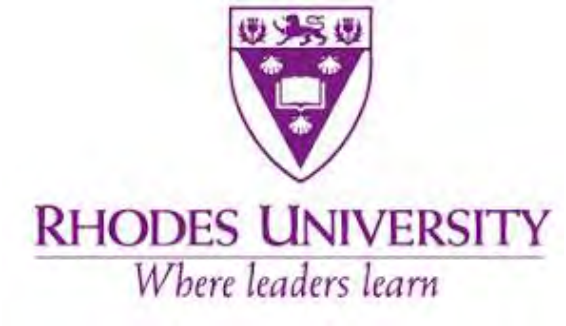

Exploring the influence of power dynamics on collaborative governance in the Thukela Catchment

By

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ABSTRACT

South Africa is a water-scarce country with unequally distributed water. This dilemma has been brought about by insufficient water supply and governance fragmentation, among other drivers. The democratic national water policies (National Water Act No. 36 of 1998) intend to foster collaborative water governance (CWG), where stakeholders within catchments must come together to learn and share decision-making responsibility through collaborative platforms that should ensure the sustainability and equitable distribution of water resources. Still, CWG is not functioning well in most parts of the country, partly due to power dynamics that compromise these platforms' success. This study, therefore, aimed to explore the influence of power dynamics on collaborative governance processes and outcomes in the Upper Thukela Catchment (UTC). It did this by identifying the roles of stakeholders, looking into the nature of power dynamics among stakeholders and how these affect collaborative processes, and by examining how power dynamics interact with resources and mechanisms to influence collaborative governance outcomes. The research used two interrelated conceptual frameworks (Franks and Cleaver (2007) and the 4Rs framework (Mayers, 2005)) to explore power dynamics. The study was conducted through qualitative research using a case study approach, which consists of data collection methods such as in-depth semi-structured interviews, document review, direct observation and participant observation.

The 4R^{s} framework highlighted the insufficient involvement of critical stakeholders in water governance, specifically those from the public sector with water management and governance authority rights. The analysis also exposed conflicting relationships among stakeholders involved in water governance, mostly stemming from some public sector stakeholders evading roles and responsibilities, a lack of trust, and limited access to information. These factors contribute to challenges and tensions within the water governance landscape in the UTC. The research also showed that the presence of different political parties in the water governance and management space seems to be the primary roots of the power dynamics that

affect the processes of water governance and management. Political parties contesting power over the same communities led to conflict, corruption, competition, negligence, and sabotage. These challenges impact operational flow, service delivery, sense of urgency, and decision-making. Thus, the nature of power dynamics in collaborative governance processes further exposed the underlying issue of limited statehood. Application of the Franks and Cleaver (2007) framework revealed that through their influence on power dynamics, resources and mechanisms of access affect livelihoods and catchment outcomes. The study contributes to the body of knowledge on the influence of power dynamics on collaborative governance and provides recommendations for further studies to improve collaborative water governance. It highlights the complex interplay between power dynamics, stakeholder participation, and water governance processes in the UTC. To improve collaborative water governance, it is crucial to address limited stakeholder participation, mitigate the negative influence of political parties, and meaningfully empower local communities.

Keywords: Power dynamics, stakeholder participation, catchment management, collaborative water governance, decision-making, Upper Thukela Catchment.

DECLARATION

I, Philisa Dunyana, hereby declare that this thesis is my original work, and that all the sources consulted have been duly acknowledged within the text and list of references. The thesis is submitted in full fulfilment for the Master of Science in Environmental Science degree in the Faculty of Science at Rhodes University. This thesis has not been previously submitted for a degree or examination at any other university.

Signature:  . Date: 17th September 2024

DEDICATION

To my beloved mother, Emcy Bekizulu, who passed away in 2021. Though your passing in November 2021 left an immense void and forever changed my perspective, your unwavering belief in education continues to resonate. Your words, "*bantwana bam ndifuna nifunde ningafani nam, imfundo izonivulela amathuba*" (My children, unlike me, I want you to be educated, education will open doors for you), echoed in my mind and fueled my determination throughout this journey. Thank you, Mafaku, for your unwavering support, especially during that final conversation, which is a cherished memory that gave me strength and closure.

ACKNOWLEDGEMENTS

This journey started when I was awarded a SANBI Living Catchment Bursary without a university placement. Rhodes University took longer to process my master's application, and the time was not on my side. I contacted my mentor, Dr. Anton Schmidt, from Nelson Mandela University, hoping he knows someone to help fast-track my application. He got a terrific woman, Prof. Tally Palmer, who helped me with kindness and patience to secure the placement, and the university supervisor, Dr Jessica Cockburn.

Dr Jessica Cockburn (Jess) took a chance on a stranger and welcomed me with open arms. I was also nervous about having a supervisor that I knew nothing about because I heard that a scholar and supervisor need to be on excellent terms, which will make the journey of the Scholar. Indeed, Jess and I had a fantastic relationship. Jess did her best to make my journey bearable. As my co-supervisor, she secured another tremendous person, Dr Rebecka Henriksson, from the University of KwaZulu Natal. These women provided endless support and advice and encouraged me in academic and personal growth. They also offered me a safe space to express my vulnerability without feeling judged. In addition, the late Mr Michael Malinga, MDF and my study participants played an important role.

Throughout this journey's good and bad times, I had my friends and family by my side for support. Firstly, through my travel partner, 'DES OG' Kwanele Siyengo (Kwanz). When we were anxious before supervision meetings or approaching deadlines, we comforted and inspired each other. My move to Rhodes University and Makhanda was easy, thanks to her. Before moving, I knew she was my friend. I met Papama Yose through Kwanz, who has become my close buddy and brother. I met pragmatic Regina. All four of us, the DES OGs, were inseparable and shared laughter, tears, and support. Secondly, my friends (Reliance Nenzhelele, Hlengiwe Hlongwane, Yondela Nqadala, Tandiswa Mata, Nobuhle Makhathini, Debosang Nazo, Simvuyele Jongidiza, and Athenkosi Mbaligontsi) offered me their attentive support (to discuss my thesis) uplifted me throughout my most challenging period. Lastly, through thick and thin, my family - siblings Olwethu, Sanelisiwe, Kuko, Babalo, nephew Khayone, and children Zimi and Nazi - remained a

source of unwavering inspiration, fueling my resilience during challenging times. They empowered me to press on and serve as constant reminders of the positive influence I strive to have for them.

In conclusion, what I just narrated shows that this journey would not be possible without these fantastic people I mentioned above, in addition to the SANBI Living Catchment staff (Alex Marsh, Dan'sile Cindi, Mahlodi Tau, and Namhla Mbona) and, above all else, God, who strengthens me throughout difficult times. I am, therefore, grateful to them beyond measure.

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ACRONYMS

4Rs	Rights, Responsibilities, Returns and Relationships
ADF	Amazizi Development Forum
BIB	Bergville Irrigation Board
CMA	Catchment Management Agency
CMF	Catchment Management Forum
CoP	Communities of Practice
CWG	Collaborative Water Governance
DSI	Department of Science and Innovation
DWS	Department of Water and Sanitation
EI	Ecological Infrastructure
INR	Institute of Natural Resources
IWRM	Integrated Water Resource Management
KZN	KwaZulu-Natal
LCP	Living Catchments Project
LF	Local facilitator
MDF	Mahlathini Development Forum
NDP	Northern Drakensberg Partnership
NDSWSA	Northern Drakensberg Strategic Water Source Area
NGO	Non-Governmental Organisations
NSFAS	National Student Financial Aid Scheme
NWA	National Water Act
OLM	Okhahlamba Local Municipality
OLM	Okhahlamba Local Municipality
RDI	Research Development and Innovation
RDI	Research Development and Innovation
RU	Rhodes University

RUHEC	Rhodes University Human Ethics Committee
SA	South Africa
SAEON	South African Environment Observation Network
SANBI	South African National Biodiversity Institute
SWSAs	Strategic Water Source Areas
TC	Traditional Council
UDM	UThukela District Municipality
UKZN	University of KwaZulu-Natal
UTC	Upper Thukela Catchment
UTMSP	Upper Thukela Multi-stakeholder Partnership
WC	Ward Councillor
WMA	Water Management Area
WRC	Water Research Commission
WSA	Water Service Authority
WUA	Water User Association
WWF-SA	World Wide Fund for Nature- South Africa

CHAPTER 1: INTRODUCTION

1.1 Background to the study

In South Africa, there has been a recent shift towards managing catchments (also known as river basins or watersheds) as integrated socio-ecological systems to address water security challenges that this water-scarce country faces (Palmer et al., 2015). Catchments are the natural scale that considers activities on land through abstracting, using, and returning water to natural resources (Department of Water and Sanitation, 2019). Catchments represent an appropriate level of water resource governance and management (Brown, 2011). Effective collaboration and engagement from various stakeholders who use water and influence land management are required at the catchment level.

The South African National Biodiversity Institute (SANBI) has employed the Communities of Practice (CoP) model to structure its policy engagements in the Living Catchments Project (LCP) to prioritise investment in ecological infrastructure (EI). The approach to catchment management is related to investment in ecological infrastructure in terms of planning, research, coordination, and implementation. EI refers to naturally functioning ecosystems that deliver valuable services (Botha et al., 2014). Well-functioning ecological infrastructure (such as wetlands, rivers, and corridors of natural habitat) increases the resilience of landscapes to climate change, lessens the cost of fixing built infrastructure (e.g., dams) after events such as flooding, and ensures that people can benefit from ecosystem services (Mbopha et al., 2021).

In practice, implementers and managers have encountered obstacles that emerge from the social context in which their programmes are implemented. These complexities are linked to governance arrangements. It is, therefore, proven challenging to build robust collaborative partnerships between experts (such as researchers and policy practitioners) and implementers working in ecological and built infrastructure environments (Reed et al., 2016; Schreiner, 2013). The strategies to address these obstacles are not thoroughly investigated (SANBI, 2020).

My research uses a critical case study approach to understand how collaborative governance processes and outcomes could be improved. I am focusing on producing policy-relevant research. I will explore the influence of power dynamics from the participants' perspectives within and across jurisdictional levels of governance. Findings from the above will feed into the SANBI policy advice work and hopefully improve collaborative water governance in South Africa.

1.2 Project context

1.2.1 The Living Catchments Project

Freshwater availability is among the three most significant challenges worldwide (Koutroulis et al., 2019). According to Meissner et al. (2018) South Africa (SA) is among the top water-stressed countries. SA is in the top 40 driest countries in the world, with an annual average rainfall of 497 mm. In addition, SA's economic development rate is dependent on its water security (Steyn et al., 2019; Meissner et al., 2018).This is precisely why the South African government addressed the issue by developing the Water Research Development and Innovation (RDI) Roadmap and launching other strategic interventions to improve the country's water governance and management (SANBI, 2020).

The Water Research Commission (WRC), the Department of Science and Innovation (DSI), and the Department of Water and Sanitation (DWS) collaborated to develop the Water RDI Roadmap, a high-level intervention in planning. Hence, the Living Catchments Project (LCP) addresses Supply Cluster 3's RDI Roadmap. Cluster 3 can be explained as "*Improve adequacy and performance of supply infrastructure by enabling collaboration, co-learning, and co-creation among researchers, development practitioners, communities, traditional leaders and policy practitioners at the nexus of the built and ecological infrastructure for water security*" (SANBI, 2020). To contribute to the Water RDI, SANBI launched the LCP in cooperation with the WRC and DSI. The LCP is a collaborative effort aiming to strengthen the enabling environment for water governance in South Africa. The Living Catchments Project's central focus is on co-learning and co-creation through CoP to enable collaboration (Cluster 1), to scale up the practice of

transformative social learning (Cluster 2), and to improve policy advice and engagement in Cluster 3, which is the main focus of this research (**Figure 1.1**) with the water sector to contribute to the Water RDI Roadmap (SANBI, 2020). I am studying power dynamics in collaborative water governance to help understand how different stakeholders influence decision-making. This knowledge can allow policymakers to craft advice and engagement strategies that ensure all voices are heard and lead to more equitable and effective water management solutions. In addition, studying power can allow for crafting policy advice and engagement that addresses inequalities and fosters trust (equitable), empowers marginalised groups with resources and knowledge to participate meaningfully (practical), and leads to solutions with broader buy-in and long-term viability (sustainable). Strengthen

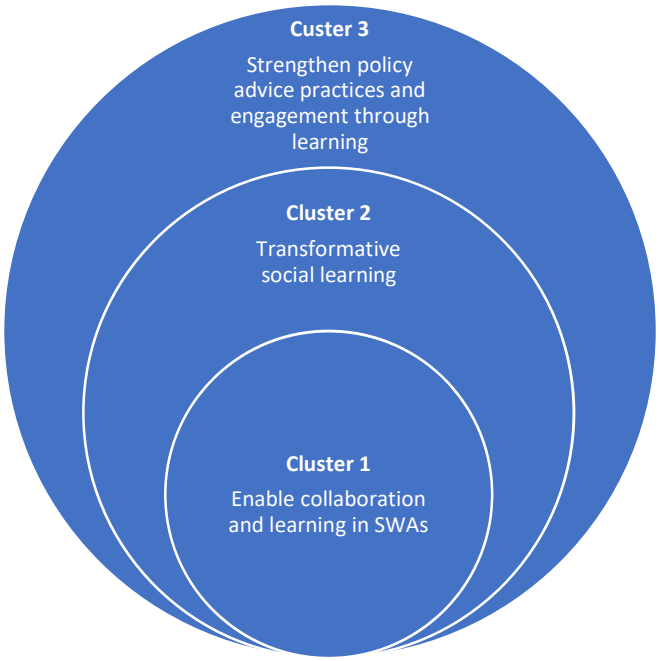

Figure 1.1: The LCP is designed to bridge the gap between learning practice and policy advice.

The Living Catchments Project is an ongoing project that was established in 2019. Thus, this MSc project is positioned in this bigger project, specifically under Cluster 3, and the study site will be the Upper Thukela Catchment (UTC). The MSc project intended to recognise how improved decision-making is contingent on factors beyond policies, including relational dynamics

and institutional cultures. The project will draw on lessons learned emerging from Cluster 1 and 2. The LCP is implemented in the four Strategic Water Source Areas (SWSAs) (LeMaitre et al., 2018): the Mzimvubu Catchment, the Berg-Breede Catchment, the Thukela Catchment, and the Olifants Catchment. These SWSAs are crucial for water security and deserve protection through improving water governance.

1.2.2 The Upper Thukela Catchment

The project is located in the Upper Thukela Catchment (UTC), one of the South African SWSAs that form part of the LCP. The Upper Thukela River Catchment is delineated from its headwaters at the outflow of the uKhahlamba Drakensberg National Park to the confluence of the Klip River (Department of Water and Sanitation, 2020). Stakeholders provided input into delineating integrated units of analysis of the catchment. The Thukela River is the principal river of the province of KwaZulu-Natal and the country's largest river in terms of volume (Taylor et al., 2001). The specific study site lies in the upper reaches of the Thukela Catchment in Bergville town (**Figure 1.2**).

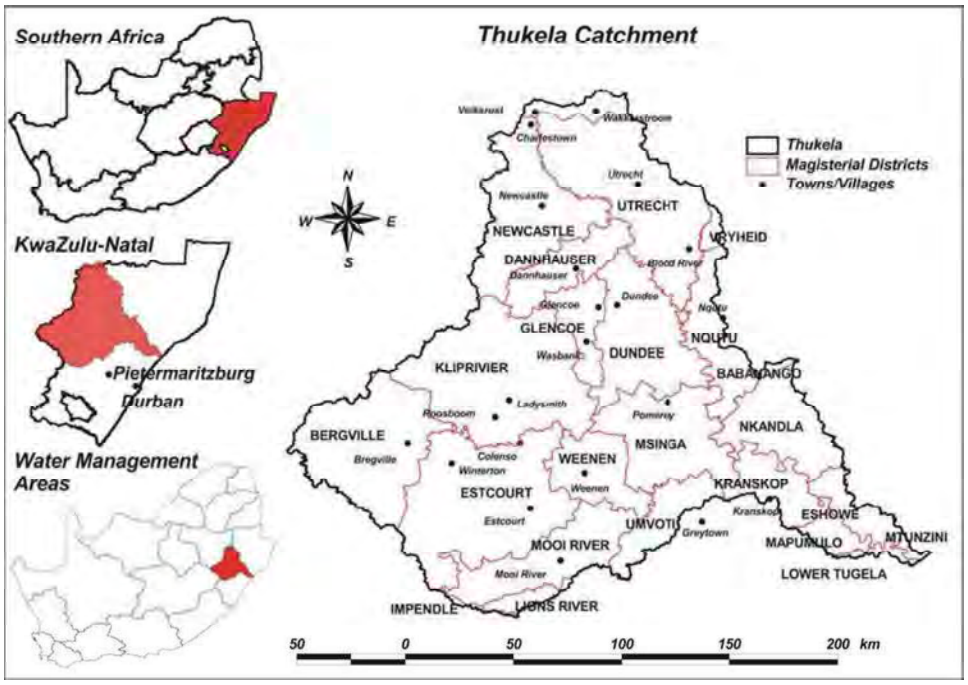

Figure 1.2: The case study focused on the Upper Thukela Catchment (UTC) near Bergville town in the western part of the catchment area (Andersson et al., 2009).

The total catchment area of 29 036 km^2 originates at Mont-aux-Source in the Drakensberg Escarpment and flows until it reaches the Indian Ocean near Durban (Schulze et al., 2005). The watershed is hydrologically complex, characterised by significant geographical and temporal variability, unpredictable seasonal climate, and streams polluted by high sediment concentrations and acidic mine drainage (Chikozho, 2005). Much of the catchment is rural, with little infrastructure development but densely populated. The land use around the catchment consists of commercial agriculture, industrial economies, and substance farming in unimproved grassland, where impoverished communities are dependent (Chikozho, 2005).

The Thukela Catchment falls under the Thukela Water Management Area (WMA). The Catchment Management Agency (CMA) within Thukela WMA is not functional. Until the CMA is established and fully operational, the Regional Office of DWS will govern the water resources in the UTC (Karar and Seetal, 2000).

The UTC is home to a diversity of people, including subsistence farmers who live on communal land administered by the Traditional Authorities (specifically eMazizini, eMangwaneni, and eMaswazi), commercial farmers who operate on privately owned land, and residents of Bergville and Winterton's urban centres. Marginalised Communities in these regions experience the most significant challenges in accessing water for both household use and agricultural purposes (Loza et al., 2023). The watershed has strong ties to Gauteng Province because of the Thukela water transfer scheme, which entails pumping water from the Thukela River into the Vaal River (Andersson et al., 2009), and note that Gauteng Province is SA's economic hub (Jacobs et al., 2023).

Various projects are being implemented to strengthen the ecological infrastructure, its services, and those offered by built infrastructure. This includes studies sponsored by the WRC

and works funded through the World Wide Fund (WWF), facilitating collaborations with the private sector. For example, one project, funded by the WRC and led by the University of KwaZulu-Natal (UKZN), collaborates with the South African Environment Observation Network (SAEON) and the Mahlathini Development Foundation (MDF) to achieve sustainable and equitable land and water management in local communities. The method entails the spatial mapping of locally specified land uses and the ecosystem services they provide and testing and assessing management practices and innovations to improve land and water management's sustainability. MDF is also collaborating with several communities in the catchment to evaluate alternative conservation agriculture strategies that may be used to adapt to and mitigate climate change. In addition, MDF assists the Institute of Natural Resources (INR) in convening (multi-stakeholder partnership) the LCP in the Upper Thukela Catchment.

Environmental challenges have emerged due to widespread deterioration caused by overgrazing and water quality issues associated with illegal mining and heavy industry. Due to the limited water supply in the Thukela, water management systems in the catchment face significant challenges. Several efforts have been limited by the country's new water governance structure, which emerged from a national water sector reform programme (Chikozho, 2005). Despite South Africa's solid water policy (National Water Act of 1998), which other countries are implementing, translating it into practical action can be challenging here in SA. For instance, decades later, out of 19 Catchment Management Agencies (CMA), only nine were set up, and only two were operational (Herrfahrdt-Pähle, 2014). This is due to conflict between the stakeholders integrating CMAs and the Department of Water and Sanitation, in addition to issues of capacity and coordination (Stuart-Hill et al., 2020).

Other challenges include different governance styles, various stakeholders' interests, discordancy between formal and informal water institutions, and insufficient political will to support water governance (Stuart-Hill et al., 2020); (Olagunju et al., 2019). According to Olagunju et al. (2019), these challenges affect the local scale, particularly in rural communities and informal settlements. These issues are especially evident in water access and distribution bias (Olagunju et al., 2019). For example, in this study area, marginalised people struggle to access essential

water services and are primarily water insecure. Therefore, to satisfy both catchment ecological integrity and livelihoods, it is crucial to integrate water issues into policy and decision-making. Consequently, understanding how water governance works is vital to ensure water security and sustainability (Lenaerts et al., 2013).

1.3 Study aim and research questions

This study aims to understand the influence of power dynamics on collaborative governance processes and outcomes in the Upper Thukela Catchment. This will be achieved through addressing the following research questions:

Question 1: Who are the stakeholders in collaborative water governance in the Upper Thukela Catchment, and what are their roles?
Question 2: What is the nature of power dynamics among stakeholders in collaborative water governance initiatives, and how do these affect collaborative processes?
Question 3: How do power dynamics interact with resources and mechanisms to influence collaborative governance outcomes?

1.4 Thesis outline

In Chapter 1, I give the research study's problem statement and contextual overview. After that, I review the relevant literature in Chapter 2, first exploring collaborative water governance in general. Then, power, especially regarding catchment policy and governance processes, is followed by a review of two interrelated frameworks that help to understand the influence of power dynamics. Following is an assessment of multi-level governance and integrated conceptual framework, respectively,

In Chapter 3, I discuss the paradigms underpinning the research study, followed by my reflexivity and positionality in the study; it continues to the research design consisting of qualitative research design using a case study approach, followed respectively by the data capturing, management and data analysis, followed by ethics considerations including institutional ethics, every day ethics and trustworthiness in research.

In Chapter 4, I first present an embedded case study to paint a picture and enhance further interpretation of the results. I present the findings using analytical frameworks, Franks and Cleaver, water governance and poverty framework (complemented by power tool), guided by the three research questions. In Chapter 5, I discuss the research findings about the research questions and insights from the literature to offer explanations and guide the discussion. Finally, in Chapter 6, I summarise the thesis by identifying the lessons learned and offering recommendations for policy, engagement, and future research studies.

CHAPTER 2: LITERATURE REVIEW

2.1 Collaborative water governance in South Africa

South Africa is a water-scarce country with an unequal distribution of water resources among its citizens (Brown, 2013). A lack of water quantity and failures in water governance has caused this dilemma (Pollard and Du Toit, 2008). Brisbois and De Loë (2016) and Rogers and Hall (2002) describe water governance as the range of political, social, economic, and administrative systems to develop and manage water resources and deliver water services at different levels of society. Harrington (2017) added that water governance involves relevant stakeholders' interactions around water, including governments, businesses and political parties, civil and international agencies, NGOs, and communities. These interactions inevitably result in social, economic, political, and environmental conflicts around how water resources and water infrastructure should be governed and by whom (Tremblay and Harris, 2018). Thus, one of the most urgent challenges facing water availability and good governance is developing collaborative practices and processes grounded in sustainability and social justice principles.

Collaborative governance has been defined by Ansell and Gash (2008) as a specific approach to governance that entails sharing responsibility and power among state and non-state actors jointly addressing an issue. Several fields have examined a collaborative approach to governance, such as planning, public administration, and environmental management. Though different approaches exist, several common characteristics of collaborative governance processes are central to its definition. These include wide-ranging stakeholder inclusion, practice-based deliberation, shared learning, a willingness to reconsider assumptions, pooling of resources, the building of long-term relationships, and harmonised decision-making (Gunningham, 2009; Margerum, 2008; Ansell and Gash, 2008; Conley and Moote, 2003).

Resolution of conflict, strengthening stakeholder networks and relations, and addressing complex problems can improve through collaborative governance. This can be achieved by fully accounting for power, directly addressing it, and understanding its implications (Brisbois and De Loë, 2016).

While Roberts (2006) describes power as an actor's ability to force another to do something or impose their will on others, it may also be used to help others realise their rights or promote synergy through collaboration. Power imbalances often serve as barriers to fostering meaningful stakeholder engagement by restricting the collaborative agenda. Powerful actors, such as governments, frequently maintain control over collaborative processes, resulting in benefits for dominant groups and potentially impeding the creation of social capital in disadvantaged communities (Pringle et al., 2023; Tapscott, 2017) . For instance, the apartheid legacy of long-established institutional frameworks and powerful actors may continue to influence bottom-up collaborative initiatives (Brown, 2011). While these collaborative efforts might involve the exercising of power rather than genuine empowerment (Harrington, 2017), focusing solely on power dynamics is insufficient. Forde (2020) emphasises the crucial role of citizen capacity-building and awareness-raising. This can be done by educating citizens on utilising countervailing power to challenge entrenched interests when they engage in collaborative processes.

When collaborative spaces are appropriately used, potential outcomes may be more likely acceptable to all stakeholders due to the broad inclusion of interests (Ansell and Gash, 2008). However, there is uncertainty over the ability of collaboration to deliver better environmental outcomes than conventional structures (Forster et al., 2017). It is crucial to examine all the factors affecting the effectiveness of collaboration, owing to the cost, time, and effort invested in collaboration. Exploring the role of power is one effective way to do this. This is because power and resource imbalances can affect stakeholders' ability to contribute fully to collaborative space.

2.2 Power in catchment policy and governance processes

Since 1990, South Africa has undergone a complex and frequently paradoxical governance transformation process (Lotz-Sisitka et al., 2021); (Meissner et al., 2013). This is framed as a shift from an apartheid state that denied the majority of the country's people access to water, land, and other essential services. Thereby leading to a more inclusive society committed to human rights, social justice, sustainable development, and societal transformation. Policy engagement

has been a vital component of this transformation process, whereas power dynamics influence the process (Lotz-Sisitka et al., 2021).

Policy engagement entails a shift in perspective regarding how governments, communities, and everyday citizens can collaborate to accomplish complex social and environmental goals. It involves active participation in science and policy-making and a desire to make a difference in people's lives and environments (Young et al., 2014). Specifically, the National Water Act of 1998 (NWA) fosters collaboration in water governance at a catchment level where all the relevant stakeholders come together to learn and share the responsibility of addressing water resource-related problems and making a collective decision. To bring a necessary change through collaboration, such a process must include negotiating power relations and the historical and political trajectories of existing governance arrangements and their influence over the possibilities and scope of both citizens and their catchments (Leach, 2008).

Catchments do not often follow political limitations (or institutional arrangements); even when they do, the individuals involved may have different interests (Harrington, 2017). The interaction of multi-stakeholders is necessary to improve the nexus of that catchment's social and ecological needs (Ansell and Gash, 2008). Catchments in the context of built and ecological infrastructure represent a valuable lens for exploring the impacts of power dynamics on collaborative governance processes and outcomes. Water governance is characterised by interconnected and overlapping political, social, and legal structures as sites for dispute and reproduction of power among catchment stakeholders (Zeitoun and Allan, 2008).

As mentioned above, Roberts (2006) defines power as the ability or capacity to achieve something, whether by influence, force, or control. Edwards-Schachter and Tams (2013) refer to power dynamics as the conscious and often unconscious processes involving social practices that emerge as participants set up, manage and engage in collaborative innovation settings. Power dynamics are intertwined in the aims and features of the innovative experiment and social environment where learning can occur. Power struggles may hinder the development of a common goal among different stakeholders.

