

**INVESTIGATING EPISTEMIC JUSTICE IN AN ADAPTIVE PLANNING
PROCESS: TOWARDS DEVELOPING A LOCAL CATCHMENT
MANAGEMENT STRATEGY**

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ABSTRACT

In South Africa, Integrated Water Resource Management (IWRM) is being put into practice in a way that incorporates the belief that all stakeholders should be given a voice in decisions that affect them. Catchment Management Forums (CMFs) are the first place for stakeholder participation, supported by Catchment Management Agencies (CMAs). A key first task of a CMA is to develop of their Catchment Management Strategy (CMS). In this research, I consulted and worked with stakeholders in the Makana Water Forum (Makana Local Municipality, Eastern Cape, South Africa) throughout the process as they worked towards formulating their local CMS. Importantly, this study used insights from the community to focus on the inter- and intra-group interactions among the stakeholders who participated in the first step of Strategic Adaptive Planning. In the process, I explored epistemic contestations that occurred between different epistemic agents (participants) who may have held identity prejudices. The research aimed to allow voices, which could otherwise have been marginalised, to come out in ways that were not stigmatised through the written and personal reflective process. In doing this, the study tried to hear the voice of the oppressed speaker whose knowledge and lived experiences have been overlooked by the hearer's prejudice. Findings show that participants who were part of the CMS development process experienced epistemic justice. These findings further established that the addition of participant reflections enhanced the level of epistemic justice promoted by the Adaptive Planning Process (APP).

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LIST OF ACRONYMS

Acronym	Full words
AG	Adaptive Governance
AM	Adaptive Management
APP	Adaptive Planning Process
CMA	Catchment Management Agency
CMF	Catchment Management Forum
CMS	Catchment Management Strategy
CoGTA	Cooperative Governance and Traditional Affairs
CSES	Complex Social-Ecological Systems
CWP	Community Workers Programme
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECPTA	Eastern Cape Parks and Tourism Agency
ELRC	Environmental Learning and Research Centre
EMG	Environmental Monitoring Group
IDP	Integrated Development Plan
IUCMA	Inkomati-Usuthu Catchment Management Agency
IWR	Institute for Water Research
IWRM	Integrated Water Resource Management
LED	Local Economic Development
LHDA	Lesotho Highlands Development Authority
MLM	Makana Local Municipality
MWF	Makana Water Forum
OFSITS	Orange Fish-Sundays Inter-Basin Transfer Scheme
PECWP	Private Eye Community Watch Project
NWA	National Water Act
NWRS	National Water Resource Strategy
PALAR	Participatory Action Learning and Research
SAM	Strategic Adaptive Management

STEEP	Social, Technological, Environmental, Economic and Political
TD	Transdisciplinary
TPNP	Towards Practising a New Paradigm
UKWSCMF	Upper Kowie Water, Sanitation and Catchment Management Forum
V-STEEP	Values-Social, Technological, Environmental, Economic and Political
WMA	Water Management Area
WSA	Water Services Authority
WSP	Water Services Provider
WUA	Water User Association

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INTRODUCTION

Water is dealt with at different scales, but people at the local scale experience the impacts of water in terms of its quality and quantity for their different needs. There is a spatial and relational disjunction between water resource managers and water resource users (Agarwal delos Angeles, Bhatia, Chéret, Davila-Poblete, Falkenmark, Villarreal, Jønch-Clausen, Kadi, Kindler and Rees, 2000). How do we bring them together? I suggest that there are collaborative pathways to bring these people together (Ojha and Hall, 2013) and that epistemic justice plays an important role in this.

The study presented in this thesis unpacks the implementation of a global approach called Integrated Water Resource Management (IWRM) in the Eastern Cape, South Africa (Agarwal *et al.*, 2000). The National Water Act (No.36 of 1998) (NWA) is the legal framework that makes provisions for managing South African water resources, and therefore, IWRM (Du Toit and Pollard, 2008). The NWA calls for the inclusion of all stakeholders, including those at the grassroots level in decision-making about water resource management, as well as promoting collaborative knowledge exchanges and learning (Department of Water Affairs and Forestry, 2007). The establishment of Catchment Management Agencies (CMAs) at a regional level and other supporting institutions at a local scale is the driving force in achieving stakeholder inclusion and participation in decision-making about water resources, and is a step towards sustainable IWRM (Department of Water Affairs and Forestry, 2001). However, there are challenges which hinder effective implementation of IWRM in South Africa (Du Toit and Pollard, 2008; Palmer and Munnik, 2018).

Catchments are regarded as units of water resource management in South Africa, but the complex interactions between the social and ecological components within catchments constitute complex social-ecological systems (CSES) because of their non-linear behaviour and feedback loops (Cilliers, 2000; Folke, Hahn, Olsson and Norberg, 2005; Audouin, Preiser, Nienaber, Downsborough, Lanz and Mavengahama, 2013). Another challenge is the presence of people with different and sometimes conflicting interests about the mutually owned natural resources within a catchment (Lockwood, Davidson, Curtis, Stratford and Griffith, 2010; Rogers and Luton, 2011). The complex nature of the components within a catchment makes it difficult to use predictive management methods (Roux and Foxcroft, 2011). There is, therefore, a need for an approach that

is based on learning-by-doing, where interventions are open to being easily changed based on new information (Ison, 2010; Roux and Foxcroft, 2011). The Strategic Adaptive Management (SAM) approach is based on the principle of multiple interventions, which are continuously tested and adapted as new information about the system under management is gathered. The SAM approach does this in a strategic manner, incorporating all the relevant people with their different interests about the natural resource to be managed (Pollard and du Troit, 2007; Rogers and Luton, 2011; Palmer, Rogers, Holleman and Wolff, 2018). The Adaptive Planning Process (APP), which is SAM's planning component, forms the focus of this study, and through an APP, a collaborative pathway for IWRM is introduced.

Little is known, however, about how effective approaches used to achieve the collaboration, such as SAM and APP are. Within these processes, whose knowledge counts and whose does not? The issue of power imbalances may sometimes mean that in collaborative spaces, some opinions, beliefs and understandings are discounted, and some knowledge types do not make it to the outcome of such processes. Injustice arising out of unequal understanding and a lack of fair and respectful acknowledgement of certain types of knowledge is termed epistemic injustice (Fricker, 2003). Epistemic injustice can either be in form of testimonial injustice or hermeneutic injustice (Fricker, 2007). Testimonial injustice¹ occurs when because of identity prejudice, the hearer ignores the speaker because of the speaker's position in society (Fricker 2007; Anderson, 2012; Glass and Newman, 2015). Hermeneutic injustice occurs when the speaker belongs to a marginalised group of society who have been previously excluded from the knowledge production space such as women and people of colour, are ignored by because they lack the necessary resources to describe their views and experiences (Fricker 2007; Anderson, 2012; Catala, 2015).

The study aimed to investigate the level of epistemic (in)justice in an APP used to develop a local CMS in the Upper Kowie River catchment, within the MLM. To achieve this aim, the SAM and the APP were introduced to MLM stakeholders, where the level of epistemic (in)justice in an APP was assessed through the introduction of participant reflections. The participant reflections were then evaluated to check the effectiveness of adding reflections to an APP.

¹ A detailed explanation of epistemic (in)justice is provided in Section 2.5.

This study is part of a broad Water Research Commission (WRC) project titled ‘Towards Practising a New Paradigm’ (TPNP), which proposes adaptive IWRM as a new way to implement the provisions of the NWA in South Africa (Palmer and Munnik, 2018). The Institute for Water Research, Rhodes University, supported the establishment of a local Catchment Management Forum (CMF), and one of the CMF’s activities was the development of their integrated local Catchment Management Strategy (CMS). This study evaluates whether the stakeholders who participated in the development of the local CMS experienced the principles of adaptive IWRM during the APP. The socio-historical context of South Africa, which left a huge gap among different groups of people, has made the country an appropriate site for studying how these injustices play out and affect collaborative processes.

The context of this study was Makana Local Municipality (MLM), whose central town, Makhanda, has a strong history of the injustices stemming from the apartheid era. Makhanda provided a good context in which the study could explore issues of epistemic (in)justice during an application of APP towards the development of a local CMS. The apartheid policies, which were based on limiting contact between the ‘White’ and ‘non-White’ population groups through spatial segregation, have left numerous inequities in service delivery in Makhanda (Mullins, 2011). Even though the apartheid policies are no longer functional, their effects are still felt today in a huge gap in water service delivery between Makhanda West (historically the ‘White’ area) and Makhanda East (historically the ‘non-White’ area) (Weaver, O’Keeffe, Hamer and Palmer, 2017). The study set out to unpack how these historical dynamics influenced participants’ experience of mutual respect for their knowledge in an integrated space of the CMS development process, using an APP.

The study introduced written reflections for the stakeholders who participated in the CMS development process and they engaged in reflective sessions about their experiences of epistemic (in)justice during the APP. This reflection component aimed to assess as well as to improve participant skills of communication when expressing their feelings in order to improve their inter-personal and inter-group relationships with each other as they worked through the APP (Zuber-Skerritt, 2015). These improved inter-personal and inter-group relationships hold the potential to improve sustainability during the implementation of the plan, which was SAM (Chess, 2000; Carr, Blöschl and Loucks, 2012; Yang, 2016). The inputs from the reflections could help to improve the application of SAM to suit a wider range of contexts, though it was only tested at a local scale. An

improved SAM could, in turn, improve the implementation of IWRM. The personal and written reflections also helped bring out the voices of the different epistemic agents who participated in the CMS development process, particularly of those who would have otherwise been marginalised. In this way, the study gave a voice to the oppressed speaker whose knowledge and lived experiences may have been overlooked by the hearer's prejudice (Fricker, 2007).

Through consultation with literature, an evaluation framework was developed to guide the reflective questions that participants engaged with during an APP. The evaluation framework was used in the data analysis to assess participants' understanding of the relevant concepts that were used, their satisfaction, their experience of equality of voice, their experience of learning and co-learning, process inclusiveness, and process flexibility, as the criteria used to investigate epistemic (in)justice. The findings indicate that APP did correct epistemic injustices because five of the mentioned criteria were met in the local context of MLM. This means that APP, and therefore SAM, hold the potential to effectively implement of adaptive IWRM in South Africa because it promotes public participation by correcting some epistemic injustices associated with collaborative spaces.

In Chapter 1 I set out a background to the South African context of IWRM and its focus on public participation, as well as the challenges of its proper implementation. In Chapter 2 I relate the theories of adaptive management and epistemic (in)justice to IWRM, and set out why it is necessary to evaluate epistemic (in)justice while implementing IWRM through SAM. In Chapter 3 I start by giving an overview of the broader project under which this research study falls, followed by outlining the socio-political and historical context of Makhanda (Grahamstown). In Chapter 4 I set out the research methodology used in the study, covering the research paradigm, data collection and data analysis methods, as well as the research ethics that guided the methods. In Chapter 5 I outline the results and discussion of workshops 1 and 2 separately, and then give a combined picture of the two workshops. Chapter 5 culminates in my comparison of the workshop outcomes against my framework that was used to evaluate the level of epistemic (in)justice during the workshops. In my conclusion I highlight the limitations and recommendations of the study, as well as pointing to possible future research.

CHAPTER 1: INTEGRATED WATER RESOURCE MANAGEMENT AND PUBLIC PARTICIPATION

1.1. Introduction

In this chapter, I outline Integrated Water Resource Management and describe its application in the South African context. I explain how IWRM is guided by policy and law, as well as how it is implemented through institutional arrangements: with the national government, through the relevant Minister as the custodian of the nation's water resources, and Catchment Management Agencies (CMAs) taking up duties for management of water resources at regional scale. I describe how the National Water Act (No.36 of 1998) (NWA) provides for the development of two levels of strategies; National Water Resource Strategy (NWRs) at the national level, and Catchment Management Strategy (CMS) at the regional level, and I touch briefly on the discourse of public participation. The last section discusses some of the challenges to effective implementation of IWRM in SA, focusing on how the challenges may influence public participation.

1.2. Integrated Water Resource Management (IWRM)

Water is a valuable natural resource for all living things, and water scarcity is a worldwide problem that threatens the future of water resources if precautions are not taken (Agarwal *et al.*, 2000). The traditionally used top-down decision-making mechanisms have proven unsuccessful in many ways over the years (Palmer, Biggs and Cumming, 2015). This failure has led to some organisations/governments shifting to methods that are more bottom-up, and which hold the potential to achieve sustainability of water resources (Du Toit and Pollard, 2008; Rogers, Luton, Biggs, Biggs, Blignaut, Choles, Palmer and Tangwe, 2013). The concept of IWRM was introduced in 1977, but more attention has been paid to it since 1992 after the Agenda 21 and World Summit on Sustainable Development (Agarwal *et al.*, 2000). It is a process that promotes the coordinated management of water, and other related resources, in ways that aim to achieve social and economic benefits while ensuring environmental sustainability (Agarwal *et al.*, 2000; DWAF, 2007; Global Water Partnership, 2009).

Integrated Water Resource Management (IWRM) promises to include stakeholders by allowing them to express their concerns and influence decisions about water that affect them from

local up to international scales (Agarwal *et al.*, 2000; Rogers and Luton, 2011). Including stakeholders in IWRM allows management to make decisions that are meaningful to the people who have to live with the decisions made in the long-term (Audouin *et al.*, 2013; Du Toit and Pollard, 2008). The use of effective action research approaches to engage with IWRM makes the research part of an inclusive, social learning and participatory process (Palmer and Munnik, 2018). This study recognises the different elements of both complex ecological, and complex social systems, to be considered in water resource management, with different and sometimes conflicting interests with regard to water.

1.3. IWRM and Water Resource Policy

In South Africa, policy and law frame IWRM. The previous Water Act of 1956 was based on the principle that owning land meant primary access to water passing through the land or to the underlying groundwater (Schreiner and Van Koppen, 2002; King and Pienaar, 2011; Schreiner, 2013). This placed black, resource-poor people in a vulnerable position because they did not own land (King and Pienaar, 2011). Given this, the first Minister of Water Affairs and Forestry after the 1994 democratic elections, Kadar Asmal, made it his mission to completely abandon the old water laws in favour of new, more democratic and just laws (Asmal, Hadland and Levy, 2011; King and Pienaar, 2011). To achieve a complete revision of the Water Law for a new transformed South Africa, the law reform process led to the development of the Fundamental Principles and Objectives for a new Water Law in South Africa (Department of Water Affairs and Forestry, 1997).

Through an intensive investigative and consultative process with people from different disciplines, the Fundamental Principles guided the development of The White Paper on a National Water Policy for South Africa (referred as ‘the Policy’ throughout), whose purpose is to make sure that water is managed in an equitable and sustainable manner (DWAF, 1997). The Policy represents the country’s values of sharing water resources in an equitable way in order to benefit especially those without daily access to water while ensuring the environment remains protected, so that it may sustain lives and the economy (King and Pienaar, 2011). The Policy provides that water allocation be prioritised follows: firstly, consideration of basic human needs and ecosystem

requirements; secondly, international obligations, and thirdly, all other uses of water (DWA, 1997; King and Pienaar, 2011).

