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CONSTRUCTION ECONOMICS & MANAGEMENT



CONZ5023 RESEARCH REPORT

Title: How tertiary institutions ensure meaningful participation and engagement with stakeholders for sustainable water management

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Abstract

The purpose of this study was to examine how stakeholder engagement influences sustainable water management in university institutions involving water users, staff, and students. A qualitative case study was employed, grounded in the premise that effective stakeholder engagement, when implemented correctly, can serve as a catalyst for sustainable water management initiatives within the university setting.

The University of Cape Town (UCT) was chosen as the research case. Data was collected from both primary and secondary sources. Primary data included interviews and observations, while secondary data was obtained through relevant policies, strategies and frameworks for sustainable water management engagements at the university.

The thematic analysis revealed themes that identified factors that facilitate or hinder effective stakeholder engagement for sustainable water management at the UCT. Contributing factors for successful stakeholder engagement included social and cultural attitudes towards sustainability and integrating sustainable learning into the university's operations, teaching and learning. Conversely, factors that impede effective stakeholder engagements for sustainable water management include institutional, structural, as well as social and behavioural factors such as low student interest in sustainability matters, top-down governance and outdated bureaucratic processes, lack of behavioural change, inflated project costs, and lack of student engagement.

The findings from this study revealed that stakeholder engagement approaches that can adapt to changes and consider the social and cultural influences of their context are most likely to succeed in sustainable water management initiatives.

The findings of this study may be useful for facilitators of stakeholder engagements for sustainable water management at universities, helping to improve the success of sustainable practices and achieve sustainability goals.

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List of abbreviations

CMA.....	Catchment Management Area
CMA.....	Catchment Management Strategy
GWP.....	Global Water Partnership
HE.....	Higher Education
HEI.....	Higher Education Institutions
HESI.....	Higher Education Sustainability Initiative
ICT.....	Information and Communication Technology
IWRM.....	Integrated Water Resource Management
NWA.....	National Water Act
NWRS.....	National Water Resource Strategy
OECD.....	Organisation for Economic Co-operation and Development
SWM.....	Sustainable Water Management
SADC.....	Southern African Development Community
UCT.....	University of Cape Town
UNCED.....	United Nations Conference on Environment and Development
UNECE.....	United Nations Economic Commission for Europe
UNESCO.....	United Nations Educational, Scientific and Cultural Organisation
WSA.....	Water Services Act
WSSD.....	World Summit on Sustainable Development
WUA.....	Water Users Association

CHAPTER 1: INTRODUCTION

1.1 Introduction

This chapter provides an overview of the context surrounding the issues that need to be considered in sustainable water management and water governance. It particularly emphasises the role of stakeholders in managing this vital resource. The chapter will cover the research problem, research question, research proposition, and the research objectives. Additionally, it will discuss the research method used, outline the project limitations, and provide the structure of the report at the conclusion of this chapter.

1.2 Background and Rationale

Water is a universal need that is of interest to and ensures the survival of the entire human and ecological population. From a geographical perspective, water can be a complex resource to plan and manage due to its continuous movement across local, national, and international boundaries. This transboundary nature of the water resource compels regions to establish collaborative water resource management approaches that will serve the interests and needs of the various regions. The water resource can also be difficult to manage due to the interconnected nature of this resource with social, economic, legal, and political factors at local, national, and even international levels (Biswas, 2004).

Water scarcity is a global challenge that threatens the reality of human existence, which has emanated from a global rise in water demand for both domestic and commercial uses. A variety of technical and institutional factors contribute to water scarcity, namely: ageing water infrastructure and acquiring investments for infrastructure development and maintenance; outdated information management systems that need improvement; effective flow monitoring systems, and development of water-related performance indicators (Romano & Akhmouch, 2019).

Institutional factors are external to the water sector, and they include: urban growth, maladministration, climate change, geographical and political territorial reforms, poor governance, misuse of water by powerful multinational organisations and institutions, stakeholder engagement as well as policy complementarities across various sectors and

between cities and surrounding areas (Adom & Simatele, 2022; Hanjra & Qureshi, 2010; Lennox et al., 2011; Romano & Akhumouch, 2019; Simonson, 2003; Wehn et al, 2018).

Over the past two decades, researchers have witnessed increasing attention towards finding sustainable solutions to the management of natural resources approaches such as Integrated Water Resource Management (IWRM), water governance approaches, the development of technical and institutional solutions, as well as increasing global concern about the need for sustainable water and land management (Keller & Hartman, 2020; Lawson et al, 2020).

Moreover, the increase in catastrophic water disasters and extreme weather events, such as floods and droughts, creates significant challenges for effective water management. This is compounded by failures in climate change adaptation and mitigation, as well as human behaviours that contribute to water contamination and pollution. (Akhmouch & Clavreul, 2016; OECD, 2015). The need to establish innovative, effective and efficient approaches to water resource management and water governance, especially in urban areas, requires one to consider the opportunities and challenges that come with the governance of water resources in cities.

Water can contribute to the advancement of a city's economic and social functions, whilst it can also be a threat in disastrous events. These opportunities and threats compel cities to find effective and efficient approaches to water management at both spectrums for adequate provision of services (Akhmouch & Clavreul, 2016; Romano & Akhmouch, 2019).

In African cities, water-related risks continue to soar as water scarcity continues to threaten citizens whilst the demand rapidly increases due to population growth, urbanisation and climate change impacts. As many people move away from rural areas to urban areas in search of better economic opportunities, so does the demand for water increase. These conflicting and often competing water demands have created a mismatch between water supply and demand, aggravating the global water crisis and weakening water governance at the same time. (Akhmouch & Clavreul, 2016:2).

South Africa is considered to be a generally water-scarce country (Adom & Simatele, 2022; OECD, 2021; Brown, 2013). The country faces immense pressure in balancing demand and supply of the available water resources available. This is due to its varying climatic conditions characterised by recurrent droughts intensified by climatic variation, and increased demand for water resources. In addition to these challenges are the urban population and demographic changes that have resulted in high levels of water consumption (OECD, 2021).

The challenge of water scarcity in the country is further exacerbated by the high levels of daily water consumption rate, which is almost double the global average consumption rate (Adom & Simatele, 2022; Brown, 2013; OECD, 2021). Additionally, urban land expansion in South Africa contributes to difficulties in water resource management, ranking 11th globally and second in the African continent (Adom & Simatele, 2022; OECD, 2021).

The factors mentioned above significantly impact sustainable and effective water governance. If these factors are overlooked, they may create substantial challenges for water management in urban areas (Koop and Leeuwen, 2016; Romano & Akhumouch, 2019; Wehn et al, 2018). This may result in increased water scarcity, water pollution, adverse health effects, and rehabilitation costs that could overwhelm the resilience of cities (Koop and Leeuwen, 2016; Romano & Akhumouch, 2019; Wehn et al, 2018).

Consequently, this shift from a centralised, government-led, hierarchical model of policy and decision-making in water resource matters gave way to new modes of governance that focus on decentralisation and sharing of water resource management rights and responsibilities to stakeholders, through a network paradigm, for improved water resource management. (Baldwin et al., 2016; Challies et al., 2017; Currie-Alder, Thompson & Bustamante, 2006). This subsequently gave rise to a variety of governance approaches, such as collaborative, adaptive, sustainable, participative, inclusive, and polycentric water governance (Baldwin et al., 2016; Challies et al, 2017; Currie-Alder et al., 2006; Ogada et al., 2017).

The concept of governance focuses on processes, interactions, traditions, partnerships, and negotiations that are aimed at decision-making and exercising power (Graham, Amos & Plumptre, 2003; Jiménez et al, 2020; United Nations World Water Assessment Programme, 2006). Graham et al. (2003) describe governance as when power and responsibilities are exercised through interactions between structures, processes, and traditions, and decisions are taken based on stakeholder inputs.

Literature on natural resources and water governance has revealed the significant role of stakeholder engagement in the sound management and governance of natural resources. (Akhmouch & Clavreul, 2016; Billgren & Holmén, 2008; Brisbois & de Loe, 2016; Kuzdas et al., 2015; Lockwood et al., 2010; Midin et al., 2017; Podolak et al., 2017; Ricart et al., 2019; Tullberg, 2013)

Stakeholder engagement and public participation in environmental decision-making and implementation are seen as the crucial elements of the environmental governance concept (Akhmouch & Clavreul, 2016; Billgren & Holmén, 2008; Brisbois & de Loe, 2016;; Kuzdas et al., 2015; Lockwood et al., 2010; Midin et al., 2017; OECD, 2015; Podolak et al, 2017; Ricart et al 2019; Tullberg, 2013). Involving local stakeholders in the policy development and planning processes for managing natural resources positively impacts sustainable development outcomes. This is due to the emphasis on collaboration, negotiation, and discussion among policymakers, scientists, and local community members (Neef, 2009; Bouwen and Tallieu, 2004; Warner, 2006).

The OECD (2015) defines stakeholder engagement as the process of involving any individual or group with an interest or stake in a water-related issue in the activities, decision-making, and implementation processes. In this definition, the stakeholder is any person or group that may be directly or indirectly affected by water policy and management, and/or have the ability to influence the outcome positively or negatively (OECD, 2015).

1.3 Research Problem

These global water governance challenges may be even more severe in developing countries than in developed countries. This makes it a daunting task to respond to issues around capital investment for improved water infrastructure development and maintenance, improved information systems, and water-related performance-monitoring systems, as developing countries face technical, information, and financial limitations to respond to these water-related demands.

Furthermore, these water management and governance issues have increased various forms of participatory, deliberative, and collaborative approaches to water governance and management. Governments have realised the importance of involving communities in policy development and service delivery and the important role that communities play in addressing water-related challenges (Akhmouch & Clavreul, 2016; Margerum & Robinson, 2015; Van Buuren et al., 2019).

Involving local stakeholders in natural resources policy development and planning processes has a positive impact on achieving sustainable development outcomes because it relies on collaboration, negotiation, and deliberation between policymakers, scientists, and local

stakeholders. (Akhmouch & Clavreul, 2016; Bouwen and Tallieu, 2004; Margerum & Robinson, 2015; Neef, 2009; van Buuren et al, 2019; Von Korff et al, 2012; Warner, 2006).

Stakeholder engagement has been identified as a critical factor in effective water governance, and stakeholder engagement frameworks for water resource management have been developed to ensure effective water governance (Lacroix & Megdal, 2016). Stakeholder engagement in water governance has also encouraged strong collaborations between global organisations such as the World Bank, the United Nations, the Global Environmental Facilities and OECD, and government and non-governmental bodies, as well as academic and professional institutions. This collaboration aims to explore ways of improving water governance through collaborative learning and sharing of experiences and knowledge amongst each other and to formulate and implement solutions to the world's critical water challenges (Megdal, Eden, and Shamir, 2017).

One of the 12 OECD Principles on Water Governance emphasises the promotion of stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation (OECD, 2021). Furthermore, among several key governance challenges for water resource management and water and sanitation services identified by the OECD, stakeholder engagement was included (OECD, 2021).

Legislative and institutional frameworks, coupled with the endorsement of global guiding principles of water resource management demonstrate that South Africa regards stakeholder engagement and participatory water governance as fundamental enabling mechanisms to supporting water resource management. However, there is no sufficient literature to suggest that stakeholder engagement has been effective in the establishment of an inclusive, participatory, collaborative water governance and sustainable water management initiatives.

The National Water Act of 1999 (NWA) and the Water Services Act of 1997 (WSA) address the involvement of larger water users in water resource management through the establishment of Catchment Management Agencies (CMAs) and Water Users Associations (WUAs). These pieces of legislation ensure that large water users, such as Higher Education Institutions, are involved in the decision-making process concerning water use and conservation.

South African Higher Education Institutions (HEIs) are involved in global sustainability initiatives such as the Higher Education Sustainability Initiative (HESI) to not only advance sustainable development and achieve the Sustainable Development Goals (SDGs) but to also align their sustainability efforts with the broader international community (USAF, 2023).

Despite the robust national legislative and policy framework, as well as global charters, declarations and initiatives mandating the involvement of HEIs in water resource management as large water users, there is a critical gap in the practical implementation of these mandates at the campus level; The challenge lies in how South African HEIs are ensuring meaningful participation and engagement in sustainability initiatives, particularly in water management, within their campus communities.

1.4 The Research Problem Statement

The research problem statement can be stated as:

Despite global and national legislative and institutional frameworks mandating stakeholder engagement and a participatory approach to water resource management, not much is known about the practical implementation of stakeholder engagement in university institutions and water users.

1.5 Research Question

The research question for this report is:

In what ways do tertiary institutions ensure meaningful participation and engagement with stakeholders aimed at water resource management?

1.6 Research Objectives

The research objectives are:

- To determine the stakeholder engagement strategies used in university institutions to respond to sustainable water management
- To determine the factors that contribute to effective stakeholder engagement for engaging water users in university institutions
- To determine the factors that undermine effective stakeholder engagement for engaging *water users* in university institutions
- To establish ways that can improve the participation and engagement of **water users** for effective, sustainable water resource management in university institutions

1.7 Research Proposition

Engaging stakeholders effectively will improve sustainable water resource management in tertiary institutions, resulting in better communication, greater collaboration, inclusive policy decision-making, a culture of sustainability, and increased awareness.

1.8 Research Aims

This study explores ways in which stakeholder engagement is conducted with water users (staff and students) in university institutions to promote sustainable water management.

1.9 Research Method

The study conducts a qualitative case study methodology that explores the stakeholder engagement frameworks and processes established to improve sustainable water resource management in university institutions. The study drew insights from the reflections of officials who are responsible for water use and demand management and those who are responsible for formulating policies and frameworks for water use and demand management.

1.10 Outline of Chapters

This study is mapped over five chapters. These are detailed in the following sections.

Chapter 1

The first chapter describes the research background and rationale, the research problem, the proposition, as well as the research design.

Chapter 2

The literature review looks at the engagement stakeholder factors that enhance and hinder inclusive water governance. A presentation of engagement typologies will be given in this chapter, as well as the water governance approaches.

Chapter 3

Chapter three provides the research design and methodology adopted to conduct the study. This includes a presentation of the study objectives, the research question, and an outline of the data instruments employed in this process.

Chapter 4

Chapter four provides a presentation of the results, as well as a discussion of the findings.

Chapter 5

Chapter five contains recommendations based on these findings and draws conclusions.

1.11 Limitations of Study

The first limitation is that the study is limited to a single case, and therefore, there can be no generalisation made of the findings as these findings may not be the same for other places.

Another limitation of the study is the limited timeframe included in the case study. The case study was bound to sustainable water management engagements conducted within a seven-year time frame ranging from 2017 to 2023, which resulted in the exclusion of initiatives that were conducted outside of the timeframe.

Due to the unavailability of the students and university staff members to engage in discussions, this study was only able to engage participants who represented the Environmental Sustainability Directorate, the Khusela Ikamva sustainable campus project, and the African Climate and Development initiative.

1.12 Summary

The purpose of this study is to examine how stakeholder engagement influences sustainable water management in university institutions involving water users, staff, and students. The researcher assumes that stakeholder engagement is recognised as one of the critical factors that determine effective water governance to influence water use and management. It is therefore important to understand the types of stakeholder engagement frameworks and methods best suitable for the unique contextual and geographic characteristics of a HEI, to establish better governance systems that will respond to those interests and challenges.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The chapter presents a literature review focusing on participation and stakeholder engagement within the context of implementing sustainable water resource management projects in HEIs. Key terms such as sustainable water management, water governance, stakeholder engagement, and participation are discussed. Reference is also made to the contributing factors and barriers to effective stakeholder engagement for water sustainability in university campuses, as well as the factors and principles that underpin stakeholder engagement approaches chosen for successful outcomes.

2.2 Overview

In a rapidly changing and interconnected world, challenges such as climate change, population growth, urban development, rising water, energy, and food, as well as natural disasters and water risks, can severely impact societies and the environment (OECD, 2021: 91). **Stakeholders must be empowered to collaborate effectively in shaping the direction of sustainable water management** (Neef, 2009; Bouwen and Tallieu, 2004; Warner, 2006). A review of the literature on sustainable water resource management and governance reveals that stakeholder engagement plays a critical part in the sound management of water challenges (Akhmouch & Clavreul, 2016; Billgren & Holmén, 2008; Brisbois & de Loe, 2016; Kuzdas, Wiek, Warner, Vignola, & Morataya, 2015; Lockwood et al., 2010; Midin, Joseph, & Mohamed, 2017; Tullberg, 2013).

2.2.1 Water Governance and Sustainable Water Management

The Global Water Partnership defines water governance as the range of political, social, economic, and administrative systems adopted to develop and manage water resources and deliver water services at various levels of society (Global Water Partnership, 2003). These could be both formal and informal systems through which decision-making is implemented, where decision-makers are held accountable for the development and management of water resources (Global Water Partnership, 2003; Akhmouch & Clavreul, 2017).

One of the key principles of water governance emphasises the important role of stakeholder engagement, allowing stakeholders to articulate their interests and concerns in addressing global water challenges (Akhmouch & Clavreul, 2017; Challies, Newig, Kochskämper, & Jager, 2017; OECD, 2014; OECD, 2021; Ogada et al., 2017; Ricart et al., 2019). This includes

the private sector, nongovernmental organisations, and academic institutions, as these stakeholders are crucial to advancing sustainability efforts.

Sustainable water management (SWM) is the cornerstone for sustainable development and accounts for similar issues as sustainability. SWM refers to the practice of meeting current water demands by using water in a manner that maintains the society's social, ecological, environmental, economic, and hydrological integrity and needs, while also safeguarding future requirements and the environment (Mays, 2013; Russo, Alfredo & Fisher, 2014; Sdiri, Phino & Ratanatamskul, 2018, Water Resource Management, 2022). This involves the process of planning, developing, and managing water resources with a focus on both water quantity and quality across all usages (Water Resource Management, 2022).

To achieve sustainability in water resource management, integrated contributions from various elements are required, which include institutions, infrastructure, incentives, and information systems (Mays, 2013; Russo, Alfredo & Fisher, 2014; Sdiri, Phino & Ratanatamskul, 2018). Sustainable water resource management relies on the sharing of experiences and information, and active stakeholder involvement in decision-making (Russo, Alfredo & Fisher, 2014; Water Resource Management, 2022). This concept has evolved, moving from a top-down and fragmented traditional water resource management approach to a more integrated approach that recognises the interdependent nature of the water resource and views it as both a natural, social, and economic resource (Mays, 2013; Russo, Alfredo & Fisher, 2014; Sdiri, Phino & Ratanatamskul, 2018, Water Resource Management, 2022).

Thus, Water governance consists of the processes of decision-making and definition of goals by a range of actors through institutional frameworks and policies, while sustainable water management consists of targeted strategies and activities to attain such goals.

2.2.2 Stakeholder Engagement and Participation

Stakeholder engagement and participation are important elements in informing the design and implementation of environmental management interventions aimed at achieving sustainable development (Du Plessis, 2008; Durham, Baker, Smith, Moore & Morgan, 2014; Gupta, 2014). The OECD (2015) defines stakeholder engagement as the opportunity for those with an interest, or 'stake', to participate in decision-making and implementation processes (OECD, 2015). Stakeholder engagement is a process that considers the views and concerns identified by various interest groups, which is based on the active involvement and participation of

various interest groups or individuals in some or all social or political decision-making aspects of a project or initiative through their opinions and/or views (Durham *et al.*, 2014; European MSP, 2018; Picolotti, 2008).

Participation is defined as a human engagement and a process where individuals, groups, and organisations voluntarily choose to take an active role in making decisions that affect them by means of providing their inputs (Gupta, 2014; Wandersman, 1981; Wilcox, 2003; Reed, 2008; Rowe & Frewer, 2004). Rowe and Frewer's (2004) definition of participation primarily focuses on the public's level and role in the participation process, *'the practice of involving members of the public in the agenda setting, decision-making, and policy-forming activities of organisations/institutions responsible for policy development'* (Rowe & Frewer, 2004).

Simply put, stakeholders can be defined as a group of people with a vested interest in a policy decision or action, and are involved and impacted by that decision or action. Stakeholders are any group, organisation, individual, or community with a stake in a decision-making process - whether it be due to them being affected or interested in the outcomes of that decision - and are able to directly or indirectly influence a decision-making process (Reed, 2008; Brown, De Bie and Weber, 2015). Mease et al (2018) identify three categories of stakeholders: those who have a direct influence on an activity, those who have an impact on the outcome of that activity, those who have an interest in that impact, and the broader public.

Mendoza and Prabhu (2009) make a distinction between primary and secondary stakeholders, with the former being those directly affected by a decision, whether negatively or positively, and the latter being those who have some intermediary role, directly or indirectly, in an issue at hand. Local citizens are considered primary stakeholders in environmental issues like sustainable water resource management because they actively participate in managing their surroundings. However, in practice, they often face challenges regarding their involvement. This is largely due to the lack of attention and engagement given to these stakeholders during the implementation of water management initiatives. (Nastran, 2015; String & Paavola, 2013).

