. The discussion in the chapter further analyses the role of institutions (both formal and informal) and ideas regarding adaptation intervention, and how such influences aid local Black women in adapting to flood events in the localities. To put the analysis in context, the following discussion explores the conceptualisation of adaptation as contestations between ideas, interests and institutions pertaining to stakeholders involved in adaptation governance.

7.3 Adaptation as contestations

Adaptation has been identified as issues of contestation between policy-making bodies and political office holders who, in some cases, must be the ones that approve adaptation policies for implementation. This role sharing sometimes brings conflict of interest where the ideas and interest of the two parties are not in agreement. Dolsak & Prakash (2018, p.319) describe an instance of what they term an “adaptation puzzle”. An adaptation puzzle describes a situation where the best adaptation portfolios recommended by competent scientists and analysts do not

match the on-ground adaptation practices in a city or local government (Ibid). Such contestations are likely to thwart efforts towards a just and equitable adaptation governance, one that considers the needs of the most marginalised population. Moreover, in situations where ideological focus or interest of public office holders do not resonate with best policy approach, there is likely to be a policy that does not ensure gender equity or a transformative adaptation. Sir Paul Nurse, a one-time president of the United Kingdom's Royal Society once expressed that he "feels distressed" when scientists find clear evidence that contributes to a particular issue...only for politicians to ignore it "because they do not think it will play well with the public" (BBC News, 13 Jan. 2015)³⁹. In the situation of an 'adaptation puzzle' that Dolsak & Prasak (2018, p.319) talk about, it becomes difficult to discern whose voices should count in evaluating climate change risks.

Such contestations as stated above might also prevent 'adaptation governance' policy makers or implementers from pursuing adaptation programmes or interventions that increase resilience or reduce poverty of the most marginalised population. During the interviews for this study, one of the governance challenges mentioned by personnel from the Environmental Planning and Climate Protection Department, EPCPD of eThekweni Municipality, was that it is sometimes difficult to get decision makers to assent to proposals of the Department regarding appropriate ways of responding to adaptation challenges of rural settlements around the municipality. This points to the possibility of conflicting ideas and interest among stakeholders involved in the decision making. In such a quandary, one could recommend that the department adaptation implementers would be best served by listening to experts and scientists and insulate themselves from politics. However, this recommendation may not meet reality, considering the political nature of climate adaptation.

7.4 Adaptation as Contestations: Politics, Vulnerability and Gender

Studies such as Eriksen & Lind (2009) and Dolsak & Prasak (2018) have conceptualised adaptation as politics. According to Dolsak and Prasak (2018, p.319), politics has to do with *who* gets power to decide *how* resources are shared among citizens. The Macmillan International Higher Education conceptualises politics as the "exercise of power, the science [and art] of government [and governance] the making of collective decisions, and the allocation of scarce resources"⁴⁰. The above conceptualisation of politics implies that it is associated with

³⁹ Available at: <https://www.bbc.com/news/science-environment-30744203>

⁴⁰ Available at: https://www.macmillanihe.com/resources/sample-chapters/9780230363373_sample.pdf

an arena or ‘location’, in which case people’s behaviours regarding decision-making become political. ‘Politics’ is also viewed as a “process or mechanism, in which case ‘political’ behaviour is behaviour that exhibits distinctive characteristics or qualities, and so can take place in any, and perhaps all, social contexts”.⁴¹ Politics is closely linked with policy in that both influence each other regarding the making of formal or authoritative decisions on issues affecting a community, a group of people or an individual. To understand why a municipality would not prioritise issues of equity and justice of the most marginalised population in its adaptation intervention, it is important to explore how conflicting the interests of actors influence an adaptation policy or intervention.

According to Dolsak & Prasak (2018, p.319), adaptation is conceptualised as politics because “it concerns issues of power, conflicting policy preferences, resource allocation, and administration tensions”. Furthermore, Dolsak & Prasak (2018) also note that politics is not a “negation of rationality” or a “roadblock in achieving policy optimums”, rather; collective action challenges in politics occur because decision makers are “boundedly rational actors playing games with specific structures”. When ‘adaptation as politics’ intersects with gender and class, one can see how policy preference or implementation can either be enhanced or inhibit the adaptive capacity of local women to climate-related natural disasters. Eriksen and Lind (2009) note that in adapting to drought in Kenyan drylands, political office holders were more likely to assent to policies that promoted their interests, and that the kind of policies that promoted their interests did not maximise net benefits for the masses, specifically, the people whom the adaptation policies were meant to benefit. At times, policies that maximise net benefits for the masses might be difficult to achieve because of intervening socio-economic and socio-political factors too. To understand what shapes an optimal policy preference that respond to the adaptation needs of Black women in eThekwin, it is necessary to understand the incentives and interests that characterise the choice of development or interventions stipulated within South African policies in general and policy articulation within the eThekwin municipality in particular.

When Eriksen & Lind (2008, p.817) regarded adaptation as a political process, their explanation was that during adaptation to climate-related disaster, “individuals and groups interact and compete to promote their own discrete interests”. However, adaptation as a political process can also manifest in how beneficiaries of adaptation interventions organise

⁴¹ Ibid

themselves to influence decisions that directly affect them. This is part of the reason why climate change adaptation can also, just like mitigation, be regarded as a collective problem. Politics is about collective bargaining where the governed also have a stake in influencing the decisions of those who govern. This kind of collective bargaining is a significant element of a democratic governance, which is characterised by accountability, equality, and equity.

During the fieldwork of this study, it was discovered that there were few or no interest groups in the study areas that specifically aim at advocating the adaptation needs of Black women within the study sites. Lack of such important interest group(s) can diminish the bargaining power of the women to influence governance decisions to secure their desired adaptation needs. The participants of the study also alluded to the fact that lack of interest group or powerful voices in the communities contributed to why the municipality disaster management was usually slow or negligent to respond to flood emergencies or to address their adaptation needs. When asked about the presence of interest groups, such as farmers' cooperatives or activist groups, one participant in KwaMashu responded, "we do not seem to cooperate here. Everyone likes doing things on their own". The few women cooperatives that were reported to exist in the study areas were dealing with stokvel⁴². However, since the interest of the stokvel group was not directly affected by floods, it was difficult for such groups to organise themselves and influence the municipal governance to improve its governance of issues pertaining to flood events in the area. A farmer's cooperative (since farming is directly affected by climate change disasters), might perhaps have been a more influential interest group when it comes to intervening for climate adaptation governance. As opined by Eriksen and Lind (2008, p.817), "Climate change adaptation policies are unlikely to be successful or to minimise inequity unless the political dimensions of local adaptation are considered". According to Eriksen and Lund, existing power structures and conflicts of interests represent some of the political obstacles to developing equitable adaptation policies (Ibid).

Challenging existing power structures that daunt favourable gender-sensitive or gender equity adaptation programme is enhanced through forming of interest groups. Tummers & MacGregor (2019, p.62) show how feminist political ecology perspective is used to support 'commoning'⁴³ projects and research in European cities to move "beyond wishful thinking". Their study found

⁴² A stokvel is a savings pool where a group of individuals contribute an agreed-upon amount of money either on a monthly, bi-weekly, or weekly basis. The group decides how they would like to use the money.

⁴³ According to Merriam Webster dictionary, the word, 'Commoning' is used to describe the social practices used by 'commoners' in the course of managing shared resources and reclaiming their rights to land use.

that even though co-housing projects had changed the social reproduction spaces where people shared time and resources, they were still likely to fail in achieving social justice unless patriarchal-capitalist structures were challenged through radical cultural change. In a neoliberal society where people's rights seem to have been commodified, collective action groups have been formed to seek social justice. For instance, environmental justice movements began in 1970s in the US when the poorer population organised themselves to protest the unequal distribution of environmental pollution. Studies, for example, McAfee & Shapiro (2010) and Kirwan *et al* (2015) have also shown how environmental activism against commodification, enclosure and overexploitation of natural resources emerged in the Global South. Such collective groups form a significant avenue where marginalised groups voice their concerns and demand justice and equity.

Furthermore, the influential role of collective bargaining has also been illustrated in a case study by Eriksen and Lund. In their study of adaptation to drought and conflict in Kenyan drylands, Eriksen and Lind (2008, p.817) found that in the face of drought, individuals, politicians, customary institutions and government administration formed relations to strengthen their power bases in addition to securing material means of survival. The authors also discovered that national economic and political structures and processes had affected the local adaptive capacity in a quite fundamental manner, for instance, through unequal allocation of resources across regions. It is also possible that adaptation policies made at the national, regional, or local level can be biased against a particular group, individuals, or communities. A situation where adaptation policies disadvantage the most vulnerable group to environmental disaster is of course likely to compound or widen existing inequalities in a society or community. According to Eriksen and Lind (2008, p.817), whether development policy widens existing wealth gap depends on power relations existing at multiple scales which shape how conflicting interest are negotiated.

Arguably, since climate change adaptation has multiple dimensions, actors involved in adaptation interventions may also have varying perceptions about what adaptation entails and the multiple ways of addressing it. In one aspect, adaptation can seek to address biophysical vulnerability through investment in physical infrastructures such as dams, thunder-resistant houses, strengthening bridges, or it can seek to address the socio-economic and socio-political aspect of vulnerability through strengthening the social, economic or political capacity of people. Yet, in most cases, actors involved in local adaptation seem to understand adaptation

intervention solely as addressing the physical aspect of vulnerability. As Nightingale (2017, p.1) notes, most adaptations plan in the developing countries usually follow the adaptation framework/template charted out by the United Nations Framework on Climate Change, UNFCCC. This influence of the UNFCCC on national adaptation plans of developing countries is due to the heavy funding supplied by the body to aid adaptation in developing countries. Therefore, the international body, due to their interest, pose enormous influence on domestic climate change planning. Whether this has anything to do with the influence of an external agent or donor is an issue of a separate study. But as Nightingale (2017) points out, the UNFCCC's framework (UNFCCC and other donors sponsors several adaptation in the developing countries) begins with vulnerability assessments to chart existing biophysical hazards, and then evaluate who is most at risk from the hazards in order to then intervene accordingly.

In the UNFCCC framework, as pointed out by Eakin & Patt (2011), once vulnerabilities are ascertained what follows is a shift of focus to technical measures, that is, to infrastructural and institutional building, involving national, regional and local level coordination, including local-based adaptation management groups. As noted by Nightingale (2017), what this implies is that such internationally mediated local adaptation plans basically assumes that one, adaptation is biophysical and two, the best way to address the vulnerability of the local population is through infrastructural and institutional improvement measures. However, in most cases, this assumption may conflict with the actual adaptation experiences of the local people. In the case of this study, the vulnerability of local Black women goes beyond just biophysical vulnerability to incorporate other aspects of vulnerability that are influenced by socio-economic, cultural, and political processes. In this regard, and in most cases also, gender intersects with class to shape local women's vulnerability to climate disaster. Therefore, it is important to consider the multiple dimensions to building people's resilience to environmental disaster while taking the social context of the people into cognisance.

Building people's adaptive capacity to cope with climate disaster entails strengthening their resilience, and the process can be complex. It can involve building people's emotional strength or improving social capital among people. However, in a situation where adaptation intervention is one-dimensional, where policy makers are imposing their thoughts and decisions on the local people, it is likely that those policy makers would readily choose the techno-spatial aspect of adaptation intervention that seeks to improve infrastructure. Such

intervention is likely to ignore other dimensions of vulnerability experienced by the affected individual or community.

As already noted, vulnerability also involves other stressors resulting from the context of political, institutional, economic, and social structures and processes that put pressures on people, affecting their ability to cope with flood and other climate-related disasters. As mentioned by O'Brien *et al* (2004b), the choice of responses to a climate change disaster can affect the context for responding to other societal or environmental changes, and vice versa. In the context of this study, the vulnerability of local women was found to involve other complex issues besides the stress caused by the degraded physical environment and flood events. The socio-cultural determinants of gender roles and responsibilities contributed significantly to the vulnerability experienced by the women. In other cases, gender-based violence and negligence of family responsibilities by men was found to have put extra pressure on the women. In the case of male negligence of family duties, mothers now had to bear the sole responsibility of the family's welfare. The implications of this is that, in addressing the women's adaptation to floods in the areas, it is critical to take cognisance of intervening and apparent contextual factors of vulnerability rather than rely only on an interventionist approach (which only reiterates the economic development at the affected areas as a way of helping the residents adapt to climate disasters).

7.5 Addressing Inequality through a Neoliberal Approach to Development: Implications for Women's Adaptation to Floods within eThekweni Metropolitan Municipality

One of the proposals highlighted in the Durban's Climate Change Adaptation Strategy is to address climate change impacts through addressing the 'Triple Challenge': poverty, inequality, and unemployment facing the greater population of the country (eThekweni Municipality, 2012). The Triple challenge is reported to have impacted enormously on the social, economic, and political fabric of South Africa⁴⁴. Poverty and inequality are critical challenges in South Africa. These two issues also constitute a significant challenge to Black women living in the rural settlements in the country. Consequently, as part of the general strategy to reduce rural women's vulnerability to climate change impacts within the municipality, the eThekweni

⁴⁴ Available at: <https://www.iol.co.za/sundayindependent/south-africas-triple-challenge-1865561>

municipality has recognised the need to address the economic challenges affecting the poor communities. The Durban Climate Change Strategy document states that:

Poor communities within the municipal rural areas and those living in informal settlements are most vulnerable to climate change. These communities are often located in poorly serviced areas with a high risk of impact from extreme weather events, compounded by poor infrastructure, and thus are not resilient. These poor communities generally do not have access to financial resources and have minimal coping mechanisms to deal with the consequences from extreme events, thus escalating their vulnerability (eThekweni Municipality, 2012).

As stated above, the eThekweni municipality seeks to address the historical injustices and bridge the gender equity gap in its climate change strategy. The need to address the historical gender, racial and class injustices in South Africa are equally stipulated in the country's post-apartheid Constitution (Section 9, article 2) and other related policies (especially the South Africa's National Policy Framework for Women's Empowerment and Gender Equality and the National Development Plan Vision 2030). A critical aspect of the eThekweni municipality's strategy is how to provide equal opportunities to women, especially those who have previously been severely disadvantaged due to their gender, race, and class. Historically, Black women who reside in the rural/informal settlements comprise the most disadvantaged group in South Africa in terms of gender, race, and class. Walker (1990, p.19) have shown that historically, sources of livelihoods of Black African women have been located within the informal economy of the informal settlements.

It has been reported by the South African History Online (SAHO, p.7) that at the turn of the 18th century, during the labour migration when many African men migrated to work in the mines, the women (Black women) were left alone in rural areas. The report also states that since the sole responsibility for family care was now resting on the women, they therefore devised a means of sustaining livelihoods through invigorating the local economy. While some took up employment as domestic workers for mainly White people, many turned to subsistence agricultural practices (Ibid). The report states that Black women who did not have employment resorted to brewing local beer and sold them to many migrant workers who could not afford western beer, as well as the local men who preferred the local beers to imported or Europeans

ones (Ibid). This possibly explains the history of a large number *Shebeens*⁴⁵ in informal settlements in South Africa.

However, at the turn of democracy in South Africa in 1994, and with the quest for a development approach that tackles issues of historical injustices, including rural poverty and women's inequity, the eThekweni municipality reiterated its commitment to integrate informal settlements into the economic hub of Durban. As stated by the eThekweni Municipality (2012), the integration was to be done through a programme of Action for Building Productive and Sustainable Nodal Economies. Furthermore, the programme of action (PoA) was and is intended to stimulate economic growth and development in the INK nodal zones as well as to identify opportunities for public and private sector investment; identify barriers and constraints to economic activity within the nodes; and acknowledge recommendations on strategic interventions for improving the nodal business climate, and the institutional recommendations for implementation (Ibid).