Explicitly acknowledging that power-related issues exist is a first step toward establishing if and how they matter in collaborative governance processes and outcomes. Brisbois and De Loë (2016) emphasise that explicit attention to power recognises that collaborative processes do not exist in isolation. Instead, they are nested within broader social, political, and economic contexts that shape processes and outcomes that are often pervasive and hidden (Lubell and Lippert, 2011; Memon and Kirk, 2012). Theorising, designing, and conducting collaboration without attention to power risk an incomplete understanding of how and why processes progress and produce outcomes, successful or undesirable. Therefore, there is a need to increase knowledge of hidden forms of structural and discursive power and how these forms of power affect collaborative systems.

Structural power is concerned with the ability to set and control policy-making agendas. It examines who influences decision-making and control over discussions (Brisbois and De Loë, 2017). At the same time, discursive power determines some actors' ability to control others' actions (Lukes, 2021).

2.3 Understanding power dynamics through two interrelated frameworks

The researcher can understand power dynamics using Franks and Clever's (2007) framework as a central framework. Franks and Cleaver's (2007) framework (now called the water governance and poverty framework) looks at the arrangements of water governance processes and their positive and negative impacts on stakeholders' outcomes. The central framework is made up of key concepts (**Figure 2.1**). Firstly, the actors and agents (referred to as *stakeholders*). Secondly, *resources* are a variety of materials that construct people's interactions and social structures. Resources are used differently by actors such as individuals, groups, and states to build specific context arrangements for water access. The context-specific arrangements are the *mechanisms* of water governance. Thirdly, the mechanisms of water access shape *outcomes* for ecological systems and catchment users and long-term variations. Likewise, actors are recursively implicated, meaning the resources, mechanisms, and outcomes shape them. Mechanisms are shaped from resources by actors that manage and practice water governance processes. Likewise, the outcomes of such mechanisms are fashioned by context-specific processes of

management and practice. Thus, this framework helps study and better understand power by showing what it is, how it operates, and how it can influence the collaborative process and outcomes.

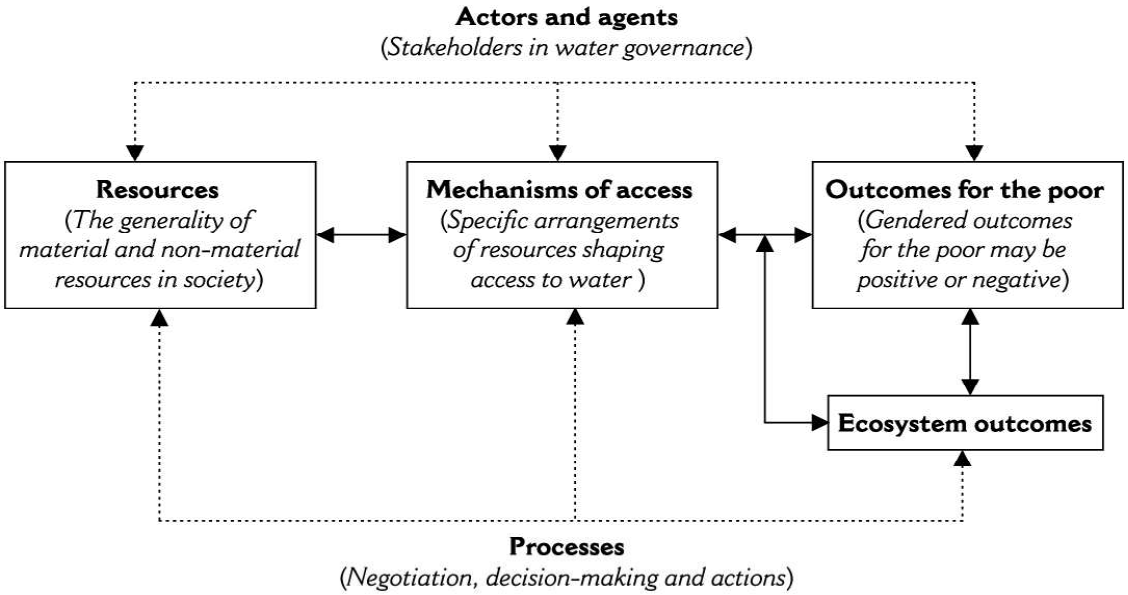

Figure 2.1: Part A - an analytical framework for water governance (Franks and Cleaver, 2007).

Franks and Cleaver (2007) generated the framework from insights from empirical data and reflection on current thinking about water governance. They drew particularly on various thinkers with social theory, providing the conceptual starting point. These social theories include Baehr's (1990) work, which presented relationships between structures, mechanisms, and events. Comparably, Kabeer (2000) uses a tripartite framework comprising resources, processes, and outcomes to elaborate on the relationships in gendered empowerment processes. From Giddens (1984), they borrowed the concept of allocative and authoritative resources, which is the material and non-material properties from which the human governance of water is constructed. They referred to understandings of livelihoods (Ellis, 2000) and literature on water resources management and policy (Molden, 2007) to clarify the multiple ways people access and use water and the actors, arrangements, and uses involved in water management. Studies on chronic poverty (Hickey and Bracking, 2005) prompted them to think about the multi-

dimensional ways in which access to water by the poor is constrained and how deeply poverty is embedded in social relations. Lastly, they drew on work on governmentality (Agrawal and Bauer, 2002) to incorporate power as multi-locational, normalised in networks of everyday life, regulating social practices and relationships. Such perspectives are instrumental in revealing how the rule is exercised at multiple levels (as explored below in Section 2.4).

Furthermore, the researcher can complement the water governance and poverty framework using the 4R^{s} framework. The 4R^{s} (**Figure 2.2**) framework unpacks the actors and agents' part of the Franks and Cleaver framework to deepen our understanding of stakeholders, which is the focus of question 1.

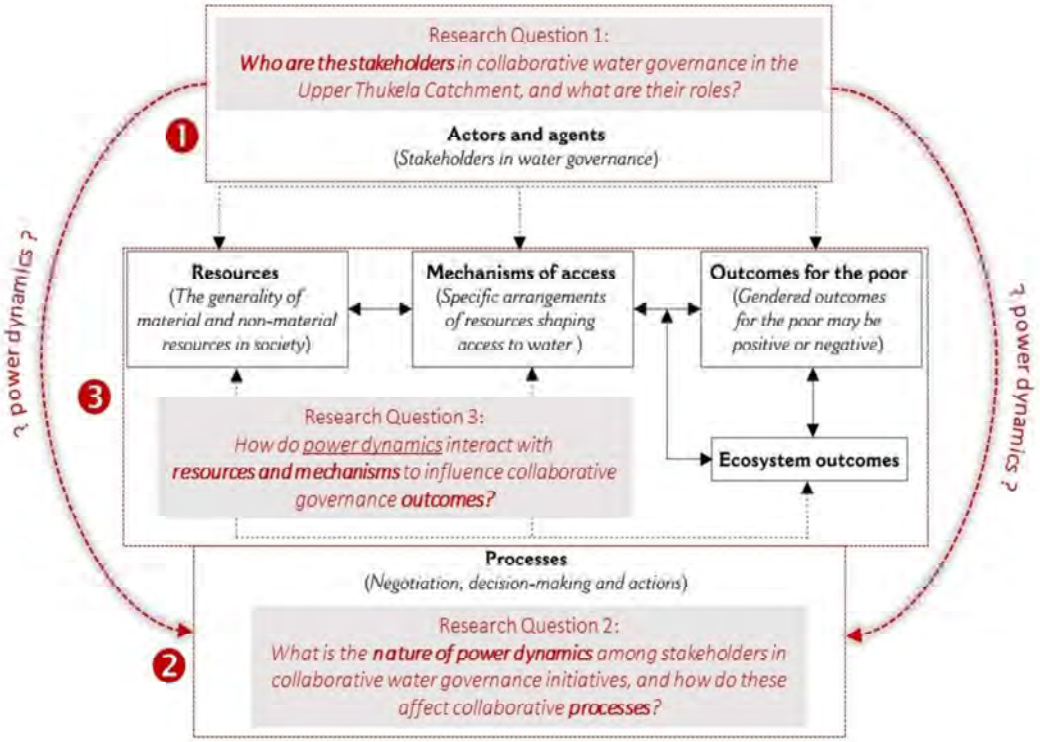

Figure 2.2: Part B - Annotation and proposed adaptation of Franks and Cleaver (2007) framework that guides this research, indicating the research questions and how they relate to the framework.

The 4R^{s} framework is a tool utilised to comprehend power dynamics within the roles of stakeholders (Dubois, 1998). The framework analyses stakeholder roles by examining the balance of rights, responsibilities, returns (benefits), and relationships (4R^{s}) within and between stakeholder groups. Applying the 4R^{s} framework involves evaluating the state of the initial 3R^{s} (Mayers, 2005), as their state of balance indicates the power structures that lie beneath. The evaluation of stakeholder relationships can be quantified using a quality scale ranging from good to poor or non-existent (Dubois, 1998). According to Salam and Noguchi (2006), rights, responsibilities, returns, and relationships are defined in this context as:

I. Rights consist of access to and use of catchment natural resources (water) and employment related to catchment governance and management.
II. Responsibilities include performing catchment governance and management duties, executing decisions regarding policies, processes, and recipients, and adhering to regulations.
III. Returns are generated through the utilisation of catchment resources and employment in governance and management of the catchment, in addition to indirect benefits such as improvement of the environment, capacity building, etc.
IV. The Relationship dimension encompasses the individuals or groups involved in the conflict and their past interactions with each other. Furthermore, it includes the intangible aspects of any conflict scenario, such as trust, respect, and legitimacy.

2.4 Multi-levels of governance

Scale interactions may occur within or across levels, leading to extensive complexity in dynamics. Cross-level interactions refer to interactions among levels within a scale, while cross-scale refers to interactions across different scales (Cash et al., 2006). Cash et al. (2006) and Gibson et al. (2000) described scale as the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon and levels as the units of analysis located at different positions on a scale.

This study focuses on jurisdictional scales. Cash et al. (2006) define these as clearly bounded and organised political units, for example, towns, districts, provinces, and nations, with linkages between them created by constitutional and statutory means (**Figure 2.3 C**). For example, institutional arrangements contain jurisdictional characteristics and a hierarchy of rules, ranging from fundamental functioning rules and norms to systems of rules for formulating laws or constitutions (Ostrom et al., 1999; **Figure 2.3 D**).

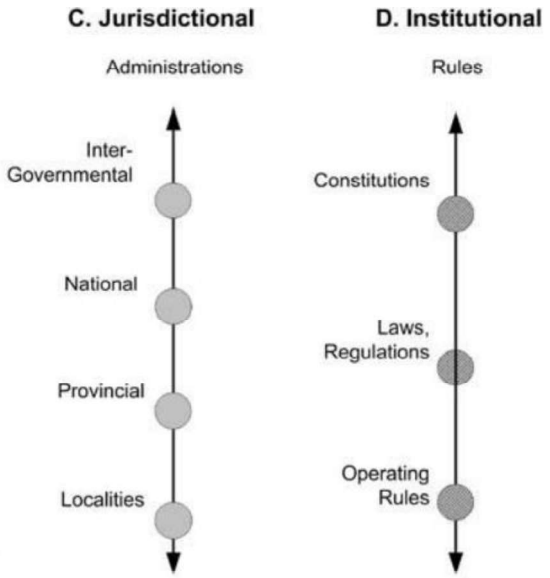

Figure 2.3: Different levels of jurisdictional and institutional scales of various scales and levels that are vital in understanding and responding to socio-environment interactions (Cash et al., 2006).

Multi-level is used to indicate the presence of more than one level. Stubbs (2005) states that multi-level governance's primary value is understanding complexity at and between levels. Armitage (2008) refers to multi-level governance as shifting from command and control to including actors in different institutional settings sharing knowledge production, power, and responsibility at various levels. According to Cash et al. (2006), governance processes that more consciously address scale issues and the dynamic linkages across levels are more likely to evaluate problems and find more politically and ecologically sustainable solutions. Social power is one issue that needs to be addressed to mitigate violent or non-violent conflicts. These disputes

highlight the necessity for strong, multi-level, and polycentric governance systems and social learning processes to attenuate trade-offs and resolve disputes among users, industries, and governments. It is, therefore, vital to understand how power impacts the integration of policy decision-making processes across multi-levels of governance.

Stuart-Hill et al., (2020) pointed out that managing and governing water resources in South Africa is a multi-sectoral and multi-level duty. A catchment-based multi-level governance approach fosters integrated land-water management by expanding knowledge exchange to encompass diverse water users. As a result, there are different governance styles within multi-level governance, often not aligning. To achieve positive outcomes of collaboration, it is crucial to consider the conflicting governance styles due to dual governance systems and failure to implement the Catchment Management Agency (Pahl-Wostl, 2019).

Catchment management arrangements are in the form of dual governance systems that consist of western administrative governance (Department of Water and Sanitation (DWS); UThukela District Municipality (UDM)) and traditional governance (Department of Cooperative Governance and Traditional Affairs). The DWS mandate (to manage water resources) dominates nationally and locally. On the other hand, the traditional authorities dominate at the local level, where catchments are mainly based. The traditional authorities and the Department of Cooperative Governance and Traditional Affairs mediate land management and other issues. These institutions do not cooperate on integrated land-water matters as needed (Stuart-Hill et al., 2020).

Furthermore, the South African National Water Act of 1998 envisioned the establishment of Catchment Management Agencies (CMAs) throughout the country's Water Management Areas (WMA). These decentralised governance structures were intended to manage water resources at the catchment level, including all water users. However, despite the Act's passage over two decades ago, CMAs have not yet been implemented within the Thukela WMA area (Stuart-Hill et al., 2020**;** Bourblanc and Blanchon, 2014)**.**

The absence of functional CMAs has led to the emergence of a growing number of informal governance structures (Adger et al., 2021). These networks comprise diverse stakeholders, including community groups, universities, and private entities, alongside some actors from formal governance structures. Notably, these informal networks operate at the intersection of various boundaries, encompassing institutional scales (local versus national) and temporal scales (short-term versus long-term planning horizons). Often, decision-making on catchment planning by these boundaries, jurisdictions, and temporal scales is not aligned (Milz, 2022; Adger et al., 2021). This lack of alignment across these boundaries of formal jurisdictional level decision-making regarding catchment management further exacerbates the conflict between formal and informal governance styles (McCord et al., 2017).

2.5 Integrated conceptual framework

Power is the underlying factor in collaborative water governance, often leading to unsatisfying social outcomes (Brisbois and De Loë, 2016). Power in social science and social theory of learning is among the essential concepts. For instance, Wenger et al. (2002) encountered power dynamics embedded in CoPs. For example, in a CoPs, if knowledge sharing is effective, it can create power-sharing opportunities. However, this does not suggest that all CoPs are effective; power dynamics can cause dysfunctional and ineffective CoPs.

Despite that, in water governance, power analysis building on social theory is highly underrepresented (Brisbois and De Loë, 2016; Mollinga et al., 2010). Even though academia has recently given increasing attention to power analysis in water governance (Swyngedouw, 2006), it was long side-lined by the promises of integrated water resource management (IWRM) that were 'too good to be true' (Van Koppen and Schreiner, 2014). It is, therefore, crucial to understand the real-world water-social complexities of water governance by applying a theoretical lens that builds on social theory and incorporates power issues.

Collaborative water governance (CWG) is necessary for IWRM in the catchment or regional areas (Stuart-Hill et al., 2020; Forster et al., 2017; Pollard and Du Toit, 2008) because water resources are embedded in complex social-ecological systems (Boonstra, 2016) together

with a diverse range of stakeholders, each with their own set of interests (Harrington, 2017). There is a need to develop innovative platforms for citizen collaboration in the governance and management of water resources.

Then, while developing these platforms for citizens to collaborate on water resource management, there are two areas where one may concentrate one's efforts to understand better how those platforms operate. First, consider them a *community of practice*, which means they exist in various contexts, including business, NGOs, government, schools, and academia. This study is particularly interested in looking at CWG for integrated catchment management as an example of CoP since stakeholders practice and learn together on these platforms. Thus, the theory of CoP may assist in studying and understanding how the participants in these collaborative platforms learn and practice together. It can also help look through power dynamics since the Living Catchments Project uses CoP to structure its collaborative platforms and engagements.

Secondly, catchment areas fall under the jurisdictional scale. Interactions among jurisdictional levels may lead to power dynamics between stakeholders. This may be because of an assumption that the participants in collaborative governance processes are all equal. Still, there is a realisation that the multi-level stakeholders practising and learning together are not all equal regarding their access to knowledge and resources and how they influence agenda and decision-making. Therefore, we acknowledge that there are *power dynamics* between these people. These power dynamics affect the effectiveness of collaborative governance processes and subsequently shape outcomes for less powerful participants and water resources. In Giddens's (1984) theory of structuration, Franks and Cleaver (2007) noted that knowledgeable and influential people can only exercise power in social systems with members interested in the same resources. To fully grasp the difficulties that arise when diverse stakeholders attempt to practice and learn together, the study will zoom in on power, as this is one of the factors that can make it challenging for them to practise and learn together and collaboratively govern and manage water resources. The power structures are hidden in stakeholders' roles, including rights, responsibilities, returns, and relationships (Mayers, 2005).

Hence, the influence of power dynamics on collaborative governance processes and outcomes will be theorised, conceptualised, and understood using both the 4R^{s} framework (Mayers, 2005) and the analytical framework for water governance and poverty (Franks and Cleaver, 2007). The 4Rs reveal power relations by identifying and assessing the stakeholders' roles. The water governance and poverty framework help one understand how water governance arrangements are shaped and how they negatively and positively influence the catchment and its users.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter describes all the procedures undertaken to conduct this study. The selected methods demonstrate how I collected, processed, and analysed the accumulated data.

This chapter begins with the paradigms underpinning the research study, followed by my reflexivity and positionality in the study; it continues to the research design consisting of qualitative research design using a case study approach, data collection methods such as in-depth semi-structured interviews, reviewing the documentation and direct observation and participant observation, followed respectively by the data management and data analysis, followed by ethics considerations. The chapter ends with the limitations I encountered during data collection and analysis.

3.2 Research paradigm

The research paradigm is crucial because it forms a study's philosophical basis and assumptions on ontology, epistemology, methodology, and axiology (as outlined in **Table 3.1**). The term paradigm is described as the lens through which the researcher looks at the world. It helps the researcher to identify and determine the research procedures and methods that will be applied and how the gathered data will be analysed (Rehman and Alharthi, 2016).

Although philosophical notions often remain hidden in research (Slife and Williams, 1995), they continue to influence research practice and must be identified. Hence, this study draws on the paradigm outlined in **Table 3.1**, a critical or transformative paradigm.

Table 3.1: Transformative paradigm regarding how it corresponds or is associated with ontology, epistemology, methodology, and axiology (Mertens, 2007).

Transformative Paradigm			
Components	**Description**	**Assumption**	**Example**

Ontology	The belief about the nature of phenomena or reality.	The ontological task of the transformative paradigm is questioning whose reality is favoured and the injustices resulting from accepting the dominant reality for those with a marginalised version.	Village people were likely excluded from decision-making by influential people (Chapter 4).
Epistemology	Identification of and ways of obtaining knowledge.	An interactive connection between the researcher and study participants is required to understand reality. It is crucial to respect cultural differences and be conscious of power dynamics.	I had to understand the culture and build trust by mimicking their action, e.g., the dress code (Section 3.3)
Methodology	A suitable approach to obtaining the knowledge.	To reframe the understanding of worldviews and subsequent methodological decisions.	A qualitative approach is more suitable in this study (Section 3.4).
Axiology	The nature of ethics.	Social justice ethics can help to address inequalities by giving the voices of the most marginalised groups, who may not have enough power to be represented accurately among stakeholder groups.	Ethical considerations include respect, beneficence, and justice (Section 3.7.1).

The critical paradigm grounds its research on social justice issues. It addresses the political, social, and economic factors contributing to colonial oppression, conflict, struggle, and power structures at any level (Kivunja and Kuyini, 2017).

In this study, I employed the transformative paradigm to address the influence of power dynamics embedded in political, social, and economic status. The paradigm enabled the engagement of the key informants in dialogue with the intent to alter social systems that deprived people of intellectual and social needs, e.g., the local community in the Upper Thukela Catchment (Jackson et al., 2018; Khaldi, 2017). Another advantage of using this paradigm was documenting the relationship between unequal power systems and revealing contextual factors on the oppression of marginalised communities and the necessary steps to mitigate the impact, as shown in Chapter 4: Section 4.4 (Rehman and Alharthi, 2016).

Another paradigm the study adopted was an interpretive paradigm, which places knowledge as the realities people constructed for themselves based on perceptions of history and social interaction (Creswell, 2009), for example how these might affect collaborative water governance (CWG) processes. Willis (1995) believes interpretive researchers are anti-foundationalists who believe there is no single correct route or particular method to knowledge. Instead, they attempt to derive their constructs from the field by an in-depth examination of the phenomenon of interest. Thus, the paradigm enabled me to better understand the complex contexts surrounding the meaning of CWG processes in their authenticity instead of trying to generalise contexts to suit a whole population as suggested by (Creswell, 2009).

Moreover, the research was conducted cooperatively to avoid the additional marginalisation of the participants due to the inquiry. In this sense, I have amplified the participants' voices, elevated their consciousness, or developed an agenda for change to better their lives (Creswell and Creswell, 2017). I also practised reflexivity and paid attention to my positionality (Section 3.3).

3.3 Reflexivity and positionality

Reflexivity is defined by D'silva et al. (2016) as simultaneously looking inward and outward at the researcher's positionality and the research process. It involves reflection on self, process, and representation, critically examining power relations and politics in the research process, and researcher accountability in data collection and interpretation (Sultana, 2007). Undoubtedly,

researchers will always impact the environment and the individuals they investigate since they have their perceptions and may influence data collection. Researchers cannot avoid affecting the research process (Kosygina, 2005).

Reflexive study necessitates an awareness of how personal history, background, values, and experiences shape what one may observe and analyse. The researcher's positionality is thus bound to the concept of reflexivity in research practice. The term positionality encompasses an individual's worldview and their position about a research task and its social and political context. Researchers' socioeconomic level, education, training, ethnicity, and so forth, as relational qualities, unknowingly impact their research (Lynch, 2000; Rose, 1997). Furthermore, whether one is an "insider" or an "outsider," or even the degree to which the researcher confers or perceives such status may alter participants' perceptions of the researcher (Sultana, 2007). Here, I present a brief summary of my experience with positionality and reflexivity during data collection:

> I was conducting fieldwork in a different province (KwaZulu-Natal) from my home province (Eastern Cape), which put me in a difficult position. I had a different ethnicity (Xhosa) from my study respondents (mostly Zulus), born and bred in the Eastern Cape. As a result, while similar historical and political processes might locate me with my research participants, ethnicity, on the other hand, might have impacted the research. Thus, doing research away from home brought in different dynamics in terms of concerns of insider-outsider and other factors such as social differentiations (e.g. my level of education). Due to my status as an outsider, I encountered uncertainties, discomfort, and tensions in the early phases of data collection. Those elements became essential to be reflexive about and work through. I overcame these challenges through participant observation, especially in activities not directly relevant to my research but to the study participants (e.g., I would assist in the farmer's market, maintenance, and monitoring of springs). I also had to constantly pay attention to my positionality through everyday actions such as dress code, the different ways of addressing people, especially the traditional authority (chief), etc. Also, as much as Xhosa and Zulu are closely related languages, I had to pay attention

to using similar words but with different meanings (particularly offensive or different usage). These actions enabled me to bridge gaps and become more accepted over time.

It was critical to ensure the study's validity by paying attention to positionality, reflexivity, the production of knowledge, and the power dynamics inherent in research processes (Sultana, 2007). Being reflexive was important in situating the research and knowledge production to maintain ethical commitments (Cockburn and Cundill, 2018). I strived to produce ethical research through negotiated spaces and practices of reflexivity that are critical to issues of positionality and power relations at multiple levels.

3.4 Exploratory research design: qualitative research using a case study approach

3.4.1 Exploratory research

Olawale et al. (2023) defined an exploratory research study as a study conducted to investigate an undefined problem. The exploratory research design aims to understand better the current situation (Elman, Gerring and Mahoney, 2020). Sharma et al. (2023) emphasised that this approach does not provide final and conclusive solutions to existing problems. Instead, preliminary research serves as the foundation for future research (Akhtar, 2016). I used an exploratory research design by investigating the research questions and left room for future studies. In this exploratory research, I seek to investigate the potential interconnections between power dynamics and the three domains of the Franks and Cleaver (2007) framework. While I assume that there may be relationships or linkages between these elements, I do not claim a direct causal relationship. This study considers Collaborative Water Governance within the context of embedded socio-ecological systems (SESs). The complexity of SESs warrants the use of an exploratory approach, wherein findings and insights are considered provisional and open to revision (Palmer et al., 2015).

Designing research using an exploratory approach comes with limitations. Olawale et al. (2023) noted three disadvantages of using the exploratory approach: (i) Although it can serve as a helpful guide, its results are generally inconclusive (ii) Its use of qualitative data, which the researcher's perspectives and bias may influence and (iii) Most of the times, exploratory research

involves a smaller sample; hence the results cannot be accurately interpreted for a generalised population.

Exploratory research is frequently qualitative (see Section 3.4.2) according to Sharma et al. (2023). This research is guided by research questions, rather than by predetermined hypotheses.

3.4.2 Qualitative research design

I used a qualitative research design to understand the influence of power dynamics on collaborative water governance (CWG) processes and outcomes in the Upper Thukela Catchment (UTC). Queirós et al. (2017) reflect that qualitative research pertains to elements of reality that are not easily measurable and focus on comprehending and elucidating the complexity of social interactions. Additionally, qualitative research works with the universe of meanings, motives, aspirations, beliefs, values, and attitudes, corresponding to a deeper space of relationships, processes, and phenomena that cannot be reduced to the operationalisation of variables (Queirós et al., 2017).

The strength (and challenge) of qualitative research design is simplifying and managing the accumulated data without affecting the accurate representation of the complexity and context of the inquiry (Ochieng, 2009). Qualitative research influences the practice and application of the case study approach (Section 3.4.3). The rest of the section 3.4 focuses on clarifying the use of the case study and how the research was undertaken within the case study.

3.4.3 Case study approach

Exploratory research can benefit from the usage of the case study approach. Because case study enables the in-depth exploration of multi-faceted complex issues in real-life events (Crowe et al., 2011; Yin, 2009) and offers a way of actively testing views regarding phenomena as they manifest in practice (Atlas, 2021). Yin (2009) claims that case studies are a preferred method when descriptive “how” and explanatory “why” questions are posed, supplementary to when the researcher has minimal control over the topic being researched.

Following this, Crowe et al. (2011) stress that it is crucial to acknowledge the paradigm that underpins the case study when designing, selecting, conducting, and interpreting the case study. In doing so, this case study was supported by a critical and interpretative paradigm (Section 3.2). Doolin (1998) states that the critical case study approach involves the researcher's assumptions considering the broader social and political environments that formed the case. It tries to comprehend the limiting factors of power and control that influence behaviour (Bloomfield and Fisher, 2019; Doolin, 2004). However, it can neglect other factors by focusing only on power relationships (Doolin, 1998). To mitigate this issue, it may be appropriate to draw on more than one paradigm (Crowe et al., 2011). In addition to the critical paradigm, the study drew on the interpretative paradigm, which seeks to understand individual and shared social contexts (Doolin, 1998). This helped the researcher to obtain an accurate, holistic, and systematic picture of the generated information (Crowe et al., 2011). Further, the case study drew on several theories and conceptual frameworks (Chapter 2: Section 2.5), which helped to make power more visible in relation to other factors and the broader context.