2.3 Water Governance in South Africa

The South African legislative and policy framework was primarily designed to redress historical challenges of inequality whilst continuing with engineering success (Colvin et al., 2008: 682). South African water laws and policies are widely recognised as some of the most progressive in the world (Colvin et al., 2008: 682). They are based on the concept of

democratisation of water management, underpinned by Integrated Water Resource Management principles, international conventions and agreements such as Agenda 21 and the Rio Declaration, and regional agreements such as the Southern African Development Community (SADC) Treaty (Colvin et al., 2008; Schreiner et al., 2011).

The Southern African Development Community (SADC) Treaty, SADC Regional Water Policy, and SADC Regional Water Strategy form part of a regional governance framework, which demonstrates the critical role of stakeholder involvement in regional development and water resources management issues, by setting a strong foundation for the involvement of stakeholders (SADC, 2010; Schreiner et al., 2011).

The SADC Guidelines for Strengthening River Basin Organisations is one example of stakeholder involvement and a participatory-focused approach to improving water resource management, by accentuating the importance of keeping basin stakeholders and decision-makers informed and involved (SADC, 2010; Schreiner et al., 2011).

These SADC guidelines aim to provide River Basin Organisations (RBOs) with a wide range of options for implementing participatory processes and ways to approach the processes (SADC, 2010; Schreiner et al., 2011), founded on principles such as inclusiveness, equity, transparency, integrity and flexibility (Schreiner et al., 2011). The SADC guidelines also describe the multiple dimensions of stakeholder engagement (Scale of Participation, Scope of Participation and Level of Participation)

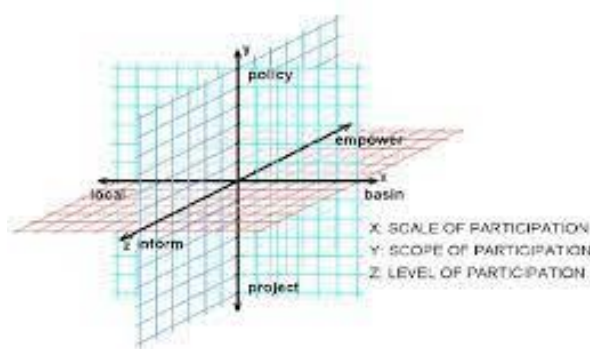


Figure 2.1: The Multiple Dimensions of Stakeholder Participation (MSIBI 2009)

Consultations with stakeholders are a mandatory part of the development of key strategies and policies affecting stakeholders in South Africa. These legislative authorities include, but are not limited to the Constitution of the Republic of South Africa (1996), the White Paper on

National Water Resource Policy of 1997, the National Water Act of 1998 and the National Water Services Act of 1997. Among some of the commitments of these frameworks are aimed at making water accessible to all for sustainable growth and development; ensuring effective governance of water through the devolution of relevant powers and functions to catchment and local levels, and; promoting public involvement in environmental decision-making and stakeholder ownership (Colvin et al, 2008; Schreiner et al., 2011).

The Constitution of South Africa of 1996 promotes an open and democratic society where everyone has a right of access to any information held by the state, and where government decisions are guided by the will of the people (Republic of South Africa, 1996). The Constitution places power and influence in the decision-making process largely on the citizens, whereas the government merely acts on the needs of its people. Section 32(1), highlights the promotion of access to information, a clause that is given legislative force by the Promotion of Access to Information Act (Republic of South Africa, 2000)

The White Paper on National Water Resource Policy of 1997 stresses the critical role of consultation in the development of water management strategies as well as the involvement of stakeholders in the development of water management institutions and water management decisions (Republic of South Africa, 1997). According to The White Paper, a living balance between social and economic benefits, as well as determining environmental objectives, should be achieved through informed consultation with those affected, or their representatives. (Republic of South Africa, 1997).

The National Water Act (NWA) 1998 mandates stakeholder consultation in the development of the National Water Strategy for the protection, use, development, conservation, management, and control of water resources for the country as a whole (Republic of South Africa, 1998). Furthermore, the act mandates the decentralisation of water resources management through the establishment of Catchment Management Agencies (Republic of South Africa, 1998) using stakeholder consultation. This process aims to enhance user involvement in the governance of water at the local and regional levels (OECD, 2021, Republic of South Africa, 1998; Schreiner et al., 2011)

The National Water Act of 1998 stipulates specific requirements for public involvement in the development of key water management strategies, such as the National Water Resources Strategy and the Catchment Management Strategy (Republic of South Africa, 1998). Section

5(5) (a) (b) and (c), as well as Section 8(5) (a) (b) and (c) of the National Water Act compels the formulation of the National Water Resource Strategy (NWRS) and Catchment Management Strategy (CMS) to include the consultation of stakeholders through making information available to requesting inputs from all interested and/or affected parties. This is done through publishing the proposed strategies, providing adequate time for inputs, and considering these inputs in the development of these strategies (Republic of South Africa, 1998).

(a) Publish a notice in the Gazette-

- i) Setting out a summary of the proposed strategy or the component in question;*
 - ii) Stating the address where the proposed strategy or the component in question is available for inspection; and*
 - iii) inviting written comments to be submitted on the proposed strategy or the component in question, specifying an address to which and a date before which comments must be submitted, which date may not be earlier than 90 days after publication of the notice;*
- (b) Consider what further steps, if any, are appropriate to bring the contents of the notice to the attention of interested persons and take those steps that the Minister/catchment management agency considers to be appropriate; and*

(c) Consider all comments received on or before the date specified (Republic of South Africa, 1998)

The National Water Act is further empowered by the generic guidelines for public participation developed by the Department of Water Affairs and Forestry (DWAF) in order to assist officials with implementing the public participation requirements of the legislation (Schreiner et al., 2011).

The legislative and policy framework discussed in this section demonstrates how highly supported stakeholder engagement is by the South African policy and legislative base, despite concerns regarding the political context within which it must operate. From the SADC Treaty through to the South African White Paper on a National Water Policy and the National Water Act, stakeholder engagement continues to be supportive of stakeholder engagement. (Schreiner et al., 2011).

2.4 The Global Rise of Stakeholder Engagement and Participation in Sustainable Water Resource Management

There has been a noticeable progression in the critical value of stakeholder engagement and participation in the environmental political space over the past few decades. Modern environmental politics began to institutionalise in the West in the late 1960s, prompting the need for societal involvement in environmental issues (Hauben, 2011; Van Tatenhove &

Leeroy, 2003). During this period, stakeholder engagement and participation were introduced as strategies to raise awareness. As more people realised the significance of having a voice in societal decisions, merely raising awareness became insufficient, resulting in increased pressure to explore more effective strategies of engagement and participation (Hauben, 2011; Reed, 2008).

In the 1970s and 1980s, there was significant progress in stakeholder engagement and participation, which involved incorporating local opinions into data collection and planning processes and ensuring access to information for all (Hauben, 2011; Reed, 2008). As people became aware of their ability to influence the world around them, governments and environmental institutions began to experience increased pressure to involve society in matters that affected them. The institutionalisation of stakeholder engagement in water resource management has helped shape water policies to achieve the needs of communities. This process enables water practitioners to consider the interests and views of stakeholders, which drives legitimacy in their work. Additionally, it fosters social ownership and acceptance, while building confidence and trust in government decisions. (Akhmouch & Clavreul, 2017; Hassenforder et al, 2019)

The progress in stakeholder engagement and participation also necessitated a movement away from the liberal conception of democracy, which focused on ‘constitutionally institutionalised’ forms of participation, where decision-making was limited to representatives. Instead, there was increased pressure for an approach that encourages the direct involvement of citizens in key societal institutions (Hauben, 2011; Van Tatenhove & Leroy, 2003).

The transition from a traditionally centralised government, characterised by limited participation and bureaucratic processes, to multi-level and polycentric governance in water governance and sustainable water resource management has resulted in the integration of regulatory strategies. This shift combines the approaches of a single decision-making authority with enhanced levels of participation and collaborative decision-making (Akhmouch & Clavreul, 2016; Jager et al, 2016; Neef, 2009; Ricart et al, 2019).

The polycentric governance approach to water governance and sustainable water management promotes shared decision-making about water resources among various overlapping local, regional, and national authorities, where the governments maintain a facilitation role that gives a degree of control, whilst the operations and monitoring functions are devolved to the local

level (Baldwin et al, 2016; Neef, 2009). This approach emphasises the significance of stakeholder engagement and participation in inclusive water governance and sustainable management strategies (Akhmouch & Clavreul, 2016; Jager et al, 2016; Ricart et al, 2019). Polycentric governance has facilitated the development of agreements, declarations, policies, and frameworks at supranational levels to collectively address water-related issues, ensure sustainable management, equitable distribution, and resolve conflicts regarding shared water resources.

The origins of these global environmental agreements can be traced back to the Declaration of the United Nations Conference on the Human Environment, commonly known as the Stockholm Declaration, which emerged from the 1972 United Nations Conference on the Human Environment, held in Stockholm, Sweden (Handl, 2012). Following the Stockholm Convention, a series of global water and environmental conventions were established that reiterated the critical role of public participation and stakeholder engagement in addressing issues related to sustainable water resource management and water governance.

The 1992 Dublin Conference identified four guiding principles for managing freshwater resources, which were later adopted as part of the Agenda 21 recommendation at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro later that year. One of these principles emphasised the importance of adopting a participatory approach in water development and management. This approach involves engaging users, planners, and policy-makers at all levels in the decision-making process (Schreiner et al., 2011; Solanes, 1998; Solanes & Gonzalez-Villarreal, 1999; UNCED, 1992; Xie, 2006).

The Rio Declaration introduced the emerging public involvement norms in the management of natural resources (Schreiner et al., 2011; UNCED 1992). Principle 10 of the Rio Declaration emphasises the importance of citizen participation in effectively addressing environmental issues (CEPAL, 2017; Schreiner et al., 2011; UNCED, 1992). This ensures a sustainable environmental management approach that allows all relevant persons to have access to information and participate in the decision-making processes, thus taking ownership (CEPAL, 2017; Schreiner et al., 2011; UNCED, 1992).

Agenda 21 outlines the importance of broad public participation in decision-making for the achievement of sustainable development (Schreiner et al, 2011; UNCED, 1992). Chapter 23 of Agenda 21 states, “One of the fundamental prerequisites for the achievement of sustainable

development is broad public participation in decision-making” (UNCED, 1992). The declaration also highlights the significance of involving communities, individuals, and social groups in the decision-making process, ensuring they have access to information that greatly impacts the environment (Schreiner et al, 2011; UNCED, 1992)

Moreover, the Rio Declaration and Agenda 21 emphasise the importance of the government’s commitment to genuinely involving social groups in the effective implementation of the objectives, policies, and mechanisms aimed at achieving sustainable development (Schreiner et al., 2011; UNCED, 1992).

The 1998 United Nations Economic Commission for Europe (UNECE), also known as the Aarhus Convention, serves as another international driver of public participation in environmental governance decisions (UNECE, 1998). This convention promotes good governance by emphasising transparency, participation and accountability. It establishes minimum requirements that its 39 signatory countries must incorporate into their laws and institutions (OECD, 2015: 26).

The 2002 World Summit on Sustainable Development (WSSD), held in Johannesburg, established a Plan of Implementation. This plan outlined the involvement of various organisations, actors, major groups, and local communities in efforts to protect the natural environment that is directly affected by human activities (Neef, 2009; World Summit on Sustainable Development, 2003).

These conventions have established a foundation for the development of policies and legal instruments that reinforce the role of participation and stakeholder engagement in sustainable water resource management. They address global environmental challenges and highlight the impact of human activity on the environment. This has fostered a fundamental perspective on how to preserve and improve the environment for future generations (Handl, 2012; Jager et al, 2016; Ricart et al., 2019). Additionally, these global agreements have raised awareness of environmental issues worldwide and further shown that global collaboration and active participation in environmental issues are effective strategies for forming coalitions among various stakeholders (Baldwin et al., 2015; Handl, 2012; Ricart et al, 2019).

Global conventions and agreements have shown that engaging stakeholders and fostering participation in water governance and sustainable water management are effective strategies for addressing water management challenges among various stakeholders (Akhmouch &

Clavreul, 2016; Baldwin et al., 2015; Handl, 2012; Jageret et al., 2016; Ricart et al, 2019; Schreiner et al., 2011; Silveira & Richards, 2013). Stakeholder engagement and participation have encouraged transboundary cooperation and promoted inclusivity, allowing even marginalised nations to commit to shared objectives while remaining adaptable to their national, regional, and local contexts (Baldwin et al., 2015; Handl, 2012; Lim et al, 2022; Ricart et al., 2019; Schreiner et al., 2011; Silveira & Richards, 2013; UNCED, 1992).

Stakeholder engagement has also proven to be useful in developing priorities amongst a diverse group of stakeholders with competing interests. It provides an opportunity for social learning, where participants can learn from each other, gain a deeper understanding of the social and technical challenges around water, and resolve conflicts in transboundary water issues (Akhmouch & Clavreul, 2017; Baldwin et al., 2015; Handl, 2012; Lim et al, 2022; Ricart et al, 2019; Schreiner et al., 2011; Silveira & Richards, 2013). Ultimately, stakeholder engagement promotes cooperation.

Knowledge sharing and capacity building facilitated through supranational frameworks such as the Global Water Partnership (GWP) and UNESCO have largely benefited developing countries where enhanced stakeholder engagement and advancing levels of technical knowledge have been cited in countries within the SADC region and other parts of Africa and Asia (Donoso et al., 2012; Erdgogan, 2013; Meigh & Fry, 2004).

Some criticisms around stakeholder engagement in sustainable water management at a global level include power dynamics in engagement processes, which place economically and politically stronger nations in better positions to influence decision-making in global and local water governance and sustainable water management frameworks. In addition to this, there are also challenges of underrepresentation of women, indigenous groups as well as marginalised communities in engagements, which hinders (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; Hassenforder et al., 2019).

There is also the challenge of not having a standardised implementation approach to these global principles, best practices, and guidelines while some countries have successfully integrated these into their national policies, others have yet to do so.

Although some of these commitments are treaties bound by international law and contain enforcement mechanisms, many are merely non-binding commitments to guidelines, best practices, and recommendations for sustainability (Mändveer, 2023; Rout, 2024). They are

generally followed due to political and moral reasons, however, many of these commitments are non-legally binding, leading some researchers to argue that their impact is limited because they lack the power to enforce compliance and where those agreements are legally binding, there are often no mechanisms in place to ensure accountability and compliance (Mändveer, 2023; Rout, 2024).

2.5 Stakeholder Engagement for Sustainable Water Management

A substantial body of literature connects the success of sustainable water management and governance to effective stakeholder engagement practices, highlighting engagement processes, systems, frameworks, and tools as key factors in enhancing water management and governance. (Akhmouch & Clavreul, 2016; Adom & Simatele, 2022; Colvin et al, 2015; Dillon et al, 2016; Lacroix and Megdal, 2016; Megdal et al, 2017; Moss & Newig, 2010, Ricart et al, 2019).

When stakeholder engagement is done right, it can improve collaboration amongst diverse actors. Stakeholder engagement can also promote learning and knowledge sharing, promote informed decision-making, and build trust and competence in understanding (Adom & Simatele, 2022; Akhmouch & Clavreul, 2016; Akhmouch & Correia, 2016; Colvin et al, 2008; Harrison et al., 2018; Hassenforder et al., 2019; Juback & Tokar, 2016; Mease et al, 2018; Megdal et al, 2017; Mott Lacroix & Megdal, 2016).

Some researchers have highlighted that an effective engagement framework should include stakeholder-mapping techniques to ensure enhanced knowledge sharing, and promotion of informed decision-making, and also aids in the development of effective implementation strategies (Hassenforder, Clavreul, Akhmouch & Ferrand, 2019: 537).

Stakeholders play a crucial role in water governance by creating and enhancing knowledge hubs for water sustainability. Improved stakeholder mapping and engagement can significantly boost knowledge sharing, promote informed decision-making, and aid in the development of effective implementation strategies (Hassenforder, Clavreul, Akhmouch & Ferrand, 2019: 537). The representation and increased capacity building of stakeholders are therefore of paramount importance for the effective development of inclusive water resource management strategies coupled with a holistic vision of any social-environmental system (Hassenforder et al, 2019:537).

The technical and institutional challenges found in water resource management require a collaborative, participatory, and deliberative approach that recognises the critical role communities, academic institutions, nongovernmental organisations, and the private sector play in resilience building, climate adaptation, and other water-related responses (Romano & Akhumouch, 2019; Ricart et al., 2019; van Buuren et al., 2019; Wehn et al., 2018).

Challenges such as the scarcity of water resources, deciding on equitable distribution of water amongst competing industries, the quality management of water resources and conservation thereof are significantly reliant on stakeholder engagement as one of its critical success factors (Adom & Simatele, 2022; De Boer, Vinke-de Kruijf, & Özerol, 2013). Institutional analyses on stakeholder engagement and public participation suggest that traditional state-centred economic solutions, characterised by command-and-control behaviours, fail to respond to current social and ecological challenges faced by governments. Solidarity-based economies are able to encourage engagement that considers participation as a means to an end (as cited in Hassenforder et al., 2019).

Stakeholder engagement is defined as a formal process of managing relationships, which industries and companies use to engage with various stakeholders with the aim of aligning mutual interests, reducing risk and advancing the triple bottom line: their financial, social, and environmental performance (Future 500 2004).

Adom and Simatele (2022) refer to stakeholder engagement in water governance as a range of political, institutional and administrative rules, practices and processes (formal and informal) designed for decision-making and policy implementation (Adom & Simatele, 2022: 413). Stakeholder engagement in water governance includes critical attributes of collaboration and planning (Adom & Simatele, 2022; Colvin et al., 2015; Moss & Newig, 2010; Ricart et al., 2019).

Collaboration ensures efficiency in the planning and implementation of policies, guidelines and procedures that promote the achievement of goals of equity and sustainability in water resources. Comprehension includes a component of forces, systems and mechanisms aimed at ensuring empathy, creating shared social identity, and promoting a shared responsibility towards achieving particular outcomes at different scales (Adom & Simatele, 2022; Colvin et al., 2015; Moss & Newig, 2010, Ricart et al., 2019). In local communities, collaboration is a critical success factor in ensuring effective and efficient administering of processes in water

distribution, water infrastructure management, water resource management, and water consumption between government institutions and community leaders.

Akhmouch and Clavreul (2006) investigate the engagement processes that are essential for achieving sustainable water management goals. Their findings highlight the importance of trust and active participation as key elements that foster stakeholder involvement, resulting in well-informed and effective contributions to the development and execution of water policies and management strategies.

Megdal et al (2017) examine ways in which stakeholder engagement influences water governance and the responses to key water challenges. Stakeholder engagement is identified as one of the key factors in unifying various actors for a common purpose, resulting in improved decision-making for sustainable water management.

Lacroix and Megdal's study develops a stakeholder engagement framework by means of using the lessons learned for an evaluation of three water management engagement processes. In this study they find four critical factors to the effectiveness of engagement processes, namely, paucity of time; the complexity of water resources management; the difficulty of engaging diverse stakeholders; and lack of methods for engagement that are centred on empowerment, equity, trust, and learning (Lacroix & Megdal's, 2016). They argue that any stakeholder engagement framework will have to address these four critical factors to ensure effectiveness.

A study by Dillon et al. (2016) examines the perspectives of stakeholders on participation processes in an environmental project that aimed to improve the stormwater management plan in a community in South Australia (Dillon et al., 2016). Factors highlighted as contributors to this improvement included the accessibility of accurate information to community members, the level of transparency, and fairness in engagements with communities, which consider their opinions and interests, and, an inclusive engagement process that considers the representation of all community groups. (Dillon et al, 2016).

A project in Southern Africa aimed to coordinate severe weather and flood warning systems at multiple levels by multiple responsible organisations (Megdal et al, 2017). The collaboration of stakeholders in developing capacity-building systems and tools was central to the successful coordination of multiple levels of decision-making for integrated responses to water demands.

2.6 Stakeholder Engagement Trends in Water Governance and Sustainable Water Management

The conflicting and competing water interests, coupled with increasing water scarcity and a territorial mismatch between water supply and demand, have resulted in several water crises and water governance challenges (Akhmouch & Clavreul, 2016). Stakeholder engagement is a critical component of effective water governance and sustainable water management as a process that can assist with managing competing interests and expectations and improve water-related decision-making, thus reducing the potential for conflicts over water (Akhmouch & Clavreul, 2016). As a result, several stakeholder engagement trends in water management have emerged in recent decades:

2.6.1 From Participation to Engagement

International agreements, conventions, and water forums have played a crucial role in integrating stakeholder engagement and participation as an essential component for effective and inclusive water governance and sustainable water management (Akhmouch & Clavreul, 2016; Baldwin et al, 2015; CEPAL, 2017; Handl, 2012; Neef, 2009; Ricart et al, 2019; Schreiner et al., 2011).