In the Durban development trajectory, the Inanda, Ntuzuma and KwaMashu is combined into a single area and referred to as the INK. The INK node is located about 30km north of Durban city centre and comprises a mix of formal residential townships and informal settlements. The three areas are adjacent to one another, with a very blurred boundary. The eThekweni Municipality manages affairs of INK through a single administrative unit, and local councillors are responsible for wards that cut across all three areas. The INK node forms one of the presidential poverty nodes⁴⁶ within the Urban Renewal Programme (URP)⁴⁷ of South Africa. The node is one of the eight in South Africa that was considered for an Area-based Approach (ABA)⁴⁸ to development. Despite the differences between the individual areas, the three INK nodes share a common set of challenges. As noted during the fieldwork of this study, as residential areas with low levels of internal economic activity, the areas' growth prospects were

⁴⁵ *Shebeens* in the South African society refers to informal bars and taverns where people gather for drinks. During the Apartheid era, *Shebeens* served as a medium for working-class males to socialize and escape the stress of racial oppression. In South Africa, beer brewing, especially the local beers, is traditionally seen as women's work (sic).

⁴⁶ According to the South African Department of Local Government and Provincial and Business Trust (2007), the presidential poverty nodes are described by the South Africa's Department of Provincial and Local Government as 'the spatial manifestation of the second economy'. In 2001, the South African government indicated that direct intervention was required to overcome the poor economic and infrastructural conditions of these nodes

⁴⁷ The Urban Renewal Programme was launched during Thabo Mbeki's Presidency in 2001 as an area-based approach (ABA) to address poverty and underdevelopment in target formerly disadvantaged areas through government's intervention

⁴⁸ Area-Based development approach was adopted during Thabo Mbeki's presidency to address past injustices caused by apartheid by developing the economic and spatial landscape of some informal settlements.

strongly linked to external areas (chiefly Durban city centre). Presently, Inanda still has predominantly informal settlements/structures but KwaMashu and Ntuzuma have a large percentage of formal settlements. KwaMashu, because of its proximity to the Durban city centre and its access to major transport corridors (rail station and taxi rank), serves as the main economic hub of the node. The INK area also boosts major economic and infrastructural development—as examples, the Bridge City, KwaMashu Community Health Clinic, Princess Magogo stadium, Inanda Dam and Resort, amongst others. As reported by the South African Department of Provincial and Local Government, following the 2011 census in the country, majority (51%) of INK population are female while 49% are male. However, though this is what the formal census reports, the researcher observed that most of the households interacted with during the fieldwork were inhabited by women. Participants also mentioned that most of the households in the areas were female-headed households. Possibly many of the men had migrated to other cities in search of labour.

Similarly, uMlazi—which is located in the Southwest of Durban—is 99.4% Black African. As reported by the South African Department of Provincial and Government and Business Trust (2007), the residents of uMlazi are 94% Zulu speakers, and the limited level of English instruction inhibits chances of gaining employment in the eThekweni municipality's knowledge economy. These statistics may have changed as most recent statistics seem to be unavailable. The statistics may have changed now because of the presence of formal educational institutions in the area and the fact that post-apartheid South Africa has put policies in place to encourage the education of Blacks—for example, the introduction of the National Funding Scheme to fund students from low-income backgrounds. However, though there have been several private and government investments in uMlazi (such as the Mangosuthu University of Technology and many other higher institutions, Umlazi Mega City, Philani Valley shopping Centre, Kwa-Mnyandu shopping centre, King Zwelithini stadium, amongst others), many Black women in uMlazi, especially much older women, residents still live in the degraded part of the township. This part is extremely susceptible to flooding. uMlazi will be used as a case in point to analyse the kind of development that takes place in the study sites.

From the researcher's observation during fieldwork, many of the investments in uMlazi are in one section of the township. In other words, one section of the township is topographically favourable for infrastructure and businesses. The other section where development has not reached, and which serves as the residential area for most of the Black women interviewed during the study, has been left degraded.

Development in uMlazi points to a neoliberal kind of development, where the interest of the market supersedes an interest in humanity or in lifting the poor residents out of poverty and environmental degradation. However, the mega private investments in the localities have provided some job opportunities for the residents, especially the young people. The presence of shopping malls and other service facilities has also relieved some of the residents—who can afford buying from the malls—the stress of having to travel long distances to the Durban city centre for their shopping needs. However, these mentioned advantages do not disprove the fact that the mega private and capitalist investments have overshadowed the informal economy, from which some of the local women sustain their livelihoods. Many informal retail businesses and roadside vending were affected/overshadowed. The gendered implications that arise from such overshadowing are significant, especially since the people affected are mostly elderly women with less formal education, which limits their opportunities of being absorbed into an economy that requires a certain level of formal education or at least a certain level of language (primarily English) fluency. One participant in uMlazi who was running a spaza shop⁴⁹ in the area commented: “Now there are very few sales because many people now go to the mall to buy stuff.” Her spaza shop was located in the interior, undeveloped, and environmentally degraded part of the township. Improvement in infrastructural development (such as road transport network) in the interior areas of townships, have the potential of advancing businesses as *shebeens* and street vending in the areas. This is partly because the increased traffic arising from good road networks can influence sale volumes of street vending businesses such as *shebeens* and other roadside retail trading. As noted earlier, while there is opportunity for economic growth-generating activities arising from additional investment in the area (mostly private-sector led firms though), low additional employment potential is being generated for the local women. This is while their sources of livelihoods were severely impacted. Therefore, I argue that such development seems to serve the interest of a few capitalists at the expense of the many rural residents.

Figure II: Showing spatial differences between the developed and undeveloped floodplain sites of uMlazi township

⁴⁹ Spaza shop, also known as tuck shop, is an informal convenience shop business in South Africa, usually run from home. They also serve the purpose of supplementing household incomes of the owners through selling small everyday household items.



Photo credit: author



Source: Yan-Di Chang (2007)⁵⁰

The above images show the two different sites of uMlazi. The first two images show the interior, undeveloped flood-prone areas, while the second shows the well-developed and industrial part of uMlazi. While the developed section of uMlazi has functioning facilities such as good roads, electricity, water supply and good housing facilities, the floodplain lies on an uneven topographic landscape. Simple water supply is a scarce resource for the residents of the floodplains.

Studies have shown that urban or rural development that is executed primarily through an economic lens has gender implications (Roberts, 2020; Gay-Antaki, 2016). In the event of

⁵⁰ Available at: <https://commons.wikimedia.org/w/index.php?curid=34473909>

climate disasters, such development is likely to influence poor rural women adaptation to climate change disaster. According to Gay-Antaki (2016, p. 62), gender implication is an important consideration within neoliberal development. Development is linked to land ownership and access to resources and property. In the Global South, men are better positioned socio-culturally than women to possess these resources. Moreover, extensive literature on gender and sustainable development also suggests that development projects which do not consider gender marginalise women's access to land and resources, excluding them from formal decision making (Resurrección & Elmhirst, 2008; Arora-Johnson, 2011; MacGregor, 2010). As stated by Nagar *et al* (2002, p.261), “under global capitalism, poor women and men are marginalised through informal economies of production and caring that subsidise and constitute global capitalism”.

In the study contexts, the neoliberal approach to development seems to have widened the inequality gap. As mentioned, this is because the introduction of mega shopping malls and other mega food processing industries, as especially noticed in uMlazi, had significantly impacted the informal sources of livelihoods for the women. In uMlazi also, the inequality was also quite visible in the spatial location of infrastructures. As already noted, the nature of the development is that few sections of the uMlazi township are equipped with improved housing, while the residents in the larger part of the townships still live in poverty and on degraded land. As observed during the course of the study, some of the Black women from the interior section of the township that managed to get employment in the mega enterprises of the modern uMlazi were still engaged in menial jobs like cleaning, till-point attendants, and goods packers.

As feminist political ecologists (MacGregor 2010; Nagar *et al* 2002) note, global economic processes have directly intensified the “feminisation of production, reproduction, and community management”. According to Gay-Antaki (2016, p. 54), rather than being unintended side effects, neoliberal forms of development “have used women's roles in production, reproduction, and community management as a critical subsidy for the economic and social viability of projects”. Capitalist forms of production that rely on utilising subsidised women's efforts in production processes or development schemes rather exacerbate social and gender injustices (Arora-Jonsson, 2011). Moreover, as Gay-Antaki (2016, p.62) observed, in addition to increasing women's labour burden, unequal development that capitalises on the interest of the market tends to result in a “progressive loss of knowledge concerning forest health, biodiversity, and climate change”. During the fieldwork, the researcher observed that though there were large portions of fertile land, they were not being utilised by the residents,

at least for subsistence purpose. This is linked to the negative side effect of the many private sector-led investments and food production firms that made residents lose sight of the farming economy.

Though not directly related to climate adaptation intervention, literature has also identified the various implications that an area-based approach to development has on the informal economies of rural settlements in South Africa (Donaldson & Du Plessis, 2013; Ligthelm, 2006; Mathenjwa, 2007; Zondi, 2011). According to Donaldson & Du Plessis (2013, p.296) some of the implications of capitalist investments on informal economy pertain to the “role of the community in the process, as well as partnership and interagency cooperation, and the quest for complexity”. As suggested by Lawless (2004), what is required in rural area development is a more diverse approach that considers a “commensurately complex interplay of social, economic, and environmental problems”. Vulnerability of local women due to natural disasters is influenced by a complex interplay of socio-economic and socio-political factors. Therefore, any developmental approach that has gender equity as one of its goals, or that seeks to address gender justice of local women, should consider this complex dimension of vulnerability.

One of the approaches to tackle climate change in a sustainable manner, as indicated in South Africa’s National Development Plan, NDP vision 2030, is to address the impacts of climate change while simultaneously addressing inequality in the country. As indicated in the NDP, this is to be implemented through: 1) Upgrading informal settlements on suitably located land; 2) Prioritising infrastructural development of rural communities, and 3) Reshaping South Africa’s rural settlements with projects to address the existing spatial divides between cities and rural settlements (RSA, 2012). Arguably, these prospects indicate some aspect of addressing the historical racial, class and gender injustices in the country.

Furthermore, Donaldson & Du Plessis (2013, p.296) note that, of great significance to a successful [rural] renewal is “creating a new sense of place”. A sense of ‘place’ is created when the local people are incorporated fully into any development. From a case study of area-based development in Khayelitsha informal township in Western Cape Province, South Africa, Donaldson & Du Plessis (2013, p.296) observed that a sense of place can be created through a “sharing of local development perspective and strategy, as well as creating legitimacy for development choices through participation and ownership”. It is important that any development in the INK nodal zone or uMlazi area of Durban should ideally make provision for local businesses, which form part of the precinct, by pre-empting and avoiding damages to

such existing local businesses. Such development planning should find ways of integrating informal downstream enterprises into the formal economy. According to the South African National Treasury (2010), provision for informal and downstream enterprises could include elements such as suitable space, storage and cleaning services, and small business development training. In their study concerning how to facilitate a pro-poor land use management in South Africa, Gorgens & Denoon-Stevens 2010, p.4) assert that “while informality may well support the immediate needs and livelihoods of the poor, their exclusion from the planning system (whether it is ‘strategic’ or due to neglect) is likely to exacerbate systems of inequality”.

Some local studies have documented the impact of shopping malls on small township businesses in South Africa. For instance, Ligthelm (2006) shows that in Soshanguve township in Pretoria, the turnover of street retail businesses declined at about 80% for those traders situated less than 1km from the mall, and about 30% for those cases at a distance of 45km from the mall. Similarly, Mathenjwa (2007) carried a survey studies in Soweto and showed that 60 percent of the respondents said that their spaza shops had been negatively impacted by the presence of Jabulani shopping mall in the area. Similar studies have been undertaken by Donaldson and Du Plessis in Khayelitsha, Cape Town. Similarly, work by Zondi, entitled, *Investigating the Social and Economic Effect of Jabulani and Maponya Malls on the Residents of Soweto* suggests that the impact of shopping malls on small townships business in Soweto townships constitutes a double-edge sword: whether the local women gain or lose from it depends on the type of business they run. (2011, p.1) According to Zondi, while spaza shops and general dealers experienced a decline, businesses like *shebeens* and street vending were positively impacted due to the presence of the shopping malls (Ibid). As already mentioned, the context and the type of development in a town determines the nature of the influence such development has on small scale informal economies.

In the context of this study, the interviews were carried out in the remote parts of the townships, with limited access to good infrastructure, road networks, and communication technologies. These were the areas heavily affected by flooding. During the fieldwork of this study, the researcher noticed that the few people who ran roadside retail trading were mostly middle-aged women. Many of them did not have the opportunity to attain formal education. Lack of formal education training limits their chances of being absorbed into the formal knowledge economy of the Durban city. Secondly, the rising unemployment in the country probably contributes to

the reason for the rise of street vending businesses. A report by Trading Economics⁵¹ (2020) shows that between 2000 and 2020, South Africa's unemployment rate has risen to 30.4 percent in the third quarter of 2020. Moreover, reports by Polity.org.za has shown that street traders are usually poor, unskilled people at the lower end of the socio-economic ladder. According to the report, "the majority of street traders in South Africa are black women who trade in a range of goods including sweets, knickknacks, cigarettes, clothing, and (most prominently) in fruit and vegetables (often produced by someone else)" (Ibid). In eThekweni in particular, the report indicates that females make up the majority (58 percent) of street vendors (Ibid).

The South African Constitution (Section 22) guarantees freedom of trade and occupation. This would imply that street vendors who may not have other means of livelihood have some degree of protection in the Constitution. Moreover, section 152 of the South African Constitution also empowers municipalities to entitle individuals and communities to involve themselves in municipal affairs through economic growth and development. However, the legalisation of street vending is still a blurred issue, as the Constitution does not seem to explicitly state that street vending is legal. In the same vein, though the legality of it (street vending) does not seem to be explicitly stated in any known eThekweni municipal policy, the municipality—as shown in the eThekweni Municipal Council Policy⁵², adopted in February 2001—has 'recognised' street vending as means of jobs and income. In South Africa, street vending was not permitted during the apartheid era. However, it seems that in uMlazi and the INK nodes, and perhaps in other formerly disadvantaged settlements in South Africa, the Area-Based development approach is regarded as an important means of addressing climate change (adaptation) challenges. Yet, the manner in which the development is planned and implemented seems to have inherited an approach of separate development and spatial planning that puts the poor at the periphery, far away from the rich and middle-class who may buy their products. Generally, such an approach to development has many implications for women's adaptive capacity in the event of climate disaster. Most of the underlying factors that contribute to women's vulnerability to floods in the study areas were issues linked to unemployment, poverty, lack of government's attention to degraded environment in the floodplains, declining sales by street vendors as a result of the resurgence of big private shopping malls, gendered violence against women, and rising crime in the neglected part of the settlements. These factors had

⁵¹ Available at: <https://tradingeconomics.com/south-africa/unemployment-rate>

⁵² Available at:

http://www.durban.gov.za/Documents/City_Government/IDP_Policy/17%20Long%20Term%20Devpt%20Framework.pdf

disproportionate impacts on the local women in adapting to the impacts of floods. In the event of future environmental disasters, these issues will likely continue to impact on the women's adaptive capacity unless drastic measures are taken to offer greater opportunities and security to their livelihoods (especially as many of them are the head of their households). As efforts to address climate change impact in the rural settlements is linked to the economic development in the areas, it is important that the policy makers and planners look deep, and intentionally, into the relationship between markets, economic activity and space, and how this affects local women. More especially, the policy needs to take an institutional form that considers how the unequal spatial planning and development in the areas affect the interests of the local women, including their capacity to adapt to impacts of natural disasters. Therefore, any initiative for economic growth and development in rural settlements must not overshadow the underlying gendered factors that influence local women's vulnerability to climate-related disasters.