I designed the case study as a single case (the Upper Thukela Catchment) and a unit embedded within a larger case (the Living Catchments Project). This choice allowed me to explore the sub-units rooted within the more significant case (Gustafsson, 2017). Although the advantages of using multiple cases are evident in case comparisons, many of the benefits of using a single case study approach are less noticeable. Additionally, there are three justifications for using single case design. These consist of (i) dealing with an extreme or unique case, (ii) a critical case, and (iii) a case that was typical or representative.

The study focuses on the influence of power dynamics on collaborative governance processes and outcomes in the UTC, which is both an extreme and representative case in several crucial ways. As an extreme case:

- Thukela Catchment is one of the South African Strategic Water Areas (SWAs); however, most of the local communities in the Upper Thukela Catchment are still struggling to access potable water (Chapter 1: Section 1.2.2)

- The UTC feeds two rivers; one is the water transfer scheme from Thukela to Vaal River, in which Gauteng province (SA economic hub) gets most of its water; it links rural and urban water supply and governance issues.

I employed an embedded case study design to better understand the challenges and successes of the collaborative effort (impact of power dynamics). This approach focused on the NGO-local people partnership as the mini case but also delved into the experiences of individual participants within the Upper Thukela Multi-stakeholder Partnership (embedded units). This allows me to explore the broader context while capturing individual perspectives' nuances. This was done by identifying recurring themes across the interviews, observation notes, and documents. These themes included factors contributing to the success of the collaboration, challenges faced, and the impact on local livelihoods.

3.4.4 Sampling and recruitment of participants

I used a purposive sampling approach where potential participants were contacted via the South African National Biodiversity Institute (SANBI) Living Catchments Project (LCP) convenors in the Upper Thukela Project. Before data collection, I took the following steps to notify and inform people about the research. Before I began data collection, I presented my intentions and objectives for the research study to the participants in an engagement process or event. As a Living Catchments Project bursary holder, I was obligated to attend their project commitments, including meetings, workshops, and other events. For example, I participated in the annual living catchments-based Indaba held in November 2021 in the Upper Thukela Catchment, my study site. I took advantage of the opportunity to do situational profiling (**Appendix 5**), which allowed me to get to know some stakeholders and vice versa while maintaining a practice of everyday ethics. Further, my advisor from the SANBI LCP also requested a video of me talking about the intentions of my research, which was played in the Reference Group meeting where many of the Living Catchments Project stakeholders were present.

I used two approaches to recruit participants: snowballing and purposive sampling. Snowballing was used in addition to purposive sampling, where potential participants were

difficult to access due to their closed nature (Taherdoost, 2016). Palinkas et al. (2015) describe purposive sampling as the deliberate process of identifying and selecting individuals or groups that are incredibly knowledgeable about or experienced with a phenomenon of interest. In addition to knowledge and experience, the importance of availability and willingness to participate and the ability of participants to communicate experiences and opinions in an articulate, expressive, and reflective manner are noted. In this manner, three main factors had a role in the choice of study participants:

1. Participants had to be stakeholders interested in water governance within the catchment. Water resource users or people mainly concerned with collaborative water governance in South Africa, particularly in the UTC. This included, but was not limited to, local, district, regional, and national stakeholders.
2. It was crucial in the study to ensure that a range of powerful and less powerful stakeholders, which may not always be visible from the outset, are identified and approached. Working closely with the SANBI convenors and local partners to determine this was crucial.
3. I was stationed with the late Mr Malinga (who formally introduced me to the participants) from Mahlathini Development Forum (MDF), who worked in that catchment for over 15 years. He built trust and relationships with most of the essential catchment stakeholders. Thus, most people were willing to participate for 20-30 minutes in languages I understood (English or Zulu) since I was associated with MDF. Detailed interview sessions and participants' information are presented in **Appendix 1.2**.

I planned to start interviewing stakeholders at lower levels of the water governance hierarchy and work my way up for three reasons. Firstly, Lower-level stakeholders have firsthand experience with the daily realities of water governance and management. Thus, they understand their specific challenges, needs, and opportunities in their contexts better than anyone else. Secondly, Water governance is complex, with interconnected systems and diverse perspectives. Starting at the bottom allowed me to map the issue from the ground up, understanding how local experiences feed into broader challenges and vice versa. Lastly,

water governance often involves unequal power dynamics, where lower-level stakeholders have less influence than higher-level stakeholders. Starting at the bottom allowed me to identify these dynamics and understand how they impact decision-making and resource allocation.

3.4.5 Data collection methods

I gathered the data officially between June and October 2022. It should be noted that I had started the project scoping and context analysis in partnership with MDF before the data collection period (**Appendix 5**). The key informants in the study ranged from NGOs, local community representatives, water committees, Okhahlamba Local Municipality, UThukela District Municipality, and the Department of Water and Sanitation (KZN provincial office). In this study, I use the phrase "local community" to refer to rural community residents who live in villages on communally-governed land in the UTC. In my study, I worked with five villages from three Traditional Councils (Chapter 1: Section 1.2.2)., and so my use of this term refers to the specific experiences of residents. These organisations were crucial for the study because they form part of the multi-stakeholder collaboration on water governance processes in the Upper Thukela Catchment. The data was collected using qualitative methods, including in-depth semi-structured interviews, reviewing documentation, and direct and participant observations to construct the case study. The relevance and application of these qualitative tools in this study are discussed in sections 3.4.5.1, 3.4.5.2, and 3.4.5.3, respectively.

3.4.5.1 In-depth semi-structured interviews

The in-depth, semi-structured interview is often a conversation (Adams, 2010; Fylan, 2005; Legard et al., 2003). Indeed, Fylan (2005) states that the difference between a normal conversation and the in-depth interview method is that an interview is a conversation with a purpose. In-depth semi-structured interviews were the primary source of data collection in the study, with interviews conducted between June and October 2022 with stakeholders within the case study. In the experience of McGrath et al. (2019), semi-structured interviews:

Afford researchers opportunities to explore, in-depth, matters unique to the interviewees' experiences, allowing insights into how different phenomena of interest are experienced and perceived.

The in-depth format allows the researcher to fully explore all the factors (such as feelings, opinions, and beliefs) underpinning participants' responses (Legard et al., 2003). This delivers explanatory evidence that is an essential element of qualitative research. Another advantage of utilising interviews as a data collection tool was that it allowed me to gain insight into subjective views shared by different individuals (McGrath et al., 2019). I collected personal opinions from each respondent and built empirical evidence instead of generalising the ideas of large groups. Each interview was conducted with an open mind rather than predetermined thoughts on what the participant may say about the topic.

Legard et al. (2003) claim that it is crucial to utilise in-depth interviews with their key features. These were employed in my study in the following ways:

- Firstly, I combined the structure with flexibility to honour Legard et al.'s claims. I had predetermined themes I wished to explore, provided in **Appendix 4**, which set out key indicators and issues covered during the interview. Nevertheless, the interview structure was flexible enough to cover topics in the order most appropriate for the informant, thoroughly probed, and explored responses. As a result, I was responsive to the relevant issues raised spontaneously by the interviewee.
- The interactive nature of the discussion is the second key feature of the in-depth interview. The data was generated through interaction between the researcher and the informant. I posed an initial question that encouraged the participant to respond freely. The interviewee's response determined my next move.
- Third, to achieve the depth of answers in terms of penetration, exploration, and explanation, I used a variety of probes. An initial response was frequently on the "surface" level. For this reason, I had to dig deeper to understand the participant's meaning entirely.

As mentioned above, I conducted semi-structured interviews with multi-stakeholders (individuals of interest) in collaborative governance processes, particularly for water governance in the UTC. The participants comprised individuals affected by the influence of power dynamics and with knowledge of history and social and political background. Before conducting interviews, prior appointments with interviewees were made, and informed consent was obtained. The consent form is attached as **Appendix 2**. The interviews were conducted in Zulu or English at a place and time (on weekdays during working hours) convenient to interviewees. Depending on the interviewee's choice of comfort, **18 interviews** were conducted remotely (using the applications Zoom and Microsoft Teams) and in person using the predetermined themes in **Appendix 4**. However, most interviews were conducted in person, which assisted in gaining a more detailed understanding of the power dynamics through the participants' body language and other contextual aspects.

3.4.5.2 Reviewing documentation

Reviewing documents is crucial as it provides the context within which the research participants operate (Bowen, 2009). In this study, scanning documents was the practical first step to understanding where the project is coming from and where it is at present, and it involved becoming familiar with existing knowledge. Reviewing documents also helped the researcher by providing information that suggested some questions and situations that needed to be explored as a part of the case study. The following data sources were reviewed:

- Email correspondence (between the MDF, UDM and INR) and
- Announcements, agendas, registers, and minutes from meetings (involving the above-listed actors in addition to local communities, local municipality, traditional committee, water committee, businesses, civil society organisations, and department DWS);

I selectively drew on the above documents, extracting material relevant to the study focus (influence of power dynamics on CWG). I started by scanning the documents to get a general understanding of the project. Then, I conducted a more detailed review of emails and meeting records, focusing on identifying key information like (i) interactions between involved parties, (ii)

decisions made and actions taken during meetings and (iii) Potential areas of concern. These documents were very crucial in shaping the direction of the study.

3.4.5.3 Direct observation and participant observation

Two different kinds of observation were undertaken during various events during fieldwork. These are participant observation and direct observation. In direct observation, the researcher only observes the process without interfering with the stakeholders (Khanghahi and Azar, 2018). On the other hand, defined participant observation is defined by Stewart (1998), as the up-close involvement of the researcher in some form of participative role in the natural, everyday setting being studied. I attended workshops, traditional authority, municipal, and community meetings during fieldwork, and the national SANBI catchment Indaba (**Appendix 1.3**).

Attendance at various stakeholder interactions led to a more active role in the case study through participant observation, maintained through notetaking and engagement in workshops and meetings at the UTC until November 2022. For example, I was part of the hosting team for the Adaptive Planning Process Workshops, a central component of participant observation. The workshops were helpful in data participant observation because the relevant water governance stakeholders of the UTC attended them. All the stakeholders in **Appendix 1.1** were invited to or involved in at least one of the workshops. These workshops were both co-learning and co-creation (as part of the bigger SANBI LCP) and sources of the participant and direct observational data. A summary of the most important direct and participant observation research events is provided in **Appendix 1.3**.

I captured notes during engagement with various stakeholders on how they work, adding value to the study. Appearance, verbal behaviour and interactions, physical behaviour and gestures, personal space, human interactions, and people who stand out are among the things that were monitored (**Appendix 3**). I also visited some stakeholders' private spaces (homes) and interacted with some individuals about water security issues. These observations helped me to understand why some stakeholders behaved in specific ways. Therefore, the knowledge gathered

played a significant role in analysing the interview data, and I could understand why specific stakeholders were absent in the collaborative water governance process.

3.5 Data capture and management

All interview data collected for this research study was captured using Otter.ai, a voice recorder application. I only used a recorder during the interview to fully engage in the conversation with the interviewee and avoid missing important information if I took notes. After every interview, the recording was transcribed into Microsoft Word without altering data. The transcribed interviews were saved using a code, e.g., 'Participant 1', with the number used being the number allocated to the relevant participant in order of the interview sessions (**Appendix 1.2**). To provide evidence from the interview source, I used pseudonyms for interviewees and the interview date, for example, Mrs Bunnz, 25/09/22 (**Appendix 1.2**). Pseudonyms were used to anonymise interviewees and protect their identities as per research ethics requirements. The interviews that were conducted in the Zulu language were translated into English.

The gathered data was stored in a way that ensures protection by adhering to data security best practices such as the university storage system. I stored digital data in an encrypted and password-protected Google Drive. Physical data, such as field notes from observations and workshops, were kept in a secure locked cabinet and only handled by permitted personnel. Field notes were converted into digital data, transcribed, and captured on a Microsoft Word document.

3.6 Data analysis

The collected data was analysed using both deductive and inductive approaches. For the coding process, the deductive approach employs an organising framework comprised of themes (Bradley et al., 2007; Braun and Clarke, 2006). Miles and Huberman (1994) refer to the framework as the start list, which is used in the analysis to anticipate the presence of certain key concepts in the data. On the contrary, the inductive approach exclusively draws on participant experiences to drive the analysis. Thomas (2006) referred to an inductive approach that primarily uses detailed readings of raw data to derive concepts and themes. In addition, it entails going through

data line by line thoroughly and assigning codes to paragraphs or segments of texts as concepts unfold relevant to the research questions.

The data was analysed sequentially, starting with a deductive approach. The deductive approach uses the research aim, research questions, and interview questions to generate initial codes from the existing literature (Bradley et al., 2007; Thomas, 2006). Data were coded into categories using a start list (power tools, water governance, and poverty frameworks) (Chapter 2: Section 2.3). The start list assisted me in making complete sense of the data by identifying key features directly related to the research objectives. Clusters of data were generated by deductively analysing the data. Inductive analysis was also conducted by engaging in detailed data readings to gain a holistic understanding of what was said (Gale et al., 2013) and to ensure that all critical aspects of the data were captured. Key concepts and themes were identified using the research questions as the lenses. The word count tool found in NVivo was used to identify dominant keywords emerging from semi-structured interviews, workshop evaluation forms, and observation notes. Deriving themes from the raw data using the inductive approach pre-empts the possibility of forcing a predetermined result (Bradley et al., 2007).

The deductive and inductive analysis resulted in two datasets. Thematic analysis was further used to analyse the two datasets. According to Maguire and Delahunt (2017), thematic analysis involves identifying patterns and themes across a dataset. Thematic analysis was carried out in five phases. These compromised (a) familiarisation with the data, (b) searching for themes by comparing the two datasets, (c) coding the themes, (d) reviewing and amending the identified themes, and (e) writing up. The qualitative analysis provided a comprehensive understanding of the influence of power dynamics on collaborative water governance processes and outcomes. Direct quotes from stakeholders were used as evidence to support claims and explain the study's significance (Noble and Smith, 2015; Newing, 2010). Moreover, the analysis was done manually using a codebook, a memo, and an analytic memo. I also incorporated the Nvivo software memo tool to document thoughts, processes, and word count to identify dominant keywords.

Furthermore, the 4R^{s} framework (Mayers, 2005) was used to structure the first part of the interviews. Dubois (1998) introduced the 4R^{s} as a framework for comprehending power dynamics within the roles of stakeholders. Once the assessment or identification of all the stakeholders interested in water governance was complete, the 4Rs were used to clarify the roles played by different stakeholders and the nature of relationships between them. This was done through semi-structured interviews with stakeholders necessary for the success of the research, including conveners, people in leadership positions, communities, etc. The 4R^{s} revealed the actors' roles, responsibilities, returns, and relationships. As a result, by defining the roles of the actors, the framework assisted me in understanding governance processes in power dynamics. I recognised that specific interests conflicted and that this was the problem. In addition, the water governance and poverty framework is a central framework of this investigation to enrich the analysis by providing a broader perspective on the complexities surrounding the issue.

3.7 Ethics considerations

This section provides an overview of the actions taken to ensure ethical considerations and trustworthy standards in this study. The order in which the ethical considerations were discussed does not reflect the order in which principal measures were employed in this study. The discussion begins with institutional ethics and Rhodes University ethics application, followed by everyday ethics principles and various aspects of trustworthiness, ensuring rigour in qualitative research.

3.7.1 Institutional Ethics: Rhodes University Ethics application

The study was conducted under circumstances where the research participants' well-being was considered a priority, and actions taken during the study were performed under the Rhodes University Human Ethics Committee (RUHEC). The ethical conduct of research is a significant focus at Rhodes University (RU). The RU institution adopted the research principles, processes, and structures of the Department of Health, which was approved by the National Health Research Ethics Council. Before data collection, students or staff researching humans, animals, and education must prepare a research ethics application.

Over the years, several human rights breaches have occurred due to a failure to adhere to ethical research norms. To avoid these breaches in addition to RUHEC, this study was guided by core principles obtained in the Belmont Report (NCPHS, 1974). The report highlighted three principles (respect for persons, beneficence, and justice) relevant to research involving human subjects as sources of knowledge. As discussed below, I ensured that the rights of participants were protected by adhering to the principles of human ethics throughout the research process.

3.7.1.1 Respect for persons

The first principle contains at least two ethical appeals, including recognising respondents as autonomous agents and protecting those with less autonomy**.** To adhere to this, upon approaching a participant, I introduced myself, briefly explained the purpose of the study, and asked them for their verbal consent to proceed with the interview. After that, the consent form in **Appendix 2**, which the university approved, was handed to the participant for their signature to acknowledge their voluntary participation and consent to participate in the study. I reviewed the form responses jointly with the participants to eliminate misunderstandings and ensure they were utterly informed of their rights. After signing the written consent, the voice recorder was activated, and the participant was asked to provide verbal consent before the interview questions were asked. Most significantly, participants knew that participating in the study was entirely voluntary and that they had to be 18 or older. Participants were also informed that they could withdraw from the study without any consequences if they felt uncomfortable. Moreover, through the consent form, the participants knew they could hold me accountable if I compromised their anonymity and confidentiality.

3.7.1.2 Beneficence

A study's participants should be treated ethically and safeguarded from harm by maximising possible benefits and minimising potential damages (NCPHS, 1974). While building rapport with respondents and explaining the purpose of the study, they were well informed that this study was focusing only on the influence of power dynamics on collaborative water governance and outcomes in UTC, not any other issues. This research will benefit society as it can improve CWG. This could lead to increased and equal access to a water supply.

3.7.1.3 Justice

Justice refers to making sure that benefits, if any, are equally and fairly allocated. No immediate or tangible benefits were identified for actors who participated in this study, and the verbal and written consent clearly stated this. However, there might be long-term benefits. The actors contributed voluntarily. Moreover, I am committed to providing feedback (through NDP) to research participants. I was intrigued by this project because of the urgency of addressing water scarcity in South Africa.

3.7.2 Everyday ethics principles

Rossman and Rallis (2010) describe everyday ethics as a daily practice of a researcher that involves moral considerations and ethical responsibilities. They claim that the procedural requirements for obtaining informed consent frequently override the fundamental principles of justice, beneficence, and human respect. Consequently, institutional ethical guidelines and regulations are inadequate to address the moral dilemmas inherent in ongoing and evolving research with humans. That is why there is a need for a more sustained engagement with the ethical challenges that define the daily conduct of research. The researcher can achieve this by consistently applying procedural ethics principles in practice. In addition to following the correct and ethical technical procedures of conducting research, for the study to be regarded as trustworthy (explained in the bellowed in Section 3.7.3), I went the extra mile to ensure that research and engaging with the participants were conducted ethically. I overcame the outsider challenge by participating in activities that were not directly relevant to my research but to the study participants (Section 3.3).

Another aspect the researcher must consider when dealing with human participants is to pay attention to trust and confidence (Guillemin and Gillam, 2004). I developed this aspect by valuing participants and research partners and recognising the potential relational impact of the investigation. Some research participants voiced that sometimes they felt like they were being exploited for research; thus, I kept them updated and promised to inform them of the findings after the research completion. Additionally, being stationed with MDF helped me be accepted as

the participants trusted the NGO. In that way, trust and relationships among researchers, research participants, and partners can be maintained through open communication channels and feedback (Cockburn and Cundill, 2018).

3.7.3 Trustworthiness in Research

In research, trustworthiness refers to the quality of research standards and assesses the degree to which confidence can be placed in a study's findings. In quantitative research, quality is measured by a study's reliability, validity, and generalisability. However, these variables are viewed as inappropriate for assessing quality in qualitative research (Lietz et al., 2006). For this reason, methods of evaluating qualitative data quality have been developed over the years. The most relevant and earliest work is that of Lincoln and Guba in the book Naturalistic Inquiry (Shenton, 2004). Lincoln and Guba introduced the concept of trustworthiness as a quality measure in qualitative research in this book, where trustworthiness includes four aspects: credibility, transferability, dependability, and confirmability (Shenton, 2004). (Lietz et al., 2006) claim that to obtain rigour in qualitative research; researchers should exercise caution at each stage to increase confidence in their findings instead of following standard procedures like quantitative research.

According to the research, work that has the potential to feed into policy imposes an ethical responsibility on the researcher to conduct rigorous research and to apply a high level of integrity to the process. Therefore, various steps were taken to render the findings of this study trustworthy and credible. These steps are described in **Appendix 6** under the four concepts of achieving research trustworthiness.

3.8 Limitations

Due to limited workshops on collaborative processes, I had to modify part of the data collection approach. Initially, I set out to conduct participant observation as the primary procedure for the data gathering in this study. This data was intended to explore individuals' actions, behaviours, and characteristics in the collaborative space. However, due to my late entry into the SANBI Living Catchments Project and the limited number of remaining workshops thus,

the methods had to be adjusted to compare the study findings, as discussed in the above sections.

Another limitation was that I was set to interview all the relevant stakeholders to determine the effectiveness of collaborative water governance in the UTC. I could not get hold of the stakeholders from the water-mandated institutions (DWS and UDM). Despite the successful scheduling and re-scheduling of the interview session (Despite the potential respondents confirming their availability an hour before the session when the interview session came, they would not arrive at the agreed venue and would not answer phone calls nor reply to emails).

Moreover, I did not engage or interview crucial stakeholders who did not participate in multi-stakeholder workshops. These included commercial farmers and the irrigation board (which also operates as the Water User Association). I did not engage with these stakeholders because I was focusing on the multi-stakeholder platform, to which they were invited and did not attend. The inability to interview key stakeholders from mandated water institutions leaves a gap in understanding the complete picture of collaborative water governance in the UTC. This could potentially bias the findings towards the perspectives represented at the workshops. It also affected the establishment of sound decisions because of the limited representation of all relevant stakeholders.

CHAPTER 4: FINDINGS

4.1 Introduction

The findings of this study, based on the methods discussed in the previous chapter, will be presented now. Two frameworks (which were discussed in detail in (Chapter 2: Section 2.3) were used to develop the findings. Firstly, the 4R^{s} framework was used to complement the 'actors and agents' (stakeholders) part of the Franks and Cleaver (2007) framework. I used the 4R^{s} to identify and analyse the stakeholders' situations (through their roles) to reveal hidden power structures and unravel their underlying dynamics. Secondly, the water governance and poverty framework (Franks and Cleaver, 2007) was used as the central framework in the investigation to enrich the analysis by providing a broad perspective on the complexities of the issues at hand. **Figure 4.1** the study area map indicates the significant areas mentioned in this chapter, aiding in contextualising the findings. These comprise the catchment boundary, the Thukela River stream, Woodstock Dam, the major towns (Bergville, Winterton, and Ladysmith), and villages (See Chapter 1: Section 1.2.2 for further details on the study area and context).

The findings of this study are presented in four sections. The 1st section offers an embedded case study to paint a rich picture of the context and enhance the interpretation of the results, situating them in the lived experiences of key actors in the catchment. By delving into a practical, real-world situation, the embedded case study enables a deeper understanding of how the findings of the study manifest in a tangible setting, contributing to a more comprehensive interpretation of the data and findings. The last three sections are structured to align with key research questions.

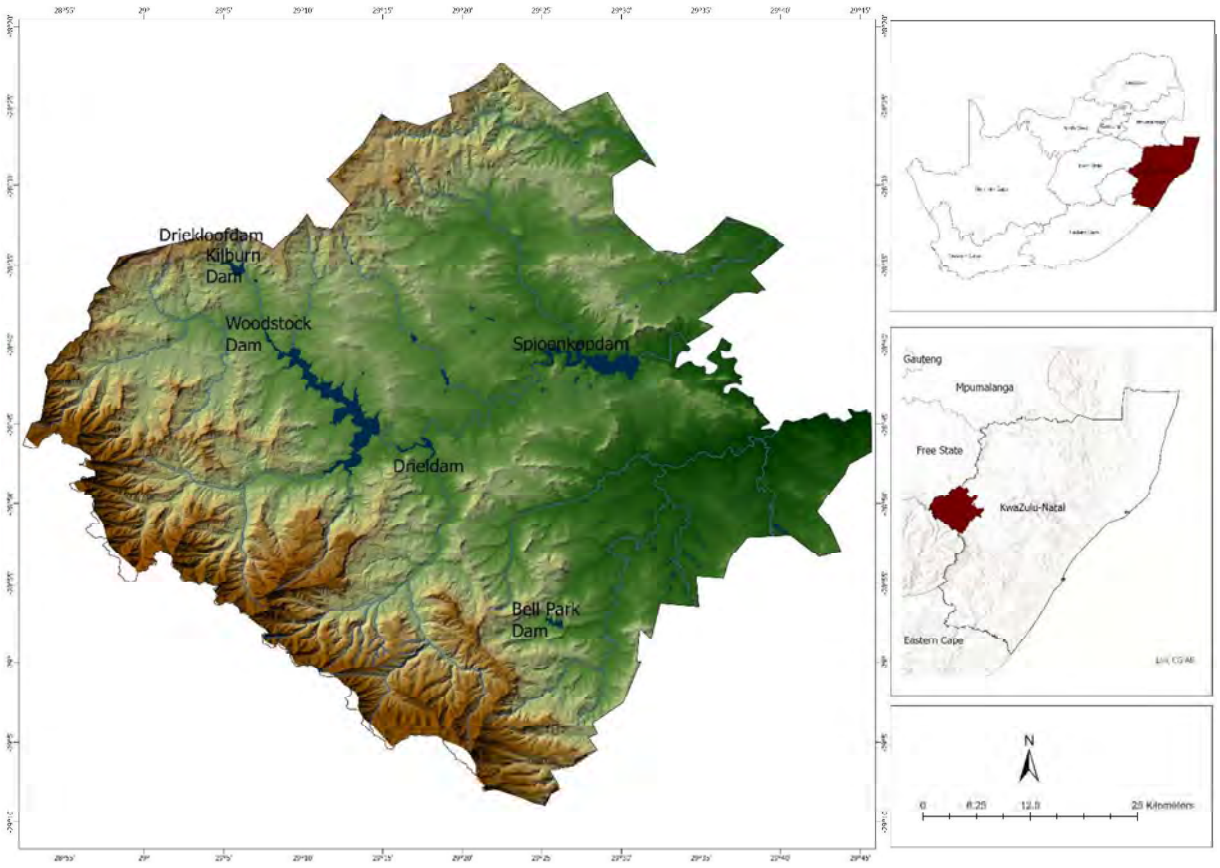

Figure 4.1: The study area (Upper Thukela Catchment) indicates the significant areas mentioned in this chapter. The map was made Mr Tsamaelo Malebu, a GIS Specialist from SANBI.

4.2 Embedded case: Two activists working in a politically dysfunctional world

Mrs Bunnz (25/09/22) went to Upper Thukela with one goal: working with poor rural communities in the agricultural and climate change space, and founded an NGO to enable this work. Mr Khwezi (09/06/22), who has been working in some of the poor villages in the Upper Thukela to bring change for over ten years, also joined the non-governmental organisation (NGO) founded by Mrs Bunnz. I present these two activists as an embedded case study because they have experienced the challenges of power dynamics in a collaborative water governance space, specifically the 'access mechanism' that affects livelihoods and catchment outcomes.