The shift from mere participation to active and inclusive engagement has highlighted the inadequacy of hierarchical and consultative approaches that are one-sided. To achieve sustainability, it is essential to adopt more transparent, holistic, and collaborative models that involve all stakeholders, including the private sector, citizens, academia and research, and non-governmental organisations. These approaches have now made their way to the forefront of policy development in the water sector, ensuring successful implementation on the ground (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; Hassenforder et al, 2019).

2.6.2 Institutionalisation of Stakeholder Engagement in Water Management

Until recently, stakeholder engagement was typically conducted as a once-off exercise. This approach allowed for flexibility, often associated with project or issue-based engagement practices characterised by ad hoc engagement mechanisms such as workshops, hearings, panels, or campaigns to gather stakeholders around a specific issue (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017). These engagement processes were often reactive, and implemented in response to crises and emergencies such as droughts, floods, or other natural disasters. As a result, they were driven by a need or obligation rather than being a voluntary process (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017).

However, recent legislation, guidelines, and standards for stakeholder engagement in water management have improved stakeholder engagement at various levels. This has led to the development of structural, systematic, and inclusive forms of stakeholder engagement in water management, such as The European Water Framework Directive, and the Aarhus Convention, which promotes access to information, public participation, and access to justice in environmental matters (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; European Parliament, 2000; Hassenforder et al, 2019; UNECE, 1998). This has further led to the progression toward the institutionalisation of stakeholder engagement in water resource management as more public authorities, service providers regulators basin organisations, and donors have included various stakeholder engagement methods in their operational rules and procedures, such as cooperation, consultations, and awareness raising (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; Hassenforder et al, 2019; OECD, 2015).

2.6.3 Technology for Improvements in Stakeholder Engagement

Advanced technology has significantly improved stakeholder engagement and participation in the water sector (Langslide & Cardwell, 2022; Laspidou, 2014; Wehn et al., 2014; Wehn et al, 2018). Information and Communication Technology (ICT) has enabled innovations such as citizen observatories, including social media and sensor technologies. This has created opportunities for innovative ways of engaging stakeholders, ensuring the participation by a large number of people, while simultaneously producing valuable information and promoting demand-driven responses (Langslide & Cardwell, 2022; Laspidou, 2014; When et al, 2014; When et al, 2018). The study by Wehn et al (2018) views Citizen Observatories as innovative tools that can significantly enhance high information density for environmental management. Citizen observatories also have the potential to create new means of engagement. Laspidou's (2014) study examines how ICT and social computing can enhance awareness and stakeholder engagement in water sustainability. Laspidou (2014) argues that ongoing global water sustainability challenges can be addressed through ICT by assisting water managers in implementing aggressive information campaigns and integrating the water sector with city services to deliver sustainable services and quality in urban life.

2.7 Key Factors of an Effective Engagement Strategy

Over the years, there have been many attempts made to develop typologies for participatory engagement that encourage co-productive interactions with stakeholders (Arnstein, 1969; Fung, 2006; Pretty, 1995; Reed et al, 2018). Engagement processes are complex and influenced

by various factors, including context (geographical or disciplinary), the nature of the issues, and power dynamics. Recognising and navigating these influences is essential for developing effective participation and engagement methods and achieving meaningful outcomes that reflect the diverse interests and perspectives of all participants (Fung, 2006; Hurlbert & Gupta, 2015; Reed, 2008; Reed et al., 2018; Tritter & McCallum, 2006; Wehn et al, 2014; Wehn et al, 2018).

An effective engagement strategy considers those unique challenges, opportunities, cultural factors, and priorities associated with different political and geographical contexts (Hurlbert & Gupta, 2015; Wehn et al., 2018). It also takes into account the relevant disciplines in which it is applied, such as healthcare, environmental issues, or education. This approach ensures a thoughtful and inclusive stakeholder mapping process, the use of relevant engagement methodologies, and the identification of effective solutions for the identified issues (Hurlbert & Gupta, 2015; Reed, 2008; Reed et al., 2018; Wehn et al., 2018)

Participation and engagement typologies are shaped by several factors, including the agency responsible for leading and initiating the engagement, the mode of engagement – such as communication, consultation, deliberative, and co-production – and the process’ ability to empower all participant, regardless of their level of power and influence (Chihumbiri, 2019). Different stakeholders participate with their unique goals, interests, and capacities. Each mode of engagement offers varying levels of stakeholder involvement and decision-making authority (Fraser et al., 2006; Reed, 2008; Reed et al., 2018; Rowe & Frewer, 2000; Rowe & Frewer, 2004; Rowe et al., 2005).

2.8 Typologies of Participation and Stakeholder Engagement for Sustainable Water Management

This section explores the four engagement typologies of engagement identified by Reed (2008). These typologies are categorised based on four criteria: the degree of participation, the nature of participation, the theoretical foundation behind it, and the objectives for which participation is utilised (Pretty, 1995; Reed, 2008; Rowe & Frewer, 2000; Rowe & Frewer, 2004).

2.8.1 Arnstein’s ‘Ladder’ of Participation

Arnstein’s (1969) ladder of citizen participation model provides a best-suited example of a typology that focuses on the degree and formation of participation (Akhmouch & Clavreul, 2017) Arnstein, 1969; Cornwall, 2008; Rasche et al, 2007; Wehn et al, 2014). The model serves

as a foundation for the discussions on the quality and purpose of citizen participation (When et al., 2014). It identifies eight levels of participation, with the lowest form of participation being through the passive dissemination of information and the highest being citizen control, characterised by active engagement (Arnstein, 1969).

Arnstein’s model examines participation from the perspective of those on the receiving end – the citizens – ultimately basing the value of participation on the positioning of power and control (Arnstein, 1969; Cornwall, 2008). However, in addition to power and control, Rasche et al. (2007) include concepts such as fairness and openness in this categorisation, particularly when describing a process as “manipulation”.

Citizen control	Citizen power
Delegated power	
Partnership	
Placation	Tokenism
Consultation	
Information	
Therapy	Non-participation
Manipulation	

Table 2.1: Arnstein’s Ladder of Citizen Participation (Arnstein, 1969)

The study by Arnstein sets out the various degrees of citizen participation along a gradient of power-sharing between stakeholders (Arnstein, 1969; Cornwall, 2008; Rasche et al., 2007; Swapan, 2016). Arnstein defines citizen participation as a process that involves sharing information, establishing goals and policies, participating in the allocation of government resources, operating programs, and benefiting from contracts and patronage. (Arnstein, 1969)

Arnstein’s model distinguishes between participation that helps to keep the status quo set against that, which provides citizens with “the real power to affect the outcome of the process”, and how these varying degrees of participation affect public perceptions of legitimacy, authority and good governance (Arnstein, 1969; Cornwall, 2008; Rasche et al, 2007).

Some authors argue that this model primarily focuses on the gradient of power-sharing among stakeholders, categorising various forms of participation on a spectrum from favourable to unfavourable (Cornwall, 2008; Rasche et al, 2006; Swapan, 2016). The oversimplification of this model makes it a difficult task to manage the complex realities surrounding participation (Collins & Ison, 2009; Tritter & McCallum, 2006; Varwell, 2022). The normative assumption it relies on reduces participation to a binary choice of good or bad, neglecting other critical aspects of an effective participation process. These aspects include the types of stakeholders involved, the social dynamics in which the participation is taking place, the objectives of the participation process, and numerous other contextual factors (Collins & Ison, 2009; Cornwall, 2008; Hurlbert & Gupta, 2015; Rasche et al, 2006; Reed, 2008; Swapan, 2016; Tritter & McCallum, 2006; Varwell, 2022; Wehn et al, 2014; When et al, 2018).

Arnstein's work has also faced criticism for portraying participation as a linear and hierarchical process (Collins & Ison, 2009; Tritter & McCallum, 2006; Varwell, 2022). This approach does not reflect the diversity of stakeholders, the nature of their involvement, or the unique knowledge they bring to the table. Additionally, the approach fails to recognise the agency of stakeholders, who may require different methods of participation depending on the different issues and timing of their involvement (Collins & Ison, 2009; Tritter & McCallum, 2006; Varwell, 2022).

Moreover, the model tends to view participation as an end in itself rather than a means to an end (Akhmouch & Clavreul, 2017; Hassenforder et al., 2019; Tritter & McCallum, 2006; Wehn et al., 2014). The model also offers a one-dimensional perspective on understanding participation, primarily focusing on the distribution of power. This approach fails to incorporate other dimensions to better capture the varied forms of participation, the diversity of participatory approaches, and other participatory objectives (Tritter & McCallum, 2006; Wehn et al., 2014)

Arnstein's ladder of participation is a well-known model for participatory governance, which has gained significant recognition worldwide and has become a cornerstone for developing policies and decision-making regarding user participation (Akhmouch & Clavreul, 2016; Collins & Ison, 2009; Cornwall, 2008; Fung, 2006; Hassenforder et al, 2019; Pretty, 1995; Rasche et al, 2006; Tritter & McCallum; Swapan, 2016; Wehn et al, 2014). However, many have since rendered the model obsolete suggesting alternative models such as Pretty's (1995)

seven typologies of participation and Fung's (2006) democracy cube (Akhmouch & Clavreul, Fung, 2006; Hassenforder et al, 2019; Pretty, 1995; Wehn et al, 2014).

2.8.2 Pretty's (1995) Model of Participation

Pretty (1995) identified seven typologies of participation, with manipulative, passive, consultative participation, and participation for material incentives being the least desirable and least effective types of participation as they provide stakeholders with little to no influence (Pretty, 1995). These typologies of participation involve pretence, an uneven power dynamic among stakeholders, a lack of decision-making involvement, limited stakeholder consultation restricted to answering questions, and an information-gathering process controlled by external parties, determining how information is managed and analysed.

Furthermore, Pretty (1995) identified participation that often stems from local people's reliance on the benefits provided by externally driven initiatives. This participation is usually influenced by the exchange of local labour for material incentives such as food, money, subsidies, and other forms of materials. Consequently, the dependence of communities on external agencies can distort local perceptions and create challenges in determining their genuine support for these programs (Pretty, 1995; Pretty & Sah, 1997). As more people are persuaded into participating, the long-term sustainability objectives become compromised, as these projects often struggle to thrive once the initial funding or support is withdrawn.

Such non-interactive types of participation are primarily fuelled by manipulation, aimed at fulfilling a ticking-box exercise, with no intention of ensuring long-lasting positive impact in the lives of local people and no intention to take action, and often result in poor outcomes (Pretty 1995). Participation can also be used as a functional means of achieving specific goals, such as cost reduction, where interaction and shared decision-making occur after major decisions have already been made by external agencies.

Pretty (1995) determines interactive participation and self-mobilisation as the most effective categories of participation, where in interactive participation, all stakeholders are involved in decision-making throughout a project, from design to maintenance; the engagement process seeks to find multiple perspectives while also enabling a structured learning environment and yielding the most desirable outcomes (Pretty, 1995). Self-mobilisation is the process of taking initiative independently from external institutions to change systems, where external agencies provide support while local people remain in charge of resource allocations (Pretty, 1995).

Both Arnstein's and Pretty's typologies of participation rely on a normative assumption that categorises participation along a spectrum of good and bad. However, Arnstein's perspective primarily focuses on the views of those receiving services, while Pretty's (1995) typology emphasises the user of participatory approaches. Both of these models provide an assumption that those participatory processes at the top of the ladder metaphor are most desirable as they are associated with success. However, other authors disagree, arguing that in certain contexts, consultative and communicative modes of engagement may be more appropriate, especially where the goal is to involve stakeholders in decisions that have already been made (Fung, 2006).

2.8.3 Fung's (2006) 'Democracy Cube'

Fung (2006) proposes a 'democracy cube' as an alternative participation framework to the *ladder*, which is structured around three dimensions of public decision mechanisms, namely types of participants, how they communicate and make decisions, and the extent of authority (Fung, 2006; Hassenforder et al, 2019; Reed et al, 2018; Wehn et al, 2014). Instead of reducing participation to a binary choice of good and bad, Fung's participation framework concedes that various methods of engagement can be best suited for different contexts, depending on the objectives and capacity of stakeholders.

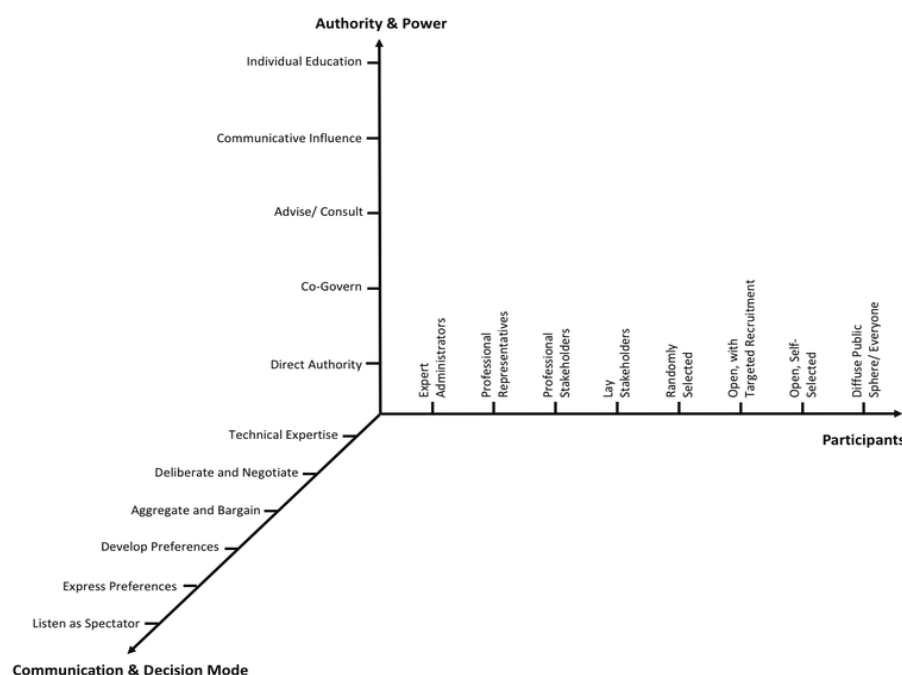


Figure 2.2: Fung's Democracy Cube

Fung's (2006) participation model recognises the situational appropriateness of various forms of participation without adhering to a rigid ranking system and considers the multiple values and purposes in contemporary governance, which aids in understanding the limitations and potential of participation when addressing specific governance issues (Fung, 2006; Hassenforder et al, 2019; Reed et al, 2018; Wehn et al, 2014).

This model addresses the limitations identified in the participation models of Arnstein (1969) and Pretty (1995). Arnstein's and Pretty's models often reduced participation to a linear and hierarchical process, only acknowledging its desirability once the high levels on the ladders (citizen control and self-mobilisation) were reached (Collins & Ison, 2009; Cornwall, 2008; Tritter & McCallum, 2006; Varwell, 2022).

These earlier models failed to recognise the complexity and diversity of participation and did not consider the contextual factors that influence participation plans and outcomes. These factors include power dynamics, the types of stakeholders involved, the political environment surrounding the process, and the goals of the process (Collins & Ison, 2009; Cornwall, 2008; Tritter & McCallum, 2006; Varwell, 2022).

Fung's participation model is based on the premise that within the complex environment of modern governance, no single standardised form of direct participation can legitimately exist. This is because public participation needs to serve multiple values and goals, such as enhancing justice and effectiveness, and ultimately yield more desirable practices and outcomes of collective decision-making and action (Fung, 2006:66). It is a nuanced model of participation, established as an alternative to previous models that have significantly influenced literature and debate around public participation in sustainability and water management.

2.8.4 OECD's Typology of Levels of Stakeholder Engagement

The shift from mere participation to active engagement has allowed for the embrace of a broader range of inclusive and collaborative stakeholder engagement frameworks that recognise not only the level of participant involvement in the design, implementation, and evaluation of projects but also the varied intentions and contributions to the decision-making (Akhmouch & Clavreul, 2016: 3).

The OECD's stakeholder engagement framework provides a set of typologies and analytical components aimed at promoting inclusive and effective stakeholder engagement in water

governance and sustainable water management. According to the OECD (2015), stakeholder engagement implies a shift in the balance of power. The effectiveness of this engagement depends on its ability to transfer political power to stakeholders and empower them in decision-making and implementation processes related to water management (OECD, 2015).

The OECD distinguished six stakeholder engagement levels based on the process and the intended outcomes (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015). These levels of engagement range from communication, which involves information sharing and awareness raising, to co-decision and co-production, characterised by intensive decision-making where stakeholders exercise direct authority over the decisions taken (OECD, 2015).

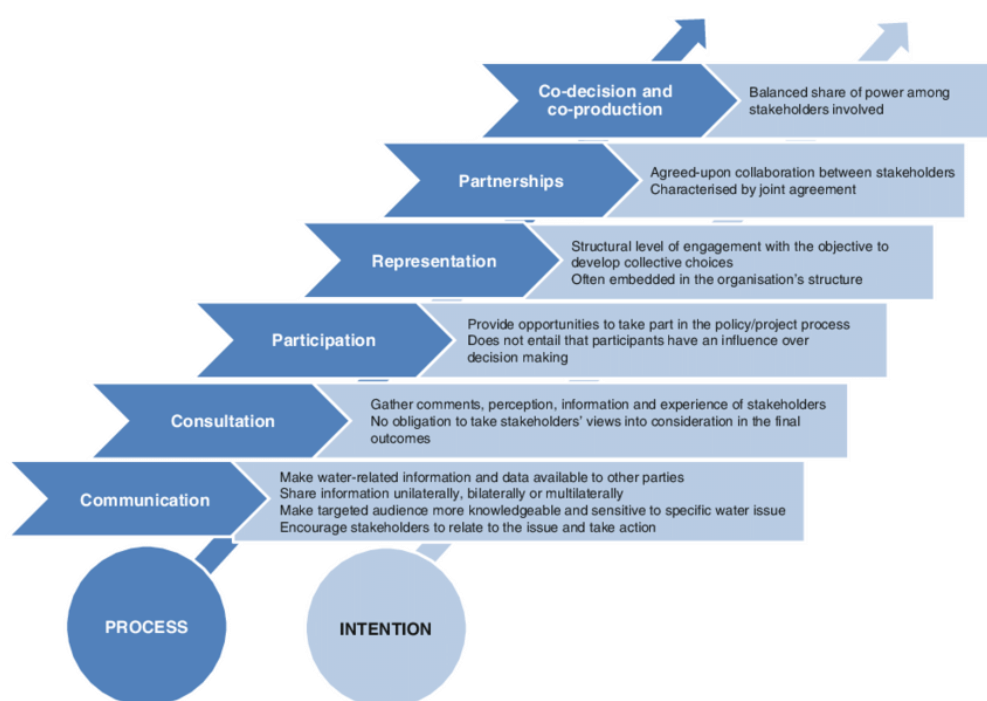


Figure 2.83: OECD (2013) Typology of Levels of Stakeholder Engagement

These levels of engagement provide the foundation for analysing stakeholder engagement from the perspectives of either the intended audiences or the advocates of the engagement process (the targets or promoters), from both formal and informal methods of engagement, and across various sub-sectors of water resource and water services (OECD, 2015).

Decision-makers (promoters) can establish engagement processes for *targets* such as communities, individuals, and institutions. The intentions of these engagement processes may include informing and educating, consulting audiences to harness their knowledge and opinions; or collaborating and co-decide with them in order to take joint decisions or actions

(OECD, 2015: 41). Promoters are responsible for providing the platforms for engagement processes, determine the rationale for engagement process, and identify the stakeholders aim to engage. They also provide the framework within which the engagement process occurs (OECD, 2015: 41).

Both incidental and systematic engagement processes can serve as inclusive decision-making processes in the water sector, depending on their aim and intended outcomes. Stakeholder engagements based on specific projects or issues are often seen as informal processes. Incidental engagement processes involve setting up ad hoc mechanisms to gather stakeholders around a specific issue and are generally time-bound, limited in scope and tied to the modalities of a specific water project or policy process (OECD, 2015)

Structural and systematic forms of stakeholder engagement processes influence the development of more formalised and even institutionalised decision-making processes in the water sector. The effectiveness of these processes depends on strong leadership commitment with clear objectives and strategies that will ensure collaboration and prevent the manipulation of engagement processes (OECD, 2015)

The OECD's typology of stakeholder engagement levels is a guiding tool for participatory processes in water governance and sustainable water management. The framework provides a robust foundation for fostering inclusive and effective stakeholder engagement and promotes institutionalised stakeholder engagement in water governance

2.8.5 The 'Wheel of Participation' (2017)

Reed's (2017) Wheel of Participation offers an alternative to the participation models proposed by Arnstein (1969) and Pretty (1995). Unlike the other models mentioned, this model provides a framework that can be applied to various levels of engagement rather than simply comparing how one type of engagement functions in relation to another.