Out of the Policy came the two main legislations for transformation in SA: the National Water Act (No. 36 of 1998) (NWA) and the Water Services Act (No.108 of 1997) (King and Pienaar, 2011; Burt, Du Toit and Munnik, 2015). The NWA provides the overarching legislative “umbrella” for IWRM in policy and practice (Department of Water Affairs and Forestry, n. d). The main implementing agency is the relevant department, (currently the Department of Water and Sanitation) (DWA, 2007; Department of Water Affairs, 2013). The Minister is the public trustee of the country’s water resources, which means the Ministry needs to ensure its protection and meet the public’s interests and needs for water (Clifford-Holmes, Palmer, de Wet, and Slinger, 2016). Ensuring that the water resource is protected, used, developed, conserved, managed and controlled in an equitable and sustainable manner is the purpose of the NWA, through the establishment of suitable institutions and non-discriminatory representation by the public (Republic of South Africa, 1998; DWA, 2001). The policies and legislation associated with water resource management, and therefore IWRM, have their foundations in the key principles of equity, sustainability and efficiency, following the Constitution’s mandate on water reform, and the Bill of Rights of the Constitution (DWA, 2007). The key principles are summarised in the slogan, “some, for all, forever” (Palmer, Berold and Muller, 2004; King and Pienaar, 2011; Palmer and Munnik, 2018).

In essence, IWRM aims to strike a balance between water resource being used in an efficient way, and protecting water resources to maintain their uses (Palmer *et al.*, 2004). The tools for IWRM in this regard are Resource Directed Measures (RDMs), and Source Directed Controls (SDCs), which deal with water resource protection and water resource use, respectively (DWA, 2013; Palmer and Munnik, 2018). While RDMs refer to measurable goals for ecosystem health, SDCs are meant to regulate use through tools such as waste discharge licenses and abstraction licences (Palmer *et al.*, 2004; DWA, 2013). Protection means that water users need to be involved because water resources need to be protected by citizens, and their opinion counts on the level of protection that would be needed to protect water resources (Palmer, Berold, Muller and Scherman, 2002; King and Pienaar, 2011).

The RDMs entail the classification system of water resources, the reserve, and Resource Quality Objectives (RQOs) (DWA, 2013). Classification assesses the consequences of different scenarios of management of the system and results in a management class (King and Pienaar, 2011). A reserve measures the quantity and quality of water to meet the requirements for ecosystem health, and basic human needs. Resource Quality Objectives provide a measure of the conditions that should be met in the resource, (Palmer *et al.*, 2004; King and Pienaar, 2011). The RDMs are developed at the national scale, and they give input to the CMA (Section 1.2.1) at regional level towards the development of a CMS (Section 1.2.2), which is a framework for the implementation of the RDMs (King and Pienaar, 2011).

1.3.1. Public Participation

Participation means taking part in a process and is meant to provide a platform for those who will be impacted by the decisions of a particular process to have a say (Partidário, n.d; Fitzgerald McCarthy, Carton, Connor, Lynch, and Adam, 2016; Yang, 2016). It is vital to decide on time about what the process aims to fulfil, and who needs to be involved (NOAA Coastal Services Center, 2007; Yang, 2016). There are some debates on what constitutes true participation; on the one hand, some describe it as having the potential to enhance communities and people in communities by giving a voice to those who will be affected by the decisions to achieve sustainability (Chess, 2000; Fitzgerald *et al.*, 2016; Yang, 2016). On the other hand, some people feel that it used in a tokenistic² way; a means to control the people who participate; and that the participation is mainly to harness local knowledge to benefit those who initiate the participation (Cooke and Kothari, 2001; Arboleda, 2014; Wamba, 2017). Public participation is one of the challenges to the implementation of IWRM (Du Toit and Pollard, 2008). This study did not take part in the debate, but unpacked epistemic (in)justices (believed to be one of the inhibitors to proper public participation) that stakeholders may have experienced in the participatory platform provided during an APP for IWRM, so as to contribute towards the effective implementation of IWRM.

² Tokenism is where people are called to participate in a space where decisions have already been made, but making it look as though those who were called to participate made the decisions (Arboleda, 2014).

Institutions as a Means for Stakeholder Participation

The Policy guides the NWA, which rests on the concept of IWRM on a catchment basis. The National Water Resource Strategy (NWRS) must promote the management of catchments within Water Management Areas (WMAs) in a holistic and integrated manner (DWA, 2013). Integration is meant to be achieved through the establishment of institutions that will become a platform for public participation (Du Toit and Pollard, 2008; Pollard and Du Toit, 2011). Institutions implement governance in the practice of institutional arrangements because institutions are the laws, norms/ways of doing things, and they happen in organisations (Clifford-Holmes, 2015). The institutions are divided into statutory institutions, which are directly provided for in the NWA, and are accountable to the Minister; and non-statutory institutions, which are established by the Minister based on a certain need, and are accountable to the stakeholders (DWAF, 2001).

Through the relevant Minister, the government is entrusted with the responsibility for the management of the country's water resources (RSA, 1998; Biggs, Breen, and Palmer, 2008). As a way towards IWRM in SA, the NWA makes provisions for the decentralisation of the management of water resources through the establishment of regional institutions called Catchment Management Agencies (CMAs), who are to be progressively delegated authority by the Department of Water and Sanitation (DWS) (DWAF, 2007). The CMAs operate at a regional or WMA level, and the NWA makes provision for the establishment of other institutions at a local scale in the form of Water User Associations (WUAs) (DWAF, 2001; King and Pienaar, 2011). However, WUAs are meant for local water users who work together on water-related issues for all to benefit, usually in a form of a cooperative (King and Pienaar, 2011), which restricts other people from participating. Under section 90 of the NWA, the Minister is allowed to work with forums when there is a need, and in this case, CMFs were established to support IWRM functions at the local scale (DWAF, 2001; Munnik, Barnes, Burt, Ashe and Motlounge, 2015).

Catchment Management Agencies (CMAs)

Catchment Management Agencies (CMAs) are statutory bodies guided by the law in carrying out their functions (King and Pienaar, 2011). They are to manage the WMAs at a regional level of water management (DWA, 2013). The CMAs are referred to as proto-CMAs until they become fully established, 'proto' meaning that they are in the early stages of CMA establishment (King

and Pienaar, 2011). Since it will take time to fully establish all the CMAs, the relevant department (currently the Department of Water and Sanitation) will act as CMAs for those WMAs without fully established CMAs (Schreiner, 2013). The CMAs become the second in command in the water resource management command chain once they have been fully established (King and Pienaar, 2011). Their first key task is to formulate a CMS in their WMAs through public engagement (DWAF, 2007; Du Toit and Pollard, 2008; Pollard and Du Toit, 2008; Pollard and Du Toit, 2011).

The role of a CMA is to ensure that water management in their regions complies with the laws and guiding principles of the state, with the encouragement of full public participation (Schreiner and Van Koppen, 2002; DWA, 2013). They are meant to bridge the gap between water resource managers and water resource users, and as such, CMAs are mandated to provide suitable platforms for stakeholders to participate in water resource management (RSA, 1998; DWAF, 2007). The three main platforms are: 1) The Catchment Management Committees (CMCs); 2) Water User Associations (WUAs) – both of which are statutory bodies; and 3) CMFs that are non-statutory bodies and can be designed to meet the needs of specific situations (De la Harpe, Ferreira and Potter, 1998; DWA, 2013). This research focuses on CMFs because of the vital role that they play as voluntary platforms for public participation in water resource management (De la Harpe *et al.*, 1998; Munnik *et al.*, 2015).

Catchment Management Forums (CMFs)

Catchment Management Forums (CMFs) are flexible, non-statutory, voluntary institutions formed by all the stakeholders who are interested in water management issues, (DWA, 2013). Non-statutory means that CMFs are formally acknowledged as institutions because they come out of government actions towards solutions, but with no direct provision for them in the NWA (DWAF, 2001). They are an example of multiple stakeholder platforms that comprise people with differing interests, regardless of whether they are large-scale water users or not, from commercial and Emerging farmers, industries, Residents (domestic users), civil society, local Department of Health, local municipalities, and many more who are interested in water-related issues (DWAF, 2007; Munnik *et al.*, 2015). The CMFs are different from all other institutions in that they are accountable to stakeholders, rather than acting as agents of government like the statutory institutions (DWAF, 2001; DWA, 2013). They are meant to provide a safe space for the different

stakeholders within a catchment to come together and speak openly about their interests regarding their water resources. They include the voices of the last person in the rank of authority, which means they have the ability to bring everyone into decision-making and work towards democratic IWRM (DWA, 2013).

Catchments are used as units for water resource management because they provide a natural boundary, instead of being entirely aligned with political boundaries (Section 2.2) (RSA, 1997; DWA 2013; Cilliers, Biggs, Blignaut, Choles, Hofmeyr, Jewitt and Roux, 2013). However, since local government is responsible for water supply, municipal boundaries also affect water-related issues (Clifford-Holmes, 2015). Catchment Management Forums are the first place that local participation in water resource management comes in in a practical way (DWAF, 2001). The CMFs are inevitably linked into local municipalities because people live in towns and will ask questions about water services (Haigh, Fox, and Davies-Coleman, 2010; Clifford-Holmes, 2015). Water resources and water services, cannot be separated. Institutionally, however, they are separated, and legally they create confusions, which have created a barrier to the effective implementation of IWRM in South Africa (Clifford-Holmes *et al.*, 2016).

In a catchment, CMFs operate at a local scale to discuss and advocate for smaller areas of interest in the larger WMA and work closely with the CMA, which can take local issues up to the national scale (DWA, 2013). Their role is to communicate with the CMAs through the development of a local CMS in their respective catchments (DWAF, 2001). In this regard, CMFs need to diversify their stakeholder representation and ensure that stakeholders are capacitated in order to meaningfully participate in engagement spaces like the CMS development (DWAF, 2001; DWAF, 2007). The purpose of this study was to engage with stakeholders participating in the development of a local CMS, and to investigate epistemic (in)justice within the process as perceived by all stakeholders.

The disjunctions in the Water Law and its implementation in South Africa have become barriers to proper implementation of IWRM, and increase the risks of epistemic injustices being perpetuated through attempts at implementing IWRM in SA. If we are to make participation real, people need a coherent space in the confusion. People are stuck in the middle of a developmental muddle, and in that little space that people have, it is necessary to make it as just and equal as possible, through participatory processes. Attempts are made to push the system towards justice

from the bottom. The next section defines the two levels of strategic planning, of which the CMS is part.

1.3.2. Two Levels of Strategic Planning

The government uses strategies as water management tools, and there are two levels of strategies, namely, the National Water Resource Management Strategy (NWRS) and the Catchment Management Strategy (CMS) (DWAF, 2007; King and Pienaar, 2011). Strategies are intended to guide implementation practices that are aligned with the three guiding principles for water management principles: equity, sustainability, and efficiency (DWAF, 2007). Generally, the aim is to share the water fairly among users (equity), make sure the water is used in a manner that will ensure its availability in future (sustainability), and guide the use of water in ways that take account of others' needs while using water for social and economic benefit (efficiency).

National Water Resource Strategy (NWRS)

The NWRS is the overarching implementing tool for the provisions and requirements made in the NWA in the long term (Palmer *et al.*, 2004). The Minister is the main overseer of the NWRS, and the NWRS has to be developed through public consultation (Karodia and Weston, 2001; DWAF, 2007). This shows how IWRM promotes epistemic justice (explained in detail in Chapter 2, basically, a process free of prejudice) because everyone's view is credible and must be taken into account when developing the NWRS. The NWRS makes provision for cooperative governance and provides the framework for the institutions that assist the Minister in water resource management (Haigh, Fox, Davies-Coleman, and Hughes, 2008; Schreiner, 2013). It draws its power from the NWA and needs to ensure the availability of water for the environment, basic human needs, and for social and economic development in the long term (DWAF, 2007). The NWRS needs to put consultation and participation at the core of its functions. It provides for the establishment of CMAs, and currently, nine WMAs have been identified for CMAs to manage (DWA, 2013). The NWRS is revised regularly and to date, NWRS (2004) and NWRS (2013) have been published.

Catchment Management Strategy (CMS)

A CMS, developed by a CMA, is a legal document that puts in place visual and tactical actions towards IWRM (DWAF, 2007; Rogers and Luton, 2011). The CMS is the tool guiding the implementation of IWRM in South Africa, based on the best available information, considering the current situation, about how the situation might change later, where the stakeholders want to see their catchment and how that can be achieved (DWAF, 2007; sisitka, n.d.). Section 10 (2) of the NWA clearly states the importance of consultation with as many role-players as possible during the development of a CMS (RSA, 1998). The NWRS provides a framework that must be adhered to by the CMS (Department of Water Affairs and Forestry, 2004; DWA, 2013). The purpose of the CMS is to: i) set principles for allocating water to existing and new water users; ii) provide the framework for managing water resources within water management areas; and, iii) ensure that water resources in the Water Management Area are protected, used, developed, conserved, managed and controlled (DWAF, 2007; King and Pienaar, 2011).

Initially, there were nineteen WMAs in SA (DWAF, 2004). However, the number was cut to nine WMAs in March 2012 following viability and resource capacity assessment, which led to some of the WMAs being merged (DWA, 2013; Burt *et al.*, 2015). The nine WMAs are; 1) Limpopo, 2) Olifants, 3) Inkomati-Usuthu, 4) Pongola-Umzimkulu, 5) Vaal, 6) Orange, 7) Mzimvubu-Tsitsikamma, 8) Breede-Gouritz and 9) Berg-Olifants (*refer to Figure 1 below*) (DWA, 2013; Munnik *et al.*, 2015). The water resources in these WMAs are managed by CMAs (DWS, 2015; DWA, 2013). Some WMAs comprise mainly a large primary catchment, with sub-catchments; others comprise many smaller primary catchments flowing in parallel into the ocean (Palmer *et al.*, 2004; Munnik *et al.*, 2015).

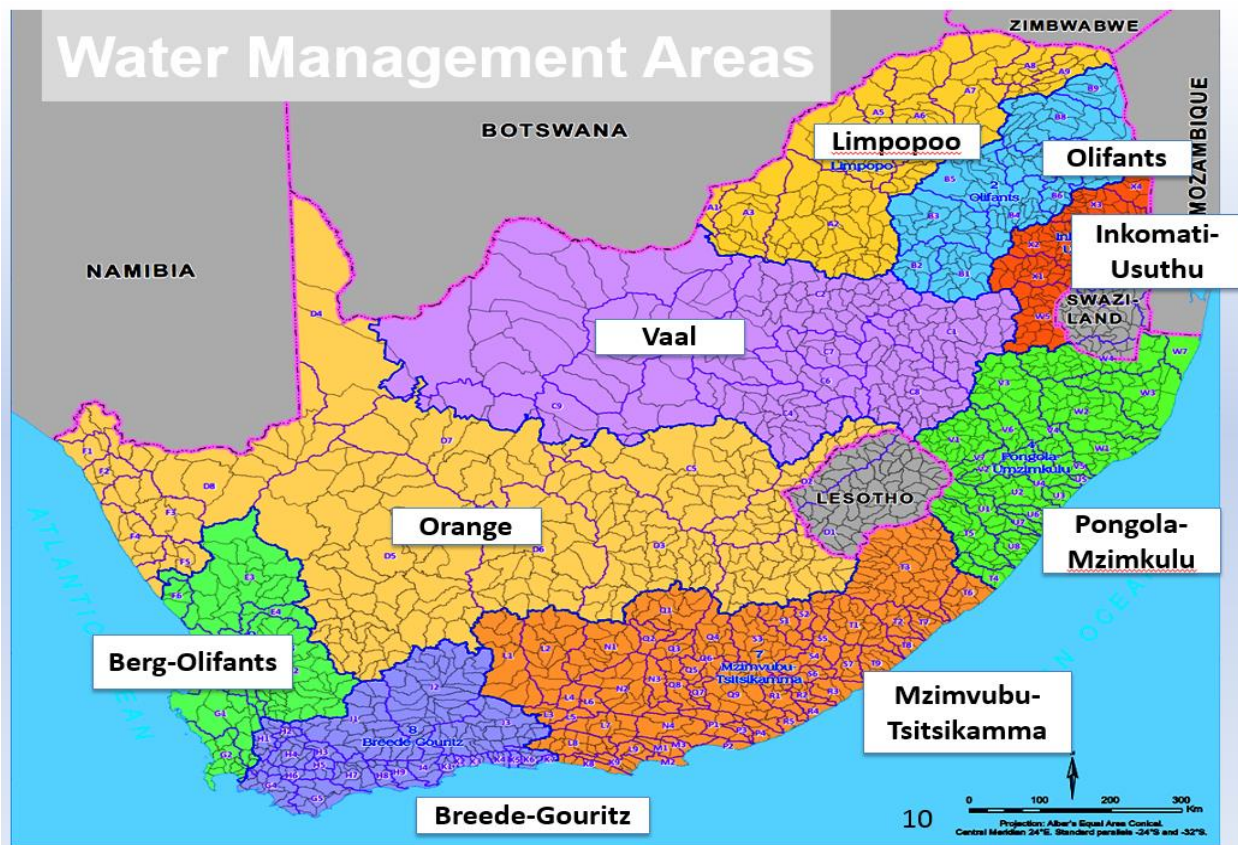


Figure 1: Map of the nine Water Management Areas as announced in March 2012. The Upper Kowie catchment is part of WMA 7 (shown in orange on the map). The Inkomati-Usuthu (darker orange), is the WMA that has applied the approach which the Mzimvubu-Tsitsikamma CMA hopes to adopt, (Source: “WISA2014: Dutch water boards assist in creating new Catchment Management Agencies, South Africa”, 2014).