I will discuss how Mrs Bunnz and Mr Khwezi ended up in a collaborative water governance process. In the very early phases of their work, they searched for and found people interested in

agricultural conservation practices. Water is of course required to implement farming practices; however, interested people have struggled to access water since 1994. This was confirmed by Mrs Langa (09/06/22), one of the interested community members (currently a chairperson for Village A water community) when she pointed out that "*we told the activists that we would love to have gardens, but the problem is that we do not have water*. In addition, Mrs Bunnz (25/09/22) mentioned that "*people still get their only water from unprotected springs with no reticulation*." They promised people they would find means to supply them with water for agricultural practices and potable drinking water.

The first step they took to access water was to establish a water committee for the local community that included some of the traditional authority members, the members of the learning group[1] , and any members of the community who were interested. In partnership with the water committee, they did a water survey, requested an engineer to assess the capabilities of water sources to provide water, and worked out the required budget. They had to approach the people or institutions with the water mandate to supply water in those villages. Thus, they approached the elected ward councillor, whose responsibility was to assist with community development. The ward councillor agreed they should continue the water project without his support. In addition, Mrs Langa (09/06/22) mentioned that when they were informing and requesting the councillor's support, the ward councillor emphasised that "*they can continue without his support*." If he brings water to that community, "*he will work independently without collaborating with them*."

The activists continued their efforts to consult the Water Service Authority (**Figure 4.2**), UThukela District Municipality (UDM), and it took them nine months to agree to meet. The UDM insisted that their community liaison and interactions need to happen through ward councillors and no one else for them to consider the matter official. However, when they approached the ward councillors, they pointed them back to UDM, saying, "*UDM has the Water Service Authority*

[1] This learning group comprises small-scale farmers from diverse villages collaborating with the Mahlathini Development Forum (MDF). The structure involves individual villages forming smaller subgroups within the larger learning group. These subgroups collectively engage in knowledge exchange and capacity building around conservation agriculture, organic vegetable farming, and water governance and management issues.

(WSA)," not them. The UDM demonstrated a complete disregard for the concept of partnership (which is essential for the effectiveness of collaborative governance) as they required that any collaboratively installed water infrastructure needed to be handed to them for operation and maintenance upon completion as they did not like the idea of these small 'privately' own initiatives (Mrs Bunnz, 25/09/22).

Also, the activists work with some members of Village E, which borders on Sappi plantation (commercial forestry); Mr Khwezi (09/06/22) mentioned that the community experienced water shortages when Sappi planted those alien invasive trees (plantations of gum trees). The springs the community fetches water from started to run dry, resulting in many conflicts between Sappi and that community. To resolve the dispute, Sappi agreed to put in a borehole, and the community has been running that borehole for over 20 years since it was installed. Every week, people would pay a specific fee for the costs of pumping water from the borehole (**Figure 4.2**). Water gets pumped from the borehole to a storage tank, where the people collect water. The pump started to have a maintenance problem that the community could not afford to repair, and then they went to the Water Service Authority (UDM) to ask for help with the new pump. The trouble began when UDM requested the community to transfer ownership of the water infrastructure, previously managed by Sappi, to UDM. This request was made as a condition for UDM to consider assisting with pump maintenance, as UDM claimed that all water infrastructure fell under their jurisdiction and ownership.

Despite the ongoing dilemma between the UDM and Village E (with activists supporting Village E's in the negotiation processes), Sappi took the initiative to write a letter stating that 'they transferred ownership of the water infrastructure to the community, and the community was ready to hand it over to the Water Service Authority'. The letter was sent to the community by the ward councillor. However, the community hesitated to hand over the letter to the UDM due to their poor track record in delivering water services. This lack of trust created uncertainty regarding the UDM's willingness to manage the water effectively.

In response, the ward councillor informed the community that he would follow their instructions. The ward councillor presented two options to the community: the community could either keep the letter and decide what to do with it themselves, or the councillor could deliver it to the UDM. As a result, the community decided to retain the letter, as an activists' NGO was willing to support them with funding from the World Wide Fund South Africa (WWF-SA). Village E placed greater trust in the NGO's ability to deliver assistance than the UDM's historical performance.

Furthermore, the activists were crucial in establishing a multi-stakeholder engagement in the Upper Thukela region. They assisted the Institute of Natural Resources (INR) in implementing the project initiated by the South African National Biodiversity Institute (SANBI), known as the Living Catchments Project (LCP) (Chapter 1: Section 1.2.1). This initiative has significantly impacted the catchment area, as it has brought together various stakeholders who usually work in silos. Through this collaborative effort, stakeholders within the catchment better understand each other's roles and responsibilities (Observations, 10/11/22).

Consequently, stakeholders have established networks and coordinated their efforts to avoid duplication and wastage of resources (Evaluation, 10/11/22). Despite progress, significant challenges still must be resolved in the catchment area. The key stakeholders with the authority and mandate remain unwilling to participate in the multi-stakeholder engagement (Mr Khwezi, 09/06/22). This lack of involvement creates confusion among other catchment stakeholders regarding the roles and responsibilities of these absent parties, hindering further progress. Moreover, the conveners of the initiative made every effort to have stakeholders with water-related mandates participate in workshops. Recognising their crucial role in water governance and management, their presence would have significantly contributed to establishing informed decisions considering all catchment stakeholders' interests. This would ensure that the decisions align with water laws and regulations.

4.3 Who are the stakeholders in collaborative water governance in the Upper Thukela Catchment, and what are their roles? (Question 1)

4.3.1 Relevant Water Governance Initiatives

This section provides an overview of the water governance platforms or initiatives consulted to identify the stakeholders who participated in the study. By examining these platforms, the power dynamics within water governance were revealed. The Upper Thukela Catchment (UTC) stakeholders are involved in many water governance platforms. These platforms include the Upper Thukela Multi-stakeholder Partnership (UTMSP), which I predominantly engaged with due to its requirement for the involvement of all pertinent stakeholders associated with the UTC. Also, UTMSP forms part of the bigger Living Catchment Project (LCP) convened by the Institute of Natural Resources (INR) in the UTC, which this case forms part of (Chapter 1: Section 1.2.2).

Through the data collection process, UTMSP organised three multi-stakeholder workshops through INR and its partners. Representatives from various water governance platforms, such as water committees, traditional councils, war rooms[2], and non-governmental organisations (NGOs) attended the UTC multi-stakeholder workshops. These stakeholders actively participated in the workshops; however, the absence of the Thukela Catchment Management Forum (CMF) and Bergville Irrigation Board (BIB), which are recognised institutional governance bodies established under the National Water Act (NWA) of 1998, was noted during the multi-stakeholder engagement as not honouring the invitation. Commercial farmers (often

[2] A war room is a designated physical location where the ward-level coordinating task team acts as a bridge between governmental departments and the community. Within this space, the team conducts profiling activities and facilitates the integration of service delivery. Key stakeholders involved in the war room's operations include community leaders (including every community member), community-based organizations, fieldworkers, governmental representatives, and civil society actors.

affiliated with the above-mentioned recognised bodies) were also absent from the multi-stakeholder engagement.

Additionally, it should be noted that the Department of Water and Sanitation (DWS) KwaZulu-Natal (KZN) regional office, currently tasked with water resource management responsibilities until the establishment and complete operation of the Catchment Management Agency (CMA) for the Thukela Water Management Area (WMA) **(**Chapter 2: Section 2.4), only participated in a single engagement. Regrettably, the representative from this office proved unhelpful as they failed to provide the necessary information requested by other participants. Thus, the case study focused on the UTMSP is an example of a bottom-up water governance platform due to the inadequate participation of delegates from formally mandated water governance institutions.

Moreover, the study participants shed light on an additional important element within the water governance context, namely the presence of the DWS-managed Woodstock Dam (see **Figure 4.1**) in the catchment area. This factor has significant implications for power dynamics, as the water sourced from the dam plays a crucial role in the Thukela-Vaal water transfer scheme, which supplies water to the Gauteng Province, i.e., to water users outside the catchment (Chapter 1: Section 1.2.2). Meanwhile, the communities in the catchment area face challenges in accessing a reliable source of potable water. These catchment residents believe they should receive advantageous outcomes from the dam, which could alleviate their livelihood challenges through subsistence agriculture and other water-related activities. They also perceive a sense of shared hardship with communities dwelling near other dams. This perception arises from the prevailing practice of allocating water from these dams primarily to distant regions or users, leaving local communities with limited access to this essential resource. A similar instance involves the provision of water from Midmar Dam to Durban, whereas the local people residing near the dam encounter challenges with water accessibility (Mr Mata, 07/09/22). Nevertheless, local people within the UTC face challenges with the application procedure for obtaining a water use license because of insufficient information. The subsequent sections provide an overview of the stakeholders involved in water governance at UTC.

4.3.2 Stakeholders in collaborative water governance in the UTC

Stakeholders' roles in collaborative water governance (CWG) in the Upper Thukela Catchment (UTC) were analysed using the rights, responsibilities, returns, and relationships framework ($4R^s$)(Mayers, 2005). These 4R dimensions allowed me to delve deeper into understanding power dynamics between stakeholders. The $4R^s$ were assessed based on the findings of inductive and deductive analyses of observation notes, workshop evaluation forms, and semi-structured interview information. According to Dubois (1998), the $4R^s$ framework is a tool utilised to understand power dynamics within the roles of stakeholders (Chapter 2: Section 2.3). Two outputs, **Table 4.1** and **Table 4.2**, were produced based on the $4R^s$ framework, which will be discussed in two sub-sections below, starting with an overview of rights, responsibilities and returns in section 4.3.2.1 and concluding with a discussion of relationships in section 4.3.2.2.

4.3.2.1 The first $3R^s$: Rights, responsibilities, returns

The first output, **Table 4.1** Shows the current situation of the first $3R^s$: rights, responsibilities, and returns. It was necessary to assess the first $3R^s$ together (Mayers, 2005), because the balance between them indicated the underlying power structures needed to achieve the effectiveness of CWG. Thus, it was narrated in the following sections per stakeholder group.

Table 4.1: Current rights, responsibilities, and returns for the UTC Stakeholders of the CWG adopted on Mayers, 2005.

Stakeholder Group	**Stakeholders**	**Responsibilities** (- has the mandate to...)	**Rights**	**Returns**	**Level of Involvement**
Public Sector	Department of Water and Sanitation (DWS)	Ensure water resources are protected, managed, used, developed, conserved, and controlled	Access to all water resources; Management authority; Issues water use license	Payments for water use; Research levies	Low
	UThukela District Municipality (UDM)	Provide access to water services; conserve and maintain water quality	Water Service Authority	Tariffs	None
	Okhahlamba Local Municipality (OLM)	Convey communication between the community and UDM	No authorised right	None	Medium
	Thukela Catchment Management Forum (CMF)	Fosters collaboration among diverse stakeholders by facilitating decision-making about water resource	No authorised right	Capacity building for meaningful participation; Access to information and data	None
	Bergville Irrigation Board (BIB)- Where Commercial Farmers are Represented	Manages and governs water resources at a local level	Allocate water use rights according to legal regulations	Access to funding; Representation in decision-making; Access to information and data	None
NGO	Mahlathini Development Forum (MDF)	Facilitate development and support mandated institutions	Oversee access and activities; Priorities adaptive strategies; No authorised right.	Donations and support	High

	Institute of Natural Resources (INR)	Convene the development of the Upper Thukela Multi-stakeholder Partnership	Organiser and administrator of the collaboration; No authorised right	Build relationships; Donations and support	High
	World Wide Fund South Africa (WWF-SA)	Convene the Northern Drakensberg Partnership	Provide support for securing the NDSWSA; No authorised right	Build relationships; Donations and support	High
	Amazizi Development Forum (ADF)	Community development	No authorised right	Donations and support;	High
Local Community	Traditional Council (TC)	Provide leadership and governance for the community while preserving cultural heritage and natural resources.	Manage and allocate natural resources according to customary law; No authorised right.	Fees Consumption Cultural value	High
	Villagers	None	Access to water; No authorised right	Consumption	High
	Local Facilitator (LF)	Facilitate communication and collaboration between locals and other stakeholders.	Organiser and administrator of the collaboration; No authorised right	None or occasional gifts	High
	Water Committee	Manage and maintain the water supply system	Ensure access to safe and reliable water supply; No authorised right	Access to clean water; Capacity development	High
	Eco-Champs	Take care of the environment	No authorised right	Salary; youth development	High

	Small-holder Farmers	None	Access to water; No authorised right	Financial gain; capacity development; water access	High
	Ward Councilors (WC)	Liaison between community and local government	Participation in decision-making; No authorised right	Salary	Medium

4.3.2.1.1 Public sector

It is evident from the table that the public sector, Department of Water and Sanitation (DWS), and UThukela District Municipality (UDM), particularly, have the most significant and most authorised rights over water resources, i.e., more so than Okhahlamba Local Municipality (OLM) and other stakeholders. These public sector actors also have the most important responsibilities (as mandated by law, i.e., the National Water Act) to ensure water resources are protected, managed, used, developed, conserved, provide access, and ensure the delivery of adequate water supply. The DWS and UDM possess the highest authorised rights (Mr. Khuboni, 07/09/22, 2022). They should be considered the primary participants in collaboration efforts among catchment stakeholders, as they bear the most significant responsibilities and are likely to yield the highest returns. However, the challenge is that these stakeholders entrusted with the mandate to safeguard the Thukela Strategic Water Source Area (SWSA) were noticeably absent from the muti-stakeholder workshops and did not bother to send apologies, as revealed during workshops:

> *Some key stakeholders that should have been present, such as UThukela District Municipality, DWS, and another relevant representative, did not come. We still need to find these organisations that did not avail themselves, as this will open doors to many opportunities and make it easier for everyone involved within the catchment area to progress (Evaluation, 10/11/22).*

These key stakeholders should have notified the muti-stakeholder workshop conveners in time that they were committed somewhere else, as it becomes a problem (i.e. it negatively affects decision-making) if a stakeholder with a water mandate fails to attend the meeting and does not even send an apology to the workshop conveners in time (Observations, 14/06/22; Observations, 10/11/22).

In addition to the above-mentioned water governance-mandated institutions that were absent from the multi-stakeholder workshop were the Bergville Irrigation Board (BIB) and Thukela Catchment Management Forum (CMF), which play a significant role in water governance and management, and are also governed by the NWA, though they are platforms for collaboration rather than public sector entities or employees. The presence of the representatives from these institutions could have positively impacted other stakeholders, as they possess crucial knowledge and data about water resources, and they represent important water users in the catchment (e.g., commercial farmers).

Ward councillors (WC) serve as intermediaries between local communities and municipalities. However, a potential disconnect appears between this role and the perceived responsibility of some WCs. This is evidenced when the water committees approached the WCs about water-related matters or to participate in their water supply project. Only to be told by their WCs that these issues fall outside their mandate and often redirect them to UDM, suggesting that UDM bears the responsibility for water-related matters (Mrs Langa, 09/06/22; Mr Khwezi, 09/06/22 and Mrs Bunnz, 25/09/22) instead of taking ownership of their obligations. This evidence suggests that the ward councillors are evading roles and responsibilities. This behaviour raises questions about their commitment to their role as intermediaries and advocates for their communities (Mbhele, 15/06/22 and Mrs Dlamini, 28/06/22).

4.3.2.1.2 Non-governmental organisations

Despite lacking authorised rights, the non-governmental organisation (NGO) Mahlathini Development Forum (MDF) takes significant responsibility for addressing water access challenges and contributing to the protection of the catchment, as evidenced by their efforts, such as

forming water committees, supplying water, employing environmental champions, and supporting rural development through smallholder farmers (refer to the case study in Section 4.2). Remarkably, this responsibility was undertaken with minimal or no support from the public sector responsible for water security (Mr Khwezi, 09/06/22; Mrs Bunnz, 25/09/22), highlighting the need for increased collaboration and support to maximise the NGO's positive impact in the catchment. The MDF also supported the Institute of Natural Resources (INR) in trying to set up the Upper Thukela Multi-stakeholder Partnership (UTMSP).

INR has also assumed responsibility for providing potable water to members of Village A through spring protection, supported by South African National Biodiversity Institute (SANBI) funding. Furthermore, the NGO has contributed to catchment protection by implementing rangeland management practices (Mrs James, 27/10/22). INR also organised and convened the UTMSP (Chapter 1: Section 1.2.2).

The World Wild Fund South Africa (WWF-SA), another NGO, has been involved in the UTMSP since its inception. This NGO played a significant role in supporting the protection and safeguarding of the Northern Drakensberg Strategic Water Source Area (NDSWSA). Following the conclusion of the LCP, the convening role of the UTMSP was assumed by WWF-SA, which subsequently opted to rename it as the Northern Drakensberg Partnership (Observations, 14/06/22). Despite limited time spent in the UTC, WWF has established a positive rapport with the local community and other NGOs. This has been achieved through the organisation's efforts to rehabilitate the springs of some of the Amangwane and Amaswazi traditional authorities and its financial contributions to MDF to maintain the pump in Village E.

Lastly, the Amazizi Development Forum (ADF) contributes to community development. The community formed this NGO because they lost trust in the government's service delivery. According to one respondent, they must do things for themselves to change their community situation. As he mentioned:

> *It is time to abandon the pursuit of victory in this battle, as it appears to be an unattainable goal. Instead, we should focus on achieving our objectives without coercing government*

support. As NGOs and NPOs, we must unite and seek a solution through the appropriate means, avoiding the wastefulness of attempting to engage with unwilling participants. It has become evident to me that the responsibility lies in our hands. Let us act and implement our plans rather than constantly thinking about persuading government stakeholders to attend meetings (Mr Zizi, 20/07/22).

4.3.2.1.3 Local community

As mentioned in Chapter 3: Section 3.4.5, I use the phrase "local community" to refer to rural community residents who live in villages on communally-governed land in the UTC (**Figure 4.1**) (Chapter 3: Section 3.4.5. These stakeholders include the traditional council (TC) and villagers, who have the right to access water without responsibility, except the traditional council. Inadequate access to information impedes the TC's capacity to fulfil its duty of adequate catchment protection. This claim was supported by a member of the traditional council during the interview when he said:

We have the local court where we resolve disputes at the village level. This platform can also be used to discipline those who are doing illegal sand mining and dipper dumping here. However, those law-abiding local people need more motivation as they need a potable water supply; consequently, they do not come forward to report the culprits. Also, we do not understand the policies or strategies that ensure the effectiveness of catchment governance and management because there is no proper consultation with us (Mr Mata, 07/09/22).

In addition to the TC and villagers as the local community stakeholders, a local facilitator (LF) plays an essential role in that catchment by facilitating communication between the outside stakeholders (but working in the catchment) and the local community. For example, she facilitated the engagement between Village A community members and INR during spring protection activities (Observations, 17/08/22.) Amazingly, the LF has taken up that responsibility without getting any returns. According to the local facilitator:

I do not receive any financial compensation for my work, but occasionally, stakeholders express their gratitude by presenting me with gifts as a token of appreciation (Mrs Ntshangase, 20/09/22).

Furthermore, as previously stated, water committees and eco-champs established due to MDF initiatives play a significant role in ensuring water security and protecting the catchment area. Despite water committee members' obstacles in their interactions with ward councillors and the UDM, certain village people (those residing in villages C and D) derive advantages from the water committees' endeavours since they can access a safe and drinkable water supply. In addition, many water committee members, also small-holder farmers, benefit from capacity development programs such as learning groups (Mrs Langa, 09/06/22; Mrs Bunnz, 25/09/22).

Financial incentives primarily drive eco-champs as they assume the responsibility of protecting the watershed environment and ensuring water security through employment. Eco-champs are youth employed through government employment or social support programmes for environmental protection activities. Other eco-champs' individuals are encouraged to enhance their knowledge and understanding of environmental protection by formulating plans to pursue higher education upon completing their contractual obligations (Miss Memela 29/06/22).

4.3.2.2 The 4th R: The relationships between stakeholders

The second output is presented in **Table 4.2**, which is a matrix describing the relationship between stakeholders (the 4th 'R'). The existing relationships between catchment stakeholders were analysed using a pairwise matrix and traffic light colours as codes for different relationship types (where **G**=**Green**=Good, **O**=**Orange**=Fair, **R**=**Red**=Poor/conflictual, and **-**= non-existing relationship or unknown). In the sub-sections below, I discuss the nature and implications of these relationships in further detail.

Table 4.2: Relationships recorded between stakeholders within the Upper Thukela Catchment (Mayers, 2005).

	LF	WCo	EC	V	WC	SF	ULM	UDM	DWS	MDF	INR	ADF	BIB	CMF	WWF
TC	G	G	G	G	O	-	R	R	R	G	G	G	-	-	-
LF		-	-	O	R	-	-	-	-	G	G	G	-	-	-
WCo			G	O	O	G	O	R	-	G	-	-	-	-	-
EC				O	O	G	-	-	-	G	-	-	-	-	-
V					R	O	R	R	R	G	G	G	-	-	O
WC						O	O	O	O	O	O	O	-	-	O
SF							O	R	-	G	-	-	-	-	G
OLM								R	O	O	O	R	-	-	O
UDM									-	R	R	R	-	-	-
DWS										-	-	-	-	-	-
MDF											G	-	-	-	G
INR												G	-	-	G
ADF													-	-	G
BIB														-	-
CMF															-

TC=Traditional Council, **LF**=Local Facilitator, **WCo**=Water Committee, **Eco-Champs**=Environmental Champions, **V**=Villagers, **WC**=Ward Councillors, **SF**=Smallholder Farmers, **OLM**=Okhahlamba Local Municipality, **UDM**=UThukela District Municipality, **DWS**=Department of Water and Sanitation, **MDF**=Mahlathini Development Forum, INR=Institute of Natural Resource, **ADF**=Amazizi Development Forum, **BIB**=Bergville Irrigation Board, **CMF**=Thukela Catchment Management Forum and **WWF**=World Wide Fund for Nature.

4.3.2.2.1 Mistrust towards public sector

During individual interviews, most respondents, especially local people, said they did not trust government stakeholders (Mrs Wangaza, 28/06/22; Mr Zizi, 20/07/22; Mr Mweli, 20/07/22). As one can observe from the **Table 4.2**, the relationship between DWS and, more significantly, the UThukela District Municipality (UDM) and other catchment stakeholders is either poor or non-existent. In addition, the respondents revealed that "power" plays a significant role in allocating water resources within the catchment. These respondents felt that, due to its power, Gauteng Province has always been given priority in the allocation of water by the Department of Water and Sanitation (DWS) (Mrs Langa, 09/06/22; Mr Mata, 07/09/22). The Gauteng Province is recognised as the highest priority in the Upper Thukela Catchment (UTC), and there are growing concerns that:

The water sector gives Gauteng Province priority since it is the South African economic hub. It has several industries where most people are employed, thus contributing to alleviating poverty (Mr Mata, 07/09/22).

To support these claims, in almost every encounter with the local respondents, either during an interview or informal conversation, they would stress that they live next to the Thukela River. However, they are struggling to access water while the water sector prioritises other areas through transferring water from the Thukela River to other catchments, including uMngeni and Vaal River, with more emphasis on the Thukela-Vaal water transfer scheme, appears to prioritise the water supply of Gauteng Province (Mrs Langa, 09/06/22; Mrs Mbhele, 15/06/22; Miss Memela, 29/06/22). This is the primary cause of the conflict between local and government stakeholders with the water mandate. The UDM exacerbated the tension by failing to engage with local people regarding the water process, despite local individuals and NGOs attempting to approach them for clarification on the water supply process yet receiving no response or assistance, thus leading to frustration and resentment (Mrs Langa, 09/06/22; Mr Zizi, 20/07/22). This lack of engagement suggests that UDM evades responsibility for handling water-related matters, mainly concerning local communities and water users.

4.3.2.2.2 Tension over lack of access to information regarding water access and governance

Similarly, local people do not benefit from the Woodstock Dam. The community knows that the National Water Act (NWA) of 1998 assigned the DWS the responsibility for dam management. Due to the absence of documented evidence to validate the agreement reached during the dam's implementation period with the now-deceased local committee, local people are encountering difficulties in progressing with the attempt to apply for a water license and understanding the agreement, particularly concerning their rights to the dam. This challenge arises from determining the appropriate parties they should engage with (Mr Mata, 07/09/22). Local people would like the department to send its representatives to engage and provide them with the required information and guidance.

Furthermore, it is notable to observe the non-existing or unknown relationship between the formally mandated water governance platforms, Bergville Irrigation Board (BIB), and Thukela Catchment Management Forum (CMF) with other relevant catchment water governance stakeholders. The NWA-mandated water governance platforms are unknown and inaccessible to other catchment area stakeholders, such as water committees and the traditional council. The claim was substantiated by the respondents from the water committee and the traditional council, who asserted that:

> *The presence of the Water User Association (WUA) or CMF is expected in each catchment area, and we would like to participate in these platforms, as they may offer valuable information to address our unresolved inquiries regarding the Woodstock Dam and the Thukela-Vaal water transfer scheme (*Mr Mata, 07/09/22). *Nevertheless, these platforms within the UTC remain unknown to us* (Mrs Langa, 09/06/22).

This claim was further reinforced by the representative from the DWS KZN regional office, who asserted that there are currently operational catchment collaborative water governance platforms, such as the WUA or CMF, established by DWS where all relevant catchment stakeholders with various water interests can collectively engage to discuss and provide solutions to water-related challenges. However, the representative was unable to provide specific details regarding the locations of these initiatives, as he clarified that his jurisdiction is limited to the regional office. He suggested that he would try to get the representatives from the DWS national office to attend the engagement as they would be better equipped to furnish information regarding the whereabouts of these initiatives and other important required information that can improve the UTC multi-stakeholder partnership for collaborative water governance (Observations, 14/06/22).

4.3.2.2.3 Conflictual relationship within the local community

Lastly, another conflictual relationship is between the local facilitator (LF) versus the ward councillor (WC) and the ward councillor versus villagers. The WCs feel threatened by the input of the local facilitator in the community (Mrs Ntshangase, 20/09/22). As a result, they perceive LF's

contribution as a chance to fulfil the responsibilities of the WCs rather than as an effort to enhance community development. The respondent backed this claim by mentioning that:

> *Even if the ward councillors collaborated with other stakeholders for community development causes, they want to be seen doing the work independently. They would claim that they have done the job without giving gratitude to their partners* (Mrs Ntshangase, 20/09/22).

Furthermore, the tension between ward councillors and villagers arose when the ward councillors sought the villagers' votes. In return, they promised to deliver the required services (especially long-term water supply). However, the elected ward councillors fail to hold their end of the bargain and, thus, the tension (Mr Mazibuko, 16/06/22; Mrs Wangaza, 28/06/22; Mrs Dlamini, 28/06/22). On the contrary, at the time of data collection, the current ward councillors had just started their term, and they mentioned those were the former elected ward councillors who had not delivered since 1994; thus, community members had lost their trust in them (Mr Mweli, 20/07/22; Mr Thusi, 23/09/22). Nevertheless, the current WCs are prepared to do better. Remarkably, the relationship between the current ward councillor and other catchment stakeholders is fair (see Section 4.2 for a reason why).

4.3.3 Summary of key findings for question 1

The first research question focused on the actors and agents (stakeholders) part of the Franks and Cleaver (2007) framework. It aimed to identify the stakeholders involved in water governance and analyse their power dynamics. The power framework known as the 4R^{s} (Mayers, 2005) revealed the inherent power dynamics among water governance stakeholders in the Upper Thukela Catchment.