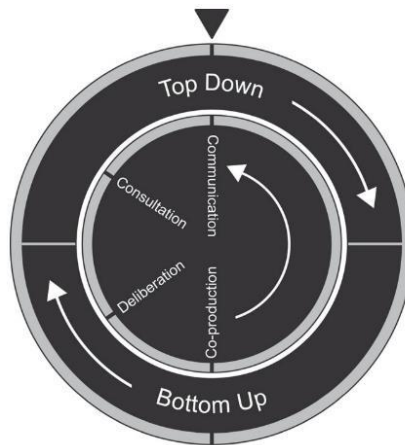


Figure 2.4: The 'Wheel of Participation' (Reed et al, 2017)

The model relies on a metaphor of two concentric wheels that can rotate in different directions. This symbolises a combination of various stakeholder engagement types that can occur simultaneously to produce various combinations of agency (who initiates and leads the process) and modes of participation (ranging from one-way communication to co-production). The inner wheel identifies four modes of engagement namely co-production, deliberation, consultation, and communication (Reed et al, 2017:6). The outer wheel illustrates the source of agency, distinguishing between top-down vs. bottom-up approaches.

Reed et al (2017) identify four types of engagement: top-down one-way communication and/or consultation; top-down deliberation and/or coproduction; bottom-up one-way communication and/or consultation; and bottom-up deliberation and/or co-production (Reed et al, 2017: 7). Unlike the ladder metaphor, the wheel metaphor does not merely describe the different types of engagement and provide a hierarchy of the least to most desirable forms of engagement. Rather, the Wheel of Participation demonstrates that any form of engagement can be desirable when it is appropriately matched to the purpose and context in which engagement is required (Reed et al, 2017: 7). The Wheel of Participation can be considered to be a more comprehensive, rigorous and useful alternative to earlier models as it offers flexibility and inclusivity and allows a number of engagement options to choose from based on a combination of the type and level of engagement.

2.9 Sustainability in Higher Education Institutions

Universities are major consumers of water and energy, making their impact on these limited resources significant enough for them to be regarded as important participants in the efforts to accelerating progress towards a sustainable future (Abdelalim, O'Brian & Shi, 2015;

Alshuwaikhat & Abubaker, 2008). The ever-increasing population of universities, coupled with the various complex activities and operations taking place on campuses, places universities under enormous and continuous pressure on the demand for land and water. These challenges have placed increased attention on the concept of campus sustainability as universities realise the impact of activities and operations on the environment (Abdelalim et al, 2015; Alshuwaikhat & Abubaker, 2008).

Universities have a social responsibility to promote sustainable development at both the global and local levels (Jimu & Rennkamp, 2023; Lăzăroiu, 2017). Additionally, they can contribute to policy decision-making – both locally and globally – by generating knowledge through research and learning. Furthermore, HEIs can offer opportunities to experiment with and test sustainability solutions that can be implemented in society by individuals within the university community (Albareda-Tiana- et al, 2018; Hoover & Harder, 2015; Jimu & Rennkamp, 2023; Khol et al, 2021; Lăzăroiu, 2017; Lozano et al., 2013a; Lozano et al, 2015; Verhulst, 2015).

2.9.1 HEI's Global Commitment to Sustainability

The call for universities' commitment to the global sustainability movement dates back over three decades, marked by various declarations and charters. These included Agenda 21, the Halifax Declaration, the Kyoto Declaration, the COPERNICUS University Charter, the Abuja Declaration on Sustainable Development in Africa, the Taillores Declaration, and many others (Albareda-Tiana- et al, 2018; Calder & Clugston, 2003; Khol et al, 2021; Leal Fihlo et al, 2019; Ruiz-Mallen & Heras, 2020).

These declarations on sustainability in Higher Education (HE) have encouraged sustainability in universities, as more efforts have been made to reorient and integrate sustainability in the operations, teaching, and learning practices. Moreover, scientific research on sustainability in universities has increasingly focused on environmental management, ecological footprint, and making university campuses more ecologically friendly (Albareda-Tiana- et al., 2018; Leal Fihlo et al., 2019; Lozano et al., 2013; Lozano et al., 2015). However, due to a large number of these agreements being non-binding, some researchers have argued that their impact is limited as they do not have the power to enforce compliance, and in instances where agreements are binding, no mechanisms exist to ensure compliance and accountability

Several approaches have been adopted by universities in response to integrating sustainable development, including integrating sustainability issues into curricula, participating in

collaborative research projects that focus on green technology and innovation, and developing implementation and conceptual models for specific universities, campus operations, and infrastructure such as green buildings and energy and water conservation. (Hoover and Harder, 2015; Lozano et al. 2013a; Lozano et al, 2015; Ruiz-Mallen & Heras, 2020; Verhulst, 2015).

However, there have been many challenges with the implementation and integration of sustainability in HEIs.

2.9.2 Barriers to Sustainability in Higher Education Institutions

Although various researchers have identified several barriers to sustainability in universities, this paper focuses on the systematic and structural barriers to sustainability in universities. Jimu and Rennkamp highlight the mismatch between established sustainability visions and their practical implementation. In their study, they argue that while the UCT has formulated comprehensive sustainability policies, these are not effectively put into practice (Jimu & Rennkamp, 2023). Despite having well-drafted and ratified sustainability policies, there is a lack of enforcement mechanisms to ensure accountability. Organisations that respond to sustainability issues, both internal and external, clearly show their intention to engage all stakeholders in the transition to a sustainable campus. However, there is a lack of shared commitment and understanding of the sustainability vision on campus. (Jimu & Rennkamp, 2023).

Jimu & and Rennkamp (2023) highlighted inconsistencies between the university's sustainable vision and the ongoing unsustainable practices continuing on campus. Despite the university's ambitious sustainability targets, limited financial resources and a lack of commitment from the university community have hindered progress towards achieving these goals. This has resulted in a decline in progress toward sustainability goals, such as carbon emission reductions, over the past years.

Governance frameworks significantly influence how effectively the sustainability agenda is presented to campus stakeholders (Colding & Barthel, 2017; Too & Bajracharya, 2015). To ensure that these frameworks act as opportunities rather than barriers, university leaders and staff must be empowered to initiate and implement new paradigms. They also need to ensure that sustainable development is woven into every aspect of the university system, creating the 'Golden Thread.' This should include interlinked elements such as education, research,

campus operations, community outreach, and assessments and reporting (Colding & Barthel, 2017; Cortese, 2003; Lozano, 2006; Lozano et al., 2013).

Although students are the most influential change-makers in universities, they are not largely involved in sustainability initiatives and projects on campus. Students are not engaged in governance matters on campus, hindering the establishment of a student community of practice, considering that they represent the largest proportion of the university community. To achieve collaborative decision-making efforts at universities, as needed for sustainability, students need to be prioritised as an important stakeholder group with a huge influence on any change initiative in the university (Bidandi et al., 2022; Jimu & Rennkamp, 2023).

2.10 Barriers to Stakeholder Engagement and Sustainable Water Management in Higher Education Institutions

While engagement processes may vary across places and stakeholders, there are common barriers identified by the OECD as factors that hinder stakeholder engagement in water management and water governance. These can be categorised into barriers that hinder the integration of stakeholder engagement into water policies and practices, as well as barriers that impede the effective implementation of engagement processes (Adom & Simatele, 2016; Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015).

Unequal power dynamics between political leaders and stakeholders can hinder the integration of stakeholder engagement in water policies and practices. In many cases, political leaders refuse to relinquish power in the water sector, leading to the exclusion of other stakeholders from decision-making. This exclusion is often justified by claiming that decisions should be left to experts who supposedly understand the technical details and political realities. Such practices can disregard the diverse interests and perspectives of other stakeholders in water-related matters (Adom & Simatele, 2016; Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015).

Power imbalances amongst various stakeholders - such as government agencies, private companies, and local communities - can prevent meaningful engagement and participation. In these instances, the interests of more powerful stakeholders may dominate decision-making processes, marginalising the voices and perspectives of less powerful stakeholder groups. Moreover, information asymmetries amongst stakeholders may influence the quality, accuracy, quantity and type of information that each stakeholder group accesses. This disparity may

potentially limit some stakeholders' ability to engage effectively, limiting policymakers from obtaining adequate knowledge needed to guide future engagement programs. (Adom & Simatele, 2022; Akhmouch & Clavreul, 2016; Akhmouch & Correira, 2016; OECD, 2011).

The increasing diversity and challenges that come with coordinating complex issues, such as water management, require the integration of functions and operations among various parties involved in water management, such as public and private organisations, as well as civil society. At an institutional level, the same integrative approach to water management is required to ensure the coordination of processes and functions across various actors and the development of effective policies.

Institutional fragmentation is a barrier to stakeholder engagement in water management because responsibilities are distributed across many different actors. This leads to gaps in water governance, often resulting in policy outcomes that fail to address broader issues within the water sector (Adom & Simatele, 2016; Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015).

In cases of fragmentation, different divisions of water management would operate independently, limiting coordination incentives and leading to inadequate consultation and accountability. This often results in insufficient communication of the needs of related sectors at lower levels of government and creates overlapping responsibilities. Consequently, the potential efficiencies and synergies that could be gained through cooperation among water-related sectors and other authorities remain unrealised (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015).

According to Megdal et al (2017), frameworks that lack clear engagement goals or represent a restricted set of interests can limit participation to the detriment of management and governance processes and outcomes. The absence of a sound legal framework is a barrier to stakeholder engagement because it prevents the establishment of standards for inclusive decision-making and the ability to evaluate compliance with these standards (OECD, 2015). Effective stakeholder engagement requires established guidelines, processes, and frameworks that ensure that stakeholders can legitimately participate in decision-making. This approach reduces uncertainty and ambiguity around the roles and responsibilities of stakeholders, as well as their level of involvement.

Engagement processes that lack clearly defined objectives, lines of decision-making, and the intended use of stakeholder inputs are some of the major bottlenecks that impede the effective implementation of engagement processes (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015). These barriers can lead to mistrust and create uncertainty about stakeholders' involvement in the process, ultimately compromising the quality of their contributions. Such barriers may lead to a lack of transparency and accountability, compromising the credibility and legitimacy of engagement processes (Akhmouch & Clavreul, 2017; Megdal et al., 2017; OECD 2015).

Effective engagement processes must foster mutual understanding and trust among stakeholders by clearly defining goals, reasons for engagement, and the roles and responsibilities of all parties involved. This will ensure that all stakeholders are aware of their involvement in the process; it will encourage stakeholders to contribute meaningfully to water-related matters, and also enhance confidence in the value of the engagement process (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD 2015).

A significant barrier to effective stakeholder engagement is the lack of funding needed to sustain engagement processes - Insufficient or unstable revenues to implement engagement processes. Many decision-makers identify insufficient or unstable funding as one of the most important challenges to stakeholder engagement (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015). Often, the revenues available to stakeholders do not align with the expenditures required to implement engagement practices. The costs associated with securing venues, providing support and educational material, and staffing – whether for short or long-term engagement processes – emphasise the need for reliable funding to sustain engagement efforts over the long term.

The information gap between stakeholders is another obstacle to stakeholder engagement viewed as significant in water management. Information asymmetries occur when one or several categories of stakeholders have more or better information than the others (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015). Governments and researchers do not invest in ensuring that meaningful and consistent information is shared with all stakeholders at all levels. Limiting access to quality information encourages a lack of transparency in engagement processes, engagement methods that fail to promote learning, and hinders stakeholders' ability to analyse information and make informed contributions.

Consultation fatigue is a barrier to stakeholder engagement caused by information asymmetries and a lack of clarity on how to use stakeholder inputs in decision-making and implementation. When stakeholders' expectations and motivations are clarified at the outset, confusion and consultation fatigue can be reduced, leading to greater satisfaction with the outcomes (Akhmouch & Clavreul, 2016; Akhmouch & Clavreul, 2017; OECD, 2015).

Lacroix and Megdal's study develops a stakeholder engagement framework using the lessons learned for an evaluation of three water management engagement processes. In this study, they find four critical barriers to effective engagement in water management: a lack of time, the complexity of water resources management, challenges in engaging diverse stakeholders, and a deficiency in methods that prioritise empowerment, equity, trust, and learning. Lacroix Megdal (2016) argues that any stakeholder engagement framework must address these four barriers to ensure effectiveness.

2.11 Conclusion

The chapter reviewed the existing literature on stakeholder engagement and participation within the context of sustainable water management in universities. Key terms, including stakeholder engagement and participation, sustainable water management, and water governance, were clearly defined.

Following this, this chapter analysed water governance and management specifically within the South African context. The section highlighted South Africa's commitment to implementing stakeholder engagement practices in both water governance and water management initiatives. The chapter proceeded to explore sustainability in higher education, focusing on HEI's commitment to sustainability, as well as the barriers that prevent universities from achieving their sustainability goals.

The chapter highlighted key trends in stakeholder engagement related to sustainable water management, emphasising the shift towards more effective engagement methods in sustainability efforts. Various typologies of engagement were explored, along with the differing levels of influence associated with each type. Additionally, the barriers to effective engagement in sustainable water management were examined, particularly focusing on those that impede the integration of stakeholder engagement into water policies and practices. The discussion also addressed barriers that obstruct the effective implementation of engagement processes.

CHAPTER 3: RESEARCH DESIGN AND METHODS

3.1 Introduction

The following chapter outlines the methodology used to respond to the research question. The purpose of this study is to examine how stakeholder engagement influences sustainable water management in university institutions with water users, staff, and students. This chapter outlines the research approach adopted, which is a qualitative case study approach.

The chapter discusses the sampling procedures and recruitment and includes information on the case selection, the sample size, and the selection method for participants. The chapter further provides a discussion of the data collection methods used in the study, namely qualitative interviews, document analysis, and observations.

The method of analysis used for this study is given, followed by a demonstration of how validity and reliability were ensured in the study, as well as ethical issues that needed to be considered.

3.2 Approach to Research

The purpose of this research is to understand ways in which stakeholder engagement influences sustainable water management in university settings by gathering insight into engagement experts' accounts of their lived experiences, as well as the analysis of engagement frameworks and processes. The researcher employs a qualitative research approach in an attempt to better understand the institution and behaviour through understanding the beliefs, values, symbols, and emotions of those involved (Frankfort-Nachmias & Nachmias, 2008). Consequently, this research approach is framed within an epistemological understanding of stakeholder engagement as a social phenomenon.

As a qualitative study, the philosophical foundation of this study is based on an interpretivist paradigm that guides the epistemological, ontological, and methodological approach to this research. An interpretivist theoretical perspective was adopted to better unpack social life interactions from multiple contextual realities and the meaning of these interactions as perceived by individuals rather than so-called objective reality (Antwi & Hamza, 2015; McKenna, Richardson, & Manroop, 2011). This theoretical approach allows the research to use meaning-oriented data collection methodologies such as interviews and participant observations, as well as content analysis.

The interpretivist research process goes beyond the notion of identifying and collecting knowledge to exploring how social meanings are constructed and sustained through discourse (Antwi & Hamza, 2015; Henning, 2004; Hiller, 2016; Rashid et al., 2019). The interpretivist approach provides a subjective perspective that is able to capture knowledge from particular experiences of those involved in it and empowers researchers to construct as such (Antwi & Hamza, 2015; Hiller, 2016; Rashid et al., 2019).

This perspective enables a comprehensive exploration of different contexts and elements, contributing to a deeper understanding of the phenomenon at hand (Antwi & Hamza, 2015; Henning, 2004; Hiller, 2016; McKenna et al., 2011; Rashid et al., 2019). The interpretive research paradigm usually follows a relativist ontological viewpoint and a subjective epistemological stance (Hiller, 2016; McKenna et al., 2011; Rashid et al., 2019), which reflects the philosophical stance taken in this research.

Hiller (2016:100) describes ontology as *the study of being: what exists, what is in reality, and what is real*. Ontology aims to understand the nature of reality and the nature of the human being in the world by discerning whether reality exists independently of the researcher or exists on its own (Hiller, 2016; Moon & Blackman, 2017; Rashid et al., 2019).

Realist ontology assumes that a reality exists independent of human experience and perceptions and that only one single reality exists, which can be studied, experienced, and understood as truth. In contrast, relativist ontology assumes that there exist multiple socially constructed realities, depending on the time and place in which they live, that are ungoverned by natural laws (Hiller, 2016; Moon & Blackman, 2017; Rashid et al., 2019). The relativist ontological viewpoint asserts that Individuals perceive reality differently depending on the time and place in which they live

Giacomini (2010: 131) defines epistemology as “a theory of knowledge concerning beliefs about “how phenomena can come to be known”. A subjective epistemological approach enables the researcher to interpret data based on their own understanding and perceptual processing of it, where data and research findings are developed through the interactions between the researcher, the context, and the phenomena being explored (Hiller, 2016; Kivunja & Kuyini, 2017; Moon & Blackman, 2017).

This study adopted an interpretivist approach based on a relativist ontology and subjectivist epistemology to allow the researcher to interact with participants in a range of ways, including

communication, dialogue, questioning, listening, reading, writing, and recording research findings.

3.3 Case Study Approach

This chapter outlines the research methodology used to answer the research questions, the research approach, the research paradigm as well as the research strategy.

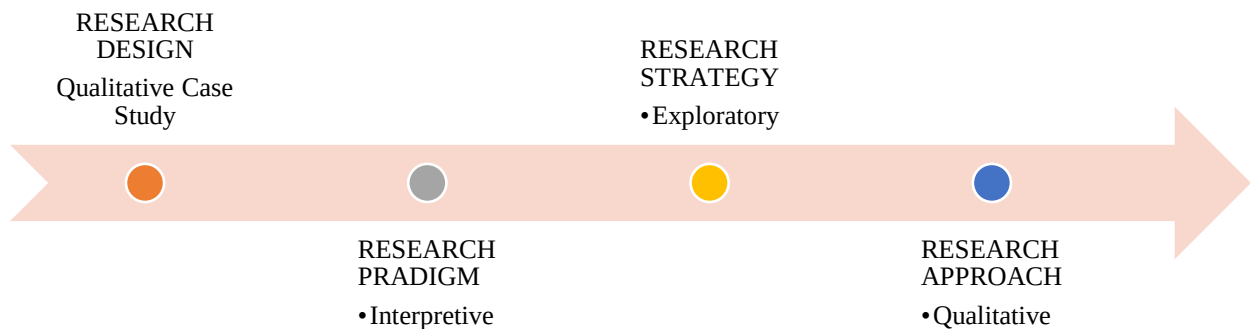


Figure 3.1: Summary of research design (Lehulere, 2017)

This study adopted a qualitative case study approach to gather data, with the case being stakeholder engagement processes with water users for sustainable water management at the University of Cape Town. The study explored both primary and secondary data in the form of interviews, participant observations, and document analysis to develop a comprehensive understanding of the phenomena.

Qualitative case studies are an in-depth exploration of bounded systems or phenomena that operate within the confines of aspects such as context, time, place, or even physical boundaries in order to ensure that the research remains reasonable in scope (Baxter & Jack, 2008; Creswell & Hanson, 2007; Henning, 2004; Miles & Huberman, 1994). In this particular study, the case is defined by specific time parameters (from 2017 to 2023) and location (University of Cape Town).

The purpose of exploring these three main sources of data was to provide the researcher with the opportunity to analyse the data interpretatively for an in-depth understanding of factors that hinder and contribute towards engagement in sustainable water management with stakeholders involved within the UCT's water governance framework, including water users, staff, students, regulatory bodies, and consultants.

3.4 Unit of Analysis

The unit of analysis in research refers to the object or person of study from which the research data is collected. the primary focus is on identifying what or who is being studied (Kumar, 2018; Vogt & Johnson, 2011).

This research aimed to gather insights into the engagement strategies in sustainable water management projects at universities. The study examines engagement strategies, policies, and stakeholder engagement frameworks implemented for sustainable water management across the university.

As such, the unit of analysis for this study is the engagement processes employed for sustainable water management projects at the organisational level, specifically focusing on the University of Cape Town.

3.5 Data Collection

In an interpretivist case study, research data is gathered and measured from a variety of sources to ensure validity and reliability and that the phenomena can be viewed from multiple perspectives using corroboration through the convergence of sources, interpretations, or perceptions (Baxter & Jack, 2008; Creswell & Hanson, 2007; Farquhar et al., 2020; Henning, 2004). This is a strategy to add rigor, breadth, complexity, richness, and depth to the study (Flick, Kardorff, & Steinke, 2004).

Interviews and observations were used to collect empirical data, along with the analysis of documents, including project reports, engagement frameworks, standard operating procedures, and strategies developed by the department.

The qualitative strategies used in the study were semi-structured interviews, observations, and document analysis drawn from the communication and engagement frameworks, processes, and strategies employed in water management initiatives and projects at the UCT.