There are some challenges that are associated with the use of WMAs as water resource management units. On one hand, boundaries of some of the WMAs coincide with river catchments, so water resources are managed as functional units. On the other hand, the mismatch between municipal and WMA boundaries means that coordinating public participation is likely to be complex (Pollard and Du Toit, 2005). The Mzimvubu-Tsitsikamma (M-T) CMA is responsible for WMA 7, and the M-T CMA is working to establish CMFs across the WMA, to ensure local perspectives can be communicated to water resource managers. One of these CMFs is the Makana Water Forum, being organised from the city of Makhanda, found in the upper reaches of the Kowie River catchment. This study focusses on the Makana Water Forum and forms part of a broader project to establish the forum in the region (described in Chapter 3). This study focused on reflexively evaluating the level of epistemic (in)justice as the MLM Residents, through their local

forum worked towards developing a local CMS following the methods of an APP (Rogers and Luton, 2011).

1.3.3. Challenges to the Effective Implementation of IWRM in South Africa

The main challenge to the successful implementation of IWRM in SA is the Water Law itself (Du Toit and Pollard, 2008); firstly, by creating an institutional split for water resource management and water services delivery, and secondly, the use of natural boundaries, which in turn fail to acknowledge the impacts of political boundaries (Haigh *et al.*, 2010; Clifford-Holmes, 2015).

Ideally, the NWA should be the overarching legislation for water-related matters because the water that is provided through services (provided for by the Water Services Act (No. 108 of 1997)), comes from the resource (provided for by the NWA). However, the Water Services Act was published in 1997, before the NWA, which came out in 1998. This has caused an institutional development that is divided, where water resource management went to CMAs, while the services related to water supply and sanitation were given to municipalities to manage following the Constitution (*refer to* Figure 2 below). The split of the two Acts is what Prof. C.G. Palmer³ refers to as a ‘historical accident’, because it has become the foundation of the confused and separate resources and service delivery management (Palmer *pers. comm.*, 2018).

³ Professor Tally Palmer was a member of the Water Law review panel (1995-1996) and committee (1995-1996), and she commented during our supervision meeting at the Institute for Water Research, Rhodes University

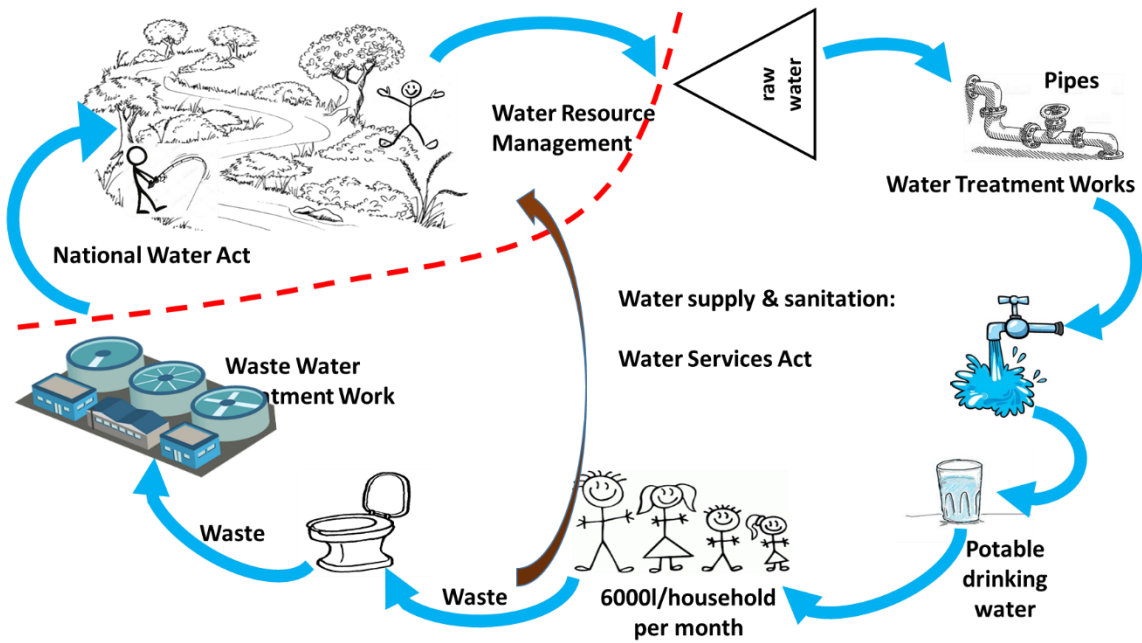


Figure 2: A schematic representation of the South African water legislation what is provided for by the National Water Act and by the Water Services Act. The red line divides the water legislation into the left part (what the National Water Act provides for) and the Water Services Act which provides for the right side. The National Water Act provides for the management of water resources, while water supply and sanitation services are governed under the Water Services Act. Water that is provided through service delivery comes from the water resource as raw water captured in dams, to be taken out for agricultural uses, and urban uses through the water treatment works, then exits taps as potable water supplied to residents at 6000L/household/month. The water then leaves the household as waste from the different uses like flushing the toilet. While some of the waste goes directly into the water resource, some goes to the wastewater treatment works, where it is treated, and deposited back into the water resource, (Source: Palmer, 2018).

The institutional split poses a challenge because there is no clear role for local government in IWRM (refer to Figure 3 below) (Clifford-Holmes, 2015). The gap in the legislation is that local government has the responsibility to deliver water services to Residents, but there is no clear stipulation linking local government to the protection of the water resource, which is the water supply source (Haigh *et al.*, 2010; King and Pienaar, 2011; Clifford-Holmes *et al.*, 2016). This means that local government through municipalities are constitutionally and through the Water Services Act, water services providers (WSP) and water services authorities (WSA), but their responsibilities do not cover the well-being of the resource (Haigh *et al.*, 2010). According to the

DWAF (2007), another barrier is that, where the roles of the municipality as a WSP and WSA are not separated, the problem of a conflict of interest (player/referee) may arise (DWAF, 2007).

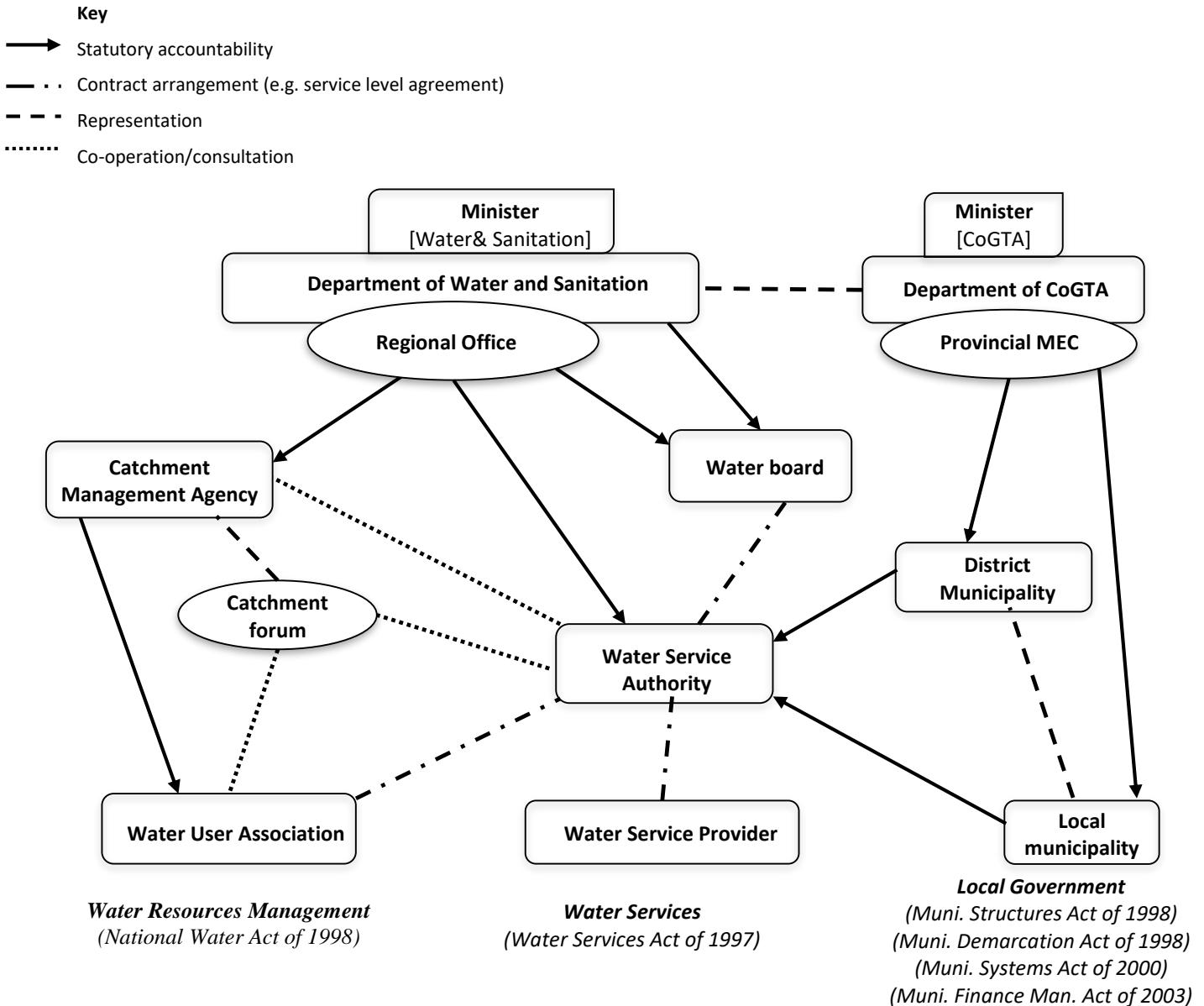


Figure 3: A schematic representation showing the three sectors that water management institutions in South Africa cut across: water resources management, water services, and local government. Both the National Water Act and the Water Services Act support decentralisation through the establishment of institutions. Water management institutions are Catchment Management Agencies (CMAs) and Water User Associations (WUAs), while water services are provided by municipalities at a local government scale, where the municipality can either be the Water Services Provider (WSP) and Water Services Authority (WSA), or sub-contract the duties of a WSA to

another agent. The Department of Cooperative Governance and Traditional Affairs (CoGTA) is responsible for overseeing the provision and regulation of water and sanitation at local government scale. (Muni: (Municipality), (Source: Clifford-Holmes, 2015: 125).

Local government should play a vital role in bringing all the parties together for IWRM because they are situated right between policy-making and water users (Clifford and-Holmes, 2015). The incompatible boundaries of municipalities and catchments, however, is another barrier to the implementation of IWRM in South Africa as it complicates public participation (Du Toit and Pollard, 2008). For IWRM to be successful, people should play a huge role: people live in towns and get water from their catchment; however, they do not identify themselves within catchments, but rather within their municipalities (Pollard and Du Toit, 2005). The confusion between municipal and catchment boundaries applies not only at the ordinary citizen level, but also trying to engage ward committees and community development workers in CMFs ends up making things unclear for them because their duty is to deal with water and sanitation services (municipal), instead of the water resource (DWAF, 2007). The issues of boundaries, therefore, affect public participation, and if it is confusing, people end up unwilling to participate (Du Toit and Pollard, 2008).

Catchment Management Forums are established under the NWA, but are typically rooted in towns and end up dominated by people who are therefore more interested in water delivery than water resource management. This highlights why it is preferable to have a CMF with representation from both the CMA (resource managers) and WSP and WSA (service managers) so that water and sanitation services and water resource management can be considered holistically. In 2016, the then Minister of Water and Sanitation called for water and sanitation forums, where communities could engage on water and sanitation matters (“*Water, sanitation forum ready to work in Kannaland*”, 2016). This call led to the establishment of the Upper Kowie Water, Sanitation and Catchment Management Forum (now Makana Water Forum), which merged water resource management and water and sanitation services. However, the name had to change to Makana Water Forum due to the issue of boundaries which stakeholders could easily identify with (Section 3.5)

I am interested in policy and law because it allows me to make sense of the role of participatory governance. This background of the development of water policy and law places CMFs as non-statutory institutions at the centre of participatory governance (Munnik *et al.*, 2015). Following this, I am even more centrally interested in the role of CMFs, which are the primary platforms for public participation in water resource management (DWAF, 1997; DWA, 2013). The institutions are called CMFs because they come out of the tradition of the resource in the NWA, which is based on catchments as units of water resource management, but they are stuck in the local setting, where people are concerned with services, not the resource. That is why we end up with a water forum instead of CMF.

In South Africa, IWRM finds a place in policy and law, with strong emphasis on public participation through institutions. However, the institutions come out of a muddled place (due to conflicting legislation): the separation of the NWA and the Water Services Act; and the Constitution, which stipulates water is a national entity, but its delivery is local. The establishment of CMFs that deal with water and sanitation services jointly with water resource management could resolve the confusion that was created by the separated water legislation. The engagement of the different stakeholders in IWRM raises issues of conflict of interests, along with issues of fairness and justice in participation, and how they are dealt with. The next chapter describes the literature on how adaptive methods can be used to deal with injustices associated with community participation in decision-making projects.

CHAPTER 2: STRATEGIC ADAPTIVE MANAGEMENT AND EPISTEMIC JUSTICE

2.1. Introduction

Adaptive management's learning-by-doing characteristic makes it suitable to deal with uncertainties and multiple, sometimes conflicting, perspectives that are represented in complex systems such as catchments (Rogers and Luton, 2011; Roux and Foxcroft, 2011). In South Africa, Strategic Adaptive Management (SAM) was developed to deal with the South African context; it combines adaptive management's learning-by-doing with recognition and inclusion of multiple stakeholders and their different views. Successful management requires adaptive governance (AG) that incorporates multiple interests and perspectives, to set the rules and norms about resource use and protection (Chaffin, Gosnell and Cosens, 2014). Adaptive management also requires careful planning (adaptive planning), to increase the chances of successful implementation of the management options (Roux and Foxcroft, 2011). Epistemic justice is central to this because involving multiple perspectives will require equal consideration and respect for all the knowledge types that are represented and expressed in the adaptive planning stage. The adaptive planning component plays a vital role in the successful implementation of SAM in the long-term because Adaptive Planning Process (APP) is largely centred around stakeholders negotiating their desired future, while incorporating the diverse interests of the stakeholders involved (Roux and Foxcroft, 2011; Palmer and Munnik, 2018).