7.7 Conclusion

Adapting to climate disaster remains an issue of contestation between different stakeholders, including the policymakers who draft adaptation governance policies, the politicians who must approve them, and even the recipients of the adaptation governance. These contestations cut across aspects of institutions, ideas, interest, and in some cases, identity. Though it varies across context, generally ideas, interest, and institutions interact to shape how the approach to climate adaptation governance impacts on the most vulnerable or marginalised populations. This chapter sought to explore the existence of interest, ideas and institutions in how the eThekweni municipality addresses—either theoretically or practically—climate change adaptation in the rural settlements of the municipality, specifically in uMlazi and the INK nodal area of the municipality. The chapter questions the impacts that the developmental approach regarded as part of the intervention to climate vulnerability of historically discriminated settlements have on the vulnerability of the local Black women in these areas. Political economy perspective interprets institutions, interest and ideas as main drivers of decision making in governance. When a political economy perspective is juxtaposed with feminist political ecology, it is clear that any decision regarding a development approach to combat climate vulnerability in the rural areas, are influenced by institutions, interest and ideas, and these are in turn likely to influence the vulnerability of the most marginalised populations in such settlements.

As shown in the chapter, part of South Africa's response to climate impact in the formerly marginalised and discriminated population was to revamp the economic landscape of the rural settlements, especially those that have been devastated by natural disasters. However, as the chapter has shown, the economic development in uMlazi and the INK nodal zone of eThekweni municipality has created a dualised landscape in these areas, where a section is modernised while another section remains environmentally degraded and with poor infrastructure, rendering it highly susceptible to natural disasters. The chapter has shown that development in these areas, specifically the introduction of big private shopping malls, seems to have overshadowed the informal economy of street vending. This has significant implications for the local Black women whose livelihoods depended on the informal economy. Directly or indirectly, it has also affected their capacity to adapt to the impact of flood disasters in the areas. The chapter suggests that any approach to development which ignores the multi-dimensional aspect of vulnerability of local women, cannot sufficiently address their adaptation needs. Thus, any adaptation planning with a rural economic development as a focus should take this complex socio-economic and socio-political factors that influence local women's vulnerability into consideration.

CHAPTER EIGHT

CONCLUSION: UNTANGLING GENDERED VULNERABILITY AND ADAPTATION (TO CLIMATE IMPACTS)

8.1 Introduction

The point of departure for analyses of studies on gender and climate change adaptation, as underpinned by a critical realist perspective, is that the world is structured, differentiated, and stratified—but at the same time, changing. This philosophy enables an understanding of the rationale behind the differentiated experiences people have of the impacts of natural disasters. In short, to understand an experience of differential experience of climate disaster, it is important to switch from looking at the events of climate disasters at a surface level, to understanding the mechanisms that underpin the experiences that arise from climate change disasters. In the same vein, feminist political ecology enables an understanding of how the differential experience of the impact of climate disaster is influenced by socio-economic, cultural, and socio-political factors that influence vulnerability of women.

The ontological and epistemological stance that this study works from is that, in order to address the vulnerability of Black women to floods within eThekweni municipality, it is important to understand the various structural mechanisms that frame their experiences. These so-called mechanisms operate within the entangled socio-cultural, socio-economic, and socio-political context and can perhaps only really be understood through a critical engagement with the women who undergo the experience. As a structured, stratified and differentiated world, the experiences of vulnerability to natural disasters of Black women in eThekweni municipality and perhaps in other similar contexts, is shaped around intersectional mechanisms of gender, race, and class. It is only by juxtaposing these mechanisms in context and analysing them through a feminist political ecological perspective that we can disentangle the multiple dimensions that shape the experiences of vulnerability of the women to environmental disaster and why their vulnerability is likely to be differential and relatively heightened.

The two perspectives, critical realism and feminist political ecology, shaped the methodological and philosophical approach underpinning this study. These two theories also give a prismatic lens to understand the contextual social conditions under which the adaptation experiences of Black women in uMlazi, Inanda, Ntuzuma and KwaMashu areas of eThekweni

municipality occur. The theories enabled an understanding that Black women's vulnerability to environmental disaster in eThekweni municipality does not follow a pre-determined conception of women's vulnerability, but rather that women's vulnerability is shaped by social processes and influences that intersect with one another to cause such vulnerability. These processes can change depending on possible changes in social processes, including social relations and governance. The above explanation is in line with some aspects of critical realist theorisation regarding the relationship between structure and agency. For instance, Carter & New (2004, p.5) assert that, "structures and agency each possess distinct properties and powers in their own right". In the same vein, Bhasker (1979) and Archer (2010) conceptualise social structures as "enduring (but not permanent) features of the world that often precede our individual lives, but which agency can reproduce or transform over time" (cited in Fletcher 2017, p.186). Findings from this study have shown that the choice of agency (which include the values, the meanings given to their experiences, and the urge for change) of the participants in the study are determined primarily by the social structures operating within the context of their socio-economic, socio-political, socio-cultural, demographic and geographical locations. It was noticed during the interviews for this study that the participants expressed agency or adapted to flood events differently. Some were able to understand the transformational power of their agentic abilities by being ready to change their situations with less interference of cultural norms. Others, on the other hand, were quite tight to the beliefs that they had been caught up by the cultural status quo, and as such, adapted as passive victims of their situations.

8.1 Ways of Understanding Adaptation Experiences of Black Women to Flood Impacts within the Context of eThekweni Municipality

The aims of the study were to 1) understand how local Black women in eThekweni municipality experience vulnerability, as well as adapt to flood impacts within the context of the municipality; 2) explore the underlying social, economic, political, cultural, and institutional factors that shape their vulnerability or adaptation experiences, and; 3) explore possible ways to address Black women's vulnerability to climate-related disaster in a manner that is equitable, just, and gender sensitive. The study applied a qualitative multi-methodological approach that helped to elicit data from multiple sources, including secondary literature, one-on-one semi-structured in-depth interviews, and focus group discussions. The multidata sources aided the multiple-dimensional analytical approach undertaken by the study and helped triangulate the data. The use of focus groups provoked a deeper reflection among the women who had shared

deeper experiences which were not revealed during one-on-one interviews. Besides the fact that all the members of the focus groups apparently shared similar experiences, being able to identify with one another in terms of race (Black women), similar socio-economic backgrounds and gender (all female in a similar age range) also put the women enough at ease to share their experiences quite freely with the researcher and the Black female research assistant.

Furthermore, the application of a feminist political ecology theoretical perspective in the study revealed that Black women's experiences of vulnerability to flood impacts were influenced by contextual factors related to adaptation governance in eThekweni metropolitan municipality, as well as to the socio-cultural context of the *amaZulu*. These findings are similar to those of studies in other global south contexts were in line with existing literature on gender and climate change adaptation (see Babagura, 2014; Islam and Sharmin, 2013; Djoudi *et al* 2016, p.248),

Within the study context, Black women's vulnerability was shaped significantly by gendered power relations that tended to privilege and 'normalise' patriarchal-related abusive behaviours from men against women. For instance, some women expressed that men's negligent attitudes towards family responsibilities had been socio-culturally ingrained within the culture of *amaZulu*, compounding the risk of vulnerability to the flood events in the areas. In the same vein, through a critical realist theoretical perspective, the study revealed that the experiences of vulnerability of Black women in the study context was linked to the historical injustices, specifically those associated with gender, class and race, despite the end of apartheid in South Africa in the 1990s. These residual effects arguably have enduring influences on adaptation policies within South Africa and within the eThekweni metropolitan municipality. The Theory of Change shed some lights on possible ways of addressing gendered, racial and class equity in climate adaptation governance.

8.3 Critical Review of the Study's Findings

Several findings emerged from the study which directly concern how Black women in the study contexts (uMlazi, Inanda, Ntuzuma and KwaMashu), experience and adapt to the impacts of floods in the localities. Informed by feminist political ecology and critical realism theoretical perspectives, some findings have shown that the vulnerability experienced by the women are determined by their social location of gender, race, and class and can only be understood by understanding the intersectional dynamics of their daily experiences as lived by them, as well as the constraints, threats and challenges they face, including their socio-economic and socio-

political marginality. Findings also reveal how the women demonstrate agency in adapting to flood impacts. The notion of agency aligns with contemporary views of vulnerability—for example, Wisner *et al* (2004) who emphasises the need to shift the notion of vulnerability away from implying victimhood and helplessness to demonstrating that people who live with vulnerability are also able to consciously reflect on their situations and are able to map out paths for their liberation themselves. In this case, all they need is empowerment and an intervention that can address the contextual conditions that affect their ability to anticipate, cope with, resist or recover from the impacts of natural disasters.

8.4 Poverty as a Critical Factor of Vulnerability

One of the findings from the study is that poverty constitutes one key factor that contributes to the vulnerability of Black women to flood impacts in the study areas. This may appear obvious and to be expected as a finding. However, poverty is also complex and contextual. Poverty, as broadly defined, relates to a lack of resources available to enhance one's capacity. In the context of this study, poverty was related to several contextual factors that influenced the experience of being a woman, Black and poor in a society like South Africa. For some of the women, poverty resulted from unemployment, limited job opportunities and lack of appropriate skills. These issues have intricate connection to the history of gendered and racial injustices in South Africa. Though South Africa is currently one of the most progressively democratic nations in terms of equal rights, equity and justices (as these tenets are strongly emphasised in the country's Constitution), patriarchal beliefs and norms still play out in the way people are granted or denied opportunities and allowed to (or denied) voice of their opinions in decision making. Patriarchal beliefs and norms also significantly shape social relations in many localities in the country (see Babagura, 2015).

The study also found that poverty/scarcity exposed women to an increased level of abuse and violence from men. Women who had few livelihood options were taken advantage of by men who, as a condition of providing food, impose their decisions on the women. Distribution of disaster relief materials was also found to be highly inequitable. Women who were not politically connected, as mentioned by some of the participants, had low chance of receiving equal or fair share of the materials, which included food packages, blankets, toiletries, and other essentials. Moreover, most of the political office holders are apparently men and the political space is highly influenced by men too. This also posed constraints to the women's chances of being able to freely contact the institutions responsible for disaster prevention in

the municipality. For instance, a woman from Ntuzuma showed me a long trail of emails—without any response—that she and her sister had sent to the Municipal Disaster Management Unit concerning a blocked bridge on the road close to her house, which constituted a high risk to their house being flooded.

8.5 ‘Self-Conditioning’ as a Coping Mechanism

Another point related to poverty is that the physical location of Black women in the case study context contributes significantly to their social vulnerability. Though there are some sections that are relatively environmentally viable, considerably large sections of the four areas of the study contexts are located in vulnerable floodplains. One important finding related to experiences of economic poverty and social vulnerability of Black women is the narrative of using ‘self-conditioning’, which also comes up as ‘internalised oppression’, as a coping strategy by some women. For instance, it was discovered that some women have psychologically conditioned themselves to live in the area amidst any impending disaster. In other words, they have learnt to live with disaster, or imminent disaster, because they seem to get no positive intervention or response from the municipality whenever they call. On the one hand, ‘conditioning’ one’s self to live with any impending disaster applied to those who could not relocate to a better place due to financial constraints. For instance, when asked why they did not relocate, some women expressed: “We have no option, we stay in our homes and endure.” [UB] On the other hand, ‘conditioning’ seemed also to be a result of spatial attachment. Some of the women, especially the more senior or older women, had become attached to the space, having lived there for a greater part of their lives, meaning relocating was probably going to impact negatively on their psychological well-being. Some of the older women participants shared that they could not adapt to a new living space. They claimed that they would rather endure the flooded areas. This finding also seems to establish the link between people’s age and place attachment. Almost all relatively younger women interviewed confirmed that they only endured the flood-prone areas because of financial constraints.

8.6 The Role of Information in Enhancing Adaptive Capacity

Access to information regarding climate change has the potential to enhance people’s adaptive capacity. Many of the participants in the case study contexts were caught up by flood incidents because they were not able to access early warning information. Other studies, for example, Levine, Ludi & Lindsey (2010) have also affirmed that advanced technology related to information dissemination is necessary to enhance adaptive capacity of people to climate

disaster. However, it was discovered that in the context of this study, besides making advanced information technology available, some of the local women also needed to be orientated to the use of modern means of information dissemination, such as newspapers, television, phones, amongst others. The study discovered that some of the participants still have an affinity to primitive means of disseminating information in the village settings: through the town crier (or bellman), or sharing pamphlets regarding disaster warnings which schoolchildren have brought home to their parents.

8.7 Climate Change Should be Equated to Health Security Challenge

Experiences have shown that people take issues that pose a security threat to them seriously, which is to be expected. A case in point is the pandemic where the threat and risk has been made clear to all groups and populations and the information is accessible in all the local languages. This could be true for climate change intervention as well.

Many participants indicated that they were not aware of what climate change meant, including flood-related implications of littering the environment and blocking gutters with plastic waste. The researcher's interaction and informal discussions with the participants of the risk involved in blocking drainage with plastic waste allowed for opportunities for the participants to view the issue as a human security threat that affected them personally.

8.8 Motherhood Responsibilities as a Coping Mechanism

Studies on gender and climate change adaptation (s, see Nightingale, 2011; Alston, 2010; Babagura, 2015 and Goh, 2012), posit that having to shoulder much of the responsibility relating to family welfare puts heightened pressure on women, thereby compromising their adaptive capacity. In the same vein, this study also found that many women were left to shoulder their family welfare, ranging from taking care of their children, to caring for aged parents. However, though these roles and responsibilities had put much pressure on the women, they also acted as potential sources of agency and strength that enhanced their adaptive capacity. For many of the women, especially the single parents, the fear that any impending flood events would affect their children gave them some agentic abilities to find proactive ways of adapting to flood impacts. What this implies is that adaptation is also psychological. As explained above, managing fear positively can enhance one's agentic abilities and enhance adaptive capacities.

8.9 Adaptation as a Personal Disposition

Related to the concept of agency and psychological adaptation is the study's finding that vulnerability or adaptive capacity is highly determined by personal disposition. It was observed during the course of the study that some participants (from similar socio-economic and locational condition) described their adaptation experience from the position of agency, while others described theirs from the position of 'victimhood', further confirming the claim that adaptation is also psychological. Bradley & Graham (2017, p.29), drawing from a survey of study of adaptation to climate change in Australia, define psychological adaptation as "processes through which individuals orient towards, make sense of, and ultimately come to terms with the threat and reality of climate change". Psychological adaptation entails adopting a problem-solving mental attitude to climate impacts. Apart from group vulnerability, or vulnerability arising from socio-economic and socio-political marginalisation of a group, vulnerability is also individual in that people from the same vulnerable group could experience vulnerability differently. In other words, personal disposition is a significant determinant of vulnerability to climate impacts. Although this explanation is not directly related to aspects of gender vulnerability, it nevertheless sheds light on the complexity involved in adaptation to impacts of climate disaster.

8.10 Study's Contribution to Discussions and Discourse on the Notion of Women's Empowerment

Many studies on gender and climate change adaptation in other Southern African communities (for instance, Angura 2014 and Chauque 2015) and within South Africa specifically (for instance, Tibesigwa *et al* 2015; Goldin *et al* 2019, and Babagura 2014) adopted a households-level of analysis. This is because many studies on gender and climate change adaptation seek to discover the factors underlying the differential aspect of vulnerability among men and women. Consequently, these studies interview both men and women within the households to determine the differential vulnerabilities experienced by both genders. However, though this study does not disregard the need to understand the differential experiences of both women and men in adapting to climate change, its focus on only women was an intentional decision by the researcher to give opportunity to the women to reflect on their lived experiences. Through this, the study discovered that reflecting on their lived (adaptation) experiences, especially through linking their history with the present and the future, was experienced as a means of empowerment to the women (as communicated by the participants). Many of the women, in

the process of interaction, had some new insights on proactive adaptation measures. This finding is in line with Richie *et al*'s (2014, p56) assertion that “focus group interactions [in this case, plus face-to-face semi-structured in-depth interviews] is useful to generate creative thinking, solutions, and strategies”. This is beside the fact that this seems to be the only study on gender and climate change adaptation in the context of eThekweni municipality that uses face-to-face interviews and focus group discussions to elicit data on Black women's adaptation experiences. Some findings of this study are also a response to the broader call by the United Nations for prioritisation of vulnerable local in adaptation studies and policies as part of working towards achieving the 2030 Sustainable Development Goal women empowerment and gender equity (see UNESCO, 2017; UN women 2018; UNFCCC, 2015).