3.5.1 Interviews

Interviews provide an in-depth exploration of a topic where the researcher is able to delve deep into a topic, gather rich data and gain a comprehensive understanding of why certain things

happen, the motive behind decisions taken and the feelings of participants involved (Busetto, Wick & Gumbinger, 2020; Henning, 2008; Jain, 2021; van Gog & Paas, 2008). Interviews are also able to assist the researcher in gathering the thoughts, perspectives, and emotions of participants within the boundaries of context and time period.

Interviews represent a classic qualitative method that is directly interactive (van Gog & Paas, 2008:1056). Through interviews, researchers are able to closely interact with participants and capture their individual and unique perspectives, emotions, and thoughts.

3.5.2 Observations

Observations refer to a data collection method in which researchers study the ongoing behaviour of their participants, gaining insights into the setting and actual behaviour of participants and focusing on what the participants do instead of what they say (Busetto et al., 2020).

Observations provide researchers with direct, real-time data, enabling them to examine a case holistically and contextually. They allow the researcher to potentially discover additional data and topics that may not have been evident in interviews, thus generating rich, descriptive data that contributes to the creation of vivid case narratives, enhancing the depth of the study.

For the interpretivist researcher, observations are aimed at understanding how participants make meaning of a phenomenon in their natural environment by observing what they do, how they do it, what they use, and against what setting or backdrop they do it (Henning, 2008)

This unobtrusive data collection method allows the researcher to gain insight into actual behaviours and actions by watching events and behaviours unfold naturally, thus verifying participants' claims as unforeseen discoveries could be made (Busetto et al., 2020; Henning, 2008; van Gog & Paas, 2008).

This study undertook unstructured, covert non-participant observations during the individual interview sessions. The researcher observed the behaviours of participants during the interview sessions and participants. The researcher was positioned as a detached observer on the outside looking in, trying not to influence the setting by their presence - not that which is integrated into the community of their participants.

This observation approach was chosen as a means to gather data that would not be likely captured through interview questions but rather through observing those behaviours that participants show and/or do not show during the interview sessions.

3.5.3 Document analysis

Document analysis refers to the process of examining and interpreting various types of documents to gather information, gain insights, and develop empirical knowledge (Bowen, 2009; Busetto et al., 2020; Fourie & Malan, 2021; van Gog & Paas, 2008). One of the benefits of using document analysis as a data collection method is that it allows researchers to examine various types of documents to gather information and gain insights.

Document analysis allows researchers to select and analyse a wide range of documents, such as scientific papers, historical records, government reports, organisational documents, and online content such as social media posts, blog articles, and news articles (Bowen, 2009; Busetto et al., 2020; Fourie & Malan, 2021; van Gog & Paas, 2008). This non-intrusive method of data collection provides researchers with a rich and diverse pool of data to analyse, allowing for a comprehensive understanding of the research topic (Bowen, 2009; Fourie & Malan, 2021; van Gog & Paas, 2008).

3.6 Research Sample

The study used a snowball sampling technique. The participants in this study were sustainability experts involved in stakeholder engagement processes related to sustainability initiatives, including water sustainability. The selection of participants was guided by purposive sampling, using a snowball sampling technique, defined as a technique whereby research subjects are gathered by intentionally choosing the initial participant who will then be able to provide names and details of other actors. This allows for an expansion of the web of contact and inquiry.

In qualitative case studies using in-depth interviews, numbers are not necessary as in quantitative studies, as this method requires fewer participants due to the in-depth interviews used for collecting rich data. In qualitative research, the appropriate sample depends on the quality rather than the number (as cited in Tutar et al., 2024).

The purposive sampling method is a type of non-probability sampling method frequently used in qualitative research to identify, gather and judge rich information for the best use of available

resources, making it most appropriate for qualitative analysis (Palinkas et al., 2015; Patton, 2002).

All four participants were actively and independently involved in sustainability initiatives. However, they also shared a common involvement in the Khusela Ikamva UCT Campus Sustainable Project, a five-year research project aimed at promoting a more sustainable campus through efforts focused on energy, carbon, water, waste, and community-based initiatives.

3.7 Data Analysis Framework

The research employed a thematic analysis approach to analyse data collected from semi-structured interviews, questionnaires, and document reviews. This qualitative study adopted an exploratory research strategy that is interpretive in nature, aiming to understand how stakeholder engagement influences sustainable water resource management in university institutions, involving water users, staff, and students.

3.7.1 Thematic Analysis

Thematic analysis is a valuable method for analysing research data, as researchers are able to identify recurring patterns of meaning across a variety of data sets. This analysis method also provides flexibility in coding data, allowing researchers to avoid being limited to specific coding techniques (Braun & Clarke, 2006; Floersch *et al.*, 2010).

A thematic analysis of the selected studies was conducted, focusing on the concepts of stakeholder engagement in sustainable water management and water governance. Due to the numerous approaches to understanding thematic analysis, this section aims to elucidate the approach chosen for this study.

Braun and Clarke (2006) describe thematic analysis as a method for identifying, analysing, and reporting patterns within data. While this method has been utilised for many years, it has only recently gained recognition as a formal analytical technique (Clarke & Braun, 2013). Thematic analysis is unique due to its flexibility in coding data, allowing researchers to choose their own approach without being bound to a specific coding technique, as is the case with grounded theory (Braun & Clarke, 2006; Floersch *et al.*, 2010).

The study adopted a thematic analysis approach to effectively identify prominent themes within the primary literature, analyse themes under appropriate headings, and draw conclusions based

on the analysis (Braun & Clarke, 2006; Cruzes & Dyba, 2011; Floersch, *et al.*, 2010; Thomas & Harden, 2008). The choice to use thematic analysis was made due to its capacity to explore data set and uncover recurring patterns of meaning.

3.7.1.1 Defining a Theme

According to Cruzes and Dyba (2011:5-6), “*the definition and analytical function of a theme varies among writers on the subject*”. Therefore, clarification of what entails a theme is very important in thematic analysis due to the various approaches to understanding what counts as a theme. Braun and Clarke (2006) define a theme as something significant about the data in relation to the research question, representing a level of patterned response or meaning within the data set. Saldana (2015) goes further and makes the relation between a code and a theme, arguing that a theme results from coding, categorisation, and analytic reflection but is not something that is, in itself, coded.

Braun and Clarke (2006), along with Cruzes and Dyba (2011), highlight that the determination of what counts as a theme relies on the researcher’s ability to consider the concept of prevalence. This refers to how often themes recur within each study and across the selected studies. depending on their research objectives, themes may be chosen based on the frequency of their appearance in certain data points, while others may be chosen based on their presence in only a few data instances. Ultimately, a theme should reflect the key aspects of the data that align with the research goals (Braun & Clarke, 2006; Cruzes & Dyba, 2011; Thomas & Harden, 2008).

Themes can also be identified between semantic or latent themes. Themes that are identified at a semantic level examine only what participants have explicitly stated or written, concentrating on the apparent meanings of data. In contrast, those who take the latent level delve deeper to uncover the underlying ideas, assumptions, concepts, and ideologies that inform the explicit data.

3.7.1.2 Approaches to Thematic Analysis: Inductive, Deductive, and Integrated Approaches

Braun and Clarke (2006) describe two methods for identifying themes: the inductive or ‘bottom-up’ approach, and the deductive, ‘top-down’ approach. The inductive approach is a data-driven form of thematic analysis, where themes are derived directly from the data without

using a pre-existing coding framework to categorise the information (Braun & Clarke, 2006; Cruzes & Dyba, 2011).

Through the inductive approach, researchers are prevented from imposing preconceived outcomes because this approach involves a detailed, line-by-line review process where codes are assigned based on concepts that emerge during analysis. In contrast, the deductive approach, often referred to as a priori approach, is guided by existing theories and relies on codes that are predetermined based on the researcher's theoretical interests. (Braun & Clarke, 2006; Cruzes & Dyba, 2011).

Cruzes and Dyba (2011) identify an integrated approach to theme identification that combines both inductive and deductive methods. They describe this approach as a general tool for interpreting codes that are not specific to content but rather point to broader domains where codes can be developed.

3.7.1.3 Epistemological Basis of Thematic Analysis: Essentialist vs. Constructionist

A thematic analysis requires the researcher to distinguish between the essentialist/realist and constructionist thematic analysis epistemology to guide what is said about the data, as well as how meaning is theorised (Braun & Clarke, 2006: 87).

Braun and Clarke (2006) distinguish between two thematic approaches: essentialist and constructionist. The essentialist approach focuses on the experiences, meanings, and realities of participants by exploring the relationship between meaning, experience, and language. In contrast, the constructionist approach examines how these experiences, meanings, and realities influence the broader social-cultural context and structural conditions by analysing latent themes (Braun & Clarke, 2006: 87).

This study adopts an integrated approach that goes beyond a mere general description of the data. It combines preconceived theoretical interests regarding the relationship between stakeholder engagement and sustainable water management with an open examination of themes that emerge organically from the data. The focus is placed on recurring themes.

The analysis process comprises five stages, as highlighted by Braun and Clarke (2006). These stages serve as guidelines that adapt to fit the research question. The thematic analysis process

is inherently recursive, meaning that the researcher may need to move back and forth among the stages as necessary. Table 3.1. Below is a summary of the stages.

Phase	Description of the Process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, and noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic ‘map’ of the analysis.
5. Defining and naming themes:	On-going analysis to refine the specifics of each theme and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

Table 3.1. Braun & Clarke’s Phases of Thematic Analysis (Braun & Clarke, 2006)

3.8 Ethical Considerations

To keep the anonymity of participants, the participants are referred to as respondents and given a number, for example, respondent 1, respondent 2, etc. All participants were provided with a consent form outlining the researcher’s method for ensuring anonymity, confidentiality, data storage and access, the implication of participation, and the voluntary nature of the process. The study included only those participants who submitted their signed consent forms, and no personal information of participants was included in the research consent form, which can be found in Appendix A.

A detailed outline of the research's ethical issues is discussed below:

- Anonymity: The research was anonymous. Participants were referred to as respondents 1, 2 etc.
- Confidentiality: No personal information was asked from the participants (i.e. name, age, gender, profession, employer, etc.)
- Data access: Access to the data collected was limited to Kebone Lehulere and Mark Massyn.
- Implications and consequences of research: The research holds no risk of negative impact or consequences to the research participants.
- Conflicts of interest: There are no conflicts of interest in this research.
- Informed consent: The participants were emailed consent forms to read and sign prior to the interview session. This gave the participants enough time to consider their participation. Furthermore, sufficient information about the research was provided to ensure potential participants could make an informed decision.

3.9 Summary

This chapter discussed the methodology employed to address the research question. It highlighted the qualitative research approach, including the research design, the data collection site, the instruments used for data collection, and the framework for analysing the data. A thematic analysis approach was used to identify and analyse the themes that emerged in response to the four research objectives. The following chapter will discuss the findings derived from the data collected through interviews, observations, and the analysis of the university's sustainable water management policies and strategic frameworks.

CHAPTER 4: RESEARCH FINDINGS & DISCUSSION

4.1 Introduction

This chapter presents the findings derived from the data collected through interviews, observations and documents, and the analysis undertaken with the data. The chapter is divided into three sections: a presentation of the research findings and a discussion of the identified themes resulting from thematic analysis. The purpose of this study is to explore how stakeholder engagement influences sustainable water management in universities.

The chapter begins with an overview of the case, describing the Directorate of Environmental Sustainability at the University of Cape Town (UCT). It is then followed by the results and discussion, which are presented as per the four objectives: (1) identify the stakeholder engagement strategies used at the university for sustainable water management issues on campus; (2) determine the factors that contribute to effective stakeholder engagement in sustainable water management on campus; (3) identify the factors that undermine effective stakeholder engagement in sustainable water management on campus; (4) explore ways to improve the participation and engagement of **water users** for sustainable water management on campus.

4.2 Overview of the Case

The case chosen for this research study is the Directorate of Environment Sustainability at the University of Cape Town. The respondents interviewed were representatives of the following organisations that implemented sustainable water management initiatives in the university:

- Directorate of Environmental Sustainability
- Future Water Institute
- Khusela Ikamva Sustainable Campus Project
- African Climate and Development Initiative

The Environmental Sustainability Directorate at UCT is located in the Office of the Vice Chancellor. The director leads the university's efforts to achieve its environmental sustainability goals. The key responsibilities of the Directorate include:

- Overseeing the university's environmental sustainability strategy
- Leading the Khusela Ikamva Sustainable Campus Project

- Working with the university community to develop and support the environmental sustainability strategy
- Ensuring that the university's actions align with its values and public commitments

The Future Water Institute is an organisation based at the UCT aimed at increasing knowledge and understanding of water issues to improve water management and water governance, and increase capacity across the water sector. The institute conducts engaged, transdisciplinary, and collaborative research on water-sensitive approaches that sustain society's current and future water needs.

The institute conducts sustainable learning initiatives through workshops, short courses, seminars, and symposia to promote collaboration and knowledge sharing among academics, industry, government, and civil society.

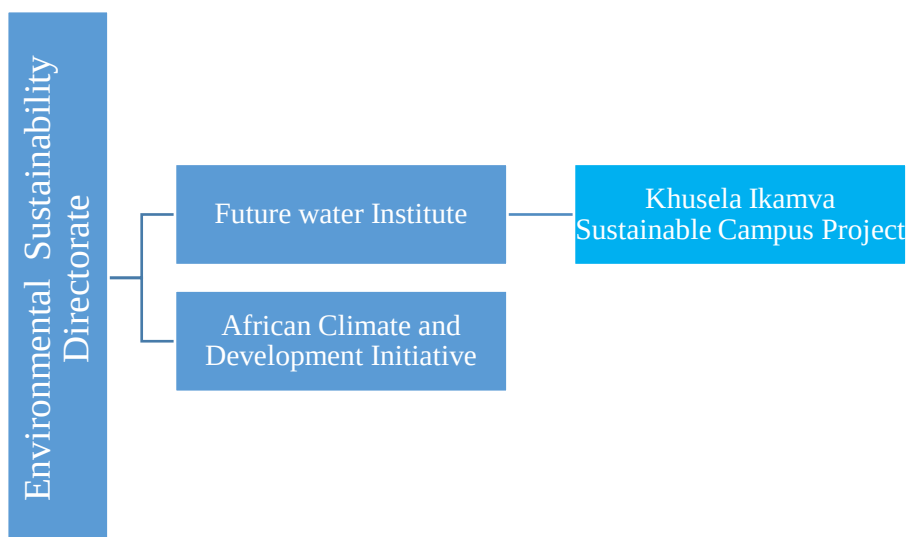


Figure 4.1: Participating organisations in the study

4.3 Presentation of Findings & Characteristics of Respondents

The interviews were conducted with four participants who were representatives of sustainability initiatives in the UCT Campus, specifically focusing on sustainability initiatives: three research officials from the Future Water Institute and the African Climate and Development Initiative (ACDI), and one participant from the Directorate of Environmental Sustainability. Other key role stakeholders from the Maintenance and Facilities Management

were contacted for an interview; however, time pressure was always stated as a reason for not being available.

The interview structure consisted of four main questions, each with an average of three to four sub-questions. All interviews were conducted virtually via Microsoft Teams, and their durations ranged from 34 minutes to just over an hour.

The interview questionnaire served as a structured guide for the discussions, with the questions allowing for some deviation either by the respondent or by the interviewer. While the structure of the questions allowed for this flexibility, the respondents generally stayed close to the instrument and provided additional information beyond the specific questions asked. The research objectives are

- To determine the stakeholder engagement strategies used **on campus** to respond to **sustainable** water management.
- To determine the factors that contribute to effective stakeholder engagement for sustainable water management on campus
- To determine the factors that undermine effective stakeholder engagement for sustainable water management on campus
- To establish ways that can improve the participation and engagement of *water users* for sustainable water management on campus

Following the interactive interviews with four respondents from various organisations and institutes that conduct water sustainability and broader sustainability initiatives in the university, the semi-structured interviews were analysed through a thematic approach using NVivo 15. This method allowed for a deeper and broader understanding of the nuanced perspectives shared during discussions.

4.4 Theme One: Engagement strategies used at the university for Sustainable Water Management issues on campus

A section of the questionnaire focused on understanding the strategies used at the university for engaging stakeholders. In their responses, participants provided engagement strategies conducted specifically for different stakeholder groups and the level of engagement each group received.

4.4.1 Information Sharing and Awareness-Raising Strategies

Participants identified information-sharing and awareness-raising strategies.

RS 3: *“I think there's a level of kind of remote awareness raising. So it's the stickers and the things in the bathroom.”*

4.4.2 Facilitate Interactive Engagement Activities

On the other hand, organisations such as the Future Water Institute, the Khusela Ikamva Sustainable Campus Initiative, and the ACDI focused on interactive engagement methods.

RS 1: *“Generally, the most effective engagements are in person. Online does work for students, sometimes a little bit better because it's just easier for them to quickly access even from their room”* **RS 3:** *“We recognise that we have the layered approaches and we recognise that we couldn't ask students for any more than 45 minutes at a time given their busy schedules.”*

4.4.3 Utilising Collaborative and Educational Engagements

They also utilise collaborative and educational engagements such as the UCT sustainability tour, which involves university students, management staff, and visitors.

RS 3: *“The one thing we do, and again, this is broader than water sustainability, but we have the sustainable campus tour that we do... So we've done it for visiting researchers. We've done it for various courses on campus, postgraduate courses.”*

The types, frequency, and methods of meetings varied among participants.

RS 1: *“Initially, there'll be ad hoc meetings and engagements to first get the different stakeholders together and to get inputs. When the project is formalised, and it's kicked off into the main implementation phase, then we formalise it into a user group that then includes the key stakeholders. Then that is a monthly meeting and getting input from them through the meeting.”*

One participant found in-person meetings to be more effective than virtual meetings, as there was greater interaction in face-to-face meetings:

RS 1: *“it is your online meetings where nobody engages.”*

4.4.4 Utilising Visual Installations

Another engagement strategy mentioned by a respondent is the use of visual installations on campus to interact with students in real time, allowing them to be involved in the design and testing of these installations.

RS 1: *“There’s an activation on the plaza where they can meet the mayor or sit in the electric car. They can see that and suddenly there’s something, maybe there’s a draw card that draws them in.”* **RS 3:** *“There is work that Future Water does with the student body, particularly their long-running survey and some of the installations. Like last week, they had the pee-saving toilet sort of installation up in Sarah Bartman Plaza”*

4.5 Theme Two: Factors that contribute to effective stakeholder engagement for sustainable water management on campus.

4.5.1 Social and Cultural Attitudes Towards Sustainability

The respondents shared that their experience engaging with university stakeholders highlighted the significance of recognising how social and cultural influences affect stakeholders’ attitudes toward sustainability issues, particularly sustainable water management. This includes issues such as water reuse and recycling.

RS 3: *“Water is incredibly personal. It has a lot of different connotations in various cultures.”*

The participants also shared their views on the importance of considering the cultural and social attitudes of stakeholders for the success of sustainability initiatives:

RS 1: *“It’s not just sort of a scientific or sort of technical thing, that there’s this element of being drawn in, there’s a social element, there’s something else that’s drawing them in.”* **RS 2:** *“Also, one of the biggest things is that people often think that behaving in a more sustainable manner means that they’re going to have to not do something that they value.”* **RS 3:** *“There are cultural aspects to how you use a toilet and how you feel about water that’s been recycled. so it’s a very intimate topic”*

4.5.2 Integrating Sustainable Learning into Curriculum

Participants identified the integration of sustainable learning into the university’s curriculum as a key factor that promotes stakeholder engagement for creating a sustainable campus.

RS 3: *“I would embed sustainability in every course we teach. I would embed sustainability as a topic in every single degree program, undergraduate and postgraduate UCT, in one way or another.”* **RS 4:** *“I support the idea of having a bit of sustainability education linked to specific courses in a curriculum because now they're not just doing it because, but it's linked to a mark that they want at the end”*

4.6 Theme Three: Factors that undermine effective stakeholder engagement for sustainable water management on campus

4.6.1 Perceptions of Stakeholder Engagement at the University

The respondents indicated the challenges and reservations that they associated with stakeholder engagement on campus. When asked about their perceptions of stakeholder engagement in the context of sustainable water management, participants shared a range of perspectives. Three participants used terms such as “patchy,” “loosely defined,” and “top-down” to describe their views. One respondent defined what they believe stakeholder engagement should look like:

RS 2: *“Stakeholder engagement should be as wide as possible; it should be as varied and kind of multimedia as possible so that as many people can engage.”*

4.6.2 The Current State of Stakeholder Engagement on Campus

Other participants provided inputs on their views on the current state of stakeholder engagement on campus:

RS 1: *“It is only done through very focused projects or initiatives and specific stakeholders engaged in those projects.”* **RS 3:** *“Various categories of stakeholders who are engaged in a different manner.”* **RS 4:** *“It becomes a thing that only happens at the top where only the top people are aware of what's happening, but the students and the staff are mainly people who are on the receiving end.”*

4.6.3 Participants’ Concerns Regarding Engagement in Water Sustainability Initiatives on Campus

Further investigations revealed that participants’ reservations stemmed from their past and current experiences with water management projects involving stakeholder engagement at the university.