This chapter starts with a description of catchments as complex social-ecological systems (CSEs) and moves on to discuss how adaptive management is applicable in dealing with the uncertainties found in complex systems. Two adaptive processes namely, i) Adaptive Governance and ii) Adaptive Planning Process (APP) are described. Then I move on to explain why an APP should be evaluated. Following this, I explain in more detail what epistemic (in)justice is and why it is important to consider in applying adaptive planning approaches for the effective implementation of Integrated Water Resource Management (IWRM) in South Africa.

2.2. Catchments as Complex Social-Ecological Systems

Water does not respect political boundaries and therefore, catchments are regarded as natural units for water resource management (RSA, 1997; DWA 2013; Cilliers *et al.*, 2013). A catchment is an

area over which water is collected towards a single outlet (Palmer *et al.*, 2002; DWAF 2007; Sisitka, n. d.). A catchment has natural boundaries that are defined by the highest geographical points such as hills and mountains, and is basin-shaped (Palmer *et al.*, 2002; Palmer and Munnik, 2018). Importantly, a catchment also contains both bio-physical and social elements, including all land use activities, natural resources and people (Sisitka, n. d.). Just as the water resources are linked through the water cycle, the bio-physical and human activities on land have a direct and indirect impact on water quality (Sisitka, n. d.; Folke, Biggs, Norström, Reyers and Rockström, 2016). The biophysical and social activities upstream have an influence on the quality of downstream water quality (Nepal, Flügel and Shrestha, 2014). The interactions between all these social and biophysical components make catchments complex social-ecological systems (CSES) (Folke *et al.*, 2005; Folke, 2016).

Cilliers (2000) describes complex systems as made up of many simple elements that have strong interactions with their environment as they exchange energy or information; their interactions are non-linear, and the magnitude of change is not proportional to that of the cause; the interactions happen over variable times and spatial extents, and lead to many feedback loops in complex systems. Complex systems are open, and therefore, function at conditions that are not ideal; they tend to re-organise themselves in order to adapt to changes around them; and they have storage memory that links them to their history and determines the behaviour of the system over time (Cilliers, 2000; Pollard and Du Toit, 2008). In one way or another, catchments are large complex systems with all these characteristics, and responsibility lies with someone to make the right decisions about their management (Cilliers, 2000; Pollard and Du Troit, 2007; Cilliers *et al.*, 2013). The complex nature of the connections between the biophysical and social aspects of a catchment makes predictions, responses and interventions difficult (Roux and Foxcroft, 2011; Cilliers *et al.*, 2013). Preiser (2012) however, points out that paying attention to the study of complexity could help answer the world's toughest problems, including water resource management.

We all live in catchments, together with animals, plants and other biota (Sisitka, n.d; Palmer and Munnik, 2018). Natural and social aspects of the catchment are so interrelated that they form various interactions that are complex in nature (Cilliers *et al.*, 2013). In every catchment, there is a range of stakeholders with different knowledge, values and beliefs, who may have

conflicting interests, which are better negotiated through collaborative processes to achieve inclusion and equity (Palmer *et al.*, 2004; Folke *et al.*, 2016). The values of those in a catchment, together with the social, technological, environmental, economic and political (V-STEER) characteristics of a catchment, which can potentially affect the effective management of a catchment need to be considered in decision-making processes (Pollard and Du Toit, 2007; Rogers and Luton, 2011; Kingsford and Biggs, 2012; Palmer and Munnik, 2018).

The V-STEER framework includes the needs of the natural environment, which have to be considered alongside people's needs in decision-making (Sisitka, n. d.; Palmer *et al.*, 2004). People need the environment as much as the environment needs people because the environment has an influence of human-related issues such as poverty, democracy, health, inequality, justice, rights, security and peace (Folke *et al.*, 2016). Understanding the inter-dependence between people and the environment may change people's practices towards the environment (Rogers *et al.*, 2013; Folke, 2016). That is to say, people need to start by accepting that their system is complex, so that they can start to think and act systematically (Ison, 2010; Rogers *et al.*, 2013).

Dealing with complexity in designing a research study requires the researchers to state the boundaries of the study, acknowledging that these boundaries are porous (Weaver *et al.*, 2017). However, setting boundaries has some implications. Firstly, it reduces the complexity of the system because, in drawing boundaries, we always leave out certain elements that still interact with the social-ecological system in a non-linear way (Cilliers *et al.*, 2013). Secondly, boundary setting is usually not entirely objective because it depends on the values of the researcher, as it is an almost impossible task to cover all interactions of a complex system (Audouin *et al.*, 2013). Furthermore, difficulties arise through the use of 'catchment' as a management unit for countries such as South Africa because of overlapping political (local and regional) and natural boundaries (Audouin *et al.*, 2013). The difficulty is that both traditional and formal political boundaries also overlap, and this may be confusing for stakeholders and hinder their participation in water resource management (Du Toit and Pollard, 2008). In the study and research conducted for this thesis, an important boundary has been set: catchments are considered as units for water resource management.

2.3. Adaptive Management

Adaptive management approaches are considered more effective in dealing with complex and uncertain systems because they are flexible and based on the principle of learning-by-doing (Folke *et al.*, 2005; Roux and Foxcroft, 2011). Adaptive management approaches suggest experimentation with the different management options that are implemented, monitored, evaluated and adapted until success is achieved (Meffe, Nielsen, Knight and Schenborn, 2002; Ison, 2010). The key elements of adaptive management include:

- Clearly defining management goals;
- The development of a number of feasible “management strategies to achieve those goals”;
- The use of a comparative experimental framework while implementing at least two management strategies in order “to spread risks of management failure and improve understanding of system responses to management”;
- The monitoring and evaluation of the alternate strategies; and
- The “iterative modification of management strategies to improve management outcomes” (Keith, Martin, McDonald-Madden and Walters, 2011: 1175).

Adaptive management needs to be flexible enough to respond to the uncertainties found in complex systems, while striving towards achieving the desired future goals of society (Gunderson, 1999; Linnenluecke, Verreynne, de Villiers Scheepers, and Venter, 2017).

Adaptive management approaches are appropriate for solving problems in CSES since they take account of the fact that social and ecological systems are forever changing (Allen, Fontaine, Pope and Garmestani, 2011; Rogers and Luton, 2011). Adaptive management highlights learning through the belief that there is room for incorporating more knowledge in natural resource management (Allen and Jacobson, 2009; Folke *et al.*, 2016). Through adaptive methods, enough knowledge can be gathered and used to make progress towards social and ecological justice in the long term (Swilling and Annecke, 2012).

Ison (2010) uses the metaphor of a pair of shoes to describe adaptation as co-evolution. A pair of shoes that one buys and wears regularly fits better than a pair that was bought and packed away for a year (Ison, 2010). The reason for this is that the one that is worn more often fits better due to the recurrent interaction with the feet, meaning the shoes have co-evolved with the feet as

they have changed over time (Ison, 2010). This is the principle of adaptive methods, where a number of plans (shoes) are tried until the perfect fit is found.

However, Keith et al. (2011) blames the failure of these methods on researchers who have failed to conduct adaptive management methods correctly but still insisted on labelling them as adaptive management methods. In South Africa, a version of adaptive management that was specifically meant to fit the South African context is called Strategic Adaptive Management (SAM).

2.4. Strategic Adaptive Management (SAM)

Strategic Adaptive Management (SAM) is a stakeholder-centred, learning-oriented and value-based approach to the management of CSES, which promotes collective decision-making towards a desirable future (Rogers and Luton, 2011; Palmer and Munnik, 2018). Strategic Adaptive Management emerged from the literature and practice of adaptive management due to the limitations of traditional adaptive management, which led South African scientists and water and conservation managers to introduce SAM to support river and catchment management (Rogers and Bestbier, 1997; Kingsford and Biggs, 2012). Strategic Adaptive Management was developed to cover the gaps that were left by older adaptive methods, to make SAM more applicable for the South African context (Rogers and Bestier, 1997; Kingsford and Biggs, 2012).

The limitations of traditional adaptive management approaches according to Rogers and Luton, (2011), were that they were unrealistic because they required a large homogeneous area, which was not an easy task. The processes also required experts to do predictive modelling, which restricted the level of stakeholder participation and, therefore, was not compliant with IWRM (Rogers and Luton, 2011). The SAM approach is applicable in complex systems like catchments because it allows multiple stakeholders to engage, unlike standard adaptive management that was usually done by a single entity of management (Rogers and Bestbier, 1997; Pollard and Du Troit, 2007; Roux and Foxcroft, 2011). This means that SAM was designed to correct epistemic injustices that were caused by the traditional adaptive management.

Strategic Adaptive Management comprises a series of four steps used to devise plans for systems to be managed (Figure 4). It starts by setting the desired future condition, which builds a common understanding among the role players, and for them to set a common desirable future

(Rogers and Bestbier, 1997; Kingford and Biggs, 2012). The next step is management options, based on how the role players aim to achieve the desired future (Rogers and Bestbier, 1997; Kingsford and Biggs, 2012). The third step is operationalisation, where the work towards achieving the desired future is done and then, evaluating and learning, which refers to testing and checking for any loop holes in the management options that were implemented (Kingsford and Biggs, 2012).

STRATEGIC ADAPTIVE MANAGERMENTS (SAM): STEP-BY-STEP

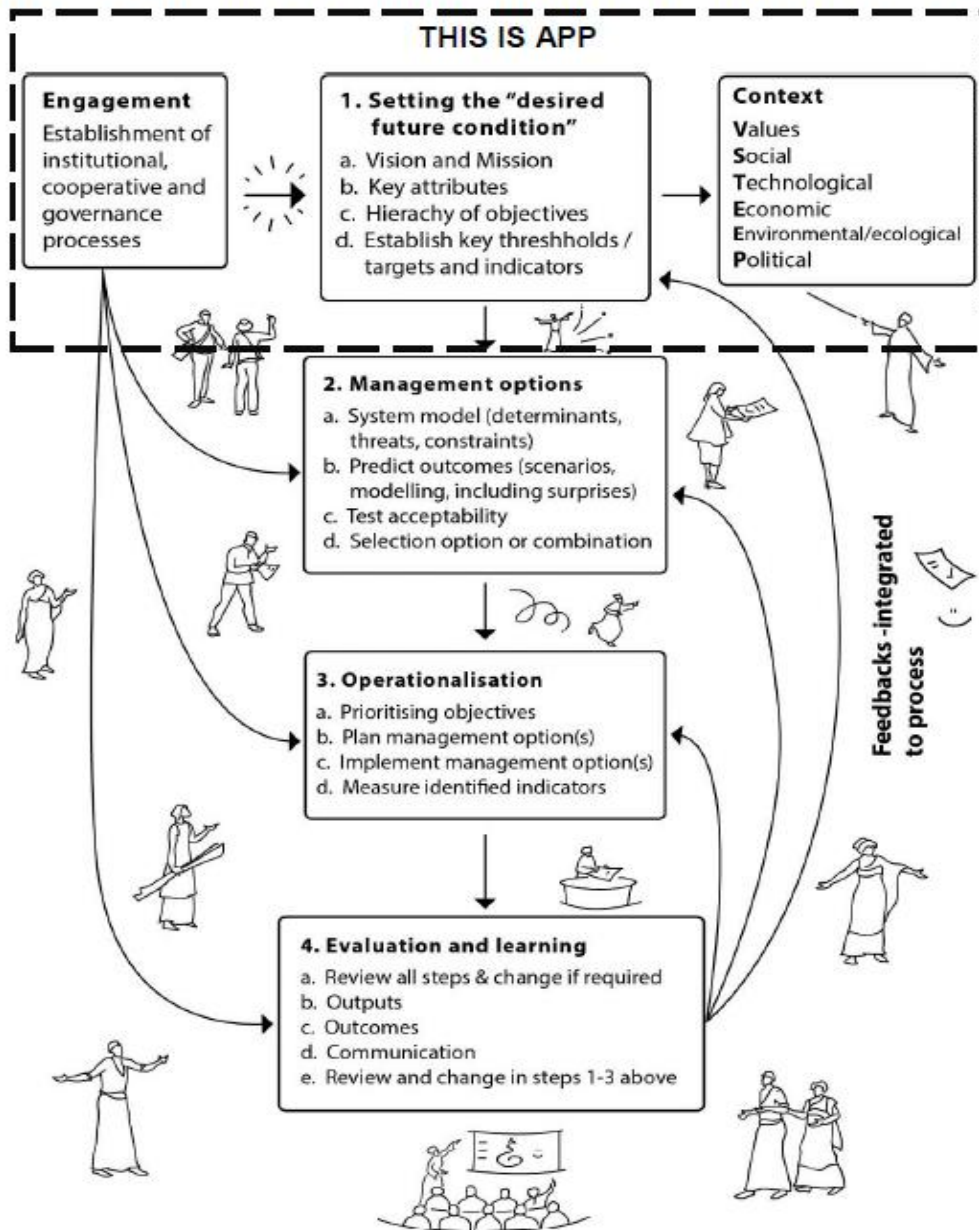


Figure 4: Strategic Adaptive Management (SAM) (Kingford and Biggs, 2012; Palmer and Munnik, 2018) first sets out where the system wants to be in future (setting the desired future condition); how it aims to achieve the desired future (management options); doing the work towards achieving the desired future (operationalisation) and then; testing and checking for any loop holes in the management options that were implemented (evaluating and learning). The dotted line shows the planning component of the SAM, called the APP and was the focus of this study (Source: Palmer and Munnik, 2018: 14).

One of the challenges of a SAM approach is that conflict of interests may arise, mainly due to the large number of stakeholders who have to be included and involved, especially during the planning

phase (Kingsford and Biggs, 2012). The planning phase of SAM is founded on the principle of interest-based negotiation and consensus building, and collaboratively seeks outcomes that meet the interests of all stakeholders (Frame, Gunton and Day, 2004). Context is an important aspect in the implementation of SAM, and the use of the V-STEPP framework gives stakeholders an opportunity to develop a shared picture of the context, which will help in taking them to a shared reality (Rogers and Bestbier 1997; Rogers and Luton 2011; Kingsford and Biggs 2012). Shared inquiry tends to produce shared reality, which can help to overcome the many forms of social injustices (Ison, 2010).

SAM was successfully used by the longest standing CMA, the Inkomati-Usuthu CMA (IUCMA) (formerly, Inkomati CMA), which also approved it as an appropriate tool to execute IWRM in the development of their CMS (Rogers and Luton, 2011). The traits of SAM as experienced by the IUCMA included adaptive, stakeholder-centred, learning oriented and value-driven (Rogers and Luton, 2011).

Ison's (2010) theory of change in complex and uncertain situations can be related to the SAM theory of reaching sustainable resolutions. Figure 5 shows Ison's illustration of how the inclusion of multiple perspectives towards concerted decision-making as in the case of SAM, influences social relations among the stakeholders, holding potential to improve their understanding of the situation, due to interacting and listening to each other people speak (Ison, 2010).