8.11 Standpoint Feminist Perspective: Understanding Black Women's Adaptation to Flood Impacts from their Own Standpoints

Although this perspective was not specifically or separately mentioned in other chapters of the study, the concept of standpoint feminism sheds some light in attempting to further understand the philosophy underpinning this study as well as the different adaptation experiences of Black women within the study context. The researcher intentionally sought to interview only women, as opposed to interviewing both men and women to correlate their differential experiences to flood impacts, as the study aimed to prioritise women's adaptation experiences from their standpoints. As explained by Bowell (2011), standpoint feminism makes three key claims, which are quite related to what this study aims to achieve. The first claim is that knowledge is “socially situated”. The second claim is that “marginalised groups are socially situated in ways that make it more possible for them to be aware of things and ask questions than it is for the non-marginalised”. The third claim suggests that “research, particularly that focused on power relations, should begin with the lives of the marginalised”. Moreover, in her book, *The Black Feminist Thought: Knowledge, Consciousness, and the Politics of Empowerment*, Patricia Collins (2009) asserts that feminist social sciences should be practiced from the perspective (standpoint) of women or a particular group of women because they are better equipped to understand some aspects of the world that men may not understand. As Clough (1994) espoused, women's standpoint epistemology proposes to make women's experiences the point of departure, in addition to, and sometimes instead of men's. Therefore, as already asserted, one contribution of this study is that the situated knowledge from the experiences shared gives an insight into gendered power dynamics existing within the eThekweni localities, even without

having to retell the stories from men's perspectives. The women's experiences provide insider perspectives (the women's perspectives) while at the same time, offering a reflection of the outsiders' underlying practices (men's attitudes and patriarchal attitudes towards women). Living in a setting filled with remnants of patriarchy (whether conscious or unconscious), a woman is likely to attempt to negotiate who she is and at some point, may adjust to the patriarchal situation. As Uma Narayan has argued, the "colonialised biculturalism" has a "dark side" [cited in Harding 2004, p.221-3] where women adopt various strategies to survive. As found in this study, in order for Black women to negotiate and cope with the impacts of floods, compounded by various negligent governance approach to climate disaster by the municipality (as shared by the participants), they tend to suppress some part of their selves and their agency. This was revealed, as already mentioned, in statements like, "we have no option, we stay in our homes and endure". Moreover, the fact that they might have been negotiating their adaptation for prolonged periods also points to the reason why some women were adapting to flood as agents, while some adapted as victims. Put differently, the study discovered that Black women in the study adapted to flood impacts from individual standpoints, even when the contextual factors shaping their vulnerability were the same.

8.12 Gendered Vulnerability and an Intentional Development Planning

The study reveals that eThekweni municipal climate adaptation planners are seemingly 'unaware' of the intersectional nature of Black women's vulnerability to climate impacts. This was revealed during interviews with personnel from the eThekweni municipal's Environmental Planning and Climate Protection Department. Such a lack of awareness ignores any specific consideration of Black women's adaptation needs in development planning. Many studies on gender and climate change adaptation (see for examples, Dixon, 1996; Reyes, 2002 and Islam & Sharmin 2013) posit that lack of information on the part of the local people hampers their adaptive capacity. This study shows that the need for information in enhancing adaptive capacity needs to be in twofold: first, sensitisation on the part of the local people and second, sensitisation on the part of the adaptation governance personnel. Only few studies on gender and climate change adaptation in the South African context probe local government adaptation personnel on their views and understanding of gendered vulnerability and how they incorporate Black women's adaptation experiences into the local government adaptation planning.

8.13 Impact of Development on Women's Vulnerability to Climate Impact

Development can pose either negative or positive impacts on women's vulnerability, depending on how such developments take women's contextual factors of vulnerability into consideration. One of United Nation's Sustainable Development Goals (SDG No. 5) is to address gender inequity in development policies. However, as found in this study, a capitalist approach to development only succeeded in exacerbating rural women's vulnerability by overshadowing the informal economy through which local women were sustaining their livelihoods. Therefore, in line with the recommendation of Gender and Development approach to climate change (see Ravera *et al* 2016, p.6), this study recommends that to transform gender inequities in climate change adaptation related development, development must be planned in a manner that moves local women's needs from the periphery to the centre of development planning. Otherwise, development that was intended to address local women's vulnerability can turn out to exacerbate existing gender, racial and class inequalities.

8.14 Conclusion

Climate change is projected to continue for a considerable length of time. This means that the impacts related to climate change will continue to pose threats to humanity. Africa, due to its relatively low adaptive capacity and relatively heavy reliance on natural resources for livelihoods, remains one of the hardest-hit continents by the impacts of climate disaster. Therefore, adapting to the impacts of disasters associated with climate change constitute an important endeavour in communities across the continent.

Women, and other socially undermined gender groups, are specifically vulnerable to the impacts of climate disaster. Women's vulnerability does not result from biological factors, but rather from various socio-cultural, socio-economic, institutional, and political factors that socially construct a woman's identity as second class. These factors operate mostly at local levels, justifying the need to situate any study that seeks to address issues pertaining to gender and climate change adaptation, within the local context. Situating such a study within the local context is also important, especially in a context like South Africa, to identify other factors such as race and class that intersect with gender to influence the vulnerability of women.

This study was located within the context of eThekweni municipality. Using a qualitative research methodology, the study contributes to existing literature on gender and climate change adaptation by exploring the underlying socio-economic, cultural and socio-political factors that

shape Black women's (specifically Black women from uMlazi, Inanda, Ntuzuma and KwaMashu) experiences of vulnerability and adaptation to flood impacts within the municipal areas. In line with other literature on gender and climate change adaptation, the study finds that poverty constitutes one of the main factors that contribute to Black women's vulnerability to climate impacts within the study context. Poverty, which to some of the women was caused by unemployment and lack of necessary resources, limits the opportunities and choices of the women.

Other factors that shape vulnerability of the women include limited access to early warning information as well as the toxic expressions of masculinity by men against women in the localities, which in some circumstances result in gender-based violence. Related to this causal factor of vulnerability is the socio-cultural construction of gender, reflected in what some of the women referred to as 'a common practice among men in the *amaZulu* culture', which underlies Black women's vulnerability in the study areas. Feminist political ecology and critical realism also offer insights into the intersection of race, gender and class in shaping the vulnerability of Black women in the study context. Adaptation policies also appear to contain remnants of discrimination regarding race, gender, class, and other demographic factors. To address any discrimination inherent in such policies, it is important to be intentional in addressing gender and racial equity and justice.

As highlighted in Chapter five of the study, agency plays an important role in gendered adaptation process. There could be a misconception to classify local (Black) women as the most vulnerable to impacts of natural disaster. However, the study also discovered—and this is in line with feminist thoughts—that women adapt to climate impacts not just as a vulnerable population, but also as people with agentic abilities and a situated knowledge, which when tapped, contributes immensely to a productive adaptation, not only for themselves, but also to benefit their communities. In this study, it was found that Black women carry a lot of responsibilities to meet the welfare of families, especially women-headed households, and the resilience in this translates, also into resilience to adapt to climate change impacts.

Chapter Six of the study sought to contextualise climate adaptation governance within the eThekweni municipality against the imperative of national adaptation governance in South Africa. The chapter explored the various policies in the country and how they attempt to incorporate issues of gender and class equity and justice into the policies. The chapter paid specific attention to South Africa's National Adaptation Strategy, South Africa's National

Development Plan vision 2030, South Africa's Policy Framework, as well as the Durban Climate Change Adaptation Strategy. The discourse in the chapter revealed that though issues of gendered equity had been articulated in the different national policies, the practicalities of gendered adaptation that intentionally address issues of Black women's experiences of vulnerability and adaptation to climate disasters were lacking in the governance of adaptation within the eThekweni municipality.

This study has emphasised intentionality. That is, any development approach that seeks to respond to Black women's vulnerability to impact of natural disaster needs to be 'intentional' in recognising and addressing gender and class justice. Without intentionality, it is possible for an adaptation or development initiative that was meant to address the vulnerability of a certain group of population to exacerbate inequity instead. This point is applicable to the discussion in Chapter Seven of this study. From a feminist political ecology perspective, and in analysing the political economy of development in the study context, Chapter Seven was able to unpack and critique the impact of (capitalist-oriented) development on the vulnerability of Black women in the study context. The chapter showed that instead of alleviating inequality, a post-apartheid area-based approach to development in the study context overshadowed the rural economy from which the women were sustaining their livelihoods. Yet, the area-based development approach did not necessarily address the principal issue of rural women's vulnerability, but instead tended to create a new rural inequality by not extending development to the interior floodplains of the localities. This was evident in uMlazi, where one section was developed infrastructurally while the other section was left unattended, with degraded infrastructures, a disaster-prone landscape, and quite uneven and difficult-to-navigate topography. Though such development does not readily reveal the gender implications on a general perspective, the history of racially segregated spatial arrangement in South Africa—where many Black women were the most occupants of informal settlements—reveals the gendered implication of any rural development planning.

8.15 Recommendations

This thesis argues that to intentionally incorporate Black women's experiences of vulnerability into adaptation governance of the eThekweni municipality, and to address their "locational vulnerability"⁵³, the following recommendations should be put into consideration:

8.15.1 The need for an 'intentional' participatory approach to adaptation governance

One of the findings in the study revealed that the local Black women were not carried along, at least practically, in the climate adaptation governance of the eThekweni municipality. The word 'practically' is used here with intent. The word is used to evoke a sense of intentionality, a situation where governance approach is carried out intentionally by the governance planners, in a way that carries the most marginalised population along. But one may ask how feasible a participatory or collaborative model of governance is in a setting like Durban. In other words, how do you ensure that the diverse voices of the many Black women within the municipality are incorporated in adaptation planning? One recommended way of achieving this is to reach the local Black women through their various interest groups, for instance, a farmer's cooperative and stokvel group. This can take the form of a representative model of democratic governance where the representatives of the various interest groups or communities are able to present the needs and interests of Black women to the municipal authority. Another approach to ensure a participatory model of governance is to encourage a multi-sectoral engagement within the municipality. Multi-sectoral engagement can be done through constant engagement between and among departments such as the female empowerment department (if there is any), the Disaster Management Unit, the Environmental Planning and Climate Protection Department, and other relevant sectors that directly or indirectly deal with affairs of local Black women. Ensuring participatory (or collaborative) governance model in this way helps to avoid imposing adaptation actions which do not address the vulnerability needs of the local women.

8.15.2 A paradigm shift on adaptation intervention approach

Also related to a participatory model of governance is the need for an adaptation approach which considers the multiple dimensions of Black women's experiences of vulnerability and adaptation to climate-related impacts. Experience shows that adaptation planners readily identify adaptation in terms of the susceptibility of the built environment. Such an approach,

⁵³ Locational vulnerability here implies the vulnerability experienced by Black women as a result of their gender, race and class within the contextual conditions of eThekweni municipality

therefore, addresses vulnerability by improving infrastructures. However, a holistic adaptation is that which addresses both the vulnerability of the built environment (physical vulnerability) as well as the emotional aspect of vulnerability. Therefore, it is recommended to practice a ‘wholistic’ adaptation in the municipality by improving social capital in a way that can build emotional strength among the Black women. Improving social capital is an important aspect of adaptation, especially among local women. Social capital also builds agentic abilities that helps not only in adaptation to climate impacts, but also in other types of adaptation. Therefore, a (w)holistic approach to adaptation governance is one that takes the everyday socio-cultural and socio-political realities of women into consideration.

8.15.3 Improved awareness on the part of municipal adaptation planners of the intersecting nature of vulnerability

To improve the understanding of the intersecting nature of vulnerability, the municipal adaptation planners need to be sensitised on this aspect. This sensitisation can also improve the level of intentional incorporation of Black women’s vulnerability and adaptation experiences into the local government’s adaptation planning. In terms of increasing awareness, it is also important to sensitise Black women through emphasis on the security challenges associated with climate change disaster through securitising⁵⁴ climate change and other environmental problems. Experience has shown that people take issues that pose security challenges to them seriously. For instance, during the fieldwork of the study, it was confirmed that many people began taking the HIV/AIDs pandemic in South Africa seriously when they were made to understand the human and health security challenges associated with the pandemic. Securitising issues of climate change and its related disasters is also important to give the local women a sense of environmental sensitivity. Basic knowledge of environmental sensitivity is essential in taking proactive measures against floods. Some participants at the study sites complain that residents litter the environment, including the gutters, with plastic waste and that this stops the easy flow of water when there is heavy rainfall. Therefore, if environmental issues are securitised, this can go a long way to reducing massive flood events and the consequent vulnerability associated with them in the localities.

⁵⁴ Securitising here implies a strong emphasis on the human and health security challenges associated with littering the environment with plastic wastes or other forms of environmental insensitivity.

8.15.4 Empower local women with simple flood management skills

Women possess a *situated* knowledge that can complement municipal adaptation management efforts. As discussed, there is a certain degree of situated knowledge that sprouts from people's experiences of historical subordination. Such experiences yield a certain agency and inspire capacity for action. To utilise the situated knowledge of the Black women in the study contexts, it is necessary to create initiatives, in the form of training, to inform and empower local women on simple flood management skills, such as learning how to divert running water away from the house. Many participants in the study area showed keen interest and willingness to know these basic skills, which they said would enable them to take simple preventive measures and understand simple proactive approaches to flood management. Such training can be organised in the form of small groups across different wards in the localities.

Need for Collective 'Bandwagonning' among local Black women

It was stated earlier in the chapter that the fact that the political space is highly occupied and influence by men possibly poses some constraints to women getting access or contacts to the institutions responsible for disaster prevention. I also gave an instance of a woman from Ntuzuma who showed me a long trail of emails—without any response—that she and her sister had sent to the municipal disaster management unit concerning a blocked bridge on the road close to her house, which constituted a high risk to their house being flooded. Through 'bandwagonning', Black women from the study sites influence municipal decisions to speed service delivery or respond to their adaptation concerns. 'Bandwagonning' entails the formation of interest groups among people who share similar concerns to voice their concerns to the responsible authority. Some authors use the term 'commoning' to describe situations where people form cooperatives to influence decisions around a common resource pool. In her article, *The Production of Commons and the 'Explosion' of the Middle-Class*, De Angelis Massimo (2010, p.955) describes 'commoning' as a "process of coming together". Gauditz & Euler (2017), in their project, 'Degrowth Movement' describe 'commoning' as simply referring to a "shared living" whereby "people have influence on their own living conditions". Commoning can act as a social movement to influence governance decisions. Residents of rural settlements who sometimes appear detached from the fast-growing economy of city centres can use 'commoning' to advance their vulnerability and adaptation experiences. Local Black women in particular, because of their relatively—though not exclusively—high sense of cooperation (Ubuntu), have a greater advantage of using 'commoning' to advance their

experiences and needs. Tummers & MacGregor (2019, p.62) describe the ‘commoning’ approach as a means of balancing between hard (infrastructural) vs soft adaptation (see also Eriksen & Lind, 2008, p.817). As already mentioned, ‘bandwagonning’ among women in the areas can also be a good source of social capital to enhance resilience, collective learning, and adaptive capacity. Moreover, coming together to speak in one voice has been shown to influence government decisions. Few recent examples are the recent #Endsars# movement in Nigeria in October/November 2020, and protest for regime change in Sudan in April 2019, both of which were pioneered by women activists. Besides this, lack of cooperation was also pointed out by one participant from KwaMashu as one barrier to women from the study areas getting their voices heard and adaptation needs quickly attended to by the municipality. The participant, who happened to adapt to floods events from a position of an agent because of her simple disaster management skills, also pointed to lack of cooperation as a barrier to women learning simple skills from one another.