The 4R^{s} framework highlighted the insufficient involvement of critical stakeholders in water governance, specifically those from the public sector with water management and governance authority rights. The active participation of these stakeholders is essential for the success of collaborative water governance efforts. This is due to their role as water-mandated

platforms, which are necessary as any decisions made during workshops must ultimately be approved by institutions with water governance authority. The power framework analysis also exposed conflicting relationships among stakeholders involved in water governance, mostly stemming from some public sector stakeholders evading roles and responsibilities, a lack of trust, and limited access to information. These factors contribute to challenges and tensions within the water governance landscape.

4.4 What is the nature of power dynamics among stakeholders in collaborative water governance initiatives, and how do these affect collaborative processes? (Question 2)

The open-coded analyses of semi-structured interviews, evaluation forms, and observations revealed the nature of power dynamics in collaborative water governance processes in the Upper Thukela Catchment (UTC). These include themes related to political party contestation, collusion council, negligence, unwillingness to participate, and political machinations, as illustrated in **Table 4.3**. The results for question 2 help me understand the consequences (or impact) of power dynamics and strategies that could enable or hinder the effectiveness of collaboration in water governance, and the key themes are discussed further in the sub-sections below.

Table 4.3: The nature of power dynamics and strategies participants recommend to overcome barriers to effective collaboration.

Nature of power dynamics	Impact on processes	Strategies recommended by participants
Political party contestation Different political parties are in power in the two municipal authorities, i.e., OLM and UDM, but contest power in the same communities.	• Sabotage of decision-making • Negative competition; duplication of services and waste of resources • Poor operational flow • No sense of urgency/speedy action	• Have a joint mandate to serve the community • Enforce intergovernmental relations • Service level agreement

Collusion Council Tripartite council (involving three parties) IFP is the ruling party, but the mayor is from ANC, the speaker is from ANC, and the deputy mayor is from NFP.	• Conflict, sabotage delaying the process • Interrupted decision-making due to competition	• Resort to polls to vote for solutions, but there are possibilities of foul play
Negligence and corruption Since 1994, after the Water Acts were amended, there have been empty promises	• Lack of trust between the local community and public stakeholders • Conflict around water supply • Poor service delivery	• Establish accountability • Improve local/communal governance (e.g., leadership training and capacity development of TC) • Improve collaboration and cooperation • Revise policy and advocacy • Self-determination
The Water Service Authority is unwilling to participate. All water infrastructure belongs to UDM. Absent from all multi-stakeholder meetings without an apology	• Cannot establish sound decisions that require all key stakeholders to be part of the agreement	
Political machinations (Secret plans to get power)	• Inconsistencies in decision-making	• Promote transparency, accountability, and ethical leadership

IFP= Inkatha Freedom Party **ANC**=African National Congress **NFP**=National Freedom Party

4.4.1 Political party contestation

Firstly, political party contestation occurred across- levels. Alence (2004) refers to political party contestation as the process of competition among political parties to win power. The contestation among political parties for power (authority) in Okhahlamba Local Municipality (OLM) and UThukela District Municipality (UDM) is a significant factor that cannot be overlooked. Probing revealed that UDM oversees the water operations in the OLM. The African National Congress (ANC) dominates OLM, whereas the Inkatha Freedom Party (IFP) dominates UDM. Firstly, the negative consequence of party contestation on processes is the potential for sabotage

in delivering essential water services. Mr Thusi (23/09/22) claimed that "*the UDM, where the opposition party is in power, might intentionally delay or hinder the provision of water services as a political strategy*" since most residents voted for the opposing party. Mrs Dlamini (28/06/22) proclaimed that "*this is an abuse of human rights*," as everyone has the right to vote for the political party of their choice.

In addition, poor operational flow is another evidence of contestation since there is no unity, planning, implementation, and management of water projects, and services are negatively impacted. Lastly, political contestation leads to parties being unable to reach a consensus on critical issues due to ideological differences or political rivalries. As a result, there are delays in implementing necessary actions to address urgent water challenges (Mr. Khuboni, 07/09/22).

Secondly, political party contestation occurred within the level, for example, the collusion council in the UThukela District Municipality. Upon investigation, I found another form of power dynamics: a collusion council in the UDM. This collusion council is a tripartite council where three political parties are involved. The council comprises opposition parties where the speaker comes from ANC, the mayor from ANC, and the deputy mayor from NFP; however, the IFP is the ruling party in the district municipality. This leads to sabotage, where one party needs to be seen doing the work independently, and others ensure the majority party is not delivering. Competition is another evidence of the tripartite council arrangement that affects the collaborative processes since they are unwilling to collaborate. Instead, they compete, which leads to duplication of efforts and wastage of resources. One respondent supported these claims by mentioning:

> *Intense competition between parties can create a focus on political point-scoring rather than addressing urgent issues. Parties may prioritise gaining or maintaining power over prompt action, leading to delays in decision-making processes* (Mr Thusi, 23/09/22).

4.4.2 Negligence and corruption

Negligence is another critical dynamic. Decades later, after the National Water Act of 1998 was intended to foster collaboration in catchment areas and stressed that water is a "basic

human right for all," communities still do not have access to water. Politicians have promised to deliver water to local communities since 1994, as mentioned in Section 4.2**.** However, people living in the Thukela Strategic Water Source Area still struggle to access water. Thus, they have lost respect and hope for the government (Mrs Langa, 09/06/22; Mr Zizi, 20/07/22). Corruption and deliberate sabotage of water supply by political parties should be addressed, and some community members plead for other members to stop voting for the same political parties who never deliver on their promises (Mrs Dlamini, 28/06/22). In addition, to avoid the issue of incompetence, Job appointment should not be based on political party affiliations but on qualifications (Mr Thusi, 23/06/22).

4.4.3 Water Service Authority unwilling to participate

Another characteristic of power dynamics is the UThukela District Municipality, the Water Service Authority (WSA), 's lack of willingness to participate in that catchment. As much as locals have lost hope in the government, NGOs have revived their hopes through projects they deliver to their communities, including water provision. While providing water, the NGO Mahlathini Development Forum needed to involve essential stakeholders such as chiefs, ward councillors, water service authorities, and others to follow the correct procedures (Section 4.2). This has been challenging as the stakeholders (such as ward councillors and UDM) were evading their responsibility.

Additionally, as stated earlier, the UDM has not participated in multi-stakeholder workshops, has failed to attend a single session and has not sent any apologies. This complicates the progression to the next phase, as it becomes challenging to reach sound decisions that require the participation of all key stakeholders. Furthermore, local community participants are dissatisfied due to unanswered questions, as they had hoped to engage with the UDM, which is usually hard to reach (Observations, 14/06/22; Observations, 10/11/22).

4.4.4 Political machinations

Smith (2009) refers to political machinations as strategic and manipulative actions taken by politicians or political parties to gain or maintain power, often involving complex manoeuvres and calculations. In this study, I found that the ward councillors use this strategy to try to please all the parties involved as a secret plan to maintain power. For instance, in the case of Village E, the ward councillor presented the residents with two options: retain the ownership documentation for the water infrastructure or transfer it to the UDM (Section 4.2). The UDM wanted to acquire the ownership document, claiming their mandate over water infrastructure. However, the community harboured a lack of trust in the UDM's ability to assist due to their record of inadequate water supply and infrastructure management (Mr Khwezi, 09/06/22). This dynamic arises due to the distinct accountability structures: ward councillors hold direct accountability to the communities they represent, who elect them independently of political party affiliation. Conversely, ward councillors function as the local representatives within the broader UDM structure (Mweli, 20/07/22).

Overall, the consequences of power dynamics on local communities are far-reaching and often disempowering, leaving them vulnerable and voiceless as they still do not have adequate water supply. Manipulation, restricted access to water resources, lack of representation, and social fragmentation are all manifestations of this power imbalance (Mr Zizi, 20/07/22 and Mr Thusi, 23/09/22).

4.4.5 Understanding the nature of power dynamics and limited statehood

The above-outlined consequences of the nature of power dynamics on water governance processes expose the underlying issue of limited statehood, as Börzel et al. (2018) defined in Ayala-Orozco et al. (2018). Limited statehood refers to regions where the central government cannot maintain exclusive control over the use of force or effectively implement laws. In the Upper Thukela Catchment (and South Africa as a whole) context, this translates to a scenario where administrative power struggles to hold its representatives accountable, leading to

situations where politicians prioritise their agendas over the community's needs. For example, this lack of accountability manifests in ward councillors fearing opposition from the community or the UDM, preventing them from making decisions based on established protocols. Similarly, the district municipality would likely have acknowledged its shortcomings and apologised for not participating in the multi-stakeholder partnership if a robust accountability system had been in place. Furthermore, the dynamics of negligence and corruption further illuminate the characteristics of limited statehood.

4.4.6 Summary of key findings for question 2

The second research question intended to explore the nature of power dynamics and their effects on collaborative governance processes. The analysis revealed that different political parties seem to be the primary root of the nature of power dynamics in collaborative water governance. Political parties contesting power over the same communities led to conflict, corruption, competition, negligence, and sabotage. These challenges impacted the operational flow, service (especially water) delivery, sense of urgency, and decision-making related to votes on water-related matters. Thus, the nature of power dynamics in collaborative governance processes further exposed the underlying issue of limited statehood.

4.5 How do power dynamics interact with resources and mechanisms to influence collaborative governance outcomes? (Question 3)

This section presents how the issues of power dynamics in relation to natural resources (water and land) and mechanisms of access in the catchment affect the effectiveness of collaborative water governance outcomes within and across levels. The discussion on question 3 is based on collaborative water governance domains (Franks and Cleaver, 2007) (**Figure 4.2**). The first domain is the resources, followed by mechanisms of access and livelihood and catchment outcomes, respectively, as presented in **Figure 4.2**.

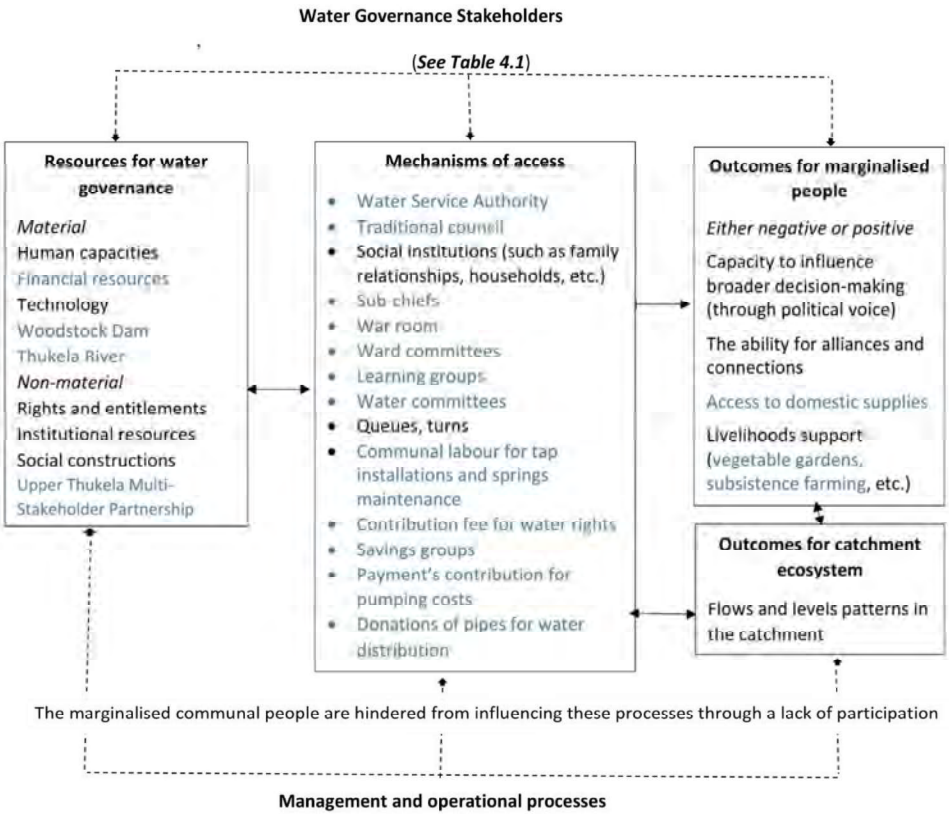

Figure 4.2: Water governance in the Upper Thukela Catchment based on analysis using Franks and Cleaver (2007). The original text from the framework is written in black, while the text from my data and findings is blue (Chapter 2: Section 2.3).

4.5.1 Resources

The Upper Thukela Catchment has various **resources for water governance** that the people can draw on. However, as discussed in the above sections, the **water resources** are unreliable or inaccessible. In addition, Mrs Wangaza (28/09/22) reported that **financial resources** are unevenly allocated throughout the catchment area, and some are limited. For instance, there is a vast difference between the commercial ‘‘white’’ farmers and local ‘‘black’’ people. Most local people depend on government social grants (child support and elderly grants). The lack of

technology in the form of reticulation and entitlement to water licenses for irrigation results in the scarcity of economic resources in terms of water access and use for livelihood purposes. In addition, it can also be linked to the limited access to land and the poor grazing land conditions the local people depend on for subsistence farming. Another issue is that black farmers have no secured market for selling agricultural produce. This is confirmed by Mr Jezile (08/06/2022) when he said:

> *An apartheid government formed agricultural cooperation for each province that guaranteed that white farmers would produce and that their products would be bought. However, we do not have a structure that ensures that black farmers' products will be purchased. They do not have storage facilities, a market, or a systematic management of inputs*.

Additionally, the scarcity of economic resources and opportunities for black communities can be attributed significantly to the lasting impact of the colonial and apartheid legacy. These historical systems of oppression created structural barriers that have impeded the accumulation of wealth, hindered business establishment, and limited full participation in the economy for black communities. As a result, the effects of these historical injustices persist to this day, contributing to enduring economic disparities between black communities and other ethnic groups.

Furthermore, the limited financial resources may be due to the local community's inability to access water from the Woodstock Dam for subsistence farming and vegetable gardens. The produce from agriculture could have been sold to contribute to financial resources. The respondent supported the claim by mentioning:

> *If we were able to access the water from the Woodstock dam and Thukela River, we would be able to increase the size of the vegetable garden that we currently plant for consumption purposes only to participate in the farmer's market that was formed by the Mahlathini Development Forum* (Mr Mata 07/09/22).

Concerning **human capacity**, education levels are low as most people do not further their studies after matric or level four (the final, 12th year of schooling). There are some exceptions, however, for people who managed to obtain higher education through the help of bursaries and the National Student Financial Aid Scheme (NSFAS). Other youths have gained an interest in furthering their studies; for example, Miss Memela (29/06/22), who works as an eco-champ restoring and monitoring the catchment, wants to further her studies in environmental management. Information exchange also constrains human capacity as local leaders cannot adequately perform their duties (Mr Mata, 07/09/22). Limited education has resulted in unskilled and unknowledgeable people (Mr Zizi, 20/07). Lack of knowledge inhibits public participation, water access, and livelihood improvement (Mr Mata, 07/09/22).

Land resources for productive agriculture are limited. Even though there is extensive land for commercial farming, there are various reasons for scarce land, including an infestation of alien invasive plants and poor grazing and fire management (Observations, 1-5/11/21).

4.5.2 Mechanisms of access

The above-discussed resources are mediated through management and practice processes to construct a variety of mechanisms for access to water by various stakeholders within the Upper Thukela Catchment. Mechanisms of access are discussed here because they shape access to water and then influence the outcomes of collaborative water governance processes. **Institutions**, **rights**, and **entitlements** are the access mechanisms that shape the outcomes in that catchment and will be discussed below.

4.5.2.1 Institutional

Institutions are portrayed as arrangements between individuals, replicated and regularised over time and space, and subject to ongoing evolution and change processes (Koch, 2008). Various institutions mediate the UTC people's (communal and commercial farmers) access to natural resources, particularly water and land. These mechanisms consist of formal and socially embedded institutions; some overlap and contradict each other. For example, a lack of trust between the UDM and the water committee delayed connecting pipes to the existing water

system and bringing water closer to the village. The water committee, prioritising collaboration, wanted to manage the project jointly. However, the UDM insisted on solely handling the donation and installation, a condition the water committee refused due to concerns about accountability. This disagreement led to the UDM claiming sole responsibility for providing accessible water, delaying the project's progress (Mrs Langa, 09/06/22; Mr Khwezi, 09/06/22).

The formal institutions (such as legal and political systems) that are important in shaping access in the catchment include local government structures consisting of the traditional council and formally established Water Service Authority that liaises with ward councillors for water governance and management (Mr Khuboni, 07/09/22; Mrs Bunnz, 25/09/22). In addition to the traditional council and the communal area in the catchment, some sub-committees deal with community matters, such as the sub-chief (*induna*) and water committee (Mrs Wangaza, 28/06/22; Mrs Ntshangase, 20/09/22). Lastly, another formal institution is the primary court used at a community level for conflict resolution (Mr Mata, 07/09/22; Mrs Ntshangase, 20/09/22).

In contrast to these formal institutional mechanisms, there is a complex web of socially embedded institutions comprising households, families, and communities. People travel, acquire, and exchange ideas and resources and negotiate or contest the terms of the agreements in these social interactions, which may often cross the formal rules of the formal arrangements. Some individuals utilise family links to acquire scarce resources from their villages in neighbouring communities, where they interact with other water governance mechanisms to varying degrees. Mrs Langa (09/06/22) provided one example:

> *My husband's sister married in the neighbouring village, where there was a water shortage; therefore, she came to collect water from our area. Even though each household in our village contributed funds toward installing taps, they have no problem with this, as her roots are from here*.

Initially, socially embedded water access and governance mechanisms appear to have little contribution or nothing to do with water. However, this has been witnessed in the UTC

villages, where many social associations are carried out through religious, savings, youth, and women groups (Observations, 10/06/22; Mr. Khwezi, 09/06/22). In contrast to traditional social or cultural purposes, these groups engage in community development efforts for free (e.g. volunteering when an NGO installs tap) and through income-generating activities (Mrs Mbhele, 15/06/22; Mr Mazibuko, 16/06/22; Mr Mncwabe, 16/06/22). For example, most water committee members have access to water because they can save and contribute the required money to join the water committee's association. Mrs Dlamini (28/06/22) confirmed the joining fee when she mentioned, "*A joining fee of R1000 was needed for each member to become part of the water committee*". These water committee members are better equipped to describe water allocation in community meetings. To improve collaborative water governance, these examples demonstrate the necessity of broadening the scope of analysis beyond the more formalised and visible forms of water management to embrace daily life's decision-making and allocation processes.

4.5.2.2 Rights and entitlements

Rights and entitlements are essential mechanisms that regulate access to water. Ribot and Peluso (2009) describe rights-based mechanisms as access to natural resources authorised by law and customs. In contrast, entitlements are socially understood mechanisms that regulate access to water, which may not be explicitly defined in law.

Water access is governed by various formal and socially embedded rights, including water rights issued by the government's water and sanitation department, such as water use licenses. Also, turns for tap installations to get water for watering vegetable gardens and drinking purposes are determined through negotiation among water users (Mr Mncwabe, 16/06/22). The lack of legal recognition of water rights can impact collaborative water governance. Regarding water use licenses, marginalised stakeholders may not have adequate legal mechanisms to assert their claims to water resources. This is particularly evident in the case of the marginalised communal people in the UTC area. The people are aware that NWA stipulates that a water use license must be in place for the Woodstock Dam, and the license terms would govern the right to access the water stored in the dam. For example, their efforts have fallen short despite Mr

Mata (07/09/22) and his committee engaging with DWS and other officials about obtaining the water use license for the Woodstock Dam.

Likewise, financial mechanisms play a crucial role in water governance, even though many people in the UTC are financially destitute. For example, in Village A and Village B, people are engaged in mechanisms such as paying a certain amount to bring water from the springs to nearby households to irrigate vegetable gardens and domestic use (Mr Khwezi, 09/06/22; Mrs Langa 09/06/22; Mrs Dlamini, 28/06/22). In addition, some users also contributed a weekly amount towards labour costs for the maintenance of the borehole pump (**Figure 4.2**).

4.5.3 Outcomes of collaborative water governance

In this section, I will present how the mechanisms of access to resources discussed above shape the outcomes of collaborative water governance systems. The outcomes of the water governance process occur in different domains, such as political voice, social association, access to water, livelihoods, and catchment ecosystem outcomes (**Figure 4.2**). Below, I discuss each domain in more detail.

4.5.3.1 Political voice outcomes

Regarding political voice as an outcome of water governance, the marginalised people living in the catchment are discriminated against based on their political affiliations, particularly concerning access to water. For example, the individuals responsible for water management come from different political parties; they sometimes provide the villages with water through water tankers. Mrs Mbele (15/06/22) supported this claim during an interview by saying:

> *During the winter, when spring water becomes scarce due to the dry season, I have observed the Water Service Authority providing water tankers to certain villages for funeral ceremonies. This is likely because preparing such ceremonies requires a significant amount of water. Additionally, when springs had completely dried up, the authorities delivered water for household use in wards that supported the ruling party during the last election. However, this service is not extended to wards where the majority voted for the opposition parties.*

Even though water is a fundamental human right, and people can vote for the political party of their choice, water access should not be based on political affiliations (Mrs Mbele, 15/06/2; Mrs Dlamini, 28/06/22). Therefore, the violation of human rights and the undermining of basic dignity have occurred against individuals who face discrimination based on their political affiliations.

In terms of decision-making, marginalised people are involved in the processes related to water governance to some extent. However, this involvement did not benefit them, as they remained unaware of who made the decisions and how they were made. For example, Mrs Langa (09/06/22) emphasised that while they attend ward council meetings, they are merely informed about the decisions and proceedings rather than being actively consulted or included in the decision-making process. Additionally, villagers are not able to access the CMF and BIB, where presumably there are also decisions being made about water governance issues (Mr Mata, 07/09/22)

This situation raises concerns about the transparency and accountability of the water governance systems. Communal people of the UTC have the right to participate in decision-making processes that affect their lives and well-being. However, their participation is not meaningful if they are not informed about who is making decisions and how these decisions are being made. Moreover, ward meetings are usually held on Sundays, and others cannot attend as they attend church on Sundays (Mrs Langa, 09/06/22). In addition, the war room meetings can be attended by everyone in the district, and the meetings happen in Ladysmith, which requires a transportation fee; thus, most people cannot participate (Mr Thusi, 23/09/22).

4.5.3.2 Social association outcomes

Outcomes from access to water are experienced through their impact on social association in the population within the Upper Thukela Catchment. As groups develop and bargain to protect or expand their access, the mechanisms to regulate this access profoundly impact social structure and vice versa. In some villages in the UTC, this is most clearly seen in smallholder farmers and water committee members. These groups are in a better position to

protect their interests and opportunities to increase their access through their partnership with the NGOs, which have alliances and connections with relevant officials (Mr Khwezi, 09/06/22 and Mrs Bunnz, 25/09/22). One of the water committee members supported this claim by mentioning:

> *The NGO, Mahlathini Development Forum, immensely helped our community because we are where we are because of MDF. We were in the dark, not knowing what to do, and MDF's arrival helped us a lot. Now, we have water, vegetable gardens, access to farmers' markets, and saving groups, and they also provide us with transportation fees to participate in the Upper Thukela Multi-Stakeholder Partnership workshops* (Mrs Langa 09/06/22).

4.5.3.3 Access for domestic use outcomes

The impacts of water access affect mainly women and children who primarily collect water for domestic uses. These individuals are the least likely to influence official water governance mechanisms in the UTC through presence or voice. This lack of presence and voice was evident during my attendance at a traditional council meeting, where all representatives were men (Observations, 14/09/22). Still, women play crucial roles in defining regulations in practice and social arrangements for water use and distribution. One of the regulations mentioned by Mrs Langa (09/06/22) is that "*people are not allowed to wash their clothes in the spring during winter months*," and the water from the taps is for drinking and cooking only (Mrs Mbele, 15/06/22).

People access supply for domestic use in the following ways (i.e., the outcomes of access are differentiated):

- Firstly, whether the households are close to the source (particularly springs) and could pay the money required for the tap's installation system (Mrs Mncwabe, 16/06/22; Mrs Wangaza, 28/06/22).
- Secondly, whether the people live near the river or spring and can access water directly (Mrs. Ngema 13/05/22).

- Thirdly, some people are disadvantaged and put more effort in as they spend more time traveling long distances to collect water from the source through wheelbarrows and head-carrying buckets (Observations, 10/06/22).
- Lastly, people living in the village adjacent to the Sappi plantation rely on a borehole installed by Sappi as compensation for the plantation's proximity to the spring source, which provides them with water (Mr. Khwezi, 09/06/22; Mrs. Bunnz, 25/09/22).

4.5.3.4 Livelihoods outcomes

There is a differentiation in livelihood outcomes for different water users, with those in commercial irrigation farming in a favourable position relative to the rainfed subsistence farmers. The inequality between the commercial and the subsistence farmers within the Upper Thukela Catchment cannot be ignored. A sophisticated irrigation sector with extensive manufacturing and equipment distribution capacity serves the commercial sector represented by the white minority. At the same time, a few hectares are being farmed by the so-called historically disadvantaged subsistence black farmers who remain isolated from this capacity by insecure land tenure, lack of formal education, lack of capital, lack of market access, and lack of management experience (Mr Jezile, 08/06/22).

For black subsistence farmers, adequate representation is still complex to achieve for many people living in remote areas. They are often excluded from decision-making regarding water resource management due to insufficient organisation and knowledge. Commercial irrigation farmers are better able to participate in consultation processes since the Bergvile Irrigation Board represents their needs. White farmers have an advantage in making their voices heard on issues concerning their interests as they contribute to gross domestic products (Mr Jezile, 08/06/22).

4.5.3.5 Catchment ecosystems outcomes

The outcomes of the water governance system have resulted in adverse consequences for the catchment ecosystems, including decreased flow, poor water quality, and habitat destruction (Observation, 11-12/05/22). For example, plantation practice absorbed too much

water; thus, the springs (used by the villagers to collect water) that are next to the plantation are no longer as perennial as they used to be in the past (Mrs Bunnz, 25/09/22).

In addition, illegal sand mining harms the river. Illegal sand mining and unlawful diaper dumping (solid waste pollution) severely impact the Thukela River's water quality and some of its tributaries, making it unsuitable for human consumption and damaging aquatic life. To support these claims, Mrs Ntshangase (20/09/22) said during the interview:

> *We are no longer fetching water from the Thukela River as they are contaminated because some people are illegally mining sand for monetary value, and others are dumping diapers, making the water unsuitable for domestic use.*

The local court serves as a valuable platform for resolving disputes at the village level. This system also has the potential to prevent illegal activities such as sand mining and dipper dumping. However, a critical challenge exists, as Mrs Langa (09/06/22) revealed that "*we do not see the need to protect the Thukela River since we do not benefit from it*". Local people, who are essential for reporting these offences, lack the motivation to come forward. This lack of motivation likely stems from a lack of reliable potable water supply within the community (Mr. Mata, 07/09/22). As a result, the water quality is negatively affected due to a lack of law enforcement.

4.5.4 Summary of key findings for question 3

The third question examined how power dynamics influence the outcomes of collaborative water governance within and across multi-stakeholder governance. Franks and Cleaver (2007) water governance and poverty framework is based on three domains: resources for water governance, mechanisms of access and livelihoods, and catchment outcomes. Application of the framework revealed that resources and mechanisms of access affect livelihoods and catchment outcomes. In terms of resources, limited financial resources and technology (reticulation) resulted in economic scarcity. On the other hand, a lack of human capacity inhibits public participation and resource (water) access, impacting livelihoods and

catchment outcomes. However, some exceptions are due to association with the NGO Mahlathini Development Forum. Some local communities (water committees and smallholder farmers) have better outcomes (access to clean water, farmers market, etc.). Lastly, the non-material resources, which consist of institutional and social resources and rights and entitlements, are multifaceted arrangements.