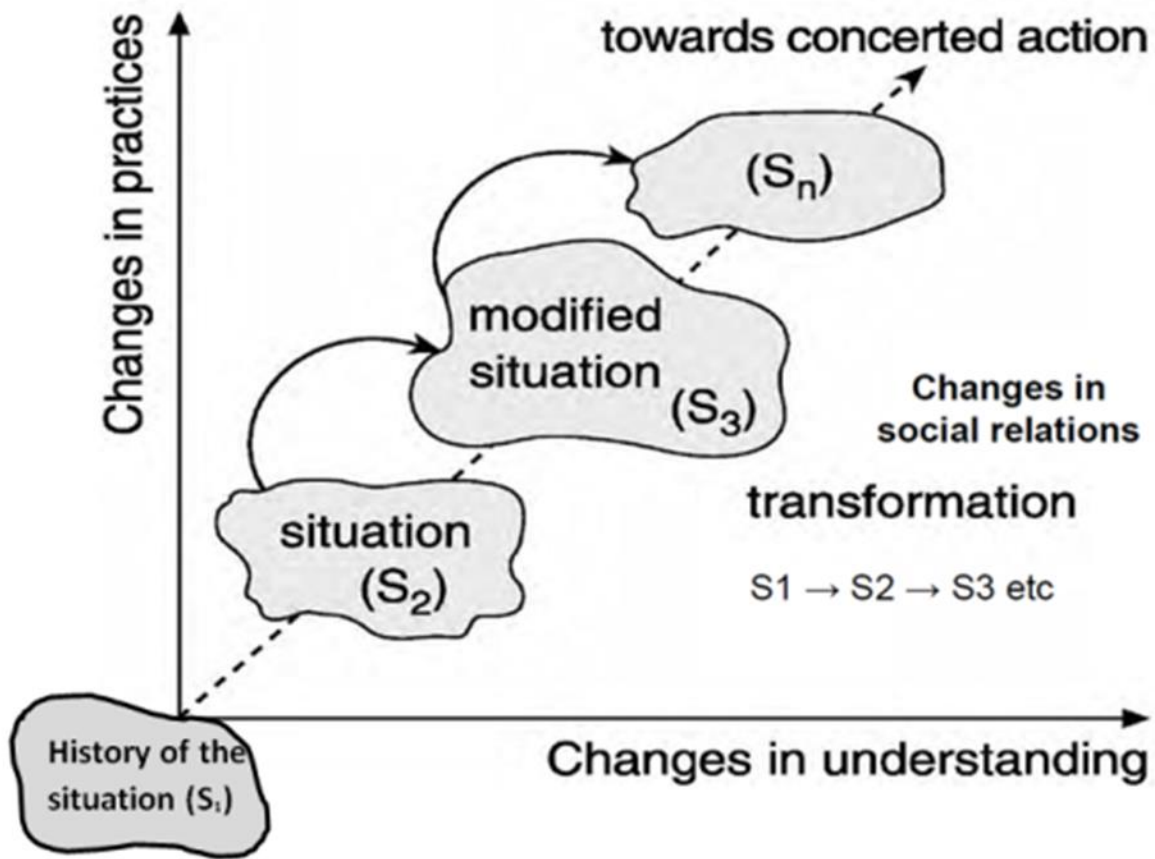


Figure 5: Transformation towards concerted action by stakeholders in a complex and uncertain situations, where multiple perspectives hold potential to improve stakeholders’ understanding, which could, in turn, lead to a change in practices. The change in understanding as shown on the x-axis holds the potential to lead to a change in practices (y-axis). (S=situation, and S₁, S₂, S₃, S_n, represents situation 1, situation 2, situation 3, and any number of situations that may be under discussion, respectively), (Source: Ison, 2010: 10).

The Mzimvubu-Tsitsikamma (M-T) CMA and its Catchment Management Forums (CMFs) have also adopted the APP approach in developing their local Catchment Management Strategy (CMS). However, the challenge is that unlike the WMA 3 (Inkomati-Usuthu), which has one main river, and four local catchments, the M-T WMA has several rivers, and over twenty local catchments (*refer to Figure 1 page 15*). The thinking behind working on local scales through CMFs was that developing local CMSs might build an overall CMS to cover all the parts of the M-T Water Management Area (WMA). The idea is to achieve the National Water Act’s (No.36 of 1998) provision on participatory water governance, where all interests are actively included. It is

important to achieve a participatory approach that produces local CMSs, which can then be sent to the CMA to use in adding and building towards the M-T CMS.

Strategic Adaptive Management (SAM) consists of four processes: Adaptive Governance, Adaptive Planning, Adaptive Management, and Adaptive Evaluation (*refer to* Figure 6) (Palmer and Munnik, 2018). Adaptive Governance includes the formal and informal ways that guide the activities of a group of people who work together in management (Chaffin *et al.*, 2014; Novellie, Biggs and Roux, 2016). Adaptive Planning refers to setting the management options of a system (Roux and Foxcroft, 2011). Adaptive Management is the implementation of the options that were developed in the planning stage. The Adaptive Evaluation monitors and reviews the progress of the other steps to inform the adaptation. For the purpose of this study, only governance and planning will be discussed further because both of them influence the early stages of stakeholder relationship building, and where epistemic injustices need to be eliminated successfully implement management options during the management stage.

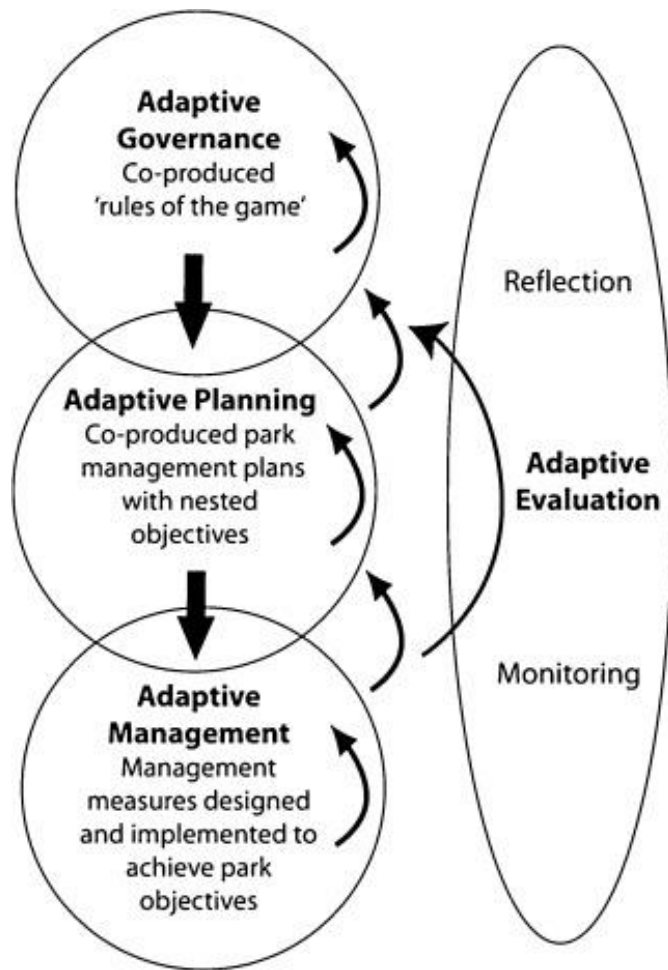


Figure 6: The four adaptive processes of Strategic Adaptive Management as applied in preparing and implementing park management plans. Straight arrows indicate sequential links; curved arrows indicate feedbacks, (Novellie *et al.*, 2016: 41).

2.3.1. Adaptive Governance

Adaptive governance is defined as “a range of interactions between actors, networks, organizations, and institutions emerging in pursuit of the desired state for social-ecological systems”, (Chaffin *et al.*, 2014:56). It is a type of environmental governance that is considered more suitable in complex and uncertain situations (Folke *et al.*, 2005; Chaffin and Gunderson, 2016; Sharma-Wallace, Velarde and Wreford, 2018). Environmental governance refers to the formal and informal ways that guide society’s actions towards the use and/or protection of their environment (Chaffin *et al.*, 2014; Chaffin and Gunderson, 2016). Multiple disciplines and perspectives are needed in order to address the multiple dynamics associated with participatory processes, such as power and resource imbalances (Sharma-Wallace *et al.*, 2018). Adaptive pays

attention to providing a socially enabling environment to manage the ecosystem (Morrison and FitzGibbon, 2014). This socially enabling environment is provided through CMFs in South Africa, and by exploring participants' experience of engaging in an integrated space of CMS development, this study hoped to assist the Makana Water Forum towards effective engagement of their local community in water resource and water services management.

Ison (2010) suggests that if management of a CSES such as a catchment is to be successful, it is necessary to instil systems thinking among all actors so that they can be motivated to act together in the face of uncertainty. All those who participate in an adaptive governance team need to accept that the system is complex and is characterised by uncertainty so that they understand the need for an adaptive approach (Pollard and Du Toit, 2008; Rogers and Luton, 2011; Rogers *et al.*, 2013). Institutions serve a vital role in the governance of the social-ecological systems because generations exchange and pass on information to each other (King and Pienaar, 2011). Institution refers to the principles and practices that guide people's way of living (King and Pienaar, 2011; Clifford-Holmes, 2015). Systems self-organise mainly as a result of an external force that brings sudden and sometimes extreme change, for instance, climate change or water shortage (Armitage, Plummer, Berkes, Arthur, Charles, Davidson-Hunt, Diduck, Doubleday, Johnson, Marschke. and McConney, 2009; Ison, 2010).

Understanding and tracking system dynamics requires periods that may be too long for funded research projects, which is where local people, with indigenous knowledge of the system, play a vital role (Olsson, Folke and Berkes, 2004; Berkes, 2009). The history and reaction to any change in a CSES are influenced by the system's memory (Cilliers, 2000). Local people possess historical memory about their surroundings, due to continuous learning over time, and can inform sustainable decisions (Folke *et al.*, 2005; Berkes, 2009; Ison, Alexandra and Wallis, 2018). This makes local people, together with other role players, vital in successful adaptive governance (Folke *et al.*, 2005). The emphasis on the social component, by including a diverse range of stakeholders, is what makes adaptive governance different from other forms of governance, and why it is applicable in this study (Morrison and FitzGibbon, 2014; Karpouzoglou, Dewulf and Clark, 2016).

Osslen and Folke (2004) suggest that the fact that systems organise themselves into institutions is essential because institutional memory holds the potential to reduce the risk of irrelevance in system dynamics research. Even though institutions and organisations are important,

clear definition of each stakeholder's role is important to tighten the governance system (Ojha and Hall, 2013). Building the capacity of all the role players through acquiring more knowledge and skills leads to effective adaptive governance. An integrated approach that takes account of all the bio-physical and human activities surrounding water resources is necessary to make better management decisions (Agarwal *et al.*, 2000).

2.3.2. Adaptive Planning

Adaptive Planning is an approach to natural resource planning which can be changed and developed to fit the changing circumstances in a complex system (Novellie *et al.*, 2016; Paille, Reams, Argote, Lam, and Kirby, 2016). This means that adaptive planning is not based on finding that single or ultimate resolution to management, but it is based on many management options that can be implemented at the same time until the right fit is found (Rauws and De Roo, 2016).

Adaptive planning approaches are based on participation by a diverse range of stakeholders, with different perspectives and sometimes with contradictory interests about the matter at hand (Rogers *et al.*, 2013). Planning should recognise multiple factors within the social-ecological system under management, in order to account for those that might influence the successful implementation of the management plan (Agarwal *et al.*, 2000). In order to be participatory, adaptive planning requires a transdisciplinary approach where academics, professionals and stakeholders collaborate (Lang, Wiek, Bergmann, Stauffacher, Martens, Moll, Swilling and Thomas, 2012). The importance of the collaboration is that communication, trust and consensus-building can be promoted, and those who participate can benefit (Kato and Ahern, 2008). During his facilitation of the APP with the Institute for Water Research, Rhodes University, Prof. K. Rogers⁴ said, “the best way to get what you want is to ensure everyone else gets what they want” (Rogers, 2017, *pers. comm.*). The focus of this study is an adaptive planning approach that was developed by South African scientists called the APP (Rogers and Luton, 2011).

Adaptive Planning Process

The planning component of SAM is the Adaptive Planning Process (APP) and has been proposed as an appropriate approach towards sustainable IWRM through its use by the IUCMA (Rogers and

⁴ Prof. Kevin Rogers is one of the founders of Strategic Adaptive Management, and facilitated the approach in the Inkomati-Usuthu CMS development.

Luton, 2011). The APP is regarded as an essential step for SAM to be properly executed (Roux and Foxcroft, 2011). The APP starts with the visioning process and ends with an objectives hierarchy (refer to Figure 7 below). The visioning process and objectives hierarchy are explained below.

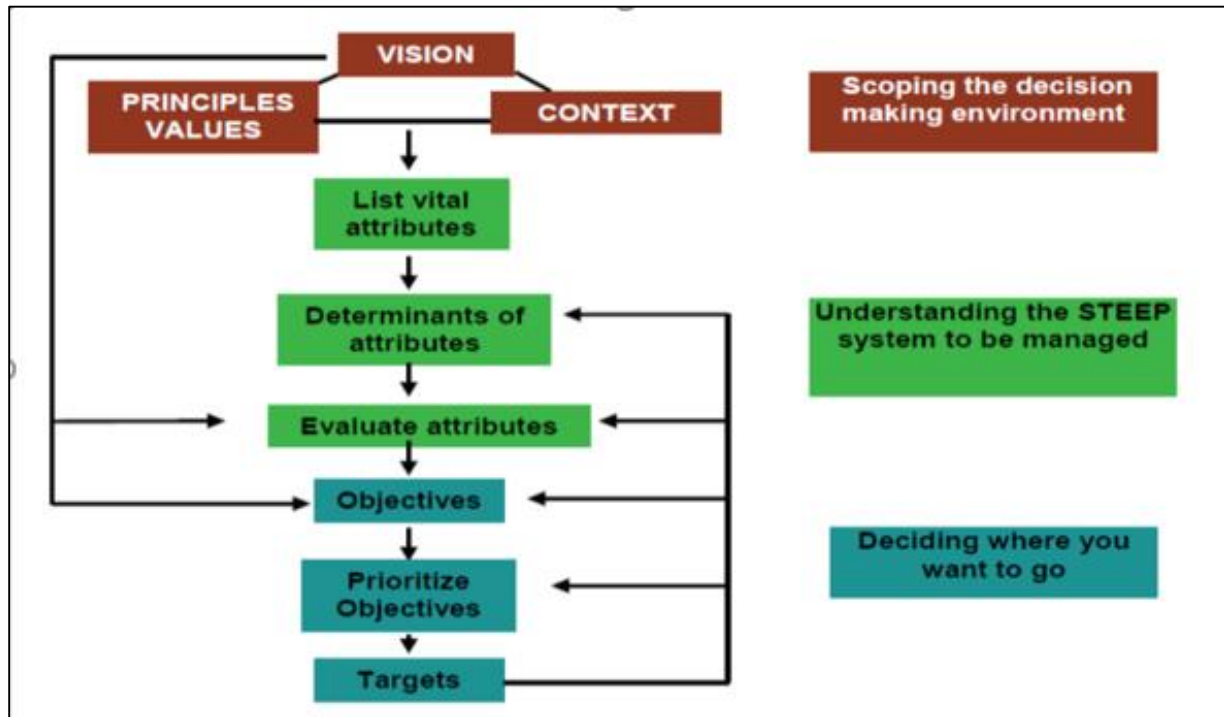


Figure 7: The Adaptive Planning Process starts with scoping the environment to be managed by defining the context, deciding on the value and principles to guide engagement in the long term, and the information being used to come up with a vision of where the stakeholders want to see their area in future. It then moves on to understanding the STEEP (social, technological, environmental, economic, and political) characteristics of the system, where stakeholders agree on the key attributes of the area, and their determinants, threats and constraints. They then move on to deciding where they want to go, by expanding the vision into a series of objectives of increasing focus, rigour and achievability, (Source: Roger and Luton, 2011: 6).

The visioning process is the stage of the APP where stakeholders agree on the desired future for their area by considering the context of the area under management, as well as the value and principles that should guide further engagements during the management stage (Pollard and Du Troit, 2007). During the visioning process, the context is described using the STEEP framework, which allows participants in the APP to collectively agree on the social, technological, environmental, economic, and political context of the system to be managed (Kingford and Biggs,

2012). The participating stakeholders then agree on the values and operating principles that will guide further engagement for management (Pollard and Du Toit, 2007; Rogers and Luton, 2011). The next step in the visioning exercise involves stakeholders reaching a consensus on the key characteristics of their catchment, as well as their constraints, threats and determinants to the key characteristics (Roux and Foxcroft, 2011). Key characteristics refer to the special features of the area to be managed, which can influence management options (Rogers and Bestbier, 1997; Roux and Foxcroft, 2011).