RS 2: *“It depends on... who's driving your initiative and why your initiative is happening.”*

RS 3: *“Patchy in the sense of the university, as the institution in itself, it is inconsistent...Future Water and various departments are a little bit better.”*

All participants indicated that they had been involved in water management projects that included stakeholder engagement components.

4.6.4 SWM Engagements that Don't Reflect the Actual Experiences of Stakeholders on Campus

Participants highlighted that the university's approach to sustainable water management did not accurately reflect the actual experience of stakeholders on campus. This disconnect poses a barrier to engagement in sustainable water management efforts.

RS 3: *“If you didn't live through day zero and you were coming to UCT sort of fresh, I'm not sure that you're really aware that we're trying to shift to a sustainable water campus. So it's the stickers and the things in the bathroom, and it used to make more sense because in 2017 and 2018 we were living through day zero, and people had it in mind.”*

4.6.5 Poorly Contextualised Engagements

Participants agreed that poorly contextualised engagements overlook the realities faced by stakeholders and fail to include crucial information that comes from the unique perspectives of those who understand their environment. One respondent remarked:

RS 2: *“If you're coming in with an intervention in a local community, your stakeholder engagement is defined by the context and the specificity of the place that you're working in.”*

Participants also raised concerns about the inconsistencies in the university's engagement strategy.

RS 3: *“It's the uncontextualised sort of requests in toilets, and it's not currently part of the broader campus kind of awareness. Like you can walk around UCT and not think about water at all. And then it's the framing it only in response to the drought.”*

4.6.6 Current Framing of Sustainability Messaging Overlooks Critical Current and Future Water Management Issues

Participants believe that the university's current sustainability messaging overlooks critical current and future water management issues, affecting stakeholders' perceptions and their willingness to engage.

RS 3: *"So is that landing, because people are looking outside like today, they're like, why must I save water? Because of a lot of the stickers or things. The drought is real, but the drought is gone. So how do we stop making this a kind of a crisis response and more of a systemic behaviour change?"*

4.6.7 Aligning Engagements with Stakeholders' Perspectives and Lived Experiences

Participants revealed that the engagement processes did not align with students' lived experiences on campus, which creates a barrier to sustainability initiatives.

RS: *"It is trying harder to make it relevant to their lifestyle and behaviours on campus So I would say it's often that the means of engagement is just not interesting, We haven't done well enough to really make it relevant to their particular campus experience."*

4.6.8 Lack of Student Engagement & Communication

Participants expressed a common sentiment that students were the least engaged stakeholder group. They noted that students were not significantly involved in sustainability projects or initiatives on campus.

RS 3: *"I'm not sure about residences, but on campus, students are not engaged. It is only remote awareness raising, so it's the stickers and the things in the bathroom."* **RS 4:** *"Only the top people are kind of aware of what's happening, but the students and the staff are mainly just people who are on the receiving end"*

Participants also indicated that students were viewed as a key stakeholder group even though it was a challenge to engage them and maintain their involvement long enough to bring about a noticeable change in their behaviour regarding water sustainability.

RS 2: *"we did recognise that students have the most momentum in their spaces* **RS 3:** *So that's what we're actually trying to do is figure out how do we engage 28,000 students who are all very busy, who are all generally very stressed, about sustainability issues. Because we don't quite know how to do that* **RS 4:** *Students are the main priority"*

4.6.9 Challenges of a Transient Student Community

Participants highlighted the transient nature of students as a significant barrier to their engagement on campus. The quotes below reflect the sentiment regarding how students' transience affects engagement in sustainability issues

RS 1: *"The student community is changing every year. So you've got new groups of students arriving on campus every year. So you have to start from the beginning all over again. So it's that constant transient community that makes it very difficult to engage deeply".* **RS 2:** *"We've approached a whole different range of students from undergraduates who know they're to be around for four to five years or three to four years to the reality that we have this very itinerant and highly overturning student population at UCT"* **RS 3:** *"I think the concern is that students are transient. We have them for three years or maybe only even one year that they're actually on campus"*

4.6.10 Low Students' Interest in Sustainable Water Management Engagements

The low interest of students in sustainability is a barrier to stakeholder engagement, which threatens the success of sustainable water management projects and initiatives.

RS 1: *"So we'll typically get the people who are interested or passionate, but not a very broad range of people who might not even be interested in the project. So it's really hard to get more extensive engagement from students."*

Most students were primarily interested in matters aligned with their academic responsibilities, things that they found to be interesting to them, or matters that they were passionate about. One respondent noted that:

RS 1: *"Because generally, the student community that we have is not very interested in that. It's just they're there to study, they focus on what's important to them, which is like food, drink, and their studies, and their friends, and like, they're not really worried about much else. It's like the exception when you have someone really worried about water. That will be like one in 10,000, sort of sadly. yeah, as I say, it kind of tends to be focused on projects."*

Participants also identified that other campus initiatives and priorities were also competing for students' attention, which may appear more appealing to young people than discussions on water sustainability efforts.

RS 3: *“Undergraduate students, they were just young and too excited about all the other initiatives. You are competing for their attention with so many wonderful things and priorities. They didn't come to campus to immediately be kind of told what to do again. A lot of them have left home for the first time.”*

Respondents indicated that the students' low levels of interest were attributed to the university's remote methods of engagement and its failure to prioritise students as a key stakeholder group. One respondent noted that the university's lack of focus on student engagement might be connected to the overall disinterest students have in sustainability issues.

RS 1: *“But most of that's almost more about the project itself and trying to alert them to the fact that there'll be construction workers coming in and less thought around water savings and all of that. Because generally, the student community that we have is not very interested in that.”*

Another respondent linked the lack of student interest in sustainability matters to the university's non-interactive approach towards water management issues on campus.

RS 3: *“I think there's a level of kind of remote awareness raising. So it's the stickers and the things in the bathroom.”*

4.6.11 Outdated Governance Processes and Bureaucratic Systems

Participants identified outdated bureaucratic processes and fragmented governance systems as significant barriers to the implementation of sustainability projects and stakeholder engagement.

RS 2: *“The university has this sustainability initiative, but the bureaucracy hasn't caught up with that... there isn't a way to facilitate a way around old bureaucracies that may not work with the current initiative.”*

4.6.12 Top-Down Governance

Participants noted that the university's top-down mandate approach to stakeholder engagement limits opportunities for participatory engagement, as the initiation of engagements is centralised to management.

RS 4: *“So I then noticed that stakeholder involvement, in its totality, becomes a thing that only happens at the top, where only the top people are aware of what's happening. But the students and the staff are mainly just people who are on the receiving end.”*

4.6.13 Limited Options Available for Stakeholders to Address Sustainability Issues

One participant expressed concerns about the limited options available to stakeholders to address sustainability issues on campus.

RS 3: *“As soon as you make something top-down and compulsory, human nature, particularly South African nature, says, hey, I don’t know if I like being told what to do. I’m going to think about it. But as soon as you put the agency to the person... that’s where we start getting real behaviour change”.*

4.6.14 Lengthy Approval Processes

Participants noted the challenges associated with lengthy decision-making processes in the university’s bureaucratic system, and how this affected project implementation and timelines due to the delays.

RS 2: *“But I think I think the biggest challenges have been from our side are the kind of timelines around the bureaucracy of decision making. And the timeline, because it had to be through a UCT project management process, and so the timeline then expanded beyond the end of the project, and that didn’t make sense for us funding-wise”*

4.6.15 Inflated Project Cost

According to participants, the lengthy university approval processes also inflate project costs and at times, have resulted in the cancellation of projects.

RS 2: *“As soon as you put in a quote for something, it had to go through a university process that expanded the cost of the quote more than double.”*

4.6.16 The Absence of an Integrated Engagement Strategy

Respondents pointed to the absence of a cohesive strategy to navigate the university’s outdated bureaucratic structures, which presents a significant challenge for implementing innovative engagement channels for sustainable water management projects and hinders the progress of these initiatives.

RS 3: *“But we haven’t managed to get all of the administration on board to understand that these things need to happen quickly without costing a lot of money.”*

4.6.17 Lack of Behavioural Change

Another barrier identified by participants was the challenges in influencing behavioural change related to sustainability among stakeholders that would lead to campus sustainability transitions at the university.

RS 3: *“Behaviour change is seen as such a difficult thing and you can't have someone standing in the toilets or wherever, like policing how many times you flush”*

4.6.18 Water Sustainability Discussions Framed in Terms of Penalties

Participants indicated that discussions around water sustainability were often framed in terms of the penalties associated with failing to meet these goals.

RS 3: *“So very much trying to frame it as a set of opportunities to make the world better on our terms rather than saying, 'Oh my word, we're all going to die of thirst”*

A challenge that was identified with adopting a penalty-focused approach to engaging stakeholders on water sustainability was maintaining the university's credibility when the penalties were introduced but failed to be enforced.

RS 3: *“As soon as people see that those penalties aren't being followed through on, or they're taken away or they can get away with it, then it stops being a means of behaviour change.”*

A penalty-driven approach to engagement was associated with limiting stakeholder agency, fostering fear and hindering behaviour change. A respondent noted the following:

RS3: *“We are a very penalties-driven society. We are rarely incentivised towards good behaviour other than being told, that something's going to happen to me if I do it. If you're just reacting to a fear of being punished, you're not actually growing the part of yourself that wants to do better”*

4.6.19 Resistance to Adopting Sustainability Practices as a Habit

Participants observed that resistance to adopting sustainability practices as a habit contributed to behavioural change challenges.

RS 3: *“So I don't really think that there's a kind of an ongoing culture of like, hey, let's think about all of our practices and how our practices could contribute to efficiency in terms of, I mean, energy, water, waste management, all of it.”*

Respondents highlighted that sustainability was seen as a target, and not a continuous process.

RS 3: *“When you think about sustainability as a target, as a place where you're going to end up after you do these things, that's the wrong way to look at sustainability. Sustainability is a constant process. The same with social transformation, which shares a lot of the same characteristics of this process.”*

4.6.20 Benefits of Behaviour Change not Recognised by Stakeholders

Respondents observed that university stakeholders did not recognise that changing their behaviour towards sustainability would not only benefit the university but also positively impact the broader social environments that they would engage with in the future.

RS 3: *“So you're trying to make people understand that they are important in this process, no matter how minor a part they are playing, but also making people understand that it should be important to them because that behaviour might be something you're doing at home and work, you know, so it plays out.”*

4.7 Theme four: Establishing ways to improve participation and engagement of water users for sustainable water management on campus

4.7.1 Integrating Sustainable Learning with Various University Initiatives

Integrating sustainable learning with various initiatives on campus was identified as an effective approach to improving participation and engagement in water sustainability among all water users on campus.

This involves connecting with various university initiatives and projects that may not be directly related to sustainability but still contribute to it. Additionally, this approach helps stakeholders recognise their role in the global effort to achieve sustainable development goals. The quotes shown below attest to this sentiment.

RS 3: *“So it's really engaging with the idea of sustainability as a process that addresses many things at once.”*

4.7.2 Collaborative Initiatives that have been Undertaken with other University-Based Organisations

Some participants highlighted the number of collaborative initiatives that have been undertaken with other university-based organisations to address sustainability issues. Participants

highlighted that this collaborative approach provided a comprehensive response to both sustainability challenges and other concerns within the university.

RS 2: *“The wins have been when the student groups are having events, so the SDG group had an event, and they invited us to run a workshop. Those moments of collaboration have been the big wins.”*

4.8 Observation Findings on Engagements for Sustainable Water Management Initiatives

This section presents the findings from observations of sustainable water management initiatives conducted at the UCT, which involved various stakeholders in the campus community. The study focused on engagement materials, posters, and photographs of sustainability initiatives implemented on campus. It aimed to capture information from these artifacts to understand how sustainable water management engagements are conducted at the university.

Posters are utilised during water management campaigns to raise awareness and inform the campus community about the importance of conserving water. Key messages regarding sustainable water management are conveyed through these posters, which are prominently displayed in public areas such as toilets and libraries. The posters are designed to be visually appealing to engage the intended audience and capture their attention.

The aim of using posters is to educate stakeholders and visitors about sustainable water management practices on campus, as well as promote the university’s sustainability goals. The picture below illustrates a water-saving poster displayed in one of the university’s restrooms during the Day Zero campaign period.



Figure 4.2: Water-saving poster during the Day Zero campaign (UCT, 2018)

The research findings reveal that the Day Zero campaign was successful during the drought period. Participants expressed a common sentiment around the success of the awareness-raising and information-sharing initiatives implemented on campus during this time.

Photographs from the campaign were used to communicate through online newsletters, campus announcements, and media releases at the university. These images served as evidence to demonstrate that sustainable water management efforts were actively taking place at the university, highlighting its commitment to sustainability. Furthermore, the photographs were shared on the university's website, and social media, as well as included in sustainability reports to supranational bodies with which the university has signed sustainability agreements.



Figure 4.3: Liesbeek River clean up by UCT staff and students (UCT, 2022)

The picture above depicts a clean-up initiative of the Liesbeek river, undertaken by the UCT student and staff community in collaboration with the residents of the Rosebank community. This initiative was organised by the Futur Water Institute in partnership with Friends of the Liesbeek, The City of Cape Town, the Cape Town Dutch Consulate, and local residents. This initiative focused on the rehabilitation, conservation and enhancement of the Liesbeek River and its surrounds (Davids, 2022).

The initiative attracted the interest of UCT students and staff members with experience in urban water management and restoration work, who contributed to the project. This observation supports research findings that indicate sustainability initiatives in water management primarily engage stakeholders who are already pursuing qualifications or have experience in the sustainability sector.

Furthermore, this observation aligns with the argument that integrating sustainability into a university's operations and curriculum can foster greater commitment and interest in sustainability efforts from various stakeholders on campus. This, in turn, can improve the university's chances of achieving its sustainability goals.

4.9 Document Analysis Findings

This section presents the UCT's frameworks, policies, plans, reports, and commitments established by the UCT regarding stakeholder engagement in sustainable water management. This also included historical events in sustainable water management. These documents include:

- International Talloires Declaration (1994)
- UCT Water Management Strategy (2021)
- UCT Green Campus Action Plan (2009)
- UCT Environmental Sustainability Strategy (2021)
- UCT Green Campus Policy Framework (2008)

4.9.1 UCT Global commitment to water sustainability

The UCT is one of 22 universities that signed the Talloires Declaration in 1990 (International Talloires Declaration, 1994). While this declaration is a non-binding document, the UCT, including other university leaders, demonstrated their commitment to integrating environmental sustainability into their institutions by signing it in response to the growing need for Higher Education Institutions to focus on environmental issues. The declaration promotes stakeholder involvement in interdisciplinary research, education, and information exchange to support environmentally sustainable development and assist in finding solutions to environmental problems (International Talloires Declaration, 1994).

In line with the Talloires Declaration, the university agrees to the following commitments:

- creating programmes and developing the capacity to teach environmental literacy to undergraduate, graduate, and professional students;
- setting an example of environmental responsibility by establishing institutional environmental policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations;
- developing curricula, research initiatives, operational systems, and outreach activities to support an environmentally sustainable future;
- establishing a secretariat and a steering committee to continue this momentum, and to inform and support efforts in implementing this declaration (International Talloires Declaration, 1994; UCT, 2009).

4.9.2 Policy Framework on Water Sustainability

The *Green Campus Policy Framework* was established in 2008 to unify existing initiatives and create an operational plan aimed at reducing the university's carbon footprint, including efforts in water conservation (UCT, 2008). One of the Green Campus Policy Framework (2008) goals includes the integration of sustainability into governance and campus operations. The policy framework highlights the participation of students in greening the campus and raising awareness regarding sustainability.

This marked a significant advancement towards inclusivity in the university's sustainability agenda, along with the establishment and design of the UCT Green Campus Initiative led by students and aimed at taking immediate action on environmental issues on campus. This progress occurred during a period when the university had recently seen the formation of sustainability working groups, such as the Environmental Management Working Group (EMWG), established in 2001 within the Environmental and Geographical Science Department (UCT, 2008).

Some recommendations outlined in this policy framework include developing an awareness and communication strategy that incorporates both web and online information. The policy framework also emphasises the importance of encouraging administrative and support departments to adopt practices that align with the policy framework's objectives. Appropriate recognition should be given for the implementation of effective practices.

4.9.3 Plans Relating to Water Sustainability

The Green Campus Plan (2009) aims to establish short and longer-term interventions to respond to the university's water consumption patterns and practices. As part of enhancing campus sustainability, the action plan emphasised coordinating sustainability initiatives and actions across various stakeholders through a dedicated unit called the Green Campus Unit, which focuses on advocacy and behavioural change. The development of this action plan involved a range of stakeholders, including staff and students through various workshops. One of the key weaknesses of the plan is its poor implementation, which is largely attributed to a lack of commitment and changes in behaviour among various stakeholders (Jimu & Rennkamp, 2023).

The Environmental Sustainability Strategy (2021) was established to formally integrate sustainability into the university's operations through an inclusive approach that involved

university management, staff, and students. Through this strategy, the formalisation of working groups such as the EMWG into a governance committee was realised, and demonstrated a commitment to inclusivity in achieving the university's sustainability agenda (UCT, 2021).

The rising costs of municipal water, exacerbated by a drought crisis, led to the formation of a new directorate – the Environmental Sustainability Directorate (ESD) – to champion the environmental sustainability strategy and respond to sustainable water management challenges at the university (UCT, 2021).

This strategy included the implementation of various sustainability projects, including Living Labs (2019), green buildings (2020), and the Khusela Ikamva sustainable campus project (2021–2025). These initiatives were aimed at promoting environmental sustainability across all campus operations (UCT, 2021).

The UCT Sustainable Water Management Strategy (2021a) aims to transform the UCT into a Net-Zero, Water-Sensitive Campus by 2050. This strategy addresses water scarcity, which has been exacerbated by recent droughts. The key objectives of this strategy include reducing municipal water demand from 650 ML/year to 360 ML/year, maintaining operations during periods of water shortage, and promoting a water-conscious community through educational initiatives and research. (UCT, 2021a).

The strategy focuses on stakeholder engagement and involving students in sustainable water management through several key initiatives. Student engagement is promoted by motivating students to become champions for sustainable water management through awareness raising about responsible water usage (UCT, 2021a). The strategy commits to stakeholder participation through sustainable water management education and research projects such as water-related Living Labs for students to learn to conduct research on water projects. This approach enables both students and staff to utilise the campus as a testing ground for generating water-smart solutions (UCT, 2021a).

4.10 Discussion of Findings

This section considers the four objectives of this study and premises the discussion on these objectives to explore the factors that determine stakeholder engagement for sustainable water management in higher institutions.

4.11 Theme One: Engagement Strategies Used in University Institutions to Respond to Water Resource Management

The interview responses recorded indicate that the university uses various engagement strategies depending on the initiator. The university primarily focuses on awareness raising and knowledge sharing to engage stakeholders on sustainability issues, such as water-saving posters in bathrooms and emails.

The Future Water Institute focuses on interactive sustainability teaching methods, such as structured and unstructured workshops; both in-person and virtual meetings; multi-layered stakeholder engagement approaches across various channels, such as design processes and surveys; and sustainability campus tours for students, staff, and campus visitors. Moreover, the Institute, along with other sustainability-focused organisations on campus, invests in deep and meaningful engagements, which include stakeholder mapping, structured and informal workshops, interactive installations, collaborative designing, as well as design processes and surveys.

While many researchers consider interactive participatory approaches as the most effective methods of engagement, often simplifying participation into a binary choice of good and bad, others in the field of stakeholder engagement and participation recognise that non-interactive methods of engagement may be more appropriate depending on the context, objectives, and capacity of stakeholders. This argument is supported by Reed et al (2018), who claim that in certain purposes and contexts, communicative and consultative modes of engagement, such as awareness raising and information sharing, may be most appropriate.

The findings from the participants' responses indicate that the frequency of meetings ranged from ad hoc to weekly and monthly, depending on the maturity stage of the engagement process. One respondent described a phased approach they developed to engage stakeholders, where the initial phase involved ad hoc meetings that aimed to identify the main user groups, and in later stages was followed by weekly and monthly meetings.

4.12 Theme Two: Factors That Contribute to an Effective Stakeholder Engagement Framework for Engaging Water Users in University Institutions

The findings highlighted that many sustainability engagement initiatives implemented at the university faced social, cultural, and technical challenges that required adaptation to progress. Being able to navigate cultural differences and attitudes towards water whilst considering the

current social trends and interests at the university enables engagement facilitators to better adapt to changes and also access a wider reach in terms of the university community.