The water governance and poverty framework also revealed that the resources are mediated through management and practice processes to construct a variety of mechanisms for access to water by various stakeholders within the Upper Thukela Catchment. These mechanisms of access (institutions, rights, and entitlements) shape access to water and then influence the outcomes of collaborative water governance processes. In conclusion, the water governance and poverty framework demonstrated that livelihood and catchment outcomes are intricately linked with resources and access mechanisms, further influenced by the relationships and power dynamics discussed in questions 1 and 2 above (Section 4.3 and Section 4.4).

CHAPTER 5: DISCUSSION AND SYNTHESIS

5.1 Introduction

This study aimed to contribute knowledge on the impact of power dynamics on collaborative water governance in the Upper Thukela Catchment (UTC). This chapter discusses the key findings that were outlined in Chapter Four. In light of the literature, the research findings illustrate limited statehood (Börzel et al., 2018, as cited in Ayala-Orozco et al., 2018) a contributing factor to the influence of power dynamics on water governance processes and outcomes. This led to limited participation of stakeholders from water-mandated platforms in collaborative water governance (CWG) efforts. Consequently, this exacerbated the pre-existing tensions arising from challenges related to water access. The lack of access to information and limited involvement of local stakeholders in decision-making processes regarding water resource management further contribute to this tension. These themes (**Figure 5.1**) will be discussed in further detail and deepened through engagement with the relevant literature in the sections below.

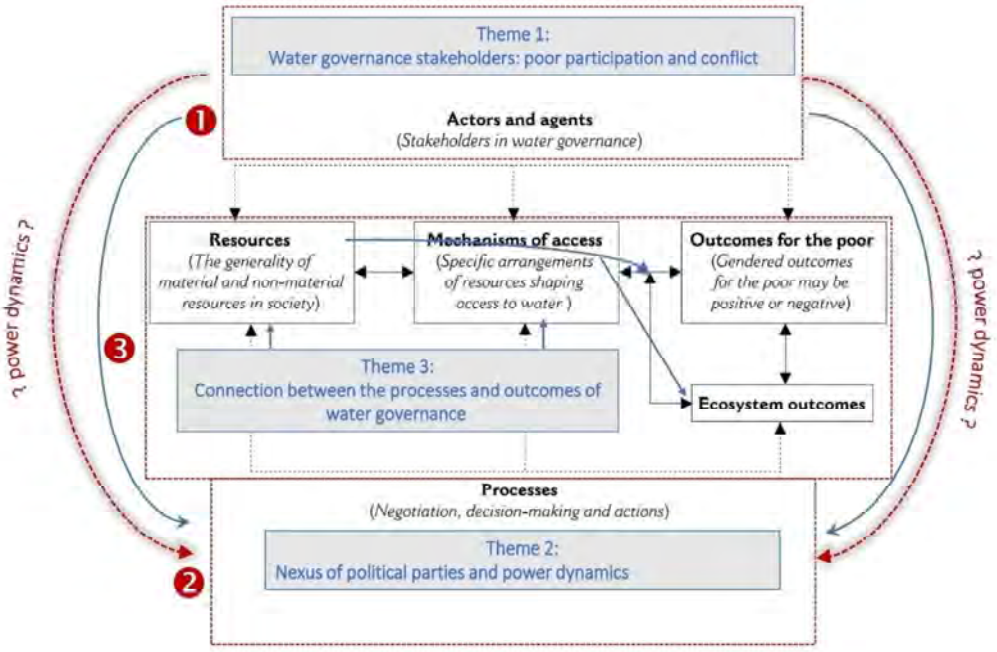

Figure 5.1: The connection between the three themes produced from the three research questions and how they relate to the Franks and Cleaver (2007) framework.

The chapter is structured according to the following three themes. The first theme is the **water governance stakeholders** (5.2), focussing on the insufficient participation of stakeholders from water-mandated platforms and the conflictual relationships among water governance stakeholders. This is followed by a discussion on the nature of power dynamics (5.3), focusing on the **nexus of political parties and power dynamics**. The final theme pertains to the **connection between the processes and outcomes of water governance** (5.4).

5.2 Water governance stakeholders

The section provides a detailed discussion based on findings from question one (Chapter 4: Section 4.3). It starts by giving an overview of all the essential water governance stakeholders in the UTC, emphasising the ideal stakeholders for the effectiveness of CWG (**Figure 5.2**). Firstly, I discuss the impact of limited participation of the stakeholders from water-mandated platforms. This is followed by the impact of conflictual relationships amongst water governance stakeholders on achieving the effectiveness of CWG.

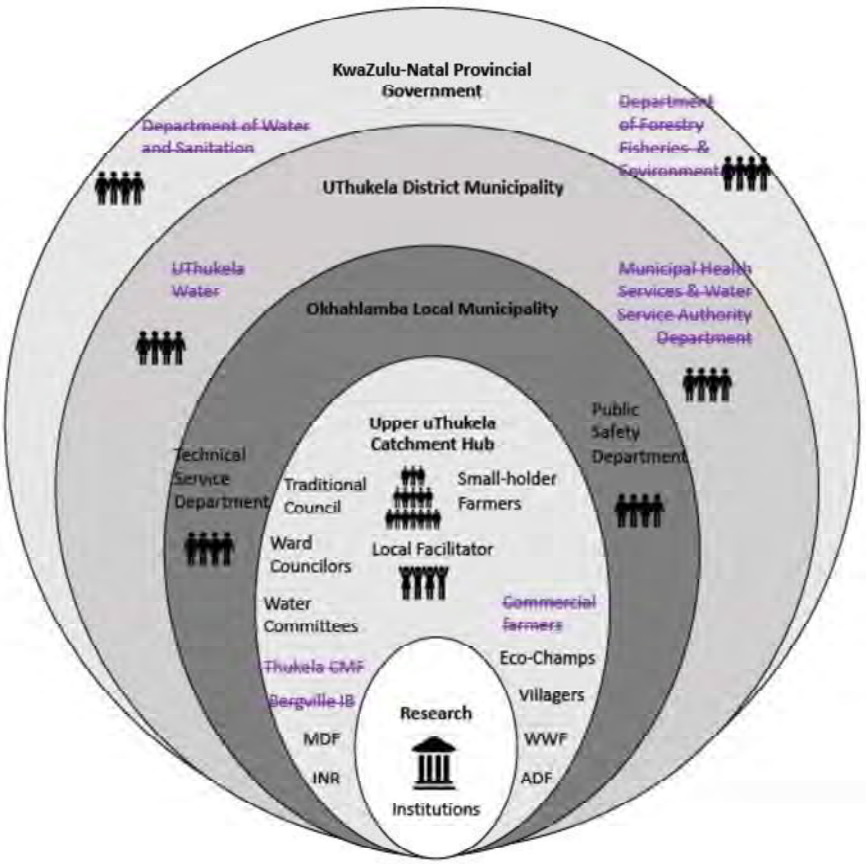

Figure 5.2: Ideal water governance stakeholders for the effectiveness of collaborative water governance, where relevant jurisdictional levels are represented (Herrfahrdt-Pähle, 2010). The purple strikethrough stakeholders lack participation.

5.2.1 Lack of stakeholder participation from water-mandated platforms

The analysis has revealed a lack of participation in collaborative water governance efforts by key stakeholders (see items in purple strikethrough font in **Figure 5.2**) from water-mandated governance platforms. The National Water Act of 1998 (NWA) aimed to foster collaboration in water governance at a catchment level where all the relevant stakeholders come together to learn and share the responsibility of addressing water resource-related problems and making a collective decision (Chapter 2: Section 2.2). Therefore, all the relevant stakeholders should be considered and anticipated in collaboration to successfully achieve NWA stipulations as suggested in Méndez-Barrientos et al. (2018) paper. However, the insufficient involvement of

the representatives from water-mandated platforms undermines the NWA stipulations, indicating a policy failure (Schreiner, 2013).

For instance, the delegates from water-mandated institutions did not attend or even apologise for their absence from the Upper Thukela Multi-Stakeholder Partnership (UTMSP) workshops. The reasons for these stakeholders' exclusion from the multi-stakeholder workshop remain unclear, as despite the convenors of the platform successfully scheduling interviews with them, they failed to attend the interview session (Chapter 3: Section 3.8). Additionally, some (local community) stakeholders within the catchment area also encountered difficulties establishing communication with them to discuss water-related issues. Moreover, based on the interview data (Chapter 4: Section 4.3.2.1.1), it was found that specific stakeholders expressed concerns regarding the limited engagement of water-mandated institutions, specifically the Department of Water and Sanitation (DWS) and UThukela District Municipality (UDM). This lack of involvement may be attributed to internal conflicts or disagreements within these institutions, which can be attributed to the fact that different political parties govern them (Chapter 4: Section 4.4.1) as has been found elsewhere in South Africa (Mngomezulu, 2020). Consequently, this situation has posed challenges to stakeholders in reaching a consensus and making effective water governance and management decisions.

The active participation of these stakeholders is essential for the success of collaborative water governance efforts. Ansell and Gash (2008) have argued that when appropriately used, decisions made in collaborative governance platforms reflect a broad range of knowledge and perspectives and may provide outcomes that are more likely to be acceptable to all stakeholders due to the broad inclusion of interests (Chapter 2: Section 2.1). Hence, all relevant water governance stakeholders across jurisdictional levels (**Figure 5.2**), especially public sector stakeholders, must participate in collaborative water governance efforts to maximise the success of the water governance initiative. This is due to their role as water-mandated platforms, whereby their involvement is necessary to promote the legitimacy of decisions made during multi-stakeholder engagement.

Moreover, the non-participation of the Bergville Irrigation Board (BIB) and commercial farmers cannot be overlooked (Chapter 4: Section 4.3.1). While the reasons for commercial farmers' limited participation in collaborative water governance remain unclear, emerging research suggests that engagement in complex water governance structures can be inherently challenging (Woodhouse and Muller, 2017). These challenges may stem from collaborative initiatives that often overlook power dynamics among local stakeholders and within the broader governance structures (Chapter 2: Section 2.1). Such initiatives may also overestimate the potential benefits of participation. For example, South Africa's National Water Act of 1998 aimed to transform previous water governance and management practices to address historical inequities (Chapter 2: Section 2.2). However, Brown (2011 and 2013) argues that efforts to redress injustices from the apartheid era have been hampered by unequal access to knowledge and power, which tend to favour the status quo.

Other research into collaborative resource management in South Africa has also highlighted the challenges of historical inequalities and tension among commercial farmers and marginalised resource users as a key challenge to effective collaboration (Cockburn et al., 2019). Building on these insights, the findings in Chapter 4, **Table 4.1** suggest that commercial farmers currently hold a position of power due to their secure water access. This strong representation (of their water needs) within the BIB may explain their lack of engagement in collaborative water governance. As current beneficiaries (aided with an apartheid legacy), they may perceive less incentive to engage in such initiatives, which might threaten the status quo and result in a loss of access to existing water rights. Indeed, as argued by Méndez-Barrientos et al. (2018) without a deep understanding of local practices and how power works, government efforts to redesign and enact reforms will likely remain slow and difficult. Subsequently, the commercial farmers employed strategies including water registration, development of new water infrastructure, water trading, and the transformation of irrigation boards into water user associations to maintain their power to water access (Méndez-Barrientos et al., 2018)

5.2.2 Conflictual relationships and mistrust between water governance stakeholders

Another important finding from the study is that water access issues are the primary cause of the conflictual relationship among water governance stakeholders in the Upper Thukela Catchment. Recent studies have argued that issues of access, allocation, and equity in water can potentially lead to conflicts if not correctly managed within robust and flexible governance structures (du Plessis, 2023; Mishra et al., 2021). The Interviews revealed that stakeholders evading roles and responsibilities, lacking trust, and limited access to information or knowledge sharing about water access are significant factors contributing to challenges and tension within the water governance landscape (Chapter 4: Section 4.3.2.2).

The study suggests that stakeholders evading roles and responsibilities in collaborative water governance can lead to issues affecting its potential and causing tension among stakeholders. Rothfuß and Dörfler (2021) pointed out that the tension caused by stakeholders evading roles and responsibilities at the local level might be due to bureaucracy, limited capacity, and avoidance. Two reasons might cause this tension. Firstly, rigid procedures and unclear lines of communication can create confusion and finger-pointing, leading stakeholders to avoid taking ownership of problems. For instance, the study participants revealed that the UThukela District Municipality (UDM) required water issues to go through the ward councillor (Chapter 4: Section 4.2). In contrast, the ward councillor pointed back people (water committees and Mahlathini Development Forum) to UDM (Chapter 4: Section 4.3.2.1). This can be frustrating for the water committee and NGOs, who wanted a more direct line of communication. The back-and-forth between the Water Service Authority (WSA) and the ward councillor suggests that neither wants to take full ownership of the problem. Secondly, there is a possibility that the WSA is avoiding engaging the local community as they are concerned about being held accountable for water issues. These findings showed that the local community, often needing clean water, has the most difficulty navigating the bureaucratic network, further marginalising them.

In addition to the inherent tension arising from stakeholders evading their roles and responsibilities, it is crucial to underline another significant tension characterised by the lack of trust exhibited by local stakeholders towards public stakeholders, primarily stemming from their

abuse of power. This finding is consistent with the existing body of literature (Alston et al., 2016; Leahy and Anderson, 2008), which offers perspectives on the underlying reasons contributing to this phenomenon. First, a lack of trust may arise when public stakeholders fail to respond effectively to the specific water-related concerns of local communities (Alston et al., 2016). For instance, in the UTC, this occurs when the Water Service Authority (UDM) neglects to address water access issues. This has led to frustration and resentment (Chapter 4: Section 4.3.2.2.1) when local stakeholders perceive their concerns as not being heard or addressed by public institutions. Therefore, it hinders collaboration on water governance and management issues and makes it difficult to reach a consensus solution. Moreover, trust erodes when local stakeholders observe favouritism or uneven distribution of benefits on water access (Tapela, 2012). This can occur when large-scale water projects prioritise industrial or agricultural interests over the needs of local communities. For example, in this study, local communities observe preference when the South African economic hub, Gauteng Province, receives water access priority through the Thukela-Vaal water transfer scheme (Chapter 4: Section 4.3.2.2.1).

Furthermore, the study reveals a lack of access to information or knowledge sharing about water access and management as a contributing factor to tension among water governance stakeholders (Chapter 4: Section 4.3.2.2.2). The study demonstrates the key reasons why a lack of access to information can lead to challenges and tension in various ways. Firstly, when there is an asymmetry of information between local stakeholders and public stakeholders, it can create a power imbalance that favours those with greater access to knowledge (Usón et al., 2017). Local stakeholders being unaware of the full scope of water governance and management plans or the reasons behind certain decisions may lead to marginalisation and resentment towards public stakeholders. Secondly, when local stakeholders lack access to accurate information about water resources, water management practices, and decision-making processes, they are more susceptible to misinformation and rumours (Tang et al., 2015). This can lead to distrust of public stakeholders, often perceived as withholding or manipulating information. Finally, when local communities are unaware of the criteria used to allocate water resources, it can lead to disputes and conflicts over water rights. A notable example of the

tensions surrounding water rights can be observed when local participants highlight the prioritisation of other areas on Woodstock Dam over the needs of their communities and the difficulties they faced trying to get water licenses (Chapter 4: Section 4.3.2.2.2). Indeed, literature has pointed out that water needs for local communities are often ignored while prioritising distant users. For instance, Van Koppen and Schreiner (2014) have observed that disadvantaged people bear the impacts of water competition, through which their water needs are abandoned, while the water needs of the urbanisation and industrial economy are prioritised.

5.3 Unravelling the nexus of political parties and power dynamics

The second question intended to expose the nature of power dynamics and their effects on collaborative governance processes (Chapter 4: Section 4.4). The findings of question two clearly showed that the presence of different political parties (from the perspective of the local community, ward councillors and OLM) in the water governance and management space seem to be the primary roots of the power dynamics that affect processes of water governance and management (Chapter 4: Section 4.4.1). When political parties contest power over the same communities, it can lead to conflict, corruption, competition, negligence, and sabotage. These challenges then impact the operational flow, service delivery, sense of urgency, and decision-making (Chapter 4: **Table 4.3**).

One explanation for the challenges caused by different political party dynamics highlighted by the study participants might strongly align with a situation of limited statehood or sovereignty (Chapter 4: Section 4.4.5). Börzel et al. (2018) in Ayala-Orozco et al. (2018) define the concept of limited statehood as the regions where the central administrative power cannot maintain exclusive control over the use of force or implement laws effectively. The impact on CWG processes in **Table 4.3** linked to limited statehood includes sabotage, competition, corruption, and lack of trust (particularly in the public sector). In addition, other negative impacts on CWG processes mentioned by the study participants, such as poor operational flow, lack of urgency, poor service delivery, and interrupted decision-making (Chapter 4: **Table 4.3**), are strongly associated with limited statehood.

The adverse effects of limited statehood associated with the presence of different political parties on water governance processes can be demonstrated in several ways. Let me begin with when various political parties hold certain powers in the same government department, e.g., in the Water Service Authority (WSA) municipality, that causes competition and interruption of decision-making. However, the ruling party holding more power over other parties will likely win. Since the ruling party is responsible for employment appointment, those people will be forced to favour the ruling party in decision-making, even when such an act is unconstitutional (De Visser, 2010). Due to such actions, too many reports of corruption and fraud in the public sector point toward political office-bearers who are left unaccounted for. In addition, poor service in wards that opposition parties lead might be associated with political interference of the ruling party (Mngomezulu, 2020). For example, it was noted from the study participants that when it comes to water supply and other developmental projects, they bear the consequences of voting against the ruling party, as the ruling party only prioritises allocating services to the communities led by their councillors.

Furthermore, poor service delivery and operational flow can be linked to incompetence or unqualified employees (Gumede, 2015). Political parties promote the employment of people based on their loyalty and long service in the party rather than paying attention to competencies and qualifications to perform duties (Chapter 4: Section 4.4.2). Another important consequence is negligence of the community's basic needs (water). The statement is supported by Mlambo (2019) indicating that politicians use essential services as political footballs to gain support through votes. For example, politicians deliver water during the canvassing period; however, after the election, the services stop. In the study area, the politicians have used this strategy since 1994 to gain votes without holding their end of the bargain, instead pointing accusing fingers at each other (Chapter 4: Section 4.4.2).

All these adverse effects mentioned above may lead to community stakeholders losing trust in the legitimacy of government departments to impact their livelihoods and the environment positively. As a result, this is the primary reason for many South African community protests demanding or complaining about immediate and insufficient service delivery (Atkinson,

2007). These adverse outcomes might explain the limited participation of critical public sector stakeholders in the Upper Thukela Multi-Stakeholder Partnership and thus affect the effectiveness of collaborative water governance efforts. The study suggests that NGOs play a role in supporting (advocacy) the challenges of limited statehood (Chapter 4: Section 4.2). However, Cook et al. (2017) highlighted that external aid from NGOs might unintentionally divert municipalities from responding to the local community's needs. Some participants observed NGOs assisting government departments with local services, water management, and governance. This aligns with Cockburn et al. (2020), who argue that NGOs can strengthen weak governance structures, which is often a problem in rural areas. In other words, NGOs can assist in filling the gaps left by a weak government. In fact, Burgess (2017) revealed that NGOs supplement public goods that are unmet by governments, acting as complementary partners in delivery.

5.4 Connection between water governance processes and outcomes

Based on the water governance and poverty framework (Franks and Cleaver, 2007) findings, question three (Chapter 4: Section 4.5) demonstrated that livelihood and catchment outcomes are intricately linked with resources and access mechanisms (Franks et al., 2013). This was supported by the data, which showed that resources are mediated through processes to construct a variety of mechanisms for access to water by various stakeholders within the Upper Thukela Catchment (Chapter 4: **Figure 4.2**). These mechanisms of access shape access to water and influence the outcomes of collaborative water governance processes. The resources and mechanisms of access are discussed below to explain the resulting outcomes for livelihoods and the catchment, and discuss the relevant literature.

5.4.1 Resources

In the Upper Thukela Catchment, a range of physical and non-physical resources are recorded to have shaped mechanisms of water access (Chapter 4: **Figure 4.2**). Within the catchment area, access to essential physical and natural resources, particularly water and land, presents a significant challenge for the primary stakeholders, the local community. Despite their dependence on these resources, limitations in infrastructure, economic constraints, and a deficit

in local capacity hinder accessibility (Olagunju et al., 2019; Kgomotso and Swatuk, 2006). Let me delve deeper into the factors contributing to these challenges (Chapter 4: Section 4.5.1). Firstly, the findings revealed that infrastructure development translates to a lack of reticulation, forcing most residents to rely on unreliable water sources. These unreliable sources include (I) long-distance solar-powered water tanks that are impractical in winter due to insufficient sunlight for pumping from boreholes; (II) springs exhibit seasonal flow variations, with some experiencing reduced discharge or complete desiccation during dry periods; (III) inoperable borehole pumps in certain villages and (IV) water points and taps with unreliable supply.

Secondly, the study participants exposed financial constraints as a significant barrier to accessing potable water and improving livelihoods. Most households depend on social grants for children and the elderly, with unemployment being the norm. Thus, affording water connection fees or even the costs associated with maintaining communal boreholes can burden these communities. Thirdly, limited capacity is a barrier as the marginalised people lack knowledge or access to information for water management. In addition to mandated institutions' ineffective dissemination of information, this might be caused by limited education, which results in limited skills and knowledge. Shunglu et al. (2022) recognised that lack of knowledge inhibits meaningful participation, access to water, and livelihood improvements. Lastly, historically skewed land ownership patterns from the apartheid era continue to impact access to resources (Walker, 2017). As a result, in addition to limited water resources (Méndez-Barrientos et al., 2018), the marginalised people have limited land resources that are degraded due to invasive alien plants, poor grazing, and fire management.

5.4.2 Mechanisms of access

Governance literature highlights that the variety of physical and non-physical resources at the disposal of the catchment stakeholders creates mechanisms for their access to water (and other natural resources), leading to overlapping and hybrid mechanisms for water access (Franks et al., 2011; Franks and Cleaver, 2007). The study identifies the institutional and legal (non-physical) mechanisms as critical mechanisms where physical mechanisms are made and practised and from which physical access to water results (Chapter 4: Section 4.5.2). In the UTC, the formal

institutions important for shaping access include DWS, UDM, and traditional councils, considering that they are the first point of contact between local communities and the government (Gumede, 2015). However, the study data identified a complexity within the mechanism of access. Because within these access mechanisms, there are other mechanisms (such as water user associations, irrigation boards, and water committees). This demonstrates that institutional arrangements are even more complex, given that individuals rely on various (households, families, and communities) social mechanisms when needed (Chapter 4: Section 4.5.2.1). Thus, this clarifies why multi-level governance's primary value addresses the complexity at and between levels (Chapter 2: Section 2.2).

Fallon et al. (2021) found a correlation between the complexity of water governance and the limited impact of formal institutions on decision-making processes. This complexity arises because power is not solely concentrated within the state or its institutions. Instead, power is diffused among a network of influential individuals (Chapter 2: Section 2.2). This creates a tangled web of relationships between formal mechanisms for water allocation and management and the informal ways people access water. The increasing informal ways of access, maybe due to limited statehood, implies that formal institutions struggle to influence governance and management effectively (Chapter 2: Section 2.4). Consequently, given their weak influence on the management process, these institutions may not be able to significantly improve the outcomes of collaborative water governance processes. Pahl-Wostl (2017) associated the lack of effectiveness of formal institutions with corruption, which leads to poor performance of water governance mechanisms.

5.4.3 Outcomes

Resources and mechanisms of access influence the livelihood outcomes (especially for local community stakeholders) and the catchment ecosystems. Due to the socially situated and dynamic nature of governance, different categories of stakeholders obtain distinct results from various arrangements (Mapedza and Geheb, 2010). Firstly, the local stakeholders associated with NGOs (water committees, smallholder farmers) are better equipped. Collaboration between an NGO and some local people improves their livelihoods by enabling them to sell farming produce

and access clean water (Chapter 4: Section 4.5.3.2). Secondly, the literature points out that power and influence are related to the physical position on the system (Hall and Cousins, 2015). For example, commercial farmers have had more assured water access for many years in the catchment (Méndez-Barrientos et al., 2018). The outcome might be linked to historical advantages (such as arranged market access, water licenses, etc.), allowing commercial farmers to be relatively successful (Chapter 4: Section 4.5.1). Farmers can use their relative success (better production and incomes) to maintain and improve their water access through financial and institutional arrangements (Kemerink et al., 2013).

In addition to outcomes on livelihoods, water governance in the catchment has essential outcomes for the representation and voice of local stakeholders. The local stakeholders are less represented because they might lack the time and resources to be involved in such discussions. The respondents indicated limitations to be involved in public participation. These limitations included scheduling Sunday meetings, which coincides with religious observances for many. Additionally, the location of specific (war room) meetings presented a barrier for most local people, necessitating transportation costs that exceeded their financial resources. (Chapter 4: Section 4.5.3.1). Research conducted by Franks et al. (2011) supported this finding by stating that the cost of attending meetings is often too high for labour-stressed homes that secure their basic needs daily. In addition, women usually have little or no direct representation in decision-making bodies despite being the primary water users for domestic purposes (Adams et al., 2018). For example, when I attended a meeting of traditional councils (to observe the process) (Chapter 4: Section 4.5.3.1), the attendees were men only. Onyenwere, J. (2017) contended that socio-political pressures might constrain them from speaking out even when they attend. To address further marginalisation, I propose that decision-making spaces include all key actors, including women.

The study revealed that outcomes for the catchment ecosystems (e.g. river health) in UTC are closely linked to outcomes for local people. Mostly, mechanisms of access limit the local community stakeholders' access to water resources and other resources. Reduction in access to land and water increases livelihood insecurity and threatens catchment ecosystems (Chapter 4:

Section 4.5.3.5). Malley et al. (2009) point out that people protect physical resources from which they benefit. This outcome is observed in the Upper Thukela Catchment when respondents mentioned that they do not see the need to safeguard the Thukela River (from illegally dumping diapers, sand mining, and other unlawful activities) since they are not benefiting from it. As a result, the river catchment is negatively affected. Hence, limited access to land and water resources creates a vicious cycle that undermines livelihoods, weakens mechanisms of access, and ultimately threatens the health of river catchments (Wassie, 2020).

5.5 Chapter summary

In light of the literature, this chapter discussed the impact of power dynamics on collaborative water governance in the Upper Thukela Catchment (UTC) through the lens of three main themes: water governance stakeholders, the nexus of political parties and power dynamics, and the connection between water governance processes and outcomes.

The first theme, water governance stakeholders, revealed a lack of participation from key stakeholders, particularly public sector institutions, in collaborative water governance efforts. This limited participation, alongside conflictual relationships among stakeholders over water access, undermines the effectiveness of collaborative water governance. The second theme sheds light on the nexus of political parties and power dynamics. The presence of different political parties governing water-mandated institutions was identified as a significant source of power dynamics. This can lead to competition, corruption, and a lack of trust, ultimately hindering collaborative water governance processes. The third theme is based on the connection between water governance processes and outcomes. The study found that resources, access mechanisms, and power dynamics all influence livelihood outcomes for stakeholders and the health of the catchment ecosystem. Local communities with limited access to resources and power experience poorer livelihood outcomes and contribute less to catchment protection.