The information gathered through the preceding steps is used to develop a vision statement, describing where the stakeholders see their catchment in future (Roux and Foxcroft, 2011). Consideration of all the information that was used to get to the vision statement is important because it increases the chances of the vision being relevant to the area (Pollard and Du Troit, 2007). Involvement of all the stakeholders in the visioning process helps them to have a common understanding, and this becomes useful in future negotiations between managers and the public (Roux and Foxcroft, 2011; Palmer and Munnik, 2018).

These characteristics, according to Max-Neef (2005), help to answer two important questions: “what exists?” and “what are we capable of doing?” In addition to these questions, people’s beliefs and lived experiences must be incorporated to determine what to do, and what ought to be done, because the sustainability of the plan’s implementation depends on stakeholder buy-in at the planning stage (Audouin *et al.*, 2013). Again, this is important because it links to the point about epistemic justice being necessary to make APP truly participatory. If these beliefs and lived experiences are not taken seriously, or not understood then the process cannot work and the sustainability of the plan’s implementation may not happen.

Objectives hierarchy: a set of objectives that are formulated by expanding the vision into actionable and achievable activities, which can easily be monitored and evaluated during the implementation or management stage. The hierarchy starts with high-level objectives that are mainly related to the values of those participating in an APP; they are set to maintain the key characteristics of the area, and to resolve their threats and constraints (Roux and Foxcroft, 2011). The next level of objectives is pinned to the higher level objectives and the deconstruction takes place in an iterative process of deciding what needs to be done to achieve each objective, until the last level consists of targeted activities that can be monitored and evaluated (Pollard and Du Troit,

2007; Rogers and Luton, 2011). This step requires that as many stakeholders as possible participate because the stakeholder composition influences the prioritisation of the objectives during the implementation stage (Pollard and Du Troit, 2007).

The CMS development process (through workshops) includes doing the following before the actual drafting and implementation (Rogers and Luton, 2011):

- 1) Ensuring continuity of stakeholder participation - this can be done through, for instance, having the CMF members recruit all other stakeholders who may be interested in water management issues to attend workshops.
- 2) Stakeholder orientation workshop - have the members of the CMF, who are part of the community present to the new participants about the need for, and purpose of a CMS.
- 3) Preparatory empowerment workshops - which involve certain levels of counselling the most disadvantaged groups among the participants in order to get them ready to speak without feeling intimidated during the catchment visioning process.

To carry out APP, the facilitator goes around the room and asks everyone to express their views one by one (Rogers and Luton 2011). Many people, however, are not very comfortable speaking in public settings or in front of large groups, and these fears would have been exacerbated by a setting like that of an APP in which academics, professionals, and stakeholders from civil society (resource-rich and resource-poor) work together. However, equity in the process is presumed as there is no explicit mechanism designed to check whether participants felt included, or whether they understood the concepts under discussion. This research aimed to investigate this epistemic gap. It is crucial to deal with the injustices at this early stage to increase the chances for successful implementation of the plans (Cradock-Henry, 2013).

2.4. Why Evaluate the Adaptive Planning Processes?

True IWRM can only happen when all the role players are capacitated, in understanding and skills, and these need to be properly monitored during public participation (DWAF, 2007). Adaptive planning processes require collaboration among multiple stakeholders, and so, in addressing the question of why adaptive planning processes need to be evaluated, the literature on collaborative planning in resource management provides some insight and guidance. Given that collaborative processes are gaining importance in natural resources management, new approaches are being

developed in the quest to account for all the elements of a good collaborative process (German and Taye, 2008). There are some suggestions in the literature of what a good collaborative process entails, and they include stakeholder inclusiveness, knowledge building, and ability to guide development towards sustainability (Conley and Moote, 2003; Cradock-Henry, 2013; Faehnle and Tyrväinen, 2013). This means that it is important to evaluate collaborative planning processes because the feedback from the evaluation may lead to best practices of collaboration in future (Cradock-Henry, 2013; Faehnle and Tyrväinen, 2013).

According to Conley and Moote (2003), evaluation is meant to assist with one of the following: 1) to find out whether the justification to apply collaborative natural resource management holds true; 2) to deal with some opposing opinions about the approaches; and 3) to test and improve ways to make the approaches applicable at the grassroots level. Faehnle and Tyrväinen (2013) suggest that evaluation improves adaptive planning approaches because it accounts for things that participants in the collaborative process consider useful. Cradock-Henry, (2013) further mentions that evaluation helps assess a process' strengths and weaknesses, which can also benefit planners and researchers, especially for new approaches in order to target stakeholders' real needs (German and Taye, 2008). In essence, evaluation is not meant to verify, but to develop the approach (Gessler, 2009).

Literature highlights that evaluation methods, especially those that deal with the management of natural resources evaluate a process's ability to deal with power imbalances, and thus achieve participation, and improvement in the resource health (Carr *et al.*, 2012; Faehnle and Tyrväinen, 2013). Chess (2000) and Faehnle and Tyräinen (2013) go on to say that evaluation methods should also consider the complex nature of participation in that what works for the majority within a group might not work for other individuals within the same group, or other groups in a different context. The purpose of evaluating in this study was thus to test the applicability of APP in the local context of the upper Kowie catchment (in MLM), in order to recommend some improvements for further applicability in the implementation of IWRM. I follow the lead of these other researchers in that this study evaluated a process for participants' experience of power imbalances that could be due to identity prejudice. The study also incorporates the issue of complexity in that firstly, catchments were regarded as CSES, and secondly, conducting two

workshops, where the second workshop was adapted in response to the feedback from the first workshop.

Under adaptive governance, the involvement of multiple disciplines is vital in order to account for other socially influential circumstances which might determine the successful implementation of the adaptive plan (Sharma-Wallace *et al.*, 2018). This study investigated one of the social phenomena which could impact on the implementation of the APP, namely epistemic injustice (Fricker, 2003, 2007). In drawing on and integrating theory from philosophy about epistemic injustice in working with multiple stakeholders involved in the APP, this study has sought to take the call to work in transdisciplinary ways seriously.

2.5. Epistemic (In)Justice and Participatory Processes

The driving concern behind the research undertaken for this thesis was to investigate the level of a social injustice called epistemic (in)justice as experienced by stakeholders who participated in a local Catchment Management Strategy (CMS) development process using an APP. Epistemic injustice as coined by Fricker (2007) means: a wrong done to someone in their capacity as a knower. In other words, people are belittled in their capacity as a knower or have their credibility as knowers undermined (Anderson, 2012; Glass and Newman, 2015). Epistemic injustice can take two forms i) testimonial injustice and ii) hermeneutical injustice (Fricker, 2007; Anderson, 2012; Glass and Newman, 2015).

Testimonial injustice happens when one's ideas are not trusted to be credible because of the identity of the person who bears them due to the listener's stereotypes about the speaker (Fricker, 2007; Aultman, 2016; Schweiger, 2016). This means that one's social identity plays a role in order to get a fair chance of being heard. The example here could be that of a young black man being stopped at a roadblock because it is suspected that they stole the car, even though no car that looks like his has been reported missing (Catala, 2015). The young man is simply suspected and even when he tries to explain himself, nobody believes him because someone like him in society is associated with stealing and lying, thus his testimony is systematically discounted (Catala, 2015). When conducting an APP, this injustice can take place when for example an idea that is raised by a member of civil society from a disadvantaged background gets discounted by the academics and/or professionals who are listening just because the person does not hold a formal educational qualification.

Hermeneutical injustice occurs when a marginalised social group is denied the chance to explain their social experiences because they lack the necessary tools or evidence to explain themselves, such as women, people of colour, and gay people (Fricker, 2007; Glass and Newman, 2015; Schweiger, 2016). This usually happens because that group has been excluded from the knowledge production processes for so long that they lack the vocabulary or grammar to explain their experiences, and when they try, their interpretation is regarded as non-intelligent and senseless by hearers from dominant groups (Catala, 2015; Aultman, 2016). The lack of interpretive capacity leads to that victim's inability to understand themselves in different social contexts (Aultman, 2016). The example used by Fricker (2007) here is of women trying to describe their experience of sexual harassment before the concept was formally popularised; their interpretation of this experience used to go unattended because the labels used to describe the experience were not common to the general public; women were excluded from collective descriptive labels, and therefore, they were misunderstood (Fricker, 2007; Catala, 2015; Aultman, 2016).

Social forms of injustice, such as epistemic injustice, are usually a result of power dynamics that become the primary challenge to sustainable collaboration (Fricker, 2007). There are always power struggles that create segregation within groups as decisions usually favour the powerful within a group, ignoring the views of the disadvantaged (Frame *et al.*, 2004; Fricker, 2007). Anderson (2012) suggests that individual virtues are not the answer to correct institutional injustices, but rather, epistemic institutions need to be re-designed. For her, structural injustices call for structural remedies. Epistemic injustice in structural settings like the Makana Water Forum may be due to the following group-based credibility deficits: 1) differential access to markers of credibility 2) ethnocentrism and 3) shared reality bias (Anderson, 2012).

Differential access to markers of credibility is when certain characteristics are used by people in a shared space to determine the weight of one's ideas and opinions e.g. education (Anderson, 2012). *Ethnocentrism* usually occurs because of a listener awarding more credibility to those that belong to their group, especially by race (Anderson, 2012). *Shared reality bias* occurs due to one mainly believing in people whom they frequently interact with and share their perception on many issues (Anderson, 2012).

In the South African context, a number of factors may contribute to power imbalances in collaborative spaces such as an APP, where people from different backgrounds have to work

together towards a common goal (Meiring, Kannemeyer and Potgieter, 2018). The factors include language, spatial distribution, gender, and race (Hargreaves, 1997; Seekings and Nattrass, 2006; Makoe and McKinney, 2014; Hofmeyr and Govender, 2016; Akala, 2018). Language, in this case, means the modes of the language used during public gatherings, which is mainly English and tends to exclude many people who cannot speak the language (Makoe and McKinney, 2014). Spatial distribution becomes an imbalance when settlements for the poor are mainly found in poorly managed areas such as below mines, next to landfill sites, and mostly in rural settings that are far away from places of work and which lack access to proper services (Hungwe, 2001). Gender is another common imbalance in South Africa, where it is a challenge for society to give managerial positions to females, even though they hold qualifications equivalent to those of their male counterparts (Unterhalter, 2005; Segalo, 2015; Akala, 2018). The MLM is no different; all these inequalities exist.

Anderson 2012 notes, “If group segregation is to be blamed for lack of epistemic justice during collaborative processes, then, group integration is the answer” (pg. 171). Therefore, it is important that tools used to implement IWRM are evaluated to avoid perpetuating the injustices done against the oppressed speakers. In order to achieve environmental sustainability as provided for in the NWA, everyone’s opinion should be respectfully incorporated into the CMS (DWAF, 2007). This forms the core of this study, where participants’ experience of epistemic (in)justice was investigated during the application of the APP in a local catchment (Rogers and Luton, 2011).

If we are to move towards knowledge production transformation, community members must first be addressed or seen as research partners, rather than research subjects as is usually done (Glass and Newman, 2015; Schweiger, 2016). Traditionally, community engagement research ended up in a state where there was separation between the research team and the communities under study, because the research team was taken to have more knowledge or expertise than the community did, and the community were viewed merely as research subjects (Pizarro, 1998; Fricker, 2007; Horowitz, Robinson and Seifer, 2009; Glass and Newman, 2015). However, Berkes, (2009) points out that the traditional way of knowledge production has not really worked, and therefore what he terms “local ecological knowledge” (LEK) could help to answer some of the questions that traditional methods could not. This LEK is knowledge of the environment by local inhabitants, through experience over time (Davies, 2016). Factors that influence water resources

cannot possibly be resolved from the perception of one discipline, but they lie within the local context (Horowitz, Robinson and Seifer, 2009). Local perspectives are particularly important for providing the “place-based” knowledge that is relevant to research (elder, 2004).

Knowledge is understood as “the facts, feelings, or experiences of a person or group of people, a state of knowing or awareness, and/or the consciousness or familiarity gained by experience or learning” (Davies, 2016:41). Davies (2016) differentiates between forms of knowledge and their contribution in informing policy and decision-making. The fact that scientific knowledge has been given more weight than other forms is another reason for the injustices that are constantly experienced in university-community collaborations (Glass and Newman, 2015; Davies, 2016). The main challenge with this is that, in the end, only one voice, that of the experts, is heard (Pizarro, 1998; Fricker, 2007). This brings the issue of researchers losing the community members’ meaning in their quest to explain their feelings, by trying to explain them in terms of academic and western context, which may end up misinterpreting the problems, and therefore the solutions (Pizarro 1998; Davies 2016). Davies (2016) also explains how the issue of discourses (the meanings that have been made of the world), that community members now ‘expected’ to conform to in order to have their experiences validated, limit the amount of knowledge that participants want to contribute to research or participatory processes.

Cases of epistemic injustice rest on identity prejudice by both experts and community members (Fricker, 2007). When experts come into a community assuming that community members do not know much about water management, or are poor, or uneducated, they fall prey to identity prejudices (Glass and Newman, 2015). Following this, community members are assumed to be unable to either 1) manage their own water resources or 2) contribute to the debate on water management (Horowitz *et al.*, 2009; Davies, 2016). Community members, on the other hand, give more weight to the words of the “presumed experts” because of who they are, and they give them an inflated epistemic credibility based on an identity prejudice (Fricker, 2007). These kinds of identity prejudices lead to epistemic injustice because 1) community members allow these people to speak more and make decisions on their behalf because of their assumptions, and 2) it allows community members to hold back some information or feel that what they have to offer is less important.

A further problem of speaking for others, as in the traditional research, is that one cannot translate the words from the same place as the original speaker, which then lose their true meaning (Alcoff, 1995; Elder-Woodward, 2016). By way of example, Brandt, (2004) mentions two cases that she and her students came across, where government officials had come into native lands and built a dam for irrigation purposes without properly consulting the communities. In one case the dam was built on some sacred structures, which destroyed the cultural values of the community, and land uses in the area that could lead to early siltation were not considered. In the end, the dam failed as a result of sedimentation and could no longer support irrigation (Brandt, 2004). In another case, the dam ended up overflowing and destroying good topsoil used for agricultural purposes. Thus, a generation of agricultural knowledge transfer passed, because the communities spent some time without planting (Brandt, 2004).

The philosophical literature at the centre of current discussions on epistemic injustice has not focused on its opposite, epistemic justice, and work on epistemic justice has been done primarily in more applied contexts. In this research, epistemic justice is understood as when each person is treated fairly in their capacity as a knower. Epistemic justice is important to consider because if people's opinions are taken for granted during developmental projects, it could lead to the failure of such projects (Rogers and Bestbier 1997). The reason for this is that people might be disconnected from the strategies, and might eventually not care whether they succeed or not (Wood and Zuber-Skerritt, 2013). Therefore, epistemic justice is important for continuity and sustainability of such projects. Having the community taking the central role in dealing with issues that affect them gives them an opportunity to make plans that are more realistic and relevant to them (Davies, 2016), which gives such initiatives a better chance of sustainability (Wood and Zuber-Skerritt, 2013). Some researchers point out that traditional research processes that failed to present the views of the community by explaining them in a way that fit the researcher's convenience did not solve some problems (Brandt, 2004; Pollard *et al.*, 2013). Community-based participatory projects should aim not merely to tell the stories of those who have been placed at the bottom of the social hierarchy, but allow their voices to be given the credibility to stand on their own and the weight to be counted equally in knowledge-generation processes (Fine and Torre, 2006).