The development of locally relevant and culturally appropriate engagement approaches for sustainability can also help the university develop a range of key principles of engagement that consider the differences in contextualising sustainability and align these with the overall sustainability purpose and practices. These findings are supported by Megdal et al. (2017), who argue that Institutional and cultural contexts play a crucial role in shaping how policy is developed and implemented in water management and governance, and how the exclusion of cultural influences could be detrimental to the improvement of water management processes and outcomes.

The findings revealed that engagements were more effective when different cultural attitudes toward water management were considered. Understanding the social stigma and taboos related to water sanitation, reuse, and recycling enables facilitators to navigate these culturally and socially sensitive discussions more effectively. This awareness demonstrates that facilitators have considered the stakeholders' values and their cultural perspectives on water management issues.

The Day Zero water-saving is an example of a successful water management initiative that fostered collaboration and active engagement between the university and its stakeholders. The continuous and consistent awareness raising and information sharing through multiple methods proved to be a critical factor in the campaign's success. Those daily and weekly engagements, using a range of extensive communication approaches, were able to capture the attention of all stakeholder groups and ensure that everyone who was part of the university community understood the importance of saving water at the time, and recognised their role in achieving this goal. The multiple methods of engagement were also able to ensure a wider reach of stakeholders, and also consider the diversity of interests and preferences. This finding is in line with various participation frameworks discussed in chapter two of this study, which encourage the use of a range of methods of engagement to allow multiple engagement options for stakeholders to choose from and accommodate different contexts based on the engagement objectives and capacity of stakeholders (Fung, 2006; Reed et al., 2017).

Research suggests that sustainable education aids in enhancing students' understanding of the importance of achieving sustainability goals while allowing them to reflect on their ethical

positioning on sustainable development (Leal Filho et al., 2019). The findings of this research revealed that integrating sustainable education into the learning and teaching practices in the university's curriculum was a key factor in ensuring success in engagements around sustainability issues. Participants confirmed sustainability education initiatives, such as the Sustainability Campus Tour, were able to provide students and other stakeholders the opportunity to learn and acquire skills to interact in robust dialogue and communication. These initiatives also encouraged deep reflection to better understand the complexities, challenges, and enablers of sustainability.

Integrating sustainability education can be a means of fostering behavioural changes and embedding sustainability practices within the university. This approach would significantly enhance engagement in sustainability initiatives and strengthen students' commitment to sustainability. This would provide a deeper understanding of their role in promoting sustainability, as they would be better equipped to contribute to the overall sustainability chain. Integrating sustainability education would also empower students with the knowledge necessary to make informed decisions regarding sustainable practices and improve their attitudes, enabling them to respond more effectively to sustainability challenges.

4.13 Theme Three: Factors that Undermine Effective Stakeholder Engagement for Engaging Water Users in University Institutions

The study identified several factors that undermined stakeholder engagement in sustainable water management initiatives at the university. These factors also influenced attitudes and perceptions towards sustainability at the university.

The findings revealed that the absence of a unified definition of stakeholder engagement within the context of sustainable water management, coupled with ineffective engagement strategies that overlooked students' lifestyles and experiences, created significant barriers to advancing water sustainability efforts on campus. The study also identified a distinction between engagements initiated by the university and those initiated by sustainability institutes and organisations on campus. To enhance student participation, the university needs to develop effective engagement strategies that reflect students' lifestyles and experiences, ensuring alignment with the initiatives led by organisations and institutes involved in sustainable water management efforts on campus.

4.13.1 The Lack of Engagement of Students

Despite being the most influential change-makers at the university, and the most prioritised, students were found to be the least engaged stakeholder group at the university. The findings indicated that students were not involved in decision-making processes related to water sustainability at the university. The university offered minimal interactive engagement with students regarding water sustainability, primarily focusing on information sharing and awareness raising instead. Their limited participation means a significant portion of the campus community is excluded from governance efforts aimed at sustainability. This is a huge barrier to transitioning towards a sustainable university and establishing an ongoing culture of sustainable practices.

This finding is consistent with studies by Jimu & Rennkamp (2023) and Bidandi et al (2022) who assert that to achieve collaborative decision-making efforts at universities, as needed for sustainability, students need to be prioritised as an important stakeholder group with a huge influence on any change initiative in the university.

Students in engagements are the key link connecting various important contexts in their lives, including their home, university, and broader community experiences (Bowden et al., 2021). The university, much like all universities, is student-centred, making the success of any initiative implemented at the university dependent on the students' level of interest, commitment, and ownership of that initiative. As confirmed by Chaplin & Wyton (2014), the broader student community has a limited understanding of sustainable living, which can be improved through better education focused on sustainable development and engagement approaches that meet the requirements and interests of students.

This factor ranked the highest among the challenges to engaging the student community, followed by low interest in sustainability and the limited knowledge students have of sustainability issues, such as water sustainability. The varying lengths of students' stay at the university make it difficult to engage them deeply and establish long-term projects. Each year, a significant number of students leave through graduation or drop out, while many new students enrol in the institution.

4.13.2 SWM Engagements that Do Not Reflect the Experience of Stakeholders on Campus

The research findings revealed that the university's Day Zero water-saving campaign was a success during the Cape Town drought in 2018. Participants referred to this campaign as a strong example of effective water management initiatives that fostered collaboration among stakeholders and commitment to water conservation. However, participants felt that once the drought crisis ended, the university failed to transition from a crisis-driven engagement strategy to one that aligned better with the current climate conditions. The university's engagement strategy was not aligned with the current experiences on campus. This disconnect in water management engagement may stem from the belief that the successful approach used during Day Zero eliminated the need for change. This alignment challenge can create a gap between the university's water management priorities, the goals of organisations implementing water management projects on campus, and the priorities of various stakeholders.

Challenges with misaligned water management priorities within the same university may result in the implementation of projects with conflicting goals. Furthermore, stakeholders who feel their experiences and perspectives are overlooked may be resistant to the university's sustainability initiatives. This may also lead to diminished trust in the university's ability to address sustainability issues, ultimately affecting future engagements with stakeholders. The inconsistency between the messages conveyed by the university regarding water conservation in bathrooms and other areas of the campus, and the actual current climate conditions, may further reduce interest in engaging in water sustainability initiatives, due to the misleading information provided to stakeholders on campus.

These undermining factors are attributed to students' low interest in sustainability issues, challenges with getting stakeholders excited about sustainability, difficulty in translating engagement into meaningful actions, delays and cancellations of sustainability projects, project-funding challenges, and stakeholder resistance.

Participants observed that the university's decision to continue displaying drought messages, despite the absence of drought, reflected inconsistently in their engagement strategy. Moreover, this lack of uniformity created confusion among the campus community. Some areas feature drought awareness displays, while others have no information about water conservation at all.

4.13.3 Student Transience and Time Constraints

The findings show that student transience creates time constraints for the university and other institutions on campus, making it challenging to establish strong relationships with the student community to address sustainability issues. The limited time available for engaging with students is insufficient for establishing strong commitments and fostering long-term habits.

Chaplin and Wyton (2014) frame the challenge of time constraints caused by student transience as a form of displacement theory. They suggest that students and other stakeholders believe that students do not have the time to engage in sustainable issues, leading to the perception that these problems should be addressed by someone else.

4.13.4 Low Students' Interest

The overall feedback from participants revealed that the general student population showed little to no interest in engaging in sustainable water management matters, except those students who are pursuing qualifications in the sustainability field. When a large portion of the university community has low interest in and limited knowledge about sustainability and sustainable practices, the outcome of the sustainability transition will be at risk of not succeeding.

Soliciting the attention of a stakeholder group that consists of young people who are mostly excited about their newfound freedom and facing new responsibilities is increasingly difficult, as they are not easily influenced into engaging in sustainability initiatives. Therefore, students need to be attracted to engage in sustainability matters and be included in the governance of sustainability on campus to ensure collective decision-making and the success of sustainability initiatives.

4.13.5 Top-Down Governance Processes and Bureaucratic Systems

The misalignment between governance and decision-making processes, along with the need for rapid responses in executing sustainability projects at the university, present significant challenges to the successful implementation of sustainability projects at the university. Project timelines are constrained by delays caused by the university's hierarchical system and outdated bureaucratic processes for decision-making, potentially causing funding availability risks for these projects. This is supported by Jimu and Rennkamp (2023), who indicate that top-down

governance processes hinder decision-making, slowing down the implementation of structural changes and technological innovation programs on campus.

4.13.6 Limited Options Available for Stakeholders to Address Sustainability Issues

The findings revealed that stakeholders were provided with limited options for responding to water sustainability issues. This poses significant risks that can hinder the university's water sustainability agenda. Such an approach undermines the principle of granting agency to stakeholders, restricting their ability to initiate their own initiatives. It also compromises stakeholder commitment and buy-in for sustainable water efforts on campus. As a result, stakeholders may not feel a sense of ownership over these initiatives, which can diminish their responsibility for ensuring the sustainability of such initiatives.

4.13.7 Lengthy Approval Processes

The lengthy university approval processes not only inflate project costs but have also resulted in the cancellation of initiatives, as many projects become unfeasible due to limited funding. This finding supports Jimu & Rennkamp's (2023) study that describes the UCT's governance system as a fragmented hybrid of hierarchical and participatory committee governance structures. This system is a factor that both hinders and promotes sustainability. It is constrained by bureaucracy and a lack of commitment from some leadership and committee members, yet the governance committee system remains inclusive and participatory.

Keysar's (2013) argument supports these findings and asserts that bureaucratic methods of coordination like hierarchy, task standardisation, and formalised procedures may not suffice to achieve policy goals related to sustainability. These structures involve intricate administrative procedures that can delay time-sensitive sustainability projects, hindering the implementation of sustainability initiatives. These decision-making processes can also expand costs beyond project budgets, making many projects unfeasible due to their limited funding.

Bureaucratic structures also centralise power and decision-making to top management leaving little room for people at the middle and the bottom to show agency and participatory engagement. Strategies to address bureaucratic structures are required to develop more streamlined and less complicated approval processes. Furthermore, a review of policies and frameworks will provide the university with the opportunity to align policies and frameworks with sustainability goals.

4.13.8 Lack of Behavioural Change

The common sentiment expressed by participants was that although the university has shown commitment to campus sustainability, there remains little commitment from all stakeholders to change their behaviour toward achieving these sustainability efforts. The findings of this study highlighted a lack of behavioural change in the university as a barrier to sustainable water management engagements. University stakeholders did not see themselves as crucial components of the sustainability ecosystem. The absence of behavioural change is a critical barrier to implementing sustainable water management initiatives and achieving sustainability on campus.

The successful execution of sustainability projects is threatened by a lack of stakeholder commitment, which is largely rooted in the lack of behavioural change among stakeholders. Behavioural change is a key determinant of the success of a university in advancing its commitment to sustainability beyond merely signing sustainability charters and agreements. Ultimately, the successful transition of the university hinges on fostering this behavioural change.

4.13.9 Water Sustainability Discussions Framed in Terms of Penalties

The framing of water sustainability discussions in terms of penalties creates a perspective that negatively affects engaging stakeholders in water sustainability initiatives. The research findings showed that stakeholders respond more positively when approached with an incentive-based strategy rather than one that is focused on penalties. This incentive-based approach encourages stakeholders to propose innovative solutions for water sustainability challenges and improve stakeholders' behaviour towards sustainability, as they are motivated by the benefits associated with maintaining a sustainable campus.

4.13.10 Resistance to Adopting Sustainable Practices as Habits

While there was a general understanding of how adopting sustainability practices could enhance sustainability on campus, participants were unable to identify a growing culture of stakeholders integrating sustainability habits in their day-to-day activities. Participants felt that issues like water sustainability were being treated as if the university were trying to meet a fixed goal, rather than being seen as an ongoing process of social transformation. The approach did not ensure ongoing commitment to sustainability or the effective integration of sustainable practices within campus operations, teaching, and learning.

4.13.11 Staff Not Prioritised as Major Influential Stakeholders in Sustainable Water Management Efforts

Although university staff were recognised as a stakeholder group on campus, participants paid little attention to their role in sustainable water management. This was primarily due to their low proportion compared to students. The little recognition given to the general maintenance and admin staff as a priority stakeholder group may hinder sustainable water management efforts. This oversight could lead to feelings of being undervalued and excluded, causing them to disengage in all sustainability efforts. Furthermore, this could also potentially create conflicts, as staff may feel ignored, ultimately hindering the effectiveness of sustainable water management initiatives.

4.14 Theme Four: Establishing Ways to Improve Participation and Engagement of Water Users for Sustainable Water Management on Campus

The findings of this research revealed that sustainable water management initiatives that incorporate adaptive planning in their stakeholder engagement approaches were most likely to succeed due to the flexibility offered by this approach when deviation was required. This is in line with authors who argue that successful stakeholder engagements are those that can respond to unique challenges, opportunities, cultural factors, and priorities associated with various social, political, and geographical contexts (Hurlbert & Gupta, 2015; Wehn et al, 2018).

The research findings also revealed that understanding the needs of participants and being able to draw inputs from diverse stakeholders was a key factor in the success of stakeholder engagements in the university. Those sustainability engagements led by experienced facilitators with the skill to ascertain the needs of students and other stakeholders yielded successful outcomes, such as toilet installations at the Jammie Plaza and collaborative workshops between sustainability institutes and university societies.

The research findings indicate that engagement initiatives that incorporate the lifestyle and social experiences of stakeholders are most effective as they align with the interests of stakeholders. Participants highlighted that successful engagement sessions often incorporated a social component that included stakeholders' social interests. Moreover, integrating sustainability discussions into social events and inviting popular public figures proved to enhance interest in the engagements.

The findings also revealed that sustainability engagements stand a better chance of success when conveyed through the lens of opportunities and benefits rather than penalties, providing the university with a more constructive benefits-oriented approach to sustainability that encourages innovation, growth, and behavioural change. This approach also encourages agency from stakeholders to design and initiate their own sustainability projects, which may improve stakeholder commitment and behavioural change.

4.15 Summary

The Chapter presented research findings and a discussion of the identified themes relating to stakeholder engagement for sustainable water management in universities. An outline of the participants' interview responses was provided, which included a summary of the participants' responses to the interview questions. This was followed by a presentation of the emerging themes identified from the interview responses. The research was able to identify relations between themes, as some factors appear in more than one theme, as well as levels at which these factors interact.

CHAPTER 5: RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This chapter revisits the project research objectives, the research question, and the research proposition. The focus of this research was to explore the prevailing practices on stakeholder engagement in the water sector. Specifically, the research aimed to examine how stakeholder engagement influences sustainable water management initiatives conducted in university institutions, involving water users, staff, and students. Additionally, the study identified several factors that facilitate or hinder stakeholder engagement for sustainable water management at the university. The chapter concludes with the insights gained and the limitations of these conclusions, and offers suggestions for improving future research in this area.

5.2 Research Objectives Revisited

The research objectives are as follows:

5.2.1 Objective 1: To Determine the Stakeholder Engagement Strategies Used in University Institutions to Respond to Sustainable Water Management

The purpose of objective one was to determine the stakeholder engagement strategies used to respond to sustainable water management initiatives at the university. The study found that several engagement strategies were implemented for sustainable water management initiatives, incorporating both consultative and interactive approaches to address various project objectives.

Initiatives like the Day Zero campaign were deemed successful in raising awareness about the importance of saving water and providing information regarding the Cape Town drought. On the other hand, other engagements conducted under the Khusela Ikamva project focused more on exploring the interests of stakeholders on campus related to sustainability, therefore using more interactive approaches to engagements.

5.2.2 Objective 2: To Determine the Factors that Contribute to Effective Stakeholder Engagement for Engaging Water Users in University Institutions

Based on the findings of the study, the second objective of the research was achieved. The study identified that effective stakeholder engagement depends on approaches that can adapt to the specific environment in which they are implemented, as well as to the changes

encountered throughout the engagement journey. The study emphasises the importance of considering the context in which engagements occur, and the necessity of navigating cultural and social attitudes towards water sustainability.

Integrating sustainable education into the learning and teaching practices in the university's curriculum was a crucial factor in successfully addressing sustainability issues. This approach allows students and other stakeholders to learn and develop skills that facilitate meaningful dialogue and communication. It also encourages deep reflection, helping them better understand the complexities, challenges, and opportunities related to sustainability.

5.2.3 Objective 3: To Determine the Factors that Undermine Effective Stakeholder Engagement for Engaging *Water Users* in University Institutions

A number of factors that undermine effective stakeholder engagement for sustainable water management were identified in the study. These factors can be categorised into structural factors, institutional factors, as well as social and behavioural factors.

Institutional factors included top-down governance, a lack of prioritisation of staff as key stakeholders, and outdated bureaucracies. These issues negatively affect inclusive decision-making outcomes and ultimately call into question the integrity of institutional structures that exclude certain stakeholder groups from engagement processes. Such governance-related barriers impede collaborative decision-making efforts at universities, which are essential for promoting sustainability.

The social and behavioural factors included a lack of behavioural change, engagement efforts that do not reflect the lifestyles and experiences of stakeholders, and resistance to adopting sustainability practices as habits. These behaviours and attitudes are barriers to sustainability engagements as they reduce interest in participation from stakeholders who do not consider themselves critical components of the sustainability ecosystem.

Systematic and structural factors that undermine effective stakeholder engagement for sustainable water management included low student interest, student transience and time constraints, as well as limited options available for stakeholders to address sustainable water management issues.

5.2.4 Objective 4: To Establish Ways that Can Improve the Participation and Engagement of Water Users for Effective Water Resource Management in University Institutions

Based on the evidence provided, it is clear that the research objective for this report has been met. Water sustainability projects that incorporate adaptive planning in their engagement approaches were more effective as they were able to respond to changes when deviation was required. Engagements can also be improved by ensuring that facilitators invest time in getting to know the needs of their stakeholders in order to determine the best approaches to use to draw inputs from diverse stakeholders. Successful engagements often incorporated a social component that addressed stakeholders' social interests. Integrating sustainability discussions into social events and inviting popular public figures proved to enhance interest in the engagements.

5.3 The Research Question Revisited

The research question in this report was:

In what ways do tertiary institutions ensure meaningful participation and engagement with stakeholders aimed at sustainable water management?

Based on the evidence provided above, it is clear that the research question has been answered. meaningful participation and engagement with stakeholders can be achieved by adopting inclusive and collaborative engagement approaches that can adapt to changes and consider the social and cultural influences of their context.

5.4 The Research Proposition

The research proposition stated in this report was:

Engaging stakeholders effectively will improve water resource management in tertiary institutions, resulting in better communication, greater collaboration, inclusive policy decision-making, a culture of sustainability, and increased awareness.

5.5 Conclusion

The purpose of this study was to examine how stakeholder engagement influences sustainable water management initiatives conducted in university institutions, involving water users, staff, and students. The study demonstrated a strong emphasis on the importance of adopting

inclusive, transparent, multi-layered engagement approaches for the effective implementation of sustainable water management initiatives on campus, and for achieving the university's sustainability goals. The study also presented views of factors that contribute to and those that deter stakeholder engagement for sustainable water management efforts at the university.

The value of adopting effective engagement strategies, selecting suitable engagement methods for each unique initiative, and ensuring the inclusion, prioritisation and balance of powers among all stakeholders is crucial for the success of sustainable water management efforts on campus. This was highlighted in the literature reviewed and further corroborated by the inputs from stakeholders involved in the case study.

The study examined various stakeholder engagement strategies used for sustainable water management initiatives at the university. It looked at both passive communicative and consultative methods, as well as interactive approaches aimed at co-decision and co-production. The research findings confirmed that the effectiveness of stakeholder engagement methods depends not only on the level of interaction of that engagement but also on the complexity of the stakeholder engagement process. Understanding factors such as context (geographical or disciplinary), the nature of the issues, and power dynamics is essential for recognising the most effective engagement strategy for an engagement process.

This research can assist universities in creating stakeholder engagement strategies that are facilitated by inclusive and progressive approaches to enhance sustainable water management efforts on campus. Universities should allocate resources and funding in engagements for sustainability efforts. The findings of this study can assist universities in cultivating committed stakeholders who are dedicated to sustainability and behavioural change.

5.6 Recommendations

Based on the findings from this study, the following recommendations are made to enhance and improve stakeholder engagement for sustainable water management at universities, and to integrate sustainable practices on campus:

- The university should prioritise the involvement of students in governance efforts to achieve sustainability, recognising them as a key stakeholder group within the university community.

- The university governance structures need to demonstrate an alignment between the university's sustainability goals and the existing governance systems and processes, as well as with sustainability initiatives at the university
- Sustainable education should be integrated into the university's operations and curriculum to foster a culture of sustainability, improve behavioural change and support the university's sustainability agenda
- Diverse stakeholders, including both internal and external members of the university community, should be included in sustainability engagements, to ensure their views and interests are considered
- All sustainable water management interventions should adopt technological innovations that can enhance interactive engagements in both in-person and virtual sessions
- The university needs to engage stakeholders continuously and consistently through awareness raising, information sharing, and various interactive engagement methods to build trust and empower all stakeholders

The implementation of these recommendations can improve stakeholder engagement and effectively promote sustainable practices on campus.