In conclusion, this research highlights the complex interplay between power dynamics, stakeholder participation, and water governance processes in the UTC. To achieve effective

collaborative water governance, it is crucial to address limited stakeholder participation, mitigate the negative influence of political parties, and empower local communities. Doing so can achieve a more equitable and sustainable water future for the Upper Thukela Catchment.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The water scarcity and unequal distribution of water resources in South Africa necessitate improved water governance processes. Collaborative water governance (CWG), emphasising shared responsibility and power among all relevant catchment stakeholders, offers a potential solution. However, power dynamics and imbalances can undermine the effectiveness of collaboration and thus affect the processes and outcomes. Consequently, this research explored the influence of power dynamics on the outcomes of collaborative governance processes in the Upper Thukela Catchment (UTC). The study was conducted through qualitative research using a case study approach, which consists of data collection methods such as in-depth semi-structured interviews, reviewing the documentation and direct observation and participant observation.

In the UTC, power dynamics among stakeholders influence collaborative water governance (CWG) processes and outcomes. Overall, the study showed that limited statehood is a major factor contributing to the negative impacts on collaborative governance processes. It was revealed through analysis of the empirical data using analytical frameworks that political parties, evasion of roles and responsibilities, historical legacies of disempowerment, lack of capacity within implementing institutions, and conflicting mandates strongly influence CWG initiatives.

Water access issues provided a great illustration of power dynamics in collaborative governance processes and outcomes. Water access has a social dimension related to social problems created by the water sector and mandated institutions, such as limited information access, limited participation, and ineffective communication, which caused a lack of trust, legitimacy, etc. (Question 1). In terms of the political dimension, water governance has proven to be a political issue. Water is politicised from the global landscape to the national and local levels, in this case, the Upper Thukela Catchment, where politicians use water supply as political footballs to gain support through votes (Question 2). The tension also has an economic dimension because water possesses economic value. For example, small-holder farmers improve their livelihoods by using water to irrigate the crops and sell the produce (Question 3).. Lastly, the

environmental dimensions correspond to outcomes for local people. For instance, the findings revealed that since the local community is not benefiting from the Thukela River, thus the river is negatively affected as people only protect resources they benefit from (Question 3).

Water governance in the Upper Thukela Catchment (UTC) highlighted a critical gap in stakeholder engagement. The current (CMF and BIB) collaborative processes have not effectively included all crucial stakeholders, particularly the traditional council (TC). This lack of access to water governance forums and management structures leaves the traditional council uninformed. Consequently, the TC cannot effectively collaborate with mandated water institutions or answer water-related questions from the local community. Additionally, the traditional council is unsure who to contact regarding water license applications. Thus, the exclusion of TC suggests that existing community structures are not fully utilised to disseminate information.

Moreover, the findings presented in this research offer a partial understanding of the influence of power dynamics on water governance processes in the UTC. While the study has identified the significant nature of power dynamics that impact governance processes and outcomes, it is important to acknowledge that the picture is incomplete. The partial nature of these findings underscores the complex interplay of factors that shape water governance. The power imbalance in collaborative water governance is a complex issue with multiple contributing factors. Further exploration of the interplay between stakeholders at various levels, particularly the barriers hindering their effective participation, is essential. Additionally, investigating internal challenges within water-mandated institutions can provide valuable insights into how these organisations can enhance their responsiveness to local communities and ensure their voices are adequately represented in decision-making processes.

Furthermore, this research made two significant contributions, methodological and theoretical. Methodologically, the study contributed to adding the Franks and Cleaver (2007) framework, and offering a methodology for employing it in terms of a case study research design. This was done by gathering case study data, and then drawing on the $4R^S$ framework to unpack the “role” questions by unpacking and deepening the Franks and Cleaver (2007) part of the

framework, “actors and agents” (Chapter 5: **Figure 5.1**). The study also contributed theoretically, firstly because the study brought in the 4R^{s}, which have helped make power dynamics more visible within the Franks and Cleaver (2007) framework. This helped to show that power dynamics influence processes of collaborative governance, which influence resources and mechanisms of access and, therefore, outcomes. Secondly, it is through their influence (power dynamics) on collaborative governance processes that power dynamics affect the outcomes of collaborative governance. Thus, this research brought in some nuance and a better understanding of the Franks and Cleaver (2007) water governance and poverty framework as it is applied to catchment management and collaborative water governance in a Global South context.

6.2 Reflections on methods and limitations

Where there is a research study, there are always methodological limitations. One of the main limitations relates to my methodological knowledge and skills as the primary researcher. Coming from a natural science background, I am primarily experienced in quantitative research. However, this study adopted a qualitative research approach, as the bigger Living Catchments Project was designed as a case study approach for communities of practice in catchment areas to address water security issues. Thus, I was bound to do qualitative research using a case study approach. Having little experience with the qualitative research design was a limitation. I overcame the limitation of the qualitative research design by employing two strategies. Firstly, I searched and read a lot of literature on how to design qualitative research, including paradigms, sampling approaches, data collection methods, and analysis (Creswell and Creswell, 2017); Crowe et al., 2011; Yin, 2009). Secondly, I attended workshops and short courses provided by the Rhodes University Centre for Postgraduate Studies on successfully designing qualitative research. With the guidance of my research topic and my supervisor, these strategies help me decide on the paradigms, sampling approaches, data collection methods, and analyses that align with my research.

I also had a methodological limitation related to the snowball sampling approach. While helpful in reaching a hidden population, the snowball sampling technique may have introduced

limitations as most study participants were not politically connected. The sampling approach limited the diversity of viewpoints captured in this study. Due to the political nature of my research topic (water governance), participants were more likely to come from social networks without strong political connections. This limited the inclusion of participants from water-mandated institutions who might have offered valuable insights. Whom you know matters, particularly a network of people with political power, mattered in securing research participants for this research study. Since well politically connected people can use their influence to make things happen. However, it is important to acknowledge that MDF made a huge impact in helping me to secure the research participants.

Moreover, tribalism might have been a limitation in my data collection. There have always been catfights between Xhosa and Zulu people dating back from the Apartheid era. Even currently, these tribes are comparing which tribe is better, leading to these tribes resenting each other. My background (Xhosa) might unintentionally influence participants' (mostly Zulu) willingness to join the study or to speak openly with me. However, my core values of respecting everyone, regardless of background (race, tribe, religion, etc.), guided my approach and helped me overcome these obstacles, as did my working relationship with the local NGO, MDF, who helped to set up many of the interviews. The methodology chapter section 3.3 reflects more strategies I used to ensure the study's validity.

Furthermore, limited resources for data analysis presented a challenge. Working independently meant I transcribed and translated all the data myself, extending the timeframe for analysis. This, in turn, limited the opportunity to collect additional data through follow-up questions with participants.

6.3 Reflection on key takeaways and personal growth

Securing Thukela's Strategic Water Source Area (SWSA) presents a complex challenge that requires navigating social and political problems. Traditional councils, as local governance closest to the catchment, hold the potential to contribute through enforcement and compliance. However, a key obstacle is the lack of community motivation. People are more likely to protect

resources from which they directly benefit. In the current situation, where access to water is a struggle, securing the SWSA becomes less of a priority for the local community.

Furthermore, my biggest takeaway from this entire thesis experience is the crucial role of collaboration in navigating the research process. While independent thinking and analysis are essential, gaining different perspectives is hard when you lack someone to discuss your observations and emerging themes with. Sharing your thoughts with another person (supervisors and trusted peers) can be immensely helpful. It not only alleviates the research frustrations and pressure but also provides valuable insights that might not have occurred to you independently. While discussing my research did not necessarily make the writing itself easier, it significantly improved the overall research experience.

Finally, before starting my master's programme, anxiety medication was a part of my daily routine. However, immersing myself in the world of water governance research, both through my studies and internship, has been transformative. Being actively involved in collaborative spaces has significantly reduced my anxiety. This positive experience has fueled my passion for this field, and I am determined to continue specialising in water governance.

6.4 Policy and practice recommendations

To improve collaborative water governance in the Upper Thukela Catchment (UTC), future research should investigate two key areas. Firstly, exploring the power dynamics between stakeholders at different levels (district and national) is needed. This can be done by focusing on what is limiting these stakeholders from participating in collaborative water governance efforts, providing information about water governance and management, and engaging the local communities effectively on water access issues.

Secondly, internal challenges within water-mandated institutions that limit them from executing the effectiveness of their role should be investigated. This research can explore how these institutions can improve communication with local stakeholders and ensure their voices are heard in decision-making processes. One potential solution is empowering existing

community structures to act as information hubs. Ultimately, these findings can be used to strengthen collaborative water governance, improve catchment outcomes, and hopefully restore local community trust and legitimacy in public sector stakeholders.

To strengthen the validity of this research conclusion, future research can increase the scope of the research field by increasing the sample size of catchment stakeholders. This can be done by identifying and including all the relevant catchment stakeholders, especially those concerned or interested in water governance and management. In addition, future research can consider doing a comparative case study to look at how different cases approach a similar issue, which can help identify best practices that can be applied in other contexts.

REFERENCES

Adams, E., 2010. The joys and challenges of semi-structured interviewing. *Community Practitioner*, *83*(7), pp.18-22.

Adams, E.A., Juran, L. and Ajibade, I., 2018. 'Spaces of Exclusion'in community water governance: A Feminist Political Ecology of gender and participation in Malawi's Urban Water User Associations. *Geoforum*, *95*, pp.133-142.

Adger, W.N., Brown, K., Butler, C. and Quinn, T., 2021. Social ecological dynamics of catchment resilience. *Water*, *13*(3), p.349.

Agrawal, A. and Bauer, J., 2002. Environmentality: technologies of government and the making of subjects.

Alence, R., 2004. Political institutions and developmental governance in sub-Saharan Africa. *The Journal of Modern African Studies*, *42*(2), pp.163-187.

Alston, M., Whittenbury, K., Western, D. and Gosling, A., 2016. Water policy, trust and governance in the Murray-Darling Basin. *Australian Geographer*, *47*(1), pp.49-64.

Andersson, L., Wilk, J., Graham, P. and Warburton, M., 2009. Local assessment of vulnerability to climate change impacts on water resources in the Upper Thukela River Basin, South Africa: Recommendations for Adaptation.

Ansell, C. and Gash, A., 2008. Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, *18*(4), pp.543-571.

Akhtar, I., 2016. Research in social science: Interdisciplinary perspectives. *Chapter: Research Design'Research in Social Science Interdisciplinary Perspectives*, pp.1-84

Armitage, D., 2008. Governance and the commons in a multi-level world. *International Journal of the Commons*, *2*(1), pp.7-32.

Atkinson, D., 2007. Taking to the streets: Has developmental local government failed in South Africa. *State of the nation: South Africa*, *2007*, pp.53-77.

Atlas, D., 2021. *Participation in sustainability transitions: A case study of engagement in Ottawa's Energy Evolution Strategy* (Doctoral dissertation, Carleton University).

Ayala-Orozco, B., Rosell, J.A., Merçon, J., Bueno, I., Alatorre-Frenk, G., Langle-Flores, A. and Lobato, A., 2018. Challenges and strategies in place-based multi-stakeholder collaboration for sustainability: Learning from experiences in the Global South. *Sustainability*, *10*(9), p.3217.

Baehr, P., 1990. Critical realism, cautionary realism. *The Sociological Review*, *38*(4), pp.765-777.

Bloomfield, J. and Fisher, M.J., 2019. Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, *22*(2), pp.27-30.

Boonstra, W.J., 2016. Conceptualizing power to study social-ecological interactions. *Ecology and Society*, *21*(1).

Börzel, T.A., Risse, T. and Draude, A., 2018. Governance in areas of limited statehood: Conceptual clarifications and major contributions of the handbook. In Ayala-Orozco, B., Rosell, J.A., Merçon, J., Bueno, I., Alatorre-Frenk, G., Langle-Flores, A. and Lobato, A., 2018. Challenges and strategies in place-based multi-stakeholder collaboration for sustainability: Learning from experiences in the Global South. *Sustainability*, *10*(9), p.3217.

Botha, M., Stephens, A., Marais, C., Rodriguez, C.M., Parramon-Gurney, M., Scorgie, S., 2014. A Framework for Investing in Ecological Infrastructure in South Africa.

Bourblanc, M. and Blanchon, D., 2014. The challenges of rescaling South African water resources management: Catchment Management Agencies and interbasin transfers. *Journal of Hydrology*, *519*, pp.2381-2391.

Bowen, G.A., 2009. Document analysis as a qualitative research method. *Qualitative research journal*, *9*(2), pp.27-40.

Bradley, E.H., Curry, L.A. and Devers, K.J., 2007. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health services research*, *42*(4), pp.1758-1772.

Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), pp.77-101.

Brisbois, M.C. and de Loë, R.C., 2017. Natural resource industry involvement in collaboration for water governance: influence on processes and outcomes in Canada. *Journal of Environmental Planning and Management*, *60*(5), pp.883-900.

Brisbois, M.C. and de Loë, R.C., 2016. Power in collaborative approaches to governance for water: A systematic review. *Society & Natural Resources*, *29*(7), pp.775-790.

Brown, J., 2013. Can participation change the geography of water? Lessons from South Africa. *Annals of the Association of American Geographers*, *103*(2), pp.271-279.

Brown, J., 2011. Assuming too much? Participatory water resource governance in South Africa. *The Geographical Journal*, *177*(2), pp.171-185. https://doi.org/10.1111/j.1475-4959.2010.00378.x

Burgess, M., 2017. *A comparative study of the role of environmental NGO's in China and South Africa in conservation policy* (Doctoral dissertation, Stellenbosch: Stellenbosch University).

Cash, D.W., Adger, W.N., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L. and Young, O., 2006. Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecology and Society*, *11*(2).

Chikozho, C., 2005. Policy and institutional dimensions of small-holder farmer innovations in the Thukela River Basin of South Africa and the Pangani River Basin of Tanzania: A comparative perspective. *Physics and Chemistry of the Earth, Parts a/b/c*, *30*(11-16), pp.913-924.

Cleaver, F.D. and Franks, T.R., 2005. How institutions elude design: river basin management and sustainable livelihoods.

Cockburn, J. and Cundill, G., 2018. Ethics in transdisciplinary research: reflections on the implications of 'Science with Society'. *The Palgrave Handbook of Ethics in Critical Research*, pp.81-97.

Cockburn, J., Cundill, G., Shackleton, S., Cele, A., Cornelius, S.F., Koopman, V., Le Roux, J.P., McLeod, N., Rouget, M., Schroder, S. and Van den Broeck, D., 2020. Relational hubs for collaborative landscape stewardship. *Society & Natural Resources*, *33*(5), pp.681-693.

Cokburn, J., Cundill, G., Shackleton, S., Rouget, M., Zwinkels, M., Cornelius, S.F.A., Metcalfe, L. and Van den Broeck, D., 2019. Collaborative stewardship in multifunctional landscapes: toward relational, pluralistic approaches.

Conley, A. and Moote, M.A., 2003. Evaluating collaborative natural resource management. *Society &Natural Resources*, *16*(5), pp.371-386.

Creswell, J.W., 2009. *Research designs: Qualitative, quantitative, and mixed methods approaches.* Sage publications.

Creswell, J.W. and Creswell, J.D., 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., Sheikh, A., 2011. The case study approach. *BMC Medical Research Methodology* 11, 1–9.

De Visser, J., 2010. The political-administrative interface in South African municipalities assessing the quality of local democracies. *Commonwealth Journal of Local Governance*, (5), pp.86-101.

Department of Water and Sanitation, 2019. National Water and Sanitation Master Plan.

Doolin, B., 2004. Power and resistance in the implementation of a medical management information system. *Information Systems Journal*, *14*(4), pp.343-362.

Doolin, B., 1998. Information technology as disciplinary technology: being critical in interpretive research on information systems. *Journal of Information Technology*, *13*, pp.301-311.

D'silva, M.U., Smith, S.E., Della, L.J., Potter, D.A., Rajack-Talley, T.A. and Best, L., 2016. Reflexivity and Positionality in Researching African-American Communities: Lessons from the Field. *Intercultural Communication Studies*, *25*(1).

du Plessis, A., 2023. Integrated Water Resource Management, Water Service Provision and Delivery. In *South Africa's Water Predicament: Freshwater's Unceasing Decline* (pp. 27-40). Cham: Springer International Publishing.

Dubois, O., 1998. *Capacity to Manage Role Changes in Forestry: Introducing the'4rs' Framework-7537iied*. IIED.

Edwards Schachter, M.E. and Tams, S., 2013. How empowering is social innovation? Identifying barriers to participation in community driven innovation.

Ellis, F., 2000. *Rural livelihoods and diversity in developing countries*. Oxford university press.

Elman, C., Gerring, J. and Mahoney, J. eds., 2020. *The production of knowledge: Enhancing progress in social science*. Cambridge University Press.

Fallon, A.L., Lankford, B.A. and Weston, D., 2021. Navigating wicked water governance in the "solutionscape" of science, policy, practice, and participation. *Ecology and Society*, *26*(2), p.37.

Forde, C., 2020. Participatory governance in Ireland: Institutional innovation and the quest for joined-up thinking. *Administration*, *68*(3), pp.1-20. DOI.org/10.2478/admin-2020-0013

Förster, J.J., Downsborough, L. and Chomba, M.J., 2017. When policy hits practice: Structure, agency, and power in South African water governance. *Society & Natural Resources*, *30*(4), pp.521-536.

Franks, T., Bdliya, H. and Mbuya, L., 2011. Water governance and river basin management: comparative experiences from Nigeria and Tanzania. *International Journal of River Basin Management*, *9*(2), pp.93-101. DOI.org/10.1080/15715124.2011.591292

Franks, T. and Cleaver, F., 2007. Water governance and poverty: a framework for analysis. *Progress in Development Studies*, *7*(4), pp.291-306.

Franks, T., Cleaver, F., Maganga, F. and Hall, K., 2013. Water governance and livelihoods: Outcomes for smallholders on the Usangu plains, Tanzania. *Water resources and rural development*, *1*, pp.1-16. DOI.org/10.1016/j.wrr.2013.07.001

Fylan, F., 2005. Semi-structured interviewing. *A handbook of research methods for clinical and health psychology*, *5*(2), pp.65-78.

Gale, N.K., Heath, G., Cameron, E., Rashid, S. and Redwood, S., 2013. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, *13*, pp.1-8.

Gibson, C.C., Ostrom, E. and Ahn, T.K., 2000. The concept of scale and the human dimensions of global change: a survey. *Ecological economics*, *32*(2), pp.217-239.

Giddens, A., 1984. *The constitution of society: Outline of the theory of structuration*. Univ of California Press.

Guillemin, M. and Gillam, L., 2004. Ethics, reflexivity, and "ethically important moments" in research. *Qualitative inquiry*, *10*(2), pp.261-280.

Gumede, W., 2015. Administrative culture of the South African public service: A finity of transformation. *Journal of Public Administration*, *50*(3), pp.589-599.

Gunningham, N., 2009. The new collaborative environmental governance: The localization of regulation. *Journal of Law and Society*, *36*(1), pp.145-166.

Gustafsson, J., 2017. Single case studies vs. multiple case studies: A comparative study.

Guthrie, J. and Abeysekera, I., 2006. Content analysis of social, environmental reporting: what is new? *Journal of Human Resource Costing & Accounting*, *10*(2), pp.114-126.

Harrington, C., 2017. The political ontology of collaborative water governance. *Water International*, *42*(3), pp.254-270.

Herrfahrdt-Pähle, E., 2014. Applying the concept of fit to water governance reforms in South Africa. *Ecology and Society*, *19*(1).

Herrfahrdt-Pähle, E., 2010. South African water governance between administrative and hydrological boundaries. In *Adaptation to Climate Change in Southern Africa* (pp. 111-127). Routledge.

Hickey, S. and Bracking, S., 2005. Exploring the politics of poverty reduction: how are the poorest represented?

Jackson, K.M., Pukys, S., Castro, A., Hermosura, L., Mendez, J., Vohra-Gupta, S., Padilla, Y. and Morales, G., 2018. Using the transformative paradigm to conduct a mixed methods needs assessment of a marginalized community: Methodological lessons and implications. *Evaluation and Program Planning*, *66*, pp.111-119.

Jacobs, S., David, O.O. and Stiglingh-Van Wyk, A., 2023. The impact of urbanization on economic growth in Gauteng Province, South Africa. *International Journal of Economics and Financial Issues*, *13*(2), pp.1-11.

Kabeer, N., 2000. Social exclusion, poverty and discrimination towards an analytical framework. *IDS Bulletin*, *31*(4), pp.83-97.

Karar, E. and Seetal, A., 2000. Catchment management fora in KwaZulu-Natal: Review of lessons learnt using a SWOT analysis. *WISA 2000*.

Kemerink, J.S., Méndez, L.E., Ahlers, R., Wester, P. and van der Zaag, P., 2013. The question of inclusion and representation in rural South Africa: challenging the concept of water user associations as a vehicle for transformation. *Water Policy*, *15*(2), pp.243-257.

Kgomotso, Kgomotso, P.K. and Swatuk, L.A., 2006. Access to water and related resources in Ngamiland, Botswana: Toward a more critical perspective and sustainable approach. *Physics and Chemistry of the Earth, Parts A/B/C*, *31*(15-16), pp.659-668.

Khaldi, K., 2017. Quantitative, qualitative or mixed research: Which research paradigm to use. *Journal of Educational and Social Research*, *7*(2), pp.15-24.

Khanghahi, M.E. and Azar, F.E.F., 2018. Direct observation of procedural skills (DOPS) evaluation method: Systematic review of evidence. *Medical journal of the Islamic Republic of Iran*, *32*, p.45.

Kivunja, C. and Kuyini, A.B., 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, *6*(5), pp.26-41.

Koch, J., 2008. *Perspectives on access to and management of natural resources* (No. 2008: 8). DIIS Working Paper. https://hdl.handle.net/10419/44687

Kosygina, L.V., 2005. Doing gender in research: Reflection on experience in field. *The Qualitative Report*, *10*(1), pp.87-95.

Koutroulis, A.G., Papadimitriou, L.V., Grillakis, M.G., Tsanis, I.K., Warren, R. and Betts, R.A., 2019. Global water availability under high-end climate change: A vulnerability based assessment. *Global and Planetary Change*, *175*, pp.52-63.

Leach, M., 2008. Pathways to sustainability in the forest? Misunderstood dynamics and the negotiation of knowledge, power, and policy. *Environment and Planning A*, *40*(8), pp.1783-1795.

Leahy, J.E. and Anderson, D.H., 2008. Trust factors in community–water resource management agency relationships. *Landscape and urban planning*, *87*(2), pp.100-107. D

Legard, R., Keegan, J. and Ward, K., 2003. In-depth interviews. *Qualitative research practice: A guide for social science students and researchers*, *6*(1), pp.138-169.

Le Maitre, D.C., Seyler, H., Holland, M., Smith-Adao, L., Nel, J.L., Maherry, A. and Witthüser, K., 2018. *Identification, delineation and importance of the strategic water source areas of South Africa, Lesotho and Swaziland for surface water and groundwater. Report no* (p. 4). TT 743/1/18, Water Research Commission, Pretoria.

Lenaerts, L., Dondeyne, S., Breusers, M., Bauer, H., Haile, M. and Deckers, J., 2013. Water for all and all for water? Governmental interventions affecting property of natural resources in Northern Ethiopia. *Society & Natural Resources*, *26*(11), pp.1300-1313.

Lietz, C.A., Langer, C.L. and Furman, R., 2006. Establishing trustworthiness in qualitative research in social work: Implications from a study regarding spirituality. *Qualitative social work*, *5*(4), pp.441-458.

Lotz-Sisitka, H., Rosenberg, E. and Ramsarup, P., 2023. Environment and sustainability education research as policy engagement:(Re-) invigorating 'politics as potentia'in South Africa. In *Navigating the Research-Policy Relationship* (pp.61-89). Routledge.

Loza, J., Chueu, K., Cindi, D.D., Gola, N.P., Mubangizi, B.C. and Ntshotsho, P., 2023. Promoting the adaptive capacity of rural communities to climate change through holistic catchment management: A case study of groundwater dependent communities in two catchments.

Lubell, M. and Lippert, L., 2011. Integrated regional water management: a study of collaboration or water politics-as-usual in California, USA. *International Review of Administrative Sciences*, *77*(1), pp.76-100.

Lukes, S., 2021. *Power: A radical view*. Bloomsbury Publishing.

Lynch, M., 2000. Against reflexivity as an academic virtue and source of privileged knowledge. *Theory, Culture & Society*, *17*(3), pp.26-54.

Maguire, M. and Delahunt, B., 2017. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland journal of higher education*, *9*(3).

Malley, Z.J.U., Taeb, M. and Matsumoto, T., 2009. Agricultural productivity and environmental insecurity in the Usangu plain, Tanzania: policy implications for sustainability of agriculture. *Environment, Development and Sustainability*, *11*, pp.175-195.

Mapedza, E. and Geheb, K., 2010. Power dynamics and water reform in the Zimbabwean context: implications for the poor. *Water Policy*, *12*(4), pp.517-527.

Margerum, R.D., 2008. A typology of collaboration efforts in environmental management. *Environmental management*, *41*, pp.487-500.

Mayers, J., 2005. Power Tools: The Four Rs. *International Institute for Environment and Development*.

Mbopha, M.S., Marais, C., Kleynhans, T.E. and Esler, K.J., 2021. Unlocking and securing ecological infrastructure investments: The needs and willingness to invest and institutional support mechanisms used. *South African Journal of Science*, *117*(9-10), pp.1-9.

McCord, P., Dell'Angelo, J., Baldwin, E. and Evans, T., 2017. Polycentric transformation in Kenyan water governance: A dynamic analysis of institutional and social-ecological change. *Policy Studies Journal*, *45*(4), pp.633-658.

McGrath, C., Palmgren, P.J. and Liljedahl, M., 2019. Twelve tips for conducting qualitative research interviews. *Medical teacher*, *41*(9), pp.1002-1006.

Meissner, R., Funke, N., Nienaber, S. and Ntombela, C., 2013. The status quo of research on South Africa's water resource management institutions. *Water SA*, *39*(5), pp.721-732.

Meissner, R., Steyn, M., Moyo, E., Shadung, J., Masangane, W., Nohayi, N. and Jacobs-Mata, I., 2018. South African local government perceptions of the state of water security. *Environmental science & policy*, *87*, pp.112-127.

Memon, P.A. and Kirk, N., 2012. Role of indigenous Māori people in collaborative water governance in Aotearoa/New Zealand. *Journal of Environmental Planning and Management*, *55*(7), pp.941-959.

Méndez-Barrientos, L.E., Kemerink, J.S., Wester, P. and Molle, F., 2018. Commercial farmers' strategies to control water resources in South Africa: An empirical view of reform. *International Journal of Water Resources Development*, *34*(2), pp.245-258.

Mertens, D.M., 2007. Transformative paradigm: Mixed methods and social justice. *Journal of mixed methods research*, *1*(3), pp.212-225.

Miles, M.B. and Huberman, A.M., 1994. *Qualitative data analysis: An expanded sourcebook*. sage.

Milz, D., 2022. Dissecting the politics of scale in watershed-based planning. *Journal of Environmental Planning and Management*, *65*(12), pp.2214-2236.