Integrated Water Resource Management, SAM and epistemic justice are inherently related because IWRM and SAM are aimed at promoting epistemic justice through acknowledging all stakeholders as having valid knowledge contributions to make to the planning and management process. Traditionally, adaptive management was an epistemically exclusionary approach because it assumed that some people were experts and that their opinion counted as knowledge, while others had nothing worthwhile to contribute to the knowledge making process (Rogers and Luton, 2011). Strategic Adaptive Management (SAM) as an approach designed to implement IWRM in the South African context is meant to correct the inequalities of traditional adaptive management approaches by being centred on stakeholders who are affected by resource management decisions. Collaborative processes such as an APP have the potential to correct the injustices that have been experienced by people who participate in them, especially those from marginalised social groups (Glass and Newman, 2015). For instance, APP corrects testimonial injustice through the strict rules of engagement that are set at the beginning of the process (Catala, 2015; Glass and Newman, 2015). The rules include the fact that everyone is supposed to give their opinion, and no one is allowed to contest it, and questions are only asked after everyone has had a chance to speak their mind (Rogers and Luton, 2011). The APP could also help to increase the hermeneutical resources of the different groups who collaboratively work towards the common vision of their catchment, thereby correcting hermeneutical injustice in water resource management (Glass and Newman, 2015). However, because of the disjunctions in policy, there are barriers to implementing IWRM, which are also barriers that increase the risks of epistemic injustices being perpetuated through attempts at implementing IWRM in South Africa (Clifford-Holmes *et al.*, 2016).

In this study, I consulted and worked with stakeholders in the Makana Water Forum throughout the process - from the beginning until the end - as they worked towards formulating their local CMS. Importantly, this study used these insights to focus on the inter-group interactions within the stakeholders who participated in the APP (SAM's planning component), where further epistemic contestations might have occurred between different epistemic agents who hold identity prejudices (Fricker, 2007; Schweiger, 2016). The research aimed to allow voices, which might have otherwise been marginalised, to come out through the written and personal reflective process in ways that are not stigmatised. In doing this, the study tried to hear the voice of the oppressed speaker whose knowledge and lived experiences might have been overlooked by the hearer's prejudice (Fricker, 2007).

Specifically, the study applied a reflective method in an engaged research process during a strategic APP for unpacking the issue of epistemic (in)justice. This was a first application of the APP at a local government and small sub-catchment scale. The study reflexively observed the APP engaged process, where different participants might have had a fair or less-fair opportunity to have their views taken into account in a context where multiple stakeholders with different epistemic positions of power and privilege operated. In this case, important questions arise, such as; ‘whose opinions found their way into the drafted CMS?’ Therefore, the research investigated epistemic justice in the knowledge-generation process of the APP (Rogers and Luton, 2011). A reflective component as part of an approach called Participatory Action Learning and Research (PALAR) was used as I aimed to assess the level of epistemic justice in the APP (Kearney, Wood and Zuber-Skerritt, 2013; Zuber-Skerritt, 2015).

This study recognizes that each of the stakeholders (epistemic communities) who participated in the research process had their own values that assisted them in the process of knowledge production, because, when dealing with CSES, we inquire about nature as a complex adaptive system, not just nature in a void (Miller, Baird, Littlefield, Kofinas, Chapin III, and Redman, 2008). How does SAM really feature in this whole dilemma of sharing knowledge, does it perpetuate the traditional ways or could it help to bring epistemic transformation? These questions were asked in a case study of a local catchment of the upper Kowie catchment, and the next chapter gives a context of the area.

In all, this chapter established that catchments were CSES, which require a SAM approach, beginning with an APP in order to account for the various interests within a catchment. If sustainability is to be achieved, it becomes necessary to evaluate the methods used to implement IWRM. Epistemic injustices arising out of collaborative spaces such as those required for true IWRM, could negatively affect the sustainability of public participation in IWRM. Therefore, evaluating the level of epistemic justice as early as during the APP could potentially lead to the corrections of the injustices and promote public participation going into the SAM stage. The next chapter outlines the context of the study, and how the concepts of epistemic (in)justice, CSES, and SAM might apply during IWRM implementation.

CHAPTER 3: STRATEGIC ADAPTIVE MANAGEMENT IN THE UPPER KOWIE CATCHMENT

3.1. Introduction

In the previous chapter, I highlighted and discussed issues of power imbalances that might give rise to epistemic injustices, even among people in participatory processes such as an APP. This chapter narrows down to the specific context in which the study was conducted. Makana Water Forum's initiative to develop a local Catchment Management Strategy (CMS) for the upper Kowie catchment provided a platform for this study to unpack epistemic (in)justices as perceived by stakeholders who participated in the development of the local CMS. The Department of Water and Sanitation-Regional Office (DWS-RO) and the Makana Local Municipality (MLM) provided financial and communication support, respectively, towards the CMS development process. In addition, the Institute for Water Research provided support through research and facilitation of the CMS development process workshops, while the Mzimvubu-Tsitsikamma proto- Catchment Management Agency (M-T proto-CMA) gave guidance.

The Mzimvubu-Tsitsikamma proto-CMA as provided for by the National Water Act (No 36 of 1998) (NWA) is meant to develop a regional CMS for their Water Management Area (WMA) once they are fully established. The Makana local CMS was to be used to give input into this regional strategy. My study aimed to explore whether the stakeholders who participated in the development of the local CMS felt respected, and experienced equal treatment by the group within the process based on the Adaptive Planning Process (APP) that was used. In doing this, my study aimed to investigate the level of epistemic justice experienced by participants in the APP, and posed the following three main questions:

1. How do different stakeholders experience epistemic justice in an APP?
2. To what extent does the APP promote epistemic justice?
3. Could the addition of participant reflection sessions enhance the levels of epistemic justice promoted by the APP?

Following this, the objectives of my study were:

1. To introduce a reflective process alongside the SAM and Adaptive Planning Process (APP) to the Makana stakeholders;
2. To assess the level of epistemic justice in an APP to develop a local Catchment Management Strategy (CMS);
3. To evaluate the levels of epistemic (in)justice in the APP.

In this chapter, I discuss the broader project that this study feeds into. I go on to explain the geographical and political characteristics of the participating MLM because of their possible impact on the CMS development process. I then describe the historical division of the largest Centre in MLM, Makhanda, and how it has affected water supply challenges that continue to be faced. I describe Makana Water Forum and the role it had to play towards the CMS development process. The section concludes by describing the principles related to epistemic justice that were used to evaluate the APP. In this document, ‘the broader project’ refers to the TPNP project, ‘the study’ is used to refer to this Master’s thesis, while ‘the case study’ refers to the MLM case study under the broader project.

3.2. The Broader Project

Some of the challenges of IWRM were briefly discussed in the preceding chapters and they included the unclear role of local municipalities in IWRM, which was a result of what was referred to as a ‘historical accident’ during the Water Law Reform Process, where water services and water resource are managed under different legislations. A group of researchers from South African Universities suggested that the reason for failure to effectively implement IWRM was the difficulty to achieve integration as people continued to work in silos (Palmer and Munnik, 2018). Through the traditional application of IWRM over time, promising new concepts emerged from the literature, which could potentially resolve the challenge of integration (Palmer and Munnik, 2018). These researchers realised that they could draw from the literature to form new concepts. Out of these thoughts was born a Water Research Commission (WRC)-funded project titled ‘Towards Practising a New Paradigm’ (TPNP). The new practice became adaptive IWRM (Palmer and Munnik, 2018).

My study forms part of this broader project working towards a new paradigm for IWRM in South Africa, funded by the WRC. The broader project is based on these important principles:

stakeholders engage in mutual learning, shifting power relations, improved decision-making and improved mandate delivery; researchers work on new ideas, approaches, concepts and methods towards achieving this new paradigm (Palmer and Munnik, 2018). The aims and objectives are of the TPNP project (Palmer and Munnik, 2018: i):

“AIM 1: To conduct a workshop in which (i) the project philosophy, conceptual framework, methodologies and processes are discussed and a shared understanding achieved with the WRC and within the project team; and (ii) transdisciplinary practice is initiated.

AIM 2: To co-ordinate the development of component case study research plans that demonstrate integration of focus areas (resource protection, eutrophication, and microbial pollution); attention to biophysical and institutional scale; community engagement in a "water for dignity" process; and the use of integrative, systemic methodologies.

AIM 3: To clearly link the theoretical, conceptual framework to a specific set of methodologies across the case studies, to lay a foundation for the development of robust transdisciplinary scholarship and practice, and to explore a richer understanding of ‘integration’.

AIM 4: To develop a set of guiding principles for the practice of Adaptive IWRM in South Africa.

AIM 5: To undertake relevant research in three place-based case study areas in respect of each case focus area: (1) household water security; (2) using the Green Drop Programme to address eutrophication and microbial pollution, and (3) water resource protection.

AIM 6: To produce a set of practical handbooks for “new paradigm” or Adaptive IWRM practice.

AIM 7: To have proposed and selectively practised the "new paradigm" of water resource management in South Africa.

AIM 8: To have contributed to the scholarship and practice of transdisciplinarity, particularly in the linked development of concept, theory, and method.”

My study fits under aims 2 and 5, of the WRC project, where both deal with case studies, under the MLM case study. Initially, the MLM case study was meant to investigate microbial pollution as a research focus, but findings from earlier engagement with the community proved household water security to be the main issue for the citizens (Palmer and Munnik, 2018). This resulted in the change of the research focus from microbial pollution to household water security, an adaptation that is in line with the new (proposed) practice of adaptive IWRM. The case study resulted in the establishment of the first Water, Sanitation and Catchment Management Forum in South Africa (currently functioning under the name ‘Makana Water Forum’), with support from the MLM and the DWS.

The Institute for Water Research, Rhodes University is undertaking a research programme to support the emergence and functioning of CMFs in the M-T WMA. This Master’s study contributes to the overall research towards the TPNP project, where a promising adaptive planning approach in the practice of adaptive IWRM was evaluated to find out how far the principles of adaptive IWRM (aim 4) were experienced by participants during its application (Palmer and Munnik, 2018). This study falls under governance and institutions at the local scale of MLM, which overlaps with the upper reaches of the Kowie River under the M-T WMA. The IWR supported the Makana Water Forum (formerly known as Upper Kowie Water, Sanitation and Catchment Management Forum), from its establishment by the DWS in 2016. I was introduced to the Makana Water Forum in March 2017, as a Masters student hoping to pursue research with the Forum. I became a member of the Forum, and attended its events and sometimes became part of the organising team.

Makana Water Forum’s main activity for the year 2017 was the development of an integrated CMS, supported by the M-T proto-CMA (called a proto-CMA because it is not yet fully established), and the DWS regional office. The Institute for Water Research supported the process through the facilitation of the CMS development process following an APP approach, which had been successfully used by the Inkomati-Usuthu CMA to develop their own CMS (Rogers and Luton, 2011). That APP was an approach that was seen to hold potential for the successful implementation of IWRM in South Africa prompted my Master’s research to investigate how inclusive and participatory it really was, as experienced by all the stakeholders who participated in it.

The locally developed CMS could contribute to the M-TWMA CMS, which should be developed once the M-T proto-CMA becomes a fully established CMA. The next sections give a description of the elements in the study area, which could have potentially influenced the CMS development process, and its implementation of the plan.

3.3. Geographical and Political Context of Makana Local Municipality

The study took place in the upper reaches of the Kowie Catchment, but the MLM (*refer to Figure 8 below*), with Makhanda as the central town, spatially dominates the catchment area. Makana Local Municipality is an example of a water service delivery- challenged Category B2 municipality, which usually consists of one main town surrounded by smaller urban centres (Weaver *et al.*, 2017). For MLM, Makhanda is the main town in which most service delivery agencies are situated and is surrounded by the smaller centres of Alicedale, Salem, Riebeeck East, Seven Fountains and Fort Brown (Makana Local Municipality, 2013). These surrounding centres tend to stay unattended to because there are not enough technical staff in the municipality (Weaver *et al.*, 2017; Palmer and Munnik, 2018).

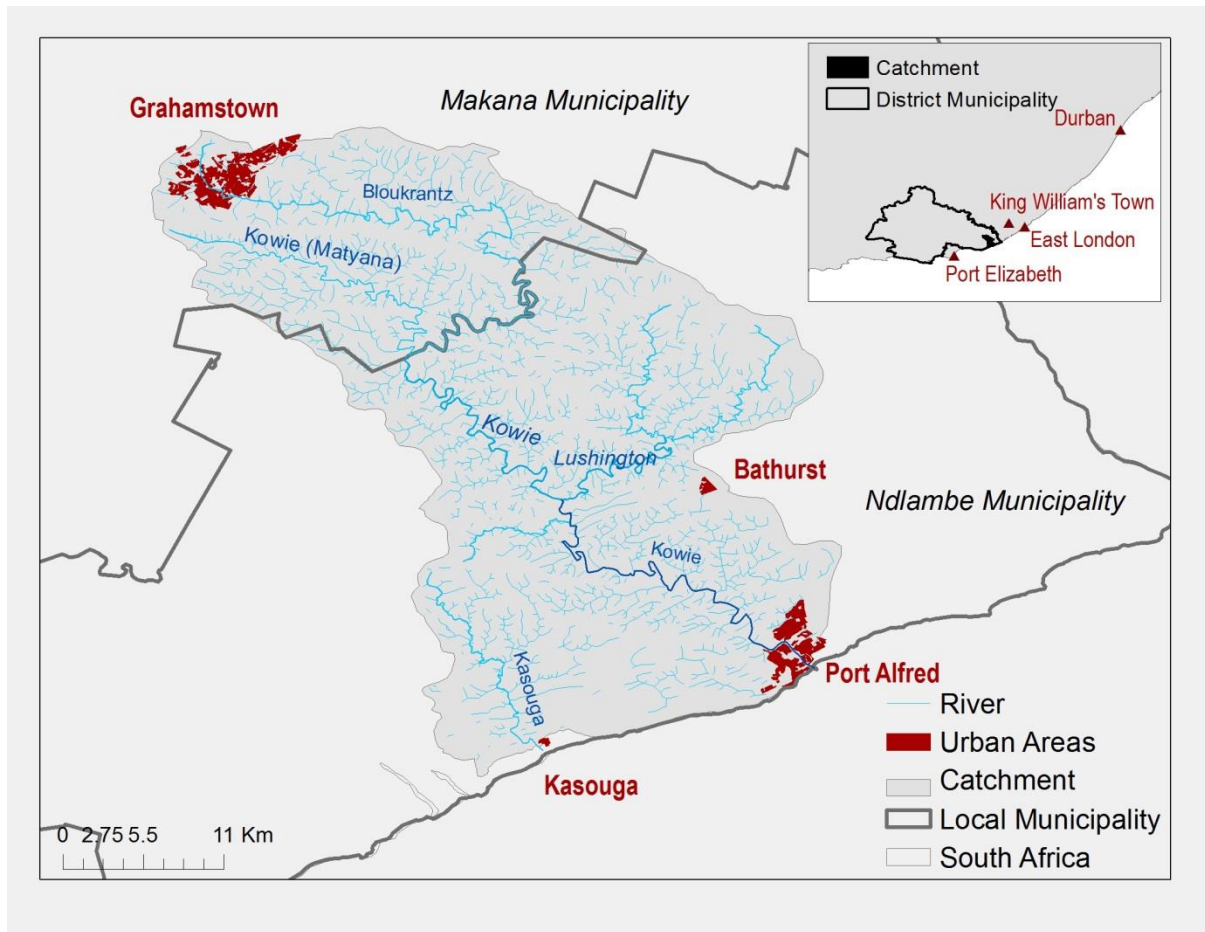


Figure 8: Map indicating the Kowie (locally know as Matyana) and Bloukrans Rivers in Makana Local Municipality, both situated in the upper Kowie River catchment. The map also covers the whole of the Kowie and Kasouga River catchments (Source: Makana Water Forum Terms of Reference, 2017).