8.15.5 The need for more research on politics/environment nexus

This study attempted to contribute towards scholarly works that link challenges of the physical environment to issues of socio-economic/socio-political factors. With its specific focus on floods, the study has attempted to show how environmental analysis and policy approach can be reframed towards addressing the challenges of socially, politically, and culturally marginalised population. However, more evidential research is required to explore other aspects of climate change disaster, such as drought heat waves, desertification, amongst others. These disasters are also potential threats to municipalities across South Africa. For instance, in spring 2018, there was rampant news across South Africa of a severe drought and water crisis in many cities in Cape Town. There were also news of droughts in some South African cities prior to 2016. These disasters, especially those related to water crises, have significant gender implications, especially in connection to women from local areas. Therefore, studies on gender implications of such disasters can be conducted using a more pragmatic/discursive/participatory method. The co-production of knowledge arising from such studies is essential to advance a more socially just policy that advances women’s empowerment and adaptation to climate disasters.

Although findings from the study can offer insights into experiences of Black women from other municipalities in South Africa, the inferences from the study generally apply to eThekweni municipality’s context. To understand the experiences of Black women from other

municipalities, it is recommended that more comparative studies between and among municipalities be conducted. Such studies can look at a comparative analysis of Black women experiences of climate-related disaster between eThekweni and other adjacent municipalities such as uMzunduzi or uMgungundlovu. Such comparison has high potential of providing valuable insights into how Black women from the different municipal contexts in South Africa, or within the KwaZulu-Natal Province, adapt to climate-related problems.

Conclusion

To sum up, the study suggests a more collaborative governance approach where the municipality empowers and involves local Black women in adaptation governance in the localities. The study also reiterates the need for collective ‘bandwagoning’ among the local women as a means of representing their adaptation needs and influencing adaptation governance of the municipality. In short, adaptation governance approaches need to involve a certain degree of intentionality, both on the side of the municipal authority and on the side of the local Black women. This study also suggests the need for empirical studies on gender and climate change adaption between and among eThekweni metropolitan municipality and other (probably adjacent) municipalities.

REFERENCES

- Aandahl, G., Barg, S., Bhadwal, S., Karen, O., Kelkar, U., Leichenko, R., Javed, A., Nygaard, L., Tompkins, H., Venema, H., & West, J. (2004). Mapping vulnerability to multiple stressors: Climate change globalization in India. *Global Environmental Change*, 14(4), 303-313.
- Adger, W., Agarwal, S., MMQ, M., Conde, C., O'Brien, K., Pulhin, J., Pulwarty, R., Smit, B., Takahashi, K. (2007). Assessment of adaptation practices, options, constraints, and capacity. In: Parry, M. F Canziani, P. Palutikof, P. Van der, E Hanson (Eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Contribution of Working Group 11 to 4th Assessment Report of IPCC.
- Adger, W., & Kelly, M. (1999). Social vulnerability to climate change and the architecture of entitlements. *Mitigation and Adaptation Strategies for Global Change*, 4(3) 253–266.
- African Union, (2009). 'Agriculture in Africa: Transformation and Outlook'. Available at: <https://www.un.org/africarenewal/sites/www.un.org.africarenewal/files/Agriculture%20in%20Africa.pdf>
- Ahmed, S., & Fajber, E. (2009). Engendering adaptation to climate variability in Gujarat, India. *Climate Change and Climate Justice*, 17(1), 33-50.
- Akinyemi, T. (2016). Climate change, migration, and resource contestations: A case study of north-south migration in Nigeria. PhD dissertation: University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Alston, M. (2010). Gender and climate change in Australia. *Journal of Sociology*, 47(1), 53-70
DOI: 10.1177/1440783310376848.
- Amber, F. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181-194. DOI: 10.1080/13645579.2016.1144401.
- Ampaire, E., Jassogne, L., Frances, M., & Happy, P. (2017). Institutional challenges to climate change adaptation: A case study on policy actions gaps in Uganda. *Environmental Science and Policy*, 75, 81-90.
- Anderson, M. (2011). *Disaster writing: The cultural politics of catastrophe in Latin America*. Charlottesville, VA, USA: University of Virginia Press.

- Angura, M. (2014). Gender and climate change: Namibia case study. Heinrich Böll Foundation Southern Africa. Available at: <https://za.boell.org/.../gender-and-climate-change-namibia-case-study-climate-change>.
- Argawal, B. (1991). Engineering the environment debate: lesson from the Indian subcontinent. Centre for the Advanced Study of International Development. Distinguished Lecturer Series. Discussion Paper 8, Michigan State University.
- Argawal, B. (1992). Gender and environment debate: lessons from India. *Feminist Studies*, 18(1), 119-159.
- Agarwal, B. (2002). Bargaining, gender equality and legal change: The case of India's Inheritance Laws. Discussion Paper No. 165, October. Institute of Development Studies (Sussex).
- Arora-Jonsson, S. (2011). Virtue and vulnerability: Discourses on women, gender, and climate change, *Global Environmental Change*, 21(2), 744–751.
- Averchenkova, A., Gannon, K., & Curran, P. (2019). Governance of climate change policy: A case study of South Africa. Policy Report, June 2019. Available at: file:///E:/PHD1/PHD%202/CHAPTERS/ARTS%20FOR%20CHAP%206/GRI_Governance-of-climate-change-policy_SA-case-study_policy-report_40pp.pdf.
- Azad, A., Hossain, K., & Nazreen, M. (2013). Flood-induced vulnerabilities and problems encountered by women in northern Bangladesh. *International Journal of Disaster Risk Science*, 4(4), 190-199.
- Babagura, A. (2009). Gender and climate change: South Africa case study. Heinrich Böll Foundation Southern Africa. (Online). Available at: www.upb.edu.ph/ktrc2/attachments/article/131/Gender%20and%20Climate%20Change%20South%20Africa%20Case%20Study.pdf.
- Badora, R., & Ogra, M. (2014). Gender and climate change in the Indian Hindukush Himalayas: Global threats, local vulnerabilities. *Earth Systems Dynamics*, 6(2), 505-523.
- Barnett, J., & O'Neill, S. (2010). Maladaptation. *Global Environmental Change*, 20, 11–13.
- Bassett, T. J. & Fogelman, C. (2013). Déjà vu or something new? The adaptation concept in the climate change literature. *Geoforum*, 48, 42-53. doi.org/10.1016/j.geoforum.2013.04.010.

- BBC News, (2015). Paul nurse accuses politicians of “cowardice” over scientific evidence.
BBC News, Jan. 13, 2015. Available at: <http://www.bbc.com/news/science-environment-30744203>.
- BBC News Africa, (2019). ‘South Africa floods: death toll after Durban rains rises to 60.’
Available at: <https://www.bbc.com/news/science-environment-3074420>.
- Bern, C., Snizek, J., Mathbor, G., Siddiqi, M., Ronsmans, C., Chowdury, A., Islam, K.,
Bennis, M., & Noji, E. (1993). Risk factors for mortality in the Bangladesh cyclone of 1991. *Bull World Health Organ.* 71(1), 73-8.
- Blaikie, P., Cannon, T., Davis, I., Wisner, B. (1994). *At risk: Natural hazards, people’s vulnerability, and disasters*. New York, USA: Routledge.
- Bohensky, E., Smajgl, A., & Brewer, T. (2013). Patterns in household-level engagement with climate change in Indonesia. *Nature Climate Change*, 3, 348–351.
- Bowell, T. (2001). Feminist standpoint theory: In *Internet Encyclopedia of Philosophy*, March 10, 2011. Available at: <http://philosophysother.blogspot.com/2011/05/bowell-t-feminist-standpoint-theory.html>.
- Bradley, G., & Reser, P. (2017). Adaptation processes in the context of climate change: A social and environmental psychology perspective. *Journal of Bioeconomic*, 19, 29–51. doi.org/10.1007/s10818-016-9231-x.
- Bryant, L. & Baily, S. (1997). *Third World Political Ecology*. London & New York: Routledge.
- Bunce, A., & Ford, J. (2015). How is adaptation, resilience, and vulnerability research engaging with gender? *Environmental Research Letters*, doi:10.1088/1748-9326/10/12/123003.
- Campbell, J. (2008). Institutional analysis and the role of ideas in political economy. *Theory and Society*, 27, 377 - 409. doi.org/10.1023/A:1006871114987.
- Carr, E., & Thompson, M. (2014). Gender and climate change adaptation in agrarian settings: Current thinking, new directions, and research frontiers. *Geography Compass*, 8(3), 182–197.
- Carvajal-Escobar, Y., Quintero-Angel, M., & García-Vargas, M. (2008). Women's role in adapting to climate change and variability. *Adv. Geoscience*, 14, 277–280. Available at: <https://doi.org/10.5194/adgeo-14-277-2008>.

- Cassidy, S. (2013). Acknowledging hubris in interpretative data analysis. *Nurse Research*, 20(6), 27-31.
- Centre for Theory of Change. (n.d.). What is theory of change. Available at: <https://www.theoryofchange.org/what-is-theory-of-change/>.
- Chanda, G., & Namchu, C. (2019). Identities, affiliations, and gendered vulnerabilities in the Mid-hills of West Bengal. *Environmental Development*, 31, 78-87. Available at: <https://doi.org/10.1016/j.envdev.2018.11.006>.
- Chauque, A. (2015). Gender and climate change: Mozambique case study. Heinrich Böll Foundation Southern Africa: Available at: www.boell.de/en/navigation/climate-energy-Mozambique-9077.html.
- Chersich, M., & Wright, F. (2019). Climate change adaptation in South Africa: A case study on the role of health sector. *Globalisation and Health*, 15 (22), 1-16.
- Chotia, A. (2020). Men in our country have declared war on our women. *The South African*. Available at: <https://www.thesouthafrican.com/news/gender-based-violence-gbv-increase-lockdown-cyril-ramaphosa/>.
- Collins, P. (2009). Black feminist thought: knowledge, consciousness, and the politics of empowerment. London: Routledge (earlier version published in 1990).
- Clement, F., Harcourt, W., Joshi, D., & Sato, C. (2019). Feminist political ecologies of the commons and commoning (Editorial to the Special Feature). *International Journal of the Commons*, 13(1), 1–15. DOI: <http://doi.org/10.18352/ijc.972>.
- Clough, P. (1994). *Feminist thought: Desire, power, and academic discourse*. Massachusetts, USA: Blackwell.
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics. *University of Chicago Legal Forum*, 1989(1), 139 -167.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of colour. *Stanford Law Review*, 43 (6), 1241 -1299.
- Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*, 3rd edition. London, England: Sage.

- Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among the five approaches*, 3rd edition. London, England: Sage.
- Cutter, S., Boruff, B., & Shirley, W. (2003). Social vulnerability to environmental hazards. *Social Science Quarterly*, 84, 242-261 <https://doi.org/10.1111/1540-6237.8402002>.
- Cutter, L., Emrich, C., Webb, J., & Hazards, D. (2009). Social vulnerability to climate variability hazards: A review of the literature final report to Oxfam America. SC, Columbia: University of South Carolina.
- Danermark, B., Ekstrom, M., Jakobsen, L., & Karlsson, J. (1997). *Explaining Society: Critical realism in the social sciences*. London: Routledge.
- Dankelman, I. (2002). Climate change: learning from gender analysis and women's experiences of organising. *Gender and Development*, 10(2), 21-29.
- Daoud, M. (2016). Living on the edge: Gender relations, climate change and livelihoods in the villages of Maryut and Nubia, Egypt, PhD Thesis: University of East Anglia, United Kingdom.
- Demetriades, J., & Esplen, E. (2008). The gender dimensions of poverty and climate change Adaptation. *IDS Bulletin*, 39(4) 24-31.
- De Angelis, M (2010). The production of commons and the 'explosion' of the middle-class. *A Radical Journal of Geography*, 42(4), 954-977. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8330.2010.00783.x>
- Denton, F. (2002). Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender and Development*, 10(2), 10-20.
- Deressa, T., Hassan, R., Alemu, T., Yesuf, M., & Ringler, C. (2008). Determinants of farmers' choice of adaptation methods to climate change in the Nile basin of Ethiopia. Discussion Paper of the International Food Policy Research Institute, Washington, DC. October 2008.
- Dill, B., & Zinn, B. (1996). Theorizing difference from multiracial feminism. *Feminist Studies*, 22(2), 321-331.
- Djoudi, H., & Brockhaus, M. (2011). Is adaptation to climate change gender neutral? Lessons from communities dependent on livestock and forests in northern Mali. *International Forestry Review*, 13, 123-135.

- Djoudi, H., Locatelli, B., Vaast, C., Asher, K., Brockhous, M., & Sijapati, B. (2016). Beyond dichotomies: Gender and intersecting inequalities in climate change studies. *Ambio*, 45, 248-262.
- Dolsak, N., & Prakash, A. (2018). The politics of climate change adaptation. *Annual Review of Environment and Resources*, 43(1), 327-341.
- Donaldson, R., & Du Plessis, D. (2013). The urban renewal programme as an area-based approach to renew townships: The experience from Khayelitsha's Central Business District, Cape Town. *Habitat International*, 39, 295-301.
- Eakin, C., & Pat, A. (2011). Are adaptation studies effective, and what can enhance their practical impact? *WIREs Climate Change*, 2(2), 141-153.
- Eric, J. (2009). Teaching with poverty in mind. Available at:
<http://www.ascd.org/publications/books/109074/chapters/Understanding-the-Nature-of-Poverty.aspx>
- Eriksen, S., Aldunce, P., Bahinipati, C., Martins, R., Molefe, J., Nhemachena, C., O'Brien, K., Olorunfemi, F., Park, J., & Sygna, L. (2011). When not every response to climate change is a good one: Identifying principles for sustainable adaptation. *Climate Development*, 3(1), 7-20.
- Eriksen, S., & Lind, J. (2009). Adaptation as a political process: Adjusting to drought and conflict in Kenya's drylands. *Environmental Management*, 43(5), 817-35.
- eThekweni Municipality. (2007). Climate change: What does it mean for eThekweni Municipality? Durban: South Africa.
- eThekweni Municipality. (2011). Draft budget/IDP 2019/2020. Available at:
http://www.durban.gov.za/City_Services/Community_Participation/Pages/Gender-Programme.aspx.
- eThekweni Municipality. (2011). eThekweni Municipality invites public to develop climate change strategy. Available at: eThekweni Municipality Invites Public to Develop Climate Change Strategy (durban.gov.za).
- eThekweni Municipality. (2012). Durban adaptation charter. Available at:
durban.gov.za/City_Services_Development_Planning_Management_Environmental_Planning_Climate_Protection_Projects_Documents_DAC_Pamphlets.pdf.
- Fatema, S. (2017). Vulnerabilities in a flood affected area of Bangladesh. *International Journal*

- of Science and Environment*, 6(5), 2870-2875.
- Fioretos, O. (2011). Historical institutionalism in international relations. *International Organization*, 65(2), 367-399. Available at: <http://www.jstor.org/stable/23016816>.
- Fisher, F., & Shakya, C. (2018). Gendered voices for climate change action: A theory of change for the meaning inclusion of local experiences in decision-making. A Working Paper, IED, October 2018. London. Available at: <https://pubs.iied.org/pdfs/10193IIED.pdf>.
- Fletcher, A. (2017). Applying critical realism in qualitative research: methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181-194. doi.org/10.1080/13645579.2016.114440.
- Füssel, M., & Klein, T. (2006). Climate change vulnerability assessments: An evolution of conceptual thinking. *Climatic Change*, 75, 301–329.
- Füssel, H. (2007). Vulnerability: A generally applicable conceptual framework for climate change research. *Global Environmental Change*, 17(2), 155–167.
- Gauditz, L. & Euler, J. (2017). Commoning: a different way of living and acting together. Available at: <https://www.degrowth.info/en/2017/02/commoning-a-different-way-of-living-and-acting-together/>.
- Gay-Antaki, M. (2016). “Now we have equality”: A feminist political ecology analysis of carbon markets in Oaxaca, Mexico. *Journal of Latin American Geography*, 15(3), 49-66.
- Grothman, T., & Anthony, P. (2005). Adaptive capacity and human cognition: The process of individual adaptation to climate change. *Global Environmental Change*, 15(3) 199-213.
- Gbetibouo, G., & Hassan, R. (2005). Measuring the economic impact of climate change on major South African field crops: A Ricardian approach. *Global and Planetary Change*, 47(2-4), 143–152.
- Gbetibouo, G., Ringler, C., & Hassan, R. (2010). Vulnerability of the South African farming sector to climate change and variability: An indicator approach. *Natural Resources Forum*, 34 (3), 175–187. Global Catastrophic Recap. (2009). Available at: <http://thoughtleadership.aonbenfield.com/Documents/20190508-analytics-if-april-global-recap.pdf>.
- Gobo, G., & Marciniak, L. (2016). ‘What is ethnography?’ In: D Silverman (Ed.), *Qualitative Research*. London, England: Sage.