Mishra, Mishra, B.K., Kumar, P., Saraswat, C., Chakraborty, S. and Gautam, A., 2021. Water security in a changing environment: Concept, challenges and solutions. *Water*, *13*(4), p.490.

Mlambo, D.N., 2019. Governance and service delivery in the public sector: the case of South Africa under Jacob Zuma (2009–2018). *African Renaissance*, *16*(3), pp.207-224.

Mngomezulu, S., 2020. Political interference in the administration of service delivery in UMLALAZI local municipality of KwaZulu-Natal, South Africa. *Journal of Economics and Behavioral Studies*, *12*(1), pp.38-45. DOI.org/10.22610/jebs.v12i1(J).3003

Moerman, G., 2010. Probing behaviour in open interviews. *A field experiment on the effects*.

Molden, D., 2007. Water responses to urbanization. *Paddy and Water Environment*, *5*, pp.207-209.

Mollinga, P., Bhat, A. and Saravanan, V.S., 2010. *When policy meets reality: Political dynamics and the practice of integration in water resources management reform*. Lit Verlag.

National Commission for the Protection of Human Subjects (NCPHS), Biomedical, N. C. for the P. of H. S. of, & Behavioral, R. and. (1974). The Belmont Report (Appendix Volume I & II): Ethical Principles and Guidelines for the Protection of Human Subjects of Research. In The

National Commission for the Protection of Human Subjects and Biomedical and Behavioral Research.

Newing, H., 2010. Qualitative interviews and focus groups. In *Conducting Research in Conservation* (pp. 120-140). Routledge.

Noble, H. and Smith, J., 2015. Issues of validity and reliability in qualitative research. *Evidence-based nursing*, *18*(2), pp.34-35.

Ochieng, P.A., 2009. An analysis of the strengths and limitation of qualitative and quantitative research paradigms. *Problems of Education in the 21st Century*, *13*, p.13.

Olagunju, A., Thondhlana, G., Chilima, J.S., Sène-Harper, A., Compaoré, W.N. and Ohiozebau, E., 2019. Water governance research in Africa: progress, challenges and an agenda for research and action. *Water International*, *44*(4), pp.382-407.

Olawale, S.R., Chinagozi, O.G. and Joe, O.N., 2023. Exploratory research design in management science: A review of literature on conduct and application. *International Journal of Research and Innovation in Social Science*, *7*(4), pp.1384-1395.

Onyenwere, J., 2017. Women and governance: A case study of Nigerian women. *Unpublished Research Thesis, School of Social Sciences, Tallinn University of Technology, Tallinn, Estonia*.

Ostrom, E., Burger, J., Field, C.B., Norgaard, R.B. and Policansky, D., 1999. Revisiting the commons: local lessons, global challenges. *science*, *284*(5412), pp.278-282.

Pahl-Wostl, C., 2019. The role of governance modes and meta-governance in the transformation towards sustainable water governance. *Environmental science & policy*, *91*, pp.6-16.

Pahl-Wostl, C., 2017. An evolutionary perspective on water governance: From understanding to transformation. *Water Resources Management*, *31*, pp.2917-2932.

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. and Hoagwood, K., 2015. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, *42*, pp.533-544.

Palmer, C.G., Biggs, R. and Cumming, G.S., 2015. Applied research for enhancing human well-being and environmental stewardship: Using complexity thinking in Southern Africa. *Ecology and Society*, *20*(1).

Pollard, S. and Du Toit, D., 2008. Integrated water resource management in complex systems: How the catchment management strategies seek to achieve sustainability and equity in water resources in South Africa. *Water SA*, *34*(6), pp.671-679.

Pringle, C.B., Meissner, R., Biggs, R., Pahl-Wostl, C., Stuart-Hill, S. and Sitas, N., 2023. Exploring social processes in transformation: the case of a collaborative water partnership in South Africa. *Ecosystems and People*, *19*(1), p.2213780.

Queirós, A., Faria, D. and Almeida, F., 2017. Strengths and limitations of qualitative and quantitative research methods. *European journal of education studies*.

Reed, J., Van Vianen, J., Deakin, E.L., Barlow, J. and Sunderland, T., 2016. Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future. *Global change biology*, *22*(7), pp.2540-2554.

Rehman, A.A. and Alharthi, K., 2016. An introduction to research paradigms. *International journal of educational investigations*, *3*(8), pp.51-59.

Ribot, J.C. and Peluso, N.L., 2003. A theory of access. *Rural sociology*, *68*(2), pp.153-181.

Roberts, J., 2006. Limits to communities of practice. *Journal of management studies*, *43*(3), pp.623-639.

Rose, G., 1997. Situating knowledges: positionality, reflexivities and other tactics. *Progress in human geography*, *21*(3), pp.305-320.

Rossman, G.B. and Rallis, S.F., 2010. Everyday ethics: Reflections on practice. *International Journal of Qualitative Studies in Education*, *23*(4), pp.379-391.

Rothfuß, E., Boamah, F. and Dörfler, T., 2021. Relational governance of territorial resources in post-colonial Africa–A new analytic framework. *DIE ERDE–Journal of the Geographical Society of Berlin*, *152*(2), pp.75-90.

Salam, M.A. and Noguchi, T., 2006. Evaluating capacity development for participatory forest management in Bangladesh's Sal forests based on '4Rs' stakeholder analysis. *Forest policy and economics*, *8*(8), pp.785-796.

SANBI, 2020. Biodiversity Mainstreaming and Policy Advice Assessment.

Schreiner, B., 2013. Viewpoint—Why has the South African National Water Act been so difficult to implement. *Water Alternatives*, *6*(2), pp.239-245.

Schulze, R.E., Dlamini, D.J.M. and Horan, M.J.C., 2005. The Thukela catchment: physical and socio-economic background. *Climate Change and Water Resources in Southern Africa: Studies on Scenarios, Impacts, Vulnerabilities and Adaptation. Water Research Commission, Pretoria, RSA, WRC Report*, *1430*(1), p.05.

Sharma, L.R., Jha, S., Koirala, R., Aryal, U. and Bhattarai, T., 2023. Navigating the research landscape: A guide to the selection of the right research design. *International Research Journal of MMC (IRJMMC)*, *4*(1), pp.64-78.

Shenton, A.K., 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), pp.63-75.Shunglu, R., Köpke, S., Kanoi, L., Nissanka, T.S., Withanachchi, C.R., Gamage, D.U., Dissanayake, H.R., Kibaroglu, A., Ünver, O. and Withanachchi, S.S., 2022. Barriers in participative water Governance: A critical analysis of community development approaches. *Water*, *14*(5), p.762.

Silverman, D., 2021. Doing Qualitative Research. Doing Qualitative Research.

Slife, B.D. and Williams, R.N., 1995. *What's behind the research?: Discovering hidden assumptions in the behavioral sciences*. Sage.

Smith, G., 2009. Political machinations in a rural county. *The China Journal*, (62), pp.29-59.

Stewart, A., 1998. *The ethnographer's method* (Vol. 46). Sage.

Steyn, M., Meissner, R., Nortje, K., Funke, N. and Petersen, C., 2019. Water security and South Africa. *Understanding water security at local government level in South Africa*, pp.1-44.

Stuart-Hill, S., Lukat, E., Pringle, C. and Pahl-Wostl, C., 2020. *Coordination beyond the state to solve complex water problems: Insights from South Africa* (No. 21/2020). Briefing Paper.

Stubbs, P., 2005. Stretching concepts too far? Multi-level governance, policy transfer and the politics of scale in South East Europe. *Southeast European Politics*, *6*(2), pp.66-87.

Sultana, F., 2007. Reflexivity, positionality and participatory ethics: Negotiating fieldwork dilemmas in international research. *ACME: An International Journal for Critical Geographies*, *6*(3), pp.374-385Taherdoost, H., 2016. Sampling methods in research methodology; how to choose a sampling technique for research. *International Journal of Academic Research in Management (IJARM)*, *5*.

Tang, Z., Zhang, L., Xu, F. and Vo, H., 2015. Examining the role of social media in California's drought risk management in 2014. *Natural Hazards*, *79*, pp.171-193.

Tapela, B.N., 2012. Social water scarcity and water use. *WRC Research Report, Research Report, Pretoria, Water Research Commission.* http://www. wrc. org. za/Pages/DisplayItem. aspx.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*, pp.69-84.

Taylor, V., Schulze, R.E., Jewitt, G.P.W., Pike, A. and Horan, M.J.C., 2001. Practical issues of HELP: examples from the Thukela Basin in South Africa. In *Proceedings of the AWRA/University of Dundee International Specialty Conference on Globalization and Water Management.* http://www. awra/org.

Thomas, D.R., 2006. A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, *27*(2), pp.237-246.

Tremblay, C. and Harris, L., 2018. Critical video engagements: Empathy, subjectivity and changing narratives of water resources through participatory video. *Geoforum*, *90*, pp.174-182.

Usón, T.J., Henríquez, C. and Dame, J., 2017. Disputed water: Competing knowledge and power asymmetries in the Yali Alto basin, Chile. *Geoforum*, *85*, pp.247-258.

van Koppen, B. and Schreiner, B., 2014. Moving beyond integrated water resource management: developmental water management in South Africa. *International Journal of Water Resources Development*, *30*(3), pp.543-558.

Walker, C., 2017. The land question in South Africa: 1913 and beyond. In *Oxford Research Encyclopedia of African History*.

Wassie, S.B., 2020. Natural resource degradation tendencies in Ethiopia: a review. *Environmental Systems Research*, *9*(1), pp.1-29.

Wenger, E., McDermott, R. and Snyder, W.M., 2002. Seven principles for cultivating communities of practice. *Cultivating Communities of Practice: A guide to managing knowledge*, *4*, pp.1-19.

Williams, E.N. and Morrow, S.L., 2009. Achieving trustworthiness in qualitative research: A pan-paradigmatic perspective. *Psychotherapy Research*, *19*(4-5), pp.576-582.

Willis, J., 1995. A recursive, reflective instructional design model based on constructivist-interpretivist theory. *Educational Technology*, *35*(6), pp.5-23.

Woodhouse, P. and Muller, M., 2017. Water governance—An historical perspective on current debates. *World Development*, *92*, pp.225-241.

Yin, R.K., 2009. *Case study research: Design and methods* (Vol. 5). Sage.

Young, J., Shaxson, L., Jones, H., Hearn, S., Datta, A. and Cassidy, C., 2014. A guide to policy engagement and influence. *London: Overseas Development Institute*.

Zeitoun, M. and Allan, J.A., 2008. Applying hegemony and power theory to transboundary wateranalysis. *Water Policy*, *10*(S2), pp.3-12.

APPENDICES

Appendix 1: Overview of Data Collection

Appendix 1.1: Individuals interacted over the course of this case study. (Contact method: I = interview; E = email discussion; D = documents provided; R = regular discussions / interactions; R.I. = Remote interview

No.	Organisation and position	Contact method	Date(s)
1.	Coston Water Committee, Chairperson	I	09/06/22
2.	Institute of Natural Resource, Catchment Convenor	I; D; R	20/07/22; 27/10/22
3.	Ward Councillor	I	23/09/22
4.	Okhahlamba Local Municipality Manager	I	07/09/22
5.	Mahlathini Development Forum, Director	E; D; R.I	24/07/22; 25/10/22
6.	UKZN-CWRR	E; D; R	26/11/22
7.	Mahlathini Development Forum, Site Manager	E; D; R	31/04/22-10/11/22
8.	Amazizi Local Facilitator	I; R.	20/09/22
9.	Traditional Councillor	I, R.	07/09/22
10.	Coston Water Committee, Deputy Chairperson	I	15/06/22
11.	Amazizi Development Forum, Speaker	I; R	20/09/22
12.	Coston Water Committee, Members	I	16/06/22
13.	Mahlathini Development Forum, Eco-champs	I; R	29/06/22
14.	Ezibomvini Water Committee, Chairperson	I; R	28/06/22
15.	Ezibomvini Water Committee, Deputy Chairperson	I	28/06/22
16.	ACCC, Ward Councillor	I	20/07/22

17.	Thukela Economic Development Agency, Manager	I	08/06/22

Appendix 1.2: Study participants in order of the interview sessions

Participant	**Language used**	**Date**	**Duration**
Mr Jezile	English	08/06/2022	19:30
Mr Khwezi	English	09/06/22	25:03
Mrs Langa	Mix	09/06/2022	30:01
Mrs Mbhele	Zulu	15/06/2022	19:46
Mr Mazibuko	Zulu	16/06/2022	17:29
Mr Mncwabe	Zulu	16/06/2022	15:46
Mrs Wangaza	Zulu	28/06/2022	27:12
Mrs Dlamini	Zulu	28/06/2022	24:00
Miss Nqadala	Mix	29/06/2022	17:07
Mr Zuma	Mix	29/06/2022	13:11
Mr Zizi	English	20/07/2022	22:55
Mr Mweli	Mix	20/07/2022	23:47
Mrs Ntshangase	Mix	20/07/2022	15:03
Mr Khuboni	English	07/09/2022	14:01
Mr Mata	English	07/09/2022	19:15
Mr Thusi	Mix	23/09/2022	22:26
Mrs Bunnz	English	25/09/2022	31:05
Mrs James	English	27/10/2022	25:27

Appendix 1.3: Direct and participant observation research events

No.	**Source**	**Specification of data type**	**Organization(s) involved**	**Data collection method**	**Date** (d/m/y or m/y)

1.	First UT Workshop	LCP introduction, stakeholders articulate their roles and identify areas of collaboration, and initiate or strengthen networking	SANBI, UKZN-CWRR, DFFE, THP, ADF, ALF, DARDLR, MDTP, EKZNW, OLM, ELRC, EDTEA, MDF, Wildtrust, WWF, EDTEA Environmental Management, ACCC, DWS AND INR	Direct observation	20/04/21
2.	Meeting	Planning meeting for the 2nd Catchment-Based Indaba	SANBI LCP team	Participant observation	09-10/21
3.	Second Catchment-Based Indaba	Understand the people, dynamics, processes, and culture of the Thukela Catchment related to water security.	SANBI, WRC, DSI, INR, MDF (still need to find out about other organizations that were involved)	Participant observation	1-5/11/21
4.	Meeting	To get to know the catchment in more detail	Mahlathini development forum	Direct and participant observation	10/06/22
5.	Meeting	Planning meeting for the adaptive planning process workshop	UKZN-CWRR, INR, MDF and RU	Participant observation	10/06/22
6.	Second UT workshop	Adaptive planning process workshop	UKZN-CWRR, INR, MDF, DWS KZN, ADF, OLM, KZNDARD, UFS, RU, SAEON, AWC, ACCC, WWF, Wildtrust, ACD, ACG,	Participant observation	14/06/22

			No-till club and Water committees		
7.	Workshop	Update on LCP student projects, and connect their work	SANBI, RU, UKZN, UFS	Participant observation	2-4/08/22
8.	Meeting	Monthly meeting of Traditional Councillors	Traditional Councillors	Participant observation	14/09/22
9.	Meeting	OLM LED Forum meeting	OLM, MDF, UDM, and RU	Direct observation	23/09/22
10.	Meeting	Meeting on the SANBI-funded spring protection project	INR, Amazizi Local Facilitator, Community, and RU	Direct observation	17/08/22
11.	Meeting	Planning meeting for the 3rd workshop	UKZN-CWRR, INR, MDF, SAEON and RU	Participant observation	07/11/22
12.	Third UT workshop	Continuation of the adaptive planning workshop	UKZN-CWRR, INR, MDF, ADF, OLM, UFS, RU, SAEON, AWC, ACCC, WWF, Wildtrust, ACD, ACG, and Water committees (still need to find out about other organizations that were involved)	Participant observation	10/11/22

Appendix 2: Consent form

RHODES UNIVERSITY
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PARTICIPANT INFORMED CONSENT DECLARATION

(To be signed by research participants)

Research Project Title: Exploring influence of power dynamic on outcomes of collaborative governance processes in the Thukela Catchment.

Philisa Dunyana from the Department of Environmental Science, Rhodes University, has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to understand the influence of power dynamics on collaborative governance processes and outcomes in the Upper Thukela Catchment from the perspective of both convenors and participants within and across governance levels.

2. Rhodes University has given ethical clearance to this research project ***(Ethics Approval Number* 5346*)*** and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za).

3. By participating in this research project, I will be contributing towards the SANBI policy advice work and hopefully improve collaborative water governance in South Africa.

4. I could participate in the project by participating in any one of the three following activities. Including workshop engagements (takes about 3-4 days), possible follow-up interviews (45 minutes) or focus group discussion, where I will identify and describe the diverse and frequently hidden range of actors who influence the outcome of collaborative governance in the upper Thukela Catchment (takes about 1-2 days and run 3-4 hours).

5. For the use of a recording device for researcher to supplement field notes and ensure proper data analysis. I am also aware that the researcher could photograph or videotape the process.

6. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

7. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.

8. The following risks are associated with my participation: an ongoing pandemic, COVID-19. I will follow and adhere to current standard norms and regulations issued by the Department of Health in order to mitigate COVID-19 risks. I am aware that there might be a potential conflict between stakeholders due to sensitive discussions about power dynamics. This will be mitigated to the greatest extent possible through sensitive facilitation by SANBI convenors in collaboration with the student.

9. The Researcher intends to publish the research results in the form of a manuscript in a peer-reviewed journal. However, confidentiality and anonymity of records will be maintained, and my name and identity will not be revealed to anyone who has not been involved in conducting the research *unless I indicate to the contrary/recognise that as a public figure, my identity will inevitably be/become known in which case I agree to and accept the loss of confidentiality.*

10. In terms of the Protection of Personal Information Act, it remains my right to request the Researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity will be achieved. I may request to know how my personal information will be stored securely, for how long it will be stored, and whether it is likely to be used again in further research.

11. In terms of the Protection of Personal Information Act, I possess the right to receive feedback about this research. This will take the form of the Living Catchments communication platform. One of the platforms the researcher will make use of is the Upper Thukela quarterly catchment meetings, where stakeholders and collaborators gather in one place to provide updates on the progress of the project. This is where the researcher will have the opportunity to provide feedback to research participants*, unless I elect not to receive feedback.*

12. Any further questions that I might have regarding the research or my participation will be answered by Philisa Dunyana g21d3596@cumpus.ru.ac.za

13. By signing this informed consent declaration, I am not waiving any legal claims, rights or remedies.

14. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

I, ……., have read the above information / confirm that the above information has been explained to me in a language that I understand, and I am aware of this document's contents. I have asked all the questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

I **agree/disagree** (SELECT APPLICABLE) to the Researcher's request to take photographs and/or videos of me as part of this research project, recognising that agreement here is likely to raise the risk of compromising my anonymity and that steps will be taken to ensure this does not happen if my approval is granted.

I **agree/disagree** to the Researcher's request to voice record my comments and opinions during interviews, the purpose of which is to ensure the accurate recording of my views. Furthermore, I have the right to request a copy of interview transcriptions to confirm that my opinions are accurately recorded.

..... ……

Participants signature **Date**

Rhodes University, Research Office, Ethics
Ethics Coordinator: ethics-commitee@ru.ac.za
t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707
Room 204, Main Admin Building, Drostdy Road, Grahamstown, 6139

Appendix 3: Observation protocol

Living Catchments Project

Time:

Date:

Venue:

Observer:

OBSERVATION SCHENDULE

Category	Includes	Note	Comment
Appearance	Clothing, age, gender, physical appearance	Anything that might indicate membership in groups or in subpopulations of interest to the study, such as profession, social status, socioeconomic class, religion, or ethnicity	
Verbal behaviour and interactions	Who speaks to whom and for how long, who initiates interaction, languages or dialects spoken, tone of voice	Gender, age, ethnicity, profession	
Physical behaviour and gestures	What people do, who does what, who interacts with whom, who is not interacting	How people use their bodies and voices to communicate different emotions, what people's behaviours indicate about their feelings toward one another, their social rank, or their profession	
Personal space	How close people stand to one another	What people's preferences concerning personal space suggest about their relationships	

Human movement	How and how many people enter, leave, and spend time at the observation site	Where people enter and exit, how long they stay, who they are (ethnicity, age, gender), whether they are alone or accompanied	
People who stand out	Identify people who receive a lot of attention from others	Characteristics differentiate them from others, such as whether people consult them or approach other people and whether they seem to be strangers or well-known by others present. Note that these individuals could be good people to serve as key informants.	

Appendix 4: Interview guide- predetermined themes

Interview Themes	**Sub-Themes To Be Covered**
Actors	• Role • Responsibility • Returns • Relationship (Good, fair, poor) between actors- information exchange, control, accessibility, relevance, awareness,
Water Governance	View on the management of water resources at a catchment level · The process of stakeholder engagement and consultation on water issues Catchment · Are water rights, allocation, use, and consumption allocated equitably? · Role of stakeholders in the management of water resources in the catchment

	· Challenges experienced in the catchment · Water quality issues in the catchment · View on compliance, non-compliance, monitoring, and enforcement of water laws
Power dynamics	· Financial or political power of water users in the catchment area · The control of water resources in the catchments · Decision-making powers in the catchments who decide access to resources and how those decisions are made · Measures/tools for addressing power dynamics in the catchment

Appendix 5: Scoping and situational analysis

I had the privilege of visiting the Upper Thukela Catchment (UTC) before the commencement of data collection. The visits helped me do scoping and familiarise myself with the context of the study area. In addition to the first multi-stakeholder workshop attended online, I visited the catchment twice. These visits included participating in the South African National Biodiversity Institute (SANBI) Catchment-based Indaba and assisting the fellow Living Catchments Project (LCP) bursary holder with data collection.

On the 20th of May 2021, I attended the first multi-stakeholder workshop, which had the purpose of introducing the SANBI LCP and students involved in the LCP, initiating or strengthening networking and identifying areas of collaboration, allowing stakeholders to articulate their roles and some actions that can be worked on collectively. The workshop engagement gathered the information needed for the situation assessment and captured stakeholders' opinions regarding the most appropriate structure and operation of such a learning platform. It allowed stakeholders to articulate their roles and identify actions that can be worked on collectively.

From the 2nd to the 4th of November 2021, I attended the 2nd Catchment-based Indaba organised by the Institute of Natural Resources (INR). The Objectives of the Indaba were (i) to get an understanding of the people and the dynamics as well as processes and culture of the Upper

Thukela Catchment as they relate to water security, (ii) to collectively surface a conversation about priorities for water security at the nexus of built and ecological infrastructure at the catchment, and (iii) to deepen understanding of the different roles that individuals and organisations can play in supporting the priorities for the catchment (i.e., the three spheres of government i.e. local, provincial and national, academia, research institutions, civil society organisations, and community members).

The indaba drew collectively from diverse experiences to create new knowledge by coming together to learn, share, deepen, and expand relationships. It attracted delegates from the three spheres of government, academia, research institutions, and civil society organisations. It allowed the delegates to reflect, share perspectives and lessons between practitioners and researchers, improve coordination, and enhance capacity across the science-policy-implementation interface.

Finally, from the 10th to the 13th of May 2021, to further understand the context, I Joined Sphindile Dlamini, who was also doing her master's at the University of the Free State, with the research title: Assessing cooperation between involved stakeholders to improve the water management of the Upper Thukela River, South Africa. We did water quality testing (SASSI) for the Thukela River and the surrounding tributaries, where we observed the illegal activities (dipper dumping and sand mining) that affected the water quality. We randomly sampled the eMazizini, eMangwaneni, and eMaswazini tradition authority communities. Semi-structured interviews were conducted with youth, women, men, and traditional authority representatives. This allowed me to have informal conversations with the stakeholders, understand who they are, and collect information about their organisations, activities, roles and responsibilities, and the part of the decision-making they influence. Thus, the visit helped me understand the area, meet stakeholders (arranged meetings/interviews with them), get some of their concerns, and practice my interview skills.

Overall, the study site visits and the first multi-stakeholder workshop attended online helped me better understand the study context and get to know some stakeholders. This made it easier for me to design my own data collection in line with the realities of the context.

Appendix 6: Four concepts of achieving research trustworthiness

1. Credibility

According to Shenton (2004), credibility is related to validity in qualitative research and focuses on ensuring that research is presented and developed accurately. Research findings must be consistent with reality and represent the perspectives of respondents who participated in the study. Different potential strategies or approaches can be utilised to establish credibility, and considerations made in this study to build confidence that the results have been accurately presented as described in the table below.

Table: Strategies considered to ensure credibility.

No.	Strategy	Action taken
1	Supervision meetings	Constant communication with my supervisors throughout the study ensures the investigation is grounded in sound scientific practices.
2	Use of established methods	I read up on the context of the case study, which paved the way for how the research would be implemented. This was done by adopting established theories and methodologies previously successfully implemented in other research studies and published in peer-reviewed literature.
3	Situational profiling	I visited the study area for the first time to attend the 2nd annual SANBI Catchment Based Indaba. I used the opportunity to get to know the potential study participants and water initiatives—this helped build relationships with stakeholders interested in water governance and security.

4	Triangulation	Triangulation uses multiple methods and a wide range of information simultaneously (Shenton, 2004). This study was formulated through semi-structured interviews, evaluation forms, documentation review, and direct and participant observations. I used deductive and inductive approaches to code the data.
5	Iterative questioning	During the interview process, probing becomes valuable when understanding new and unfamiliar information (Moerman, 2010). The researcher probed the research participants on unclear information to gain clarity and deepen their knowledge of the provided information.
6	Referential adequacy	The best ways to store raw data in records for later analysis were considered. The accumulated data were exported into NVivo and backed up in Google Drive.
7	Examination of previous research findings	Silverman (2021) claims that study findings should be linked to existing knowledge bodies. This study's primary concepts were rooted in the relevant peer-reviewed literature, and the results were related to similar research.

2. Transferability

According to Shenton (2004), transferability is centred on the research's external validity by determining whether research findings may be used in other contexts or settings. (Williams and Morrow, 2009) added that it also entails providing enough information about the study's location, methodologies, and participants to help the reader assess how transferrable the research is to their setting. In this study, the introduction and methodology chapters supplied descriptions of all the procedures taken, which provided an adequate detailed description of the context in which my research took place, as well as the methods used to enable future studies of a similar nature. Moreover, as previously mentioned, the study is embedded in the bigger LCP; thus, this study has the potential for transferability to be tested to other areas (catchments) of the work of the LCP.

3. Dependability

(Williams and Morrow, 2009) refer to dependability as the adequacy or integrity of data. One of the early processes of achieving reliable data for this study was ensuring that methods of collecting data were accurate and grounded in science and would be executed adequately. During the proposal stages, I ensured that the supervisors reviewed the thoughts on the study context and methods. After that, I defended my thesis ideas by presenting them at the Department of Environmental Science, where I received questions and comments and further built on that feedback. This practice assured me that the planned methodologies were clearly described and would allow the study to be replicated. The methods employed for transparency are thoroughly documented in this final thesis. I was the sole coder of data during the analysis process, which allowed consistency in coding and reduced inconsistencies that could emerge if several coders were utilised (Guthrie and Abeysekera, 2006).

I. Confirmability

An audit trail was essential to establishing rigour in this study since it provides systematic documentation of the research process and decisions, allowing others to replicate the approach (Williams and Morrow, 2009). The audit trail was maintained through supervision meeting notes, a timeline of events, observation notes, a codebook, a memo (a document of making notes about things that come up while coding), and an analytic memo (a document to record codes and themes). In addition, I utilised NVivo (memo tool) to document thoughts and processes.