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Annexure A: Interview Questionnaire

Interview Questions: stakeholder engagement in water governance

1. Stakeholder Engagement: Introduction

- 1.1 How would you define stakeholder engagement in the context of water management projects in the University of Cape Town?
- 1.2 When it comes to water management projects in Institution, who are your typical stakeholders involved?
- 1.3 Can you explain how these stakeholders are prioritized, if so, how is this process conducted?
- 1.4 What strategies and approaches have you used to effectively engage these stakeholders?

Factors influencing stakeholder engagement

2. Contributing factors

- 2.1 When it comes to promoting stakeholder engagement in water management projects within the institution, what factors have you found to be most effective?
- 2.2 Are there any examples of strategies or initiatives that have successfully fostered collaboration and engagement between stakeholders?
- 2.3 What factors have you found to be least effective in promoting stakeholder engagement in water management projects
- 2.4 During decision-making processes, how do you ensure diverse stakeholder perspectives and concerns are taken into account?

3. Challenging factors/Barriers

- 3.1 During your engagement with stakeholders in water management projects, what challenges or barriers have you encountered? How do you address or overcome these challenges
- 3.2 Are there any instances where stakeholder engagement efforts have failed? If so, what factors contributed to the lack of success?
- 3.3 Are there any specific stakeholder groups that are more challenging to engage in water management projects? Why?

4. Lessons Learned and Best Practices:

- 4.1 Based on your experience, what lessons have you learned regarding stakeholder engagement in water management projects in the institution?
- 4.2 What best practices or recommendations would you offer to improve stakeholder engagement in future water management projects in the institution?

Annexure B: Participant Consent Letter



Information sheet and consent form

Introduction

My name is Kebone Zodwa Lehulere, and I am researching for a master's degree. I am investigating ways in which tertiary institutions ensure meaningful participation and engagement with stakeholders aimed at water resource management, and would like to invite you to participate in the project

About the project

This study explores how stakeholder engagement is conducted with water users (staff and students) in university institutions to promote effective water resource management. The study seeks to understand the type(s) of stakeholder engagement frameworks and methods best suitable for the unique contextual and geographic characteristics of UCT, to understand how these governance systems respond to those interests and challenges, and improve water management initiatives in the institution.

Participation is voluntary

Please understand that you are not obligated and do not have to participate in this project. Your participation is voluntary. The choice to participate is yours alone. If you choose not to participate, there will be no negative consequences. If you decide to participate but wish to withdraw at any time, you will be free to do so without negative consequences. However, I would be grateful if you would assist me by allowing me to interview you.

Expectations from participation

I will only ask you a few questions regarding the stakeholder engagement processes and frameworks for your water projects that involve various stakeholders. This should take 45 to 60 minutes. There is no financial obligation from the project or you as the participant. Therefore, no payment/reimbursement is available. With your permission, I will record this interview however if you do not agree that is still acceptable. I also need your consent to refer to this

recording and any notes I may have taken for academic purposes including my project, academic conferences, and possibly journal publications.

Benefits to participants

No indirect or indirect harm

Risk of harm to participants

No foreseen or unforeseen risks

Sharing and use of data

Data generated from the interview will be synthesised and used to answer the research questions set for this master's project, presented in conferences and may be published in journals.

Anonymity and confidentiality

The confidentiality of interview participants will be ensured in the following ways:

- I will be using codes to refer to participants, instead of using their real names in order to ensure anonymity throughout the study
- I will ensure that the data collected in the interviews is kept secure by storing the recorded data and written transcripts in password-protected files on my personal laptop
- Access to the data will only be limited to me and my research supervisor
- I will ensure that any information that can potentially identify the participants is removed from the data during the transcription and data analysis process

By signing the consent form, you agree to the terms stipulated in this consent sheet regarding the interview. If you are not comfortable with the terms, please make a note on the form.

Interviewee name:

Interviewee's signature:

Date:

Interviewer's name:

Interviewer's signature:

Additional comments

Credit for the information in this form goes to Prof Harro von Blotnitz

Annexure C: Sample of Transcript

Interviewer: Thank you so much for allowing me. I'm recording the interview.

So the first question is on introduction and it is how would you define stakeholder engagement in the context of water management projects in the University of Cape Town?

Respondent 1: How I would define stakeholder engagement?

Interviewer: Yes, in the context of water management projects at the University of Cape Town.

Respondent 1: Right, sure. In the current context, it's very loosely defined in the sense that there's very little stakeholder engagement, but that typically, it, in the current moment, is only done through very focused projects or initiatives. We've got a number of water-saving projects that are happening and then we'll engage specific stakeholders on those projects, that's the one element. So, say now that we do a water-saving initiative in the residences where we're replacing, like, showers or taps or something. Student Housing will communicate with them, and they'll communicate with the students. But most of that's almost more about the project itself and trying to alert them to that there'll be construction workers coming in and less around water savings and all of that.

Because generally the student community that we have is not very interested in that. It's just they're there to study, they focus on what's important to them, which is like food, drink, and their studies, and their friends, and like, they're not really worried about much else. It's like the exception when you have someone really worried about water. That will be like one in 10,000, sort of sadly. Yeah, as I say, it's kind of tends to be focused on projects.

Then, the other route is the research project and research institutes, institutes like Future Water. For example, they are completely focused on water-related research. So they will do specific stakeholder engagement workshops and have got outreach programs and things like that. Through the Future Water Institute, for example, there'll be those kind of broader stakeholder engagement projects, again, they're quite project-focused. So when there is a research project, they'll do that.

The current status when there was day zero, it was a very different kind of focus because that was a city-wide focus. And so the university took like a very strong stance and engaged like literally on a weekly basis, sometimes daily around kind of water savings. There was extensive marketing and communications campaigns running. So, you can kind of see a very different approach to stakeholder engagement in a time like that versus a time like now. We've had like so much rain. I mean, saving water is one of the last things that's on people's minds. So it's kind of like stakeholder engagement appropriate to the time and also appropriate to the context that we don't have the airtime really to use up. Think of airtime as like a people's headspace for more information. We don't want to bombard them with information that we know they probably won't even read. It's about kind of when is it really necessary and then engaging as much as possible when it's really necessary and then otherwise kind of focusing on projects. Okay. Yeah.

Interviewer: I think you picked up a lot on things, 'm just going from this question. It's not only you who does the engagement in itself, the university would do the engagement themselves. For instance, in the days. I just want to write that down because there are follow-up questions that might be linked to that question.

Respondent 1: No problem. Okay.

Interviewer: And then the second question is, when it comes to water management, these projects in the institution, who are your typical stakeholders that you involve?

Respondent 1: can you just repeat the question?

Interviewer: So when it comes, when you have these water projects, right? As you mentioned, the installation of showers, you mentioned a couple. So, I know you said that you only focus on engaging them on the project, but who are the other, who are the stakeholders that you identify and you say we are going to involve these ones? Yeah.

Respondent 1: So on a project like that (installation of showers), will be, there's a student housing department. The students in residence, and so they are a key stakeholder. They will then involve the students and engage with students. So the students are obviously key stakeholders. There's a warden, the warden is kind of part of the student housing group, but we look at them as a separate stakeholder because they have kind of very strong influence. for a particular residence because they're kind of one of the main links between the university and the students' groups. So they keep quite close to the student body and understand what's kind of important to the student body at the time.

And then you've got your kind of group of professionals that are involved in the actual design and construction. So those are implementers. And then you've got the city as well potentially who are the ones that are having to approve certain projects or having to tie into their network. yeah, I mean, there's the communication department sometimes depending on if they need to get involved or not. And sometimes even researchers who want to potentially use data from the project, analyze data and what. So, we kind of have an ethos on campus that is, campus is a living lab where our infrastructure is kind of we make available for projects, research projects to basically analyze and use data and be part of the research opportunity. So it's not just in the lab or research out there but actually research on project the UCT so they could also be a stakeholder.

Interviewer: Okay, thank you. The third question is, can you explain how these stakeholders are prioritized? If so, how is this process conducted? Is there a process of stakeholder prioritization?

Yeah, so typically, we'll work with the professional team first to try and figure out their prioritization. And it's kind of unique depending on the project because each project has a different stakeholder group, so we'll figure out who kind of is typically the user group, who has to be in that user group, and who is potentially the main user. That maybe is, like for example in a student residence, the students and the student residents is kind of the main user, but there might be periphery users. So you kind of have to figure that out and then group the stakeholders like that.

And then, yeah, they kind of carry more weight in maybe decision making or in terms of regular inputs, that sort of thing. We don't use a formula, but it's kind of, every project we'll have, we'll establish what's called a user group, in our context we call it that. And then that becomes like a key stakeholder group (09:26.115)that involves a couple of different stakeholders.

But it's still... I think, generally domains like universities like to be very democratic. So, there's committees, so the user group generally operates like that where it's not as if one voice is necessarily louder, but we don't like to think that one is louder than the other and carries the weight, but, I think at the same time there's also respect for the main user who is going to be there. People kind of generally will speak up if it's kind of really important to them. Sometimes, you have very loud voices that are less relevant. They're just loud voices and you have to kind of differentiate between them on the project and try and navigate that quite carefully so that people don't get upset, if they don't feel

heard. yeah, this kind of, that all comes down to cheering the meeting and how they manage (10:36.844) almost kind of chairing the stakeholder engagement sessions.

Interviewer: Then the next one is what strategies and approaches have you used to effectively engage these stakeholders? So the questions are going to seem like they're similar.

Respondent 1: Yeah, so typically, it would be setting up meetings, and initially, there'll be, let's call them, ad hoc meetings and engagements to kind of first get the different stakeholders together and to get inputs. And then, when the project is kind of more formalized, and it's kind of kicked off into kind of let's call it the main implementation phase, then we formalize it into a user group that then includes the key stakeholders. And yeah, then that's kind of like a monthly meeting and getting input from them through the meeting.

And then there might also be emails and correspondence, things like that. But it's mainly through direct engagement and meetings. Sometimes the meetings are kind of more workshop style. Sometimes, they are more sort of very structured and agenda-focused (12:53.743) and chaired and other times more sort of loose and open to gather sort of more broad inputs, but yeah, so there's different approaches and strategies that are applied.

Interviewer: All right and then now we're moving on to the second part which is looking at the contributing and challenging factors. When it comes to promoting stakeholder engagement in your projects, what factors have you found to be most effective? (13:37.997)

Respondent 1: I just want to get to the gist of that so when it comes to promoting a project?

Interviewer: So when it comes to promoting the engagement from your stakeholders in these projects, what has worked? What have you found to be the most effective? So if we make an example with the ones where we install showers. What factors have you found to be the most effective in ensuring that there is engagement from the stakeholders?

Respondent 1: Do you mean factors, do you mean like methods? What methods are most effective?

Interviewer: Yes, because we're looking at the contributing factors and the barriers to engagement. Yes, so it could be methods. A method could have been a factor or maybe it could have been the time if they are not in during like exam times then students are more engaged and you know so what was the factor that you found to be most effective that contributes to them?

Respondent 1: Yeah, so I mean, generally we will try and avoid, We'd have to pick the right time of day, that's obviously quite important. we don't want to pick... we're to... does depend which stakeholder we're obviously talking about. So if we're about students, we don't want to pick the mornings or even early afternoon because they've either got lectures or practicals. So generally it'll be late afternoon and of so time is quite important. And then not picking the holidays, exam time or (15:32.719) that sort of normal term time doesn't really make too much of a difference because they've often got tests anyway during the term and everyone's got a different test schedule, exam schedule, so it's kind of impossible to try and please everyone. So as long as we're not in the holidays and as long as we kind of pick an afternoon then that time works. For general staff, it's kind of like any business you kind of look at people's availability so that's less of a factor. The methods I think are quite important. Generally, the most effective engagements are in person. Online does work for students, sometimes a little bit better because it's just easier for them to quickly access even from their room, they've got wifi and they can dial in. The problem though is that often we've just had very low levels of engagement. So even if you've got, say, like 20 people on the call, it's just quiet and everyone's got their cameras off and nobody wants to talk.

And so the in-person option is definitely much more engaging. If you provide food and drink, then you get kind of more people coming. So that helps, always helps, and even with the, not the students, but with the staff that helps as well. So definitely a mix of methods so that you catch kind of different sets of people. Some maybe prefer the in person, some don't. You kind of catch different people and you have kind of more opportunities for engagement. And then also, quite regular engagement and giving people quite a long time in advance and sending reminders and things like that and following up with information afterwards. So kind of really being professional about the engagements makes a big difference.

And then we just think of anything else. Yeah, I think also being careful not to (17:57.771) overload with too much information, too technical. Because people get lost, everyone's coming from different backgrounds and maybe different interests and so one's got to keep it sort of succinct and to the point and at a level that's kind of, that the layman can understand, anyone can understand and everyone can feel like they can engage. If it's too technical, one can lose people and then they might not even engage.

I think that's really important in terms of the kind of level of information and also the way that it's presented. It can make a big difference just in terms of the style of presentation or the kind of PowerPoint slides with font that's like eight, sort of size eight and it's just full of text and is really not very engaging. And, yes, visuals are great, so that's kind of really useful and using visuals, but also speaking clearly and kind of engaging people in kind of speech that is engaging, that kind of draws their attention. Yeah, so you kind of really have to think about who do you, if you are going to present something. who are the good speakers, who are the engaging speakers, who are the ones that are able to facilitate engagement. You can have contexts where the same group of people are led by a different person and the one person is able to get massive amounts of input and the other person gets almost zero inputting engagement and that all comes down to who's leading and facilitating the session. Yeah, those are really important factors to bear in mind when you are doing stakeholder engagement.

Interviewer: Thank you. I think you've also touched on the second part of the next question because the next question says, are there any examples of strategies or initiatives that have successfully fostered collaboration and engagement between stakeholders? (20:17.761)

Respondent 1: Yeah, I think I've covered most of those. I'm trying to think of this. Yeah, I mean, there are other times where we try and, maybe, do something to create like an event that's a little bit more interesting. Maybe with some social sort of aspects linked to it. Maybe there's like a live band and there's some drinks and socializing associated with it, or there's sort of like an activation on the plaza where they can maybe meet the mayor. Or sit in the, I'm just using it as an example to the water, but like in the electric car they can see that and suddenly there's something, maybe there's a draw card that draws them in. It's not just sort of a scientific or sort of technical thing, that there's this element of being drawn in, there's a social element, there's something else that's drawing them in.

Interviewer: Okay, and then the third one on this section is what factors have you found to be least effective in promoting stakeholder engagement in water engagement projects?

Respondent 1: I think sort of like just sending out emails that maybe come from the normal central communication, that often people just don't read because they kind of see it often as spam, and think there's nothing in this email that's probably worth reading. Something that's kind of buried in like a newsletter that's 10 items of things that are there and maybe your project is kind of just one of those (22:07.183) 10 items. Most people miss that. Generally, those kind of emails don't work, they get lost.

And then, as I say, when you've got online meetings and you've got just, it's not well structured, and then people just don't engage at all. And then also, as I said, even an in-person meeting, if you don't have the right facilitator, then even an in-person meeting can be very ineffective. In engagement. Yeah, those are the ones that come to mind. (22:49.337)

Interviewer: And during decision-making processes, how do you ensure that the diverse stakeholders' perspectives and concerns are taken into account? (23:02.031)

Respondent 1: I think that having experienced facilitators is really important. So they will know how to do that. Using the right people to lead those sessions. Yeah, and then the actual structure of the session as well is quite important and the kind of tools that you use. Those can be quite useful. Different mechanisms of drawing out input that maybe don't put a spotlight on people, make them feel uncomfortable unnecessarily, and things like that. And sometimes even the venue, sometimes a certain venue can favor certain people and then the other people feel left out or neglected. So there's different things that you can do that you can make sure that people's voices kind of feel like they are heard and can express themselves. (24:07.619)

Interviewer: Then we move to the challenging factors. During your engagement with stakeholders in water management projects, what challenges or barriers have you encountered? How did you address or overcome these challenges? (24:37.945)

Respondent 1: Yes, it's Some of the things I've mentioned, but you kind of have to get to a challenge and then kind of analyze the challenge, understand what the challenge is.

And there's not necessarily always a formula, sometimes it's things, like I mentioned, the kind of facilitators, pick the right facilitators or depending on, let's say now you're not getting engagement in the meeting, then you kind of don't get discouraged and you're kind of like, okay, what do we need to do differently next meeting? So being open to criticism, being open to feedback is quite important. And being open to shifting your tact or your approach, I think that's really important. But yeah, there's no sort of formula for the challenges never know what might come. But yeah, it's kind of analyzing a problem and then kind of working out a solution to the problem.

Interviewer: Are there any instances where stakeholder engagement efforts have failed? And do you know probably what contributed to that lack of success? (26:06.383)

Respondent 1: Yeah, I mean, it's, I think I mentioned those already. it's like your online meetings where nobody engages, or it's the facilitator that doesn't have the experience and can't really draw people's input, or it's the venue that just isn't working, the technology that's failing, people's connection is poor, and they can't hear the speaker or the hosts. So yeah, there's a number of those that result in poor stakeholder engagement.

Interviewer: And are there any specific stakeholder groups that are more challenging to engage in water management projects than others? Do you, have you maybe figured out why, if there are?

Respondent 1: yeah, definitely. I think that from a student body, it's kind of getting broader student body engagement. So we'll typically get the people that are interested or passionate, but not a very broad range of people that might not even be interested in the project. So it's really hard to kind of get more extensive engagement from students. Like I'd say that they're there to study, they're there to do what they do, and so they're not, most of them, like 99 %, aren't really interested. So it's very difficult to draw in more of those stakeholders.

Otherwise, generally the stakeholders really, when we talk about staff and even consultants or professionals, its part of their job generally to engage. Some are maybe just not interested even as staff or are kind of obstructive or whatever the case might be. But that's more just like an individual difficult personality or character trait. And so that's kind of more like the odd occasion, which I'd say probably the student community is (28:29.401) the hardest to really engage deeply.

Interviewer: And you've also mentioned Rye, even in the beginning. Okay, the last part, just two questions. Based on your experience, what lessons have you learned regarding engagement in water management projects within higher education institutions?

Respondent 1: It's a sort of continuous learning process and also continuous, one has to kind of do it consistently and continuously to be effective. And especially in our context, the student community is changing every year. So you've got new groups of students arriving on campus every year. So you kind of have to start from the beginning all over again. So it's very different to a corporate environment or a different space where it's generally kind of the same community that's there, maybe one or two people have changed, a few people have moved in, but in a university campus every year there's thousands of new students that arrive and there's thousands that have left. And so it's that constant transient community that makes it very difficult to engage deeply.

So you really have to just keep regular engagement and you have to keep consistent. And so there's an ongoing need for energy and focus and resources. And that's a big challenge in the university context, is most of the resources will typically go to teaching and research and salaries, and so there's not much resources available for things like engagement. (30:24.727)

Interviewer: Okay. And then the last one is what best practices or recommendations would you offer to improve the golden engagement in future projects, water management projects in?

Respondent 1: Yeah, I think I mentioned a lot of those. Things like your methods of hosting meetings, your facilitators, their experience, and the tools that you use. It's the consistent messaging, it's how you package, you're going to send an email, how that goes out to sends, does it get buried in other newsletters? Where do you have your kind of sessions? Yeah, there's quite a lot, I think I've mentioned already, best practices. yeah.

Interviewer: Thank you so much for the time that you've given me for this interview. It's much appreciated.

Annexure D: Ethical Clearance Report



UNIVERSITY OF CAPE TOWN
YUNIBESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

2023/08/29

EBE/00371/2023

RE: Research Ethics Committee Project Approval Letter

Dear Kebone Lehulere,

Your application for ethics review of your project titled

KEY FACTORS THAT AFFECT STAKEHOLDER ENAGEMENT IN WATER GOVERNANCE IN CAPE TOWN

has been reviewed and evaluated by the

Engineering & Built Environment Committee.

You may proceed with your research project titled:

KEY FACTORS THAT AFFECT STAKEHOLDER ENAGEMENT IN WATER GOVERNANCE IN CAPE TOWN

Please note that should:

- (i) any serious or adverse effects to participants occur and/or,
- (ii) aspect(s) of your current project change and/or
- (iii) any unforeseen events that might affect continued ethical acceptability of the project occur then you should immediately report this to the approving REC. You may be required to submit an amendment to this application, in order to determine whether the changed aspects increase the ethical risks of your project.

Based on the information supplied your application has been successful and is approved.

Please note the following additional conditions associated with this approval:

- (i) Approved. A section should be included in the final research report that fully explains the ethical issues anticipated and experienced and how these were handled. Also, it is somewhat unclear which data collection approach would be used. In the application, the use of multiple data collection approaches was ticked. However, only an interview schedule was mentioned in the proposal and submitted for review. This approval thus covers only interviews.

Regards,

Engineering & Built Environment Committee.