- Goh, A. (2012). A literature review of the gender-differentiated impacts of climate change on women's and men's assets and well-being in developing countries. *CAPRI Working Paper* No. 106. Washington, DC: International Food Policy Research Institute, <http://dx.doi.org/10.2499/CAPRIWP106>.
- Goodrich, C., Udas, P. & Larrington-Spencer, H. (2018). Conceptualising gendered vulnerability to climate change in the Hindu Kush Himalaya: Contextual conditions and drivers of change. *Environmental Development*, 31 (2019), 7 -18.
- Goodrich, C. & Namchu, C. (2018). Identities, affiliations, and gendered vulnerabilities in the Mid-hills of West Bengal. *Environmental Development*, 31 (2019), 78 -87.
- Görgens, T., & Denoon-Stevens, S. (2010). Towards facilitative and pro-poor land use management in South African urban areas: learning from international experience. Unpublished paper. http://www.urbanlandmark.org.za/conference/2010_papers/13.pdf.
- Gunderson, L., & Holling, C. (Ed.). (2002). *Panarchy: Understanding transformations in human and natural systems*. Washington, DC, USA: Island Press.
- Hall, P. (2010). historical institutionalism in rationalist and sociological perspective in explaining institutional change: Ambiguity, agency, and power. London, England: Cambridge University Press.
- Hamlet, D. (Ed.). (1998). *Afrocentric visions: Studies in culture and communications*. London, England: Thousand Oaks.
- Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminism Studies*, 14(3), 575-599.
- Harding, S. (1986). *The science question in feminism*. New York: Cornell University Press.
- Hayet, S. (2015). Kimberle Crenshaw discusses 'intersectional feminism'. Available at: https://www.youtube.com/watch?v=ROWquxC_Gxc.
- Hendrick's, R. (2017). Communicating climate change: Focus on the framing, not just the facts. Available at: from <https://www.preventionweb.net/news/view/52211>.
- Homer-Dixon, T. & Percival, V (1996), *Environmental Scarcity and Violent Conflict: Briefing Book*. The Project on Environment, Population and Security, The Project on Environment, Population and Scarcity, University of Toronto and the American Association for the Advancement of Science, Washington DC.

- Huitema, D., Adger, N., Berkhout, F., Massey, E., Mazmanian, D., Munaretto, S., Plummer, R., & Termeer, M. (2016). The governance of adaptation: Choices, reasons, and effects. Introduction to the Special Feature. *Ecology and Society*, 21(3), 37. Available at: [http://dx. doi.org/10.5751/ES-08797-210337](http://dx.doi.org/10.5751/ES-08797-210337).
- Huq, N., & Huq, M. (2014). Climate resilient planning in Bangladesh: A review of progress and early experiences of moving from planning to implementation. *Journal of Development in Practice*, 24(4), 527-543.
- Huynh, P., & Resurreccion, B. (2014). Women's differentiated vulnerability and adaptation to climate-related agricultural water scarcity in rural central Vietnam. *Climate Development*, 6(3), 226-237.
- Iniesta-Arandia, I., Ravera, F., Buechler, S. (2016). A synthesis of convergent reflections, tensions, and silences in linking gender and global environmental change research. *Ambio*, 45(3), 383 -393.
- International Labour Organisation. (2018). ILO: Women do 4 times more unpaid care work than men in Asia and the Pacific. Available at: https://www.ilo.org/asia/media-centre/news/WCMS_633284/lang--en/index.htm.
- IPCC. (2007). Working Group II 2007: Glossary of terms. IPCC fourth assessment report: Climate change. Working group II: Impacts, adaptation, and vulnerability. Available at: http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-.
- Islam, Z., & Sharmin, M. (2013). Consequences of climate change and gender vulnerability: Bangladesh perspective. Working paper: Bangladesh Development Research Centre. Available online at: <http://www.bangladeshstudies.org/wps/>.
- Javeline, D. (2014). The most important topic political scientists are not studying. *Perspectives on Politics*, 12(2) 420-432.
- Shearer, J., Jessica, C., Bocar, K., John, L., & Gill, W. (2016). Why do policies change? Institutions, interests, ideas, and networks in three cases of policy reform. *Health Policy and Planning*, 31(9), 1200–1211.
- John, L. (1998). Institutional analysis and the role of ideas in political economy. *Theory and society*, 27(3), 377-409.
- Jones, R., Dettman, P., Park, G., Rogers, M., & White, T. (2007). The relationship between

- adaptation and mitigation in managing climate change risk: A regional response from North Central Victoria, Australia. *Mitigation and Adaptation Strategy to Global Environmental Change*, 12, 685-712.
- Kahan, M. (2015). What is the “science of science communication.” *Journal of Science Communication*, 14(03), 1-12.
- Kates, W., Travis, W., & Wilbanks, T. (2012). Transformational adaptation when incremental adaptations to climate change are insufficient. *Proceedings of the National Academy of Science*, 109(19), 7156-7161.
- Kelly, M., Adger, N. (2000). Theory and practice in assessing vulnerability to climate change and facilitating adaptation. *Climatic Change*, 47, 325–352. Available at: <https://doi.org/10.1023/A:1005627828199>.
- Khuzwayo, Z. (2020). Gender and climate change in localities in eThekweni Municipality. Personal communication, 5th February 2020, Pietermaritzburg, South Africa.
- Kirwan, S., Dawney, L., & Brigstocke, J. (Eds.). (2005). *Space, power, and the commons: The struggle for alternative futures*. London, England: Routledge.
- Knight, B. (2017). *Rethinking poverty: what makes a good society?* Bristol: Bristol University Press.
- Kreibich, H., Baldassarre, G., & Vorogushyn, S. (2017). Adaptation to flood risk: Results of international paired flood events. *Earth's Future*, 5, 953-965.
- Lambrou, Y., & Piana, G. (2006). Gender: The missing component of the response to climate change. Food and Agriculture Organization of the United Nations, Rome. Available at: <http://www.fao.org/3/i0170e/i0170e00.htm>.
- Lawless, P. (2004). Locating and explaining area-based urban initiatives: New deal for communities in England. *Environment and Planning C: Government and Policy*, 22, 383-399.
- Lebel, L., Anderies, M., Campell, B., Folke, C., & Hatfield-Dodds, S. (2006). Governance and the capacity to manage resilience in regional social-ecological systems. *Ecology and Society*, 11(1), 19-40.
- Lervik, M., & Sutherland, C. (2017). Local climate governance in the global south: The case

of eThekweni Municipality and the Responsible Accommodation Campaign. *Global Environmental Governance*, 27(4), 283-393.

Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1002/eet.1757>.

Lichuma, W., & Nyasimi, M. (2017). Stocktaking of gender and climate change initiatives in Africa. Available at: <https://ccafs.cgiar.org/news/stocktaking-gender-and-climate-change-initiatives-africa#.XMBR9-gzaUl>.

Ligthelm, A. (2006). The impact of retail development in emerging markets on small township retailers. Pretoria, South Africa: Bureau of Market Research.

Liverman, M. (1990). Drought and agriculture in Mexico: The case of Sonora and Puebla in 1970. *Annals of the Association of American Geographers*, 80(1), 49-72.

Lockdown safety plan for victims of domestic violence. (Online News Article). Available at: <https://www.oudtshoorncourant.com/News/Article/General/lockdown-safety-plan-for-victims-of-domestic-violence-202004180748>.

Lonsdale, K., Pringle, P., & Turner, B. (2015). Transformative adaptation: What it is, why it matters, and what is needed. UK Climate Impacts Programme. Oxford, USA: University of Oxford.

MacGregor, S. (2010). Gender and climate change: From impacts to discourses. *Journal of the Indian Ocean Region*, 6(2), 223-238. <https://doi.org/10.1080/19480881.2010.536669>.

M & E Studies. (2019). Types of vulnerabilities in disaster management. (Online). Available at: www.mnestudies.com/disaster-management/vulnerability-types.

MacMahon, A. (2017). Climate change adaptation in south-west Bangladesh: Vulnerability and gender inequality. Doctoral Thesis: University of Queensland, Australia.

Mahmood, S. (2005). *Politics of Piety*. New Jersey: Princeton University Press.

Makhado, R., & Pelizzo, R. (2016). Looking at women rights to land in Africa: A feminist perspective? *African Politics and Policies*, 2(1), 8. Available at: <http://dx.doi.org/10.2139/ssrn.2722545>.

Malik A, Qin X, Smith SC (2010) Autonomous adaptation to climate change: a literature review. In: IIEP working paper, George Washington University, Washington, DC.

Manata, S., & Papazu, I. (2016). Gendering climate change: A perspective on the overlooked

gender dimension of climate change in the developing world. (Online). Available at: <https://ps.au.dk/fileadmin/Statskundskab/Dokumenter/.../GenderingClimateChange.pdf>.

- Massey, E., Huitema, D., Garrelts, H., Grecksch, K., Mees, H., Rayner, T., Storbjörk, S.,
Termeer, C., & Wings, M. (2015). Handling adaptation policy choices in Sweden, Germany, the UK, and the Netherlands. *Journal of Water and Climate Change*, 6(1), 9-24.
- Maathai, W. (2007). *Unbowed: A Memoir*. New York, NY: Anchor/Random House.
- Mathenjwa, A. (2007). The impact of Jabulani shopping mall on small township businesses and their response. MA dissertation, University of Pretoria.
- McAfee, K., & Shapiro, N. (2010). Payments for ecosystem services in Mexico: Nature, neoliberalism, social movements, and the state. *Annals of the Association of American Geographers*, 100(3) 1–21. DOI: 10.1080/00045601003794833.
- McLaughlin, P., & Dietz, T. (2008). Structure, agency, and environment: Towards an integrated perspective on vulnerability. *Global Environmental Change*, 18(1), 99-111.
- Meinjetes, S. (1996). The women struggle for equality during South Africa's transition to democracy. *Journal of Transformation* 30(1996), 47 -64.
- Miller, R., & Wilford, R. (2004). *Women, ethnicity, and nationalism: The politics of transition*. London, England: Routledge.
- Minch, M. (2011). Political Ecology. In: Chatterjee K. (Ed.), *Encyclopaedia of Global Justice*. Springer, Dordrecht. https://doi.org/10.1007/978-1-4020-9160-5_119.
- Moeti, B., & Khalo, T. (2007). 'Restructuring the provincial sphere of government in South Africa: Exploring options for sustainable reform for improved service delivery.' *Journal of Public Administration*, 42(5), 129-142.
- Morse, M. (2015). "Data were saturated..." *Qual Health Res*, 25(5), 587-588. Doi: 10.1177/1049732315576699. PMID: 25829508.
- Mortensen, H. (2019). 'How to do a thematic analysis of user interviews. (Online). Available at: <https://www.interaction-design.org/literature/article/how-to-do-a-thematic-analysis-of-user-interviews>.
- Nagar, R., Lawson, V., McDowell, L., & Hanson, S. (2002). Locating globalization: Feminist

- (Re)readings of the subjects and spaces of globalization. *Economic Geography*, 78, 257-284.
- Nagoda, S., & Nightingale, S. (2017). Participation and power in climate change adaptation policies: Vulnerability in food security programs in Nepal. *World Development*, 100, 85-93.
- NASA, (2017). Nasa points causes of earth's recent record carbon dioxide spike. (Online News). Available at: <https://climate.nasa.gov/.../nasa-pinpoints-cause-of-earths-recent-record-carbon-dioxid...>
- National Treasury. (2010). Operations and management of township nodal developments: Khayelitsha business district case study, training for township renewal initiative. Pretoria, South Africa: National Treasury.
- Neubauer, B., Wiktop, C. & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspective on Medical Education*, 8(2), 90–97.
- Nightingale, A. (2006) *The Nature of Gender: Work, Gender and Environment*. Edinburgh: Institute of Geography, University of Edinburgh.
- Nightingale, J. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class, and environment. *Geoforum*, 42(2), 153–162.
- Nightingale, A., & Ojha, H. (2013). Rethinking power and authority: Symbolic violence and subjectivity in Nepal's Terai Forest. *Development and Change*, 44(1), 29-51.
- Nightingale, A. (2017). Power and politics in climate change adaptation efforts: Struggles over authority and recognition in the context of political instability. *Geoforum*, 84, 11-20.
- Nursey-Bray, M. (2015). Gender, governance, and climate change adaptation. In Leal Filho W. (Ed.), *Handbook of Climate Change Adaptation*, DOI 10.1007/978-3-642-40455-9_63-
- O'Brien, K., Eriksen, S., Ngaard, L., & Schjolden, A. (2007). Why different interpretations of vulnerability matter in climate change discourse. *Climate Policy*, 7(1), 73-88.
- Omari, K. (2014). Gender and climate change: Botswana case study. Heinrich Böll Foundation Southern Africa. Available at: <https://za.boell.org/.../gender-and-climate-botswana-case-study-climate-change>.
- Paul, S. (2013). Vulnerability concepts and its applications in various fields: Review on

- geographical perspectives. *Journal of Life Earth Sciences*, 8, 63-81.
- Patricia, C. (1990). *Black feminist thought: Knowledge, consciousness, and the politics of empowerment*. New York & London: Routledge.
- Patton, M., & Cochran, M. (2002). A Guide to using qualitative research methodology. *Medicines San Frontiers*. Available at: https://evaluation.msf.org/sites/evaluation/files/a_guide_to_using_qualitative_research_methodology.pdf.
- Pearse, R. (2017). Gender and climate change. *Wires Climate Change*, e451. doi: 10.1002/wcc.451
- Pellow, D. (2018). *Critical Environmental Justice*. Cambridge, England: Polity Press.
- Petracca, M. (1991). The Rational choice approach to politics: A challenge to democratic theory. *The Review of Politics*, 53(2), 289-319. Available at: <http://www.jstor.org/stable/1407756>.
- Petrie, B., Marie, A., Gerhard, M., Wolpe, P., Reddy, Y., Landesman, T., Strauch, L., & Adriázola, P. (2019). Multilevel climate governance in South Africa: catalysing finance for local climate action. Cape town /Berlin: Adephi, One World Sustainable and Sustainable Energy Africa. Available at: http://www.cityenergy.org.za/uploads/resource_477.pdf.
- Pierson, P. (1994). The path to European integration: A historical institutionalist perspective. Harvard University and Russell Sage Foundation. Program for the Study of Germany and Europe Working Paper, (5.2), 1-39.
- Polack, E. (2008). A Right to adaptation: Securing the participation of marginalized groups. *IDS Bulletin*, 39(4), 16-23.
- Ramadas, N. (2019). Forecast early warning system: operational engineering to manage disasters. Paper presented at IMESA Conference, Durban. Available at: <https://www.imesa.org.za/wp-content/uploads/2019/10/paper-10-forecast-early-warning-system.pdf>.
- Rashid, R. (2013). Bangladeshi women's experiences of their men's migration. *Asian Survey*, 53(5), 883–908.
- Ravera, F., Iniesta-Arandia, I., & Martín-López, B. (2016). Gender perspectives in resilience, vulnerability, and adaptation to global environmental change. *Ambio*, 45, 235–247. Available at: <https://doi.org/10.1007/s13280-016-0842-1>.

- Ravera, F., Martín-López, B., Pascual, U., & Drucker, A. (2016). The diversity of gendered adaptation strategies to climate change of Indian farmers: A feminist intersectional approach. *Ambio*, 45(3), 335-351. DOI: 10.1007/s13280-016-0833-2.
- Reddy, Y., & Peta, W. (2017). Sustainable energy solutions for South African local government: a practical guide: Sustainable energy Africa. Available at: http://www.cityenergy.org.za/uploads/resource_434.pdf.
- Reddy, Y., & Wolpe, P. (2017). Sustainable energy solutions for South African local government: A practical guide. Cape Town: Sustainable Energy. Available at at: [https://www.sustainable.org.za/userfiles/process\(2\).pdf](https://www.sustainable.org.za/userfiles/process(2).pdf).
- Republic of South Africa, (2015). Disaster Management Act (Government Gazzette). Available at <https://static.pmg.org.za/151215Act16of2015DisasterManAmendAct.pdf>.
- Republic of South Africa (2012). National Development Plan Vision 2030. Available at: <https://www.gov.za/issues/national-development-plan-2030?gclid>.
- Republic of South Africa, (2011). National climate change response white paper. Pretoria. South Africa. Available at: <https://www.gov.za/issues/national-development-plan-2030>.
- RSA (2008). Accelerated and shared growth initiative for South Africa. Annual Report, April 2009. Available at: https://www.gov.za/sites/default/files/gcis_document/201409/asgisa2008.pdf.
- Republic of South Africa, (1996). Constitution of the Republic of South Africa, 1996. Available at: <https://www.gov.za/documents/constitution-republic-south-africa-1996>.
- Republic of South Africa, (N.d.). National Development Plan Vision 2030: Our future, make it work. Available at: https://nationalplanningcommission.files.wordpress.com/2015/02/ndp-2030-our-future-make-it-work_0.pdf.
- Resurrección, P., & Elmhirst, R. (2008). Gender, environment, and natural resource management: New dimensions, new debates. In P. Resurrección and R. Elmhirst, (Eds.), *Gender and Natural Resource Management: livelihoods, Mobility, and Interventions*. London, England: Earthscan. 33-43.
- Resurrección, P. (2013). Persistent women and environment linkages in climate change and sustainable development agendas. *Women's Studies International Forum*, 40, 33-43.

- Resurrección P., *et al* (2019). In the shadows of the Himalayan Mountains: Persistent gender and social exclusion in development. In: Wester P., Mishra A., Mukherji A., Shrestha A. (Eds.), *The Hindu Kush Himalaya assessment*. Cham: Springer. https://doi.org/10.1007/978-3-319-92288-1_14.
- Reyes, R. (2002). Gendering responses to El Niño in rural Peru. *Gender and Development*, 10(2), 60-69. Available at: <http://www.jstor.org/stable/4030575>.
- Richards, L., & Monie, M. (2007). *Readme first for a user's guide to qualitative methods*. (2nd ed.). Thousand Oaks, CA, USA: Sage.
- Ritchie, J., Lewis, J., Nicholls, C., & Ormston, R. (2014) (eds). *Qualitative research practice: a guide for social science students and researchers*. London, England: Sage.
- Robbins, P. 2004. *Political ecology: a critical introduction*. Oxford: Blackwell.
- Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (Eds.). (1996). *Feminist political ecology: Global issues and local experience*. London, England: Routledge.
- Romero-Lanka, P., Huges, S., & Rosas-Huerta, A. (2013). Institutional capacity for climate change responses: An examination of construction and pathways in Mexico City and Santiago. *Environment and Planning C: Politics and Space*, 31(5). Available at: <https://journals.sagepub.com/doi/10.1068/c1217>.
- Roy, M., & Venema, H. (2010). Reducing risk and vulnerability to climate change in India: The capabilities approach. *Journal of Gender and Development*, 10(2) 78-83).
- SAHO, (n.d.) History of women's struggle in South Africa. Available at: [www.sahistory.org.za>article>women-and-struggle-against-apartheid](http://www.sahistory.org.za/article/women-and-struggle-against-apartheid).
- Sandelowski, M. (2001). Real qualitative researchers do not count: The use of numbers in qualitative research. *Research in Nursing Health*, 24(3), 230-240. Doi: 10.1002/nur.1025. PMID: 11526621.
- Sandra, H. (Ed.). (2004). *The feminist standpoint theory reader*. New York & London: Routledge.
- Sara, C., & Vittorio, I. (2019). 'From cyclone to food crisis: Ensuring the needs of women and girls are prioritised in the cyclone Idai and Kenneth response'. Available at: <https://policy-practice.oxfam.org.uk/publications/from-cyclone-to-food-crisis-ensuring-the-needs-of-women-and-girls-are-prioritized-620840>.

- Serrat, O. (2010). *Political analysis for development effectiveness*. Washington, D.C: Asian Development Bank.
- Serrat, O. (2017). Political economy analysis for development effectiveness. In: Knowledge Solutions. Springer, Singapore. Available at: https://doi.org/10.1007/978-981-10-0983-9_2. 207-222.
- Schimdth-Thome, P. (2017). Climate change adaptation. *Oxford Research Encyclopedia of Climate Science*. DOI: 10.1093/acrefore/9780190228620.013.635.
- Scot, J., Rosenberg, J., Edmonds, A., Cushman, M., Darwin, F., Yohe, W., Leibetrau, M., Hunsaker, T., Bruns, A., DeAngelis, L., & Hales, M. (1990). Consequences of climate change for the human environment. *Climate Research*, 1, 63-79.
- Shewmake, S. (2008). ‘Vulnerability and the impacts of climate change in South Africa Limpopo River Basin’. Discussion Paper of the International Food Policy Research Institute, October 2008.
- Simien, E. (2004). Black feminist theory. *Women and Politics*, 26(2), 81-093.
- Smith, J., Raglan, S & Pitts, G. (1996). A process for evaluating anticipatory adaptation measures for climate change. *Water, Air and Soil Pollution*, 92: 229–238.
- Solly, M. (2020). 158 Resources to understand racism in America. Available at: <https://www.smithsonianmag.com/history/158-resources-understanding-systemic-racism-america-180975029/>.
- Republic of South Africa, Department of Environmental Affairs, DEA. (2019). Draft National Climate Change Adaptation Strategy. Available at: https://www.egsa.org.za/wpcontent/uploads/2019/05/draftnational_climatechange_adaptationstrategy_g42446gon644.pdf.
- South African Department of Local Government and Provincial and Business Trust. (N.d). ‘Inanda, Ntuzuma and Kwamashu nodal economic development Profile’. Available at: http://www.durban.gov.za/Documents/City_Government/IDP_Policy/01%20INK_narrative.pdf.
- South Africa’s National Framework for women empowerment and gender equality. (2000). Available at: https://www.environment.gov.za/sites/default/files/docs/national_policy_framework.pdf.

- Stein, D., & Valters, C. (2012). Understanding theory of change in international development. *The Justice and Security Research Programme*. London, England: London School of Economics and Political Science.
- Stoddart, M & Tindall, D. (2011). "Ecofeminism, Hegemonic Masculinity, And Environmental Movement Participation in British Columbia, Canada, 1998-2007: "women always clean up the mess"". *Sociological Spectrum*. 31 (3), 342–368. doi:10.1080/02732173.2011.557065.
- Swedish International Development Agency, SIDA. (2015). Gender mainstreaming. (Online). Available at: <https://www.sida.se/contentassets/3a820dbd152f4fca98bacde8a8101e15/gender-tool-mainstreaming.pdf>.
- Tapscott, C. (2017). South Africa in the twenty-first century: Governance challenges in the struggle for social equity and economic growth. *Chinese Political Science Review*, 2, 69–84. <https://doi.org/10.1007/s41111-017-0055-1>.
- Taylor, A., Cartwright, A., & Sutherland, C. (2013). Institutional pathways for local climate adaptation: A comparison of three South Africa municipalities. Research Report. Available at: https://www.africancentreforcities.net/wpcontent/uploads/2014/06/FocalesN18_GB_WEB_BD.pdf.
- Theisen, O., Gleditsch, N., & Buhaug, H. (2008). ‘Implications of climate change for armed Conflict’. Working paper presented to the world bank workshop on social dimensions of climate change. The World Bank, Washington DC, 5–6 March 2008.
- Thompson-Hall, M., Pascual, U., & Carr, E. (2016). Enhancing and expanding intersectional research for climate change adaptation in agrarian settings. *Ambio*, 45(3), 373–382 DOI: 10.1007/s13280-016-0827-0.
- Tscharkert, P., Gill, T., Sallu, S., Ziervogel, G & Shackleton, S. (2015). Why is socially-just climate change adaptation in sub-Saharan Africa so challenging? A review of barriers identified from empirical cases. *WIREs Climate Change*, 6, 321–344. doi: 10.1002/wcc.335.
- Tummers, L., & MacGregor, S. (2019). Beyond wishful thinking: A feminist political ecology perspective on commoning, care and the promise of co-housing. *International Journal of the Commons*, 13(1), 62–83.
- Turpie, J., & Visser, M. (2013). The impact of climate change on South Africa’s Rural Areas.

- Available at: [www.ffc.co.za>docman-menu-item>commission-submission>300-chapter](http://www.ffc.co.za/docman-menu-item>commission-submission>300-chapter).
- Uma, N. (2004). "The Project of feminist epistemology: Perspectives from a non-western feminist." In Harding, S. (Ed.), *The feminist standpoint theory reader*. New York & London: Routledge.
- UNESCO, (2017). UNESCO moving forward the agenda for 2030 sustainable development goals. Available at: <https://en.unesco.org/creativity/sites/creativity/files/247785en.pdf>.
- United Nations Development Programme, UNEP. (2010). Gender and climate change in Africa. Policy brief 1: General overview.
- UNDP (2011). Overview of linkages between gender and climate change. Available at: https://Users/udofi/Downloads/PB1_Africa_Overview-Gender-Climate-Change.pdf.
- United Nations, (2018). Turning promises into action: Gender equality in the 2030 agenda for sustainable development. Available at: www.unwomen.org/-media/headquarters/attachments.
- UNFCCC, (1992). 'United Nations Framework Convention on Climate Change'. Available at: <https://unfccc.int/resource/docs/convkp/conveng.pdf>.
- UN Women. (2019). Progress of the world's women 2019 -2020. New York: United Nations Women. Available online at: <https://data.unwomen.org/progress-of-the-worlds-women>.
- UN News (2020). 'Many Mozambicans still struggling to get back on their feet, one year after cyclone. 13 March 2020. Available at: <https://news.un.org/en/story/2020/03/1059411>.
- van Wyk, B. (n.d.). Research designs and methods: Part I. Cape Town: University of the Western Cape, South Africa.
- van Zyl, A., (2003). 'The fiscal autonomy of provinces in the 1996' Constitution and in practice. *Politeia*, 22(1), 22-37.
- Vasileiou, K., Barnett, J., & Thorpe, S. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. *BMC Med Research Method*, 18(1), 148. DOI: 10.1186/s12874-018-0594-7.
- Veuthey, S., & Gerber, J-F. (2010). Logging conflicts in Southern Cameroon: A feminist

- ecological economics perspective. *Ecological Economics*, 70, 170-177.
- Vincent K., Cull T, & Archer E (2010) Gendered vulnerability to climate change in Limpopo province, South Africa. Available at: <https://researchspace.csir.co.za/dspace/handle/10204/5873>.
- Yadav, S., & Lal, R. (2018). Vulnerability of women to climate change in arid and semi-arid regions of India and south Asia. *Journal of Arid Environments*, 149, 4 -17.
- Walker, C. (Ed.). (1990). *Women and gender in southern Africa to 1945*. Cape Town & London: David Philip and James Currey.
- Williams, D., Costa, M., Sutherland, C., Celliers, L., & Scheffran, J. (2019). Vulnerability of informal settlements in the context of urbanisation and climate change. *Environment and Urbanisation*, 31(1), 157 -176.
- Wisner, B., Blaikie, P., Cannon, T & Davis, I. (2004). *At Risk: Second Edition: Natural hazards, people's vulnerability, and disasters*. London: Routledge.
- Wolpe, P., & Reddy, Y. (2015). The contribution of low-carbon cities to South Africa's greenhouse gas emission reduction goals. Briefing on urban energy use and greenhouse gas emissions. Stockholm Environmental Institute. Available at: <https://mediamanager.sei.org/documents/Publications/Climate/Cities-low-carbon-future2015-South-Africa-briefing.pdf>.
- Zondi, M. (2011). Investigating the social and economic effect of Jabulani and Maponya malls on the residents of Soweto. MA dissertation, Stellenbosch: University of Stellenbosch, South Africa.

APPENDICES

APPENDIX 1: ETHICAL CLEARANCE LETTER



31 October 2019

Mr Fidelis Joseph Udo (215080831)
School Of Social Sciences
Pietermaritzburg Campus

Dear Mr Udo,

Protocol reference number: HSSREC/00000624/2019

Project title: GENDER AND CLIMATE CHANGE ADAPTATION IN SOUTH AFRICA: A CASE STUDY OF VULNERABILITY AND ADAPTATION OF LOCAL BLACK AFRICAN WOMEN TO FLOOD IMPACTS IN THE eTHEKWINI METROPOLITAN MUNICIPALITY

Full Approval – Expedited Application

This letter serves to notify you that your application received on 10 October 2019 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid for one year from 31 October 2019.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

Yours sincerely,

Professor Urmilla Bob
University Dean of Research

/dd

Humanities & Social Sciences Research Ethics Committee
Dr Rosemary Sibanda (Chair)
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS

APPENDIX 2: REQUEST LETTER TO ETHEKWINI MUNICIPAL SCHOOL OF LEARNING



15 May 2019.

The Manager,
eThekweni Municipal Institute of Learning,
eThekweni Metropolitan Municipality,
Durban.
Kind greetings,

A Request to Interview Personnel in your Department for Research Purpose

My name is Fidelis Joseph Udo. I am a doctoral student at the School of Social Sciences, College of Humanities, University of KwaZulu-Natal, Pietermaritzburg. I am doing a research entitled: *Gender and Climate Change Adaptation in South Africa: A Case Study of the eThekweni Metropolitan Municipality, KwaZulu-Natal Province*. I am seeking to interview personnel directly responsible for climate change adaptation policy formulation and implementation in the municipality. This is likely to include staff from the Climate Adaptation Planning and Protection and those from the Cooperative Governance and Traditional Affairs sections of the municipality. The interview seeks to gather information on how climate change adaptation programmes and policies in the municipality responds to the needs to local women's vulnerability to climate impacts. The information gathered will be used solely for research purpose. The information gathered from the interviews will be securely coded, and no individual responses will be identified or revealed. I write to seek your permission, in form of a formal written letter to conduct this interview at your department.

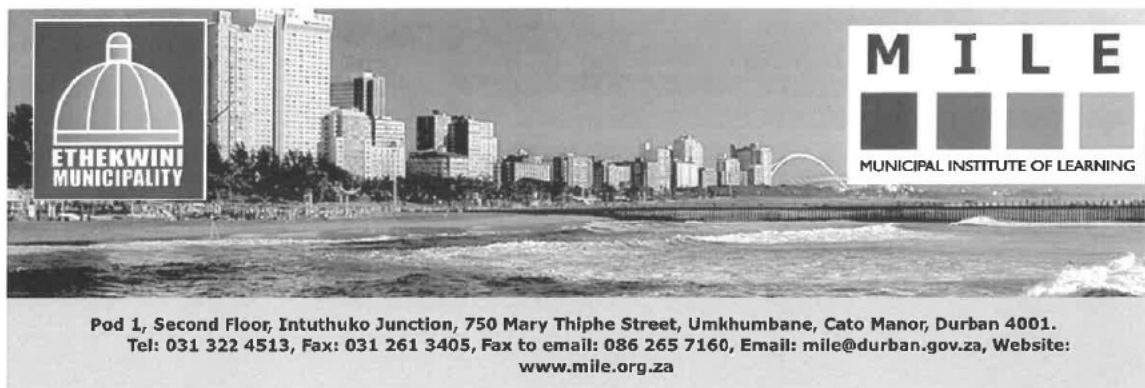
I can be contacted at: School of Social Sciences, University of KwaZulu-Natal, Scottsville, Pietermaritzburg. Email: udofidelisj@gmail.com; Cell: 0784342000.

My supervisor is **Professor Maheshvari Naidu**, who is located at the School of Social Sciences, Howard College Campus, Durban of the University of KwaZulu-Natal. Contact details: email: naiduu@ukzn.ac.za Phone number: +27312607657.

The Humanities and Social Sciences Research Ethics Committee contact details are as follows:

Ms Phumelele Ximba, University of KwaZulu-Natal Research Office, Email: ximbap@ukzn.ac.za phone number +27312603587.

APPENDIX 3: GATE KEEPER'S PERMISSION LETTER FROM ETHEKWINI MUNICIPALITY'S SCHOOL OF LEARNING



For attention:
Chair of Ethics Committee
College of Humanities
School of Social Science
University of KwaZulu Natal
Pietermaritzburg Campus
Durban
4001

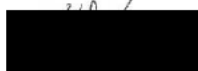
3 July 2019

RE: LETTER OF SUPPORT TO F.J UDO, STUDENT NUMBER 215080831 - GRANTING PERMISSION TO USE ETHEKWINI MUNICIPALITY AS A CASE STUDY

The Environmental Planning and Climate Change Department (EPCPD) and eThekweni Municipal Academy (EMA), have considered a request from Mr Fidelis Joseph Udo to use eThekweni Municipality as a research study site leading to the awarding of a Doctor of Philosophy degree. The dissertation title is noted as **"GENDER AND CLIMATE CHANGE ADAPTATION IN SOUTH AFRICA: A CASE STUDY OF VULNERABILITY AND ADAPTATION OF LOCAL BLACK AFRICAN WOMEN TO FLOOD IMPACTS IN THE ETHEKWINI METROPOLITAN MUNICIPALITY"**

We wish to inform you of the acceptance of his request and hereby assure him of our utmost cooperation towards achieving his academic goals; the outcome which we believe will help our municipality improve on its service delivery outcome. The student is reminded of the ethical considerations when undertaking this study. In return, we stipulate as conditional that Mr Udo contacts Collin Pillay, Program Manager at MILE (collin.pillay3@durban.gov.za) to present the results and recommendations of this study to the related unit/s on completion of her research study, accompanied by his academic supervisor.

Wishing Mr Udo all the best in his studies.



Dr S. O'Donoghue
Sen. Manager: EPCPD
eThekweni Municipality



Mr C. Pillay
Program Manager: MILE
eThekweni Municipality

I, Fidelis Joseph Udo, hereby accept as conditional that I will comply fully as per the conditions stipulated above.

Signed:



Date:

03/07/2019

APPENDIX 4: INFORMED CONSENT DECLARATION FORM – ENGLISH

DECLARATION

I..... *(full names of participant)* hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire. I understand the intention of the research. I hereby agree to participate.

I consent / do not consent to have this interview recorded (if applicable)

SIGNATURE OF PARTICIPANT

DATE

.....

APPENDIX 5: TEMPLATE OF INFORMED CONSENT – ISIZULU

Igama lami ngingu Joseph Udo, ngenza ucwaningo lweziqu zobudokotela e Nyuvesi yakwaZulu Natali (eMgungundlovu.) isihloko socwaningo sithi: ubulili kanye nokuguquka kwesimo sezulu eNingizimu Afrika.: inhloso yalolu cwaningo ukuhlola ukuthi ukuguquguquka kwesimo sezulu ngaphakathi komasipala waseThekwini kumathelela muni kubantu besifazane bakulendawo. Nginesifiso sokuba ngibe nengxoxo nawe lapho ngizobe ngikubuza imibuzo ethinta isihloko socwaningo.

Ngicela uqaphele:

- Lonke ulwazi olunikezayo 5 luzosetshenziselwa ucwaningo lwabafundi kuphela
- Awuphoqelekile ukuba ube ingxenye yalolucwaningo. Uma ukhetha ukuba yingxenye yalolucwaningo bese ukhetha ukkuhoxhisa phakathi nocwaningo ngeke uze ujeziswe ngalokho.
- Yonke imibono noma ulwazi ozolufaka kulolu cwaningo luzogcinwa luyimfihlo.
- Inhlolokhono izoba imizuzu engamashumi amahlanu kuya kwengamashumi amathathu.
- Lonke ulwazi oluthinta lolucwaningo luzogcinwa endaweni ephephile futhi eyimfihlo ezokwaziwa umcwaningi kanye nomeluleki wakhe.
- Uma uvuma ukuba yingxenye yalolu cwaningo ungasayina ipheshana elikulesitathimende.

Uma udinga ukuxhumana nami:

Indawo: Isikole sesayensi yenhlalo(Social Science), eNyuvesi yaKwaZulu Natali eMgungundlovu

Email: udofidelisj@gmail.com

Inombolo yocingo: 0784342000.

Uma udinga ukuxhumana nomeluleki wami, Igama: Professor Maheshvari Naidu

Indawo: School Of Social Science, Nyuvesi yaKwaZulu Natali eHoward college (eThekwini)

Email: naiduu@ukzn.ac.za; Inombolo yocingo: 0312607657.

Ungaxhumana ne college of Humanities and Social Science Research Ethics Committee:

Igama : Phumelele Ximba; Indawo: university of KwaZulu Natal, Research Office;

Email: Ximbap@ukzn.ac.za

Ngiyabonga.

APPENDIX 6: INFORMED CONSENT DECLARATION FORM- ISIZULU

Isibophezelo

Mina.....(igama) ngiyaqinisekisa ukuthi ngiyayiqonda yonke imininingwane yalolu cwaningo, ngakho ngiyavuma ukuba ingxenye yalolu cwaningo.

Ngiziqonda ukuthi nginelungelo lokuhoxisa kulolu cwaningo nanoma inini nganoma isiphi isikhathi uma ngibona isidingo sokuba ngihoxise. Ngiziqonda izinhloso zalolu cwaningo ngakho ngiyavuma ukuba yingxenye yalo

Ngiyavuma/Angivumi ukuba ingxoxo yethu iqoshwe (recorded).

Sayina

usuku

.....

APPENDIX 7: INTERVIEW SCHEDULE FOR LOCAL WOMEN PARTICIPANTS – ENGLISH

1. How old are you?
2. What level of education have you attained?
3. What do you do for a living?
4. What is your average monthly income?
5. For how long have you lived in this... (*Name of the location*)?
6. Have you been affected by any incident of flood in this area in the past? If yes, how many times have you experience the flood incidents in the area?
7. Specifically, how did the flooding incidents you experienced affect your business, farming, etc? (depending on occupation)
8. Can you recall different other ways that the flood incidents affected you?
9. What would you say was the reason you had to experience the different challenges (if any) that you as a result of the flood incidents?
10. How did you manage to survive through with the flood incidents?
11. Who assisted you in trying to cope with the flood incidents?
12. How did the eThekweni municipality workers or officials help you and other women in terms of getting accommodation, food, water, clothing, and health recovery?
13. Were you happy with the assistance you received from the municipality?
14. What assistance do you think you would need from the municipality to help you cope with the flood incidences and other such incidences in the future?
15. Apart from eThekweni municipality, which other individual or group – for example NGO - that assisted you manage through the problems caused by the flooding?
16. Are you a member of any women or any other form of support group in the community or anywhere? If yes, how did the group help you to cope with the flood incidents?
17. Are there any rules in the community that make it difficult for you being a woman to cope with issues of flood”?

18. Do the community rules allow you to own land, property, or borrow money to start any business?

19. How would you like such rules, if any, to change to make it easy for you in the future to survive any flood incidents?

Thank you for your participation!!!

APPENDIX 8: INTERVIEW SCHEDULE FOR MUNICIPAL PERSONNEL – ENGLISH

1. What is your position in the department?
2. What roles does your position in the department entail?
3. From your experience, how does the department respond to flood disaster in the area?
4. What specific challenges do you think Black women may be facing as a result of the flood incidents within the eThekweni municipality?
5. How does the department's response to the flood incidents take these specific challenges, if any, into consideration during intervention?
6. Are there specific policies or strategies in the department that specifically focus at helping local women within the municipality to cope with flood incidents?
7. If any, how were the strategies implemented during the past flood incidents?
8. How have these specific initiatives or strategies, if any do, help the black women cope with the events of the flood? Any concrete result?
9. How do the municipality staff collaborate with Ingonyama Inkosi (Community Leaders) in responding to flood incidents in the rural settlements' locations?
10. Do you have any idea of how such collaboration help in responding to specific issues faced by these local women adapt to flood incidents?
11. Any suggestions of anything that need to be changed in the way the municipality responds to women's vulnerability to floods that will yield a better result?

APPENDIX 9: INTERVIEW SCHEDULE FOR LOCAL PARTICIPANT – ISIZULU VERSION

1. Isingeniso somcwaningi kanye nenhloso yocwaningo
2. Uneminyaka emingaki?
3. Iliphi izinga lemfundo oselifinyelele?
4. Ngabe wenzani ngokuziphilisa?
5. Uyini umholo wakho wenyanga?
6. Uhlale isikhathi esingakanani kulokhu... (Igama lendawo)?
7. Ngabe wake wathinteka kunoma yisiphi isigameko sezikhukhula kule ndawo phambilini?
Uma kunjalo, sekukangaki lapho uhlangabezana nezigameko zezikhukhula endaweni?
8. Ngokuqondile, izigameko zezikhukhula ohlangabezana nazo zilithinte kanjani ibhizinisi lakho, ukulima, njll? (kuya ngomsebenzi)
9. Ungakhumbula ezinye izindlela ezahlukahlukene ezikuthinte ngazo izehlakalo zezikhukhula?
10. Yini ongathi yisona sizathu esenza ukuthi uhlangabezana nezinsalelo ezahlukahlukene (uma zikhona) wena ngenxa yezigameko zezikhukhula?
11. Ngabe ukwazile kanjani ukusinda kulezi zigameko zezikhukhula?
12. Ubani osizile ukuzama ukubhekana nezigameko zezikhukhula?
13. Abasebenzi bakaMasipala weTheku noma izikhulu zikusize kanjani wena nabanye abantu besifazane mayelana nokuthola indawo yokuhlala, ukudla, amanzi, izembatho, nokuvuselela impilo?
14. Ngabe ujabule ngosizo olutholile kumasipala?

15. Yiluphi usizo ocabanga ukuthi luzodingeka kumasipala ukukusiza ukwazi ukubhekana nezimo zezikhukhula kanye nezinye izehlakalo ezinje ngokuzayo?
16. Ngaphandle kukaMasipala weTheku, yiliphi elinye iqembu noma iqembu - ngokwesibonelo i-NGO - elikusizile ukuphatha ezinkingeni ezidalwe yisikhukhula?
17. Ngabe uyilungu labesifazane noma yiluphi uhlobo lweqembu lokusekelwa emphakathini noma kwenye indawo? Uma kunjalo, leli qembu likusize kanjani ukuthi ubhekane nezimo zezikhukhula?
18. Ngabe ikhona imithetho emphakathini eyenza kube nzima ngawe ukuthi ungowesifazane ukubhekana nezinkinga zezikhukhula ”
19. Ngabe imithetho yomphakathi ikuvumela ukuba ube nomhlaba, impahla, noma uboleke imali ukuqala noma yiliphi ibhizinisi?
20. Ungathanda ukuthi imithetho enjalo, uma ikhona, ishintshe ukwenza kube lula kuwe ngokuzayo ukusinda kunoma yiziphi izehlakalo zesikhukhula?

Ngiyabonga ngokubamba iqhaza kwakho !!!

APPENDIX 10: INTERVIEW SCHEDULE FOR MUNICIPAL PERSONNEL - (ISIZULU)

Isingeniso: igama, isikhungo, inhloso yocwaningo, kanye nezindlela zokuziphatha ezibandakanyekile kwinhlolelokhono.

1. Sithini isikhundla sakho emnyangweni?
2. Ngabe isikhundla sakho emnyangweni sihlenganisa ziphi izindima?
3. Ngokwazi kwakho, umnyango usabela kanjani enhlekeleleni yesikhukhula endaweni?
4. Ngabe uthini umbono wakho ngezinsalelo ezithile abesifazane abaMnyama okungenzeka babhekana nazo ngenxa yezikhukhula, amadoda okungenzeka angabhekana nazo?
5. Ngabe impendulo yomnyango kulezi zigameko zezikhukhula izithatha kanjani lezi zinsalelo ezithile, uma zikhona, uma kubhekwa ukungenelela?
6. Ngabe kukhona izinkambiso ezithile noma izinqubomgomo noma amasu emnyangweni acacisiwe ekusizeni abesifazane bendawo kumasipala ukubhekana nezigameko zezikhukhula?
7. Uma ikhona, ngabe le mikhakha noma amasu asetshenziswa kanjani lapho kungenelela ezenzakalweni zezikhukhula ezedlule?
8. Lezi zinsalelo noma amasu athile, uma kukhona enza, asiza kanjani abesifazane ukubhekana nezehlakalo zezikhukhula? Noma yimuphi umphumela ukhonkolo?
9. Abasebenzi bakamasipala basebenzisana kanjani neNgonyama Inkosi (Abaholi Bomphakathi) baphendula kanjani kwizigameko zezikhukhula ezindaweni zokuhlala zasemakhaya?

10. Ngabe unawo umbono wokuthi ukusebenzisana okunjalo kusiza kanjani ekuphenduleni ezinkingeni ezithile abahlangabezana nazo laba besifazane bendawo ekubhekaneni nezigameko zezikhukhula?

11. Noma yiziphi iziphakamiso zanoma yini edinga ukushintshwa ngendlela umasipala aphenula ngayo engcupheni yabesifazane kwizikhukhula ezizothela imiphumela engcono?

APPENDIX 11: LETTER FROM THE THESIS EDITOR



KAREN RUNGE:

PROOFREADING AND MANUSCRIPT EDITING

+27 (0) 71 282 8304
rungekaren@gmail.com

07 December 2020

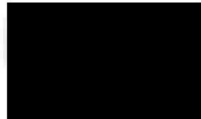
1 Miller Street
Howick
3290
KwaZulu Natal
Republic of South Africa

To Whom It May Concern

This letter serves to certify that the 2019/2020 PhD thesis by Fidelis Joseph Udo has been proofread for grammar, spelling and punctuation by the undersigned, and that a number of corrections were recommended.

I the undersigned take no responsibility for corrections and amendments not implemented in the final copy submitted for examination purposes.

Sincerely yours,



Karen Runge