Makhanda is the central point from which the Makana Water Forum operates. Most Forum members reside within Makhanda, but people from the surrounding small towns within the MLM are often invited to Forum events and their participation is growing. The Forum's agenda was not predominantly set by urban concerns, but it was later discovered that most residents did not identify with the name that was given to the Forum at the beginning (Upper Kowie Water, Sanitation, and CMF). To the MLM residents, the name 'Kowie' meant a completely different place. With the name changed to a political boundary, stakeholders showed more interest participating in the Forum-related activities. This showed that a name does influence how far stakeholders are willing to participate in water resource management, an indication of how proper engagement could help

towards adaptive IWRM, and how political boundaries impacted on water resource management activities.

The Makana Local Municipality is located in the Eastern Cape Province of South Africa, within the Sarah Baartman District Municipality (refer to Figure 9 below) (Makana Local Municipality (MLM), 2017; Penxa, 2017) and covers an area of 4 376 km². It is situated between the Eastern Cape’s largest industrial centres of Port Elizabeth and East London (Makana Local Municipality (MLM), 2013).

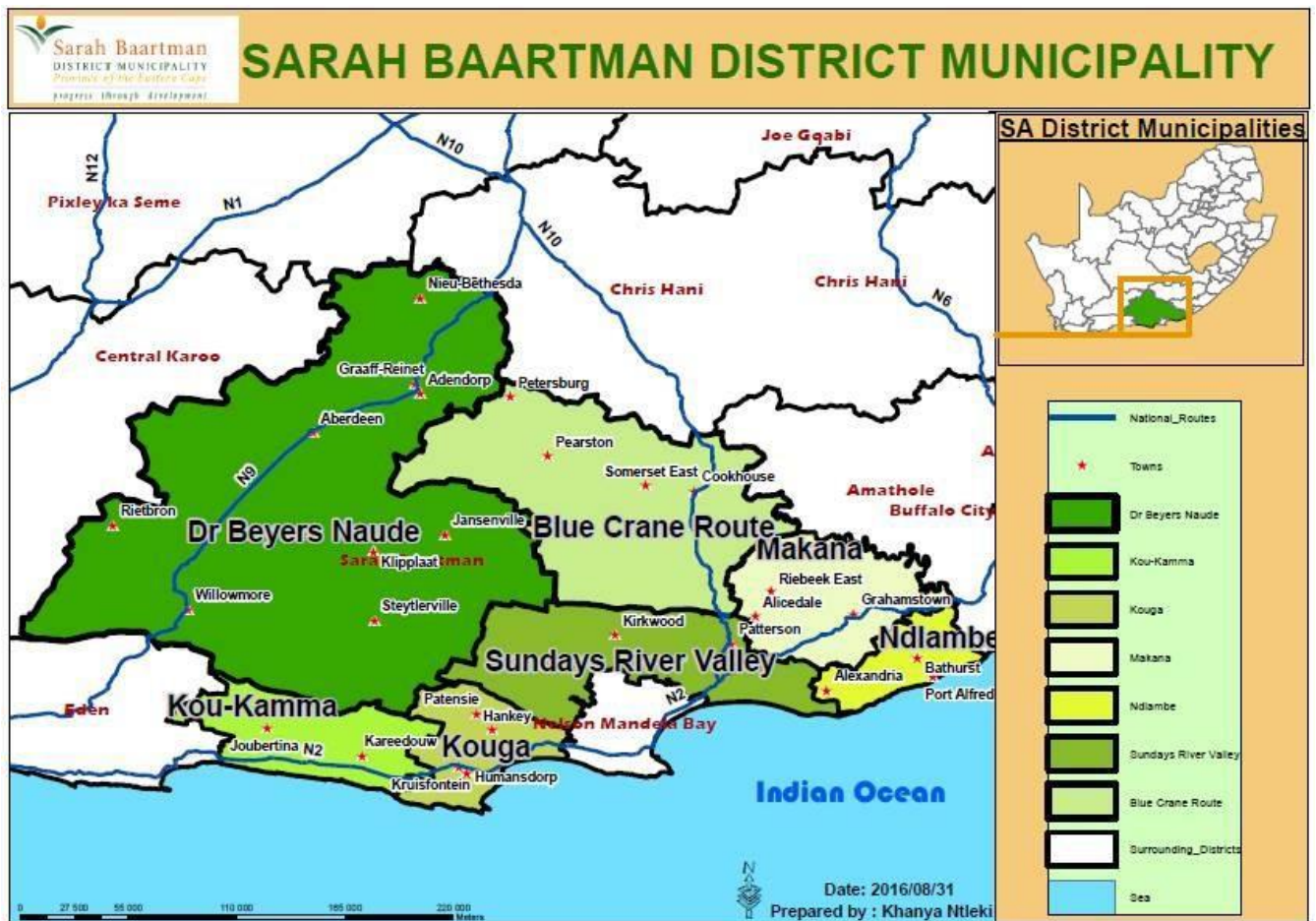


Figure 9: Locality map of Makana Local Municipality, (source: Penxa, 2017).

The MLM is divided into twelve wards, three of which are in the rural areas. The total population as obtained from the Community Survey estimates was at 82060 (Makana Local Municipality (MLM), 2016). In the 2011 census, 24.4 % population was younger than the age of 15 years, meaning that the municipality was required to apportion a significant amount of resources to

provide education and recreational facilities (MLM, 2016). At the time of the census (2011), of the population that was aged 20+ years, 6.3 % had no schooling, 11.9% had received higher education, and 22.7 % had completed Matric (Matiwana, 2015). The sex ratio was nine males for every ten women, which is a fair number, according to the municipality annual report (MLM, 2016).

The socio-economic activities characterising the MLM include agriculture, hunting, forestry, fishing, mining and quarrying, manufacturing, electricity, gas and water supply, construction, wholesale and retail trade, transport, storage, communication, government and community services (MLM, 2016). Education is one of the MLM's biggest industries, with a prestigious Rhodes University located within the main urban centre, Makhanda, along with many other internationally recognised schools. It has over seventy heritage sites and hosts the annual National Arts Festival (Makana Local Municipality (MLM, 2015; MLM, 2017).

3.3.1. Makana Local Municipality Political Structures

Makana Local Municipality Council, headed by the Executive Mayor consists of 27 councillors, and is the highest decision-making structure, along with the speaker of Council⁵. The Council has the Speaker, the Executive Mayor, the Executive Mayoral committee, portfolio committees, and other committees that serve to advise the Council. The local government provides for them under the Municipal Structures Act, No. 117 of 1998 (Makana Local Municipality, 1998). Political decision-making is done through an agreement between the represented political parties, and voting is used where consensus cannot be reached (Weaver *et al.*, 2017). The political parties represented in the MLM Council in order of majority seats are: 1. African National Congress (ANC), 2. Democratic Alliance (DA), and 3. Congress Of the People (COPE) (Makana Local Municipality, 2018).

Councillors represent their wards in the Council, and are supported by ward committee members who are independent and represent the interests of the ward residents. Ward committees were established to act as the consultation vehicles for the municipality, and will be members of this proposed research process. They were established as part of the public accountability,

⁵ The Speaker of council is one of the Councillors who is elected at the council's first sitting; the Speaker's role is to chair council meetings and to ensure that councillors maintain good conduct.

participation and forums, together with the Integrated Development Plan (IDP)/ Budget and the Performance Management Representative Forums.

The administration governance is made up of the office of the Municipal Manager, as the top authority, and the following layers of authority: Chief Financial officer, Director of Corporate and Sheared Services, Director of Local Economic Development, Director of Technical and Infrastructural Services, and Director of Community and Social Services. The provision of water and sanitation services falls under the Directorate of technical and infrastructural services.

3.4. Division of Makhanda East and West and Its Consequences

This section underpins the division in the provision of water services, in terms of access and participation in water decisions, as well as explaining the roots of the prevailing injustices in Makhanda. Grahamstown (now Makhanda), was founded in 1812 by British settlers, who were sent to establish the Eastern frontier of the British Empire in what was then the Cape Colony under the supervision of Lieutenant-Colonel John Graham (Mullins, 2011). The site was historically selected because of its location above coastal plains and because of the presence of a strong source of water in the area (Mullins, 2011; Irvine, 2012).

The town's population around establishment time was low, but after some building developments were made, the population grew rapidly from 400 around 1815 to about 3500 in 1834 (Irvine, 2012). However, the population stagnated again after the discovery of diamonds in Kimberly and gold in Johannesburg (Irvine, 2012). The town developed from a small settlement to what is now the Central Business District around the original area. During the early 1800s, most of the population was white and the town was planned around the Western side where the white population resided (Mullins, 2011). The Eastern side had fewer inhabitants as it was established as a location for black labourers who worked for white people on the Eastern side of town. As a result, service provision has historically always been superior on the Western side of town (Mullins, 2011; Irvine, 2012).

At some point between 1836 and 1846, the black population overtook the white population in numbers (Irvine, 2012). In 1841, the African community was allocated a separate settlement, a settlement that was mainly occupied by squatters (Møller, 2008). In 1848, Xhosa people were allocated their own area set apart from the general non-white population into a place now

commonly known as Grahamstown East/Rhini (Møller, 2008). Most people stayed in the place as squatters, while those who could afford to buy plots did so after 1855 when given the opportunity to buy. Other non-white (categorised as 'black') people were the Khoi, who occupied another area after they given legal equality, and the Indian community who first settled in racially mixed areas around Fort England, New Street, and lower High street (Møller, 2008). When Grahamstown⁶ became a municipality in 1837, all the race areas were administered by the white local Council until an administration board was created in 1974 (Irvine, 2012: 93). Though Grahamstown and Rhini were separated by the Amatyana Stream, in 1950, the Group Areas Act established limited contact between the races. The Group Areas Act was fully implemented in the 1970s after many years of resistance by all the citizens (*refer to Figure 10 below*) (Irvine, 2012; Lancaster, 2013). This segregation meant that Grahamstown was on the Western side while Rhini was on the Eastern side of the stream, and hence, the commonly used names, Makhanda East and Makhanda West to refer to the two areas (Figure 10) (Mullins, 2011; Irvine, 2012).

⁶ Grahamstown in this section refers to the former municipality not the name of the town, the name of the town has been changed from Grahamstown to Makhanda in places where reference is made to the town.

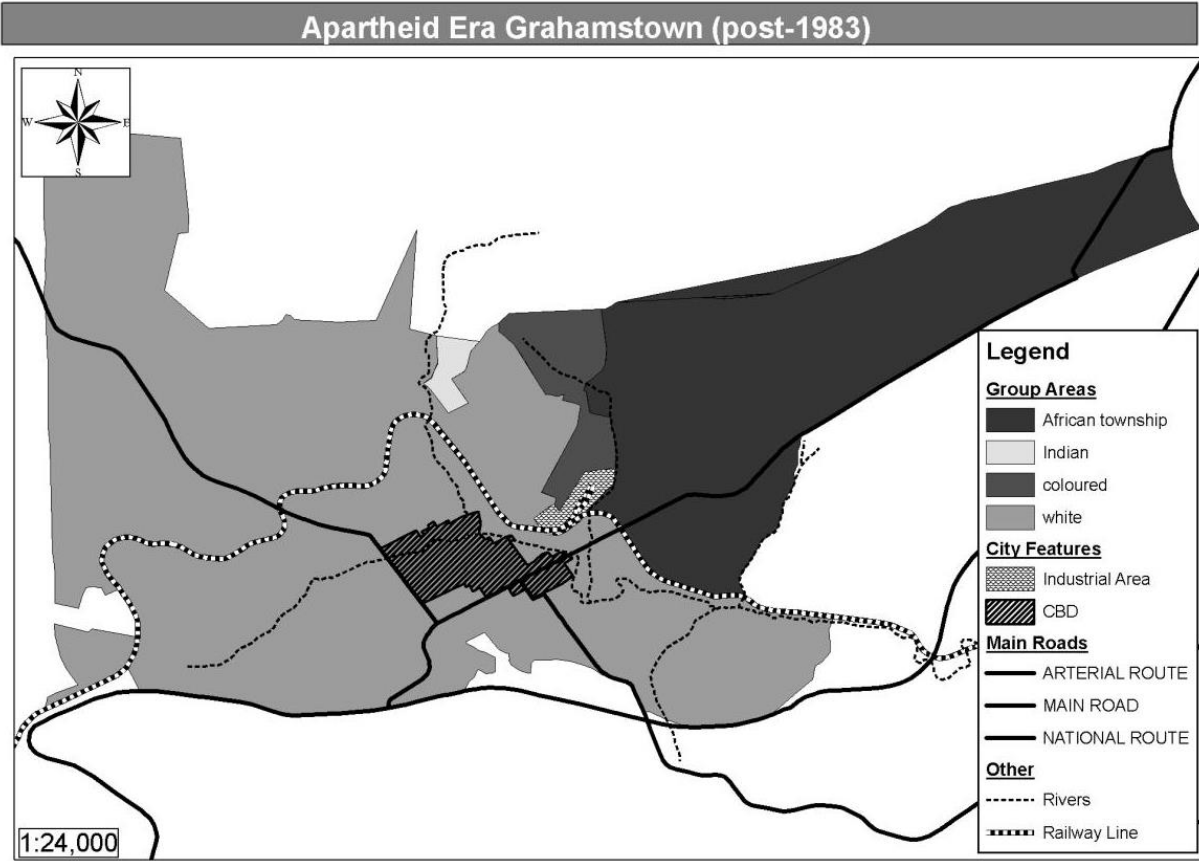


Figure 10: Makhanda racial division during the Apartheid era, (Source: Irvine, 2012: 88).

In 1983 when the Black Local Authorities Act was passed, enabling the election of black municipalities, a black Council was elected to manage the Eastern side of the town (Irvine, 2012). However, the split lasted for a short period before the Rhini Council all resigned in 1993 due to pressure from their community (Irvine, 2012). The pressure came as result of the Rhini Municipality’s inability to adequately service their community due to the financial disparity created by the apartheid policies, and Rhini ended up with a huge debt to the Grahamstown Municipality (Mullins, 2011). In 1995, the division ended and a Transitional Local Council (TLC) was established to manage the two sides together. In 2000, the MLM was formed by merging the TLC with two smaller councils and the surrounding rural areas (Irvine, 2012).

During early years after the establishment of the town, water ran from the hills into the town, diverted by small reservoirs into furrows, from which residents could draw their household water according to time-table (Mullins, 2011). Unfavourable conditions drove the British settlers who came in 1820 to farm, off their plots after just a few years, but their presence improved and

enlarged the settlement, and by 1830, there were about 400 houses, and business was growing (Mullins, 2011; Irvine, 2012). However, the water supply depleted due to the population increase (Mullins, 2011). One of the duties of the municipality established in 1837 was the supply of water, but insufficient financial means delayed some of their functions. Even though they tried their best to supply the water needs of their residents with the low funds, water supply issues could not be resolved (Mullins, 2011). Those who could afford it made wells, while the poor had to either beg or steal water at night (Mullins, 2011). Others made money through door-to-door delivery of water buckets at a cost.

As litter blocked the furrows, and wagons and horses destroyed them, the supply of water became insufficient and unclean (Mullins, 2011). In 1844, money was allocated to lay an iron pipeline, and strict rules enacted to regulate animals around the water sources. Tariffs were introduced for water consumption. Later it became clear that the pipeline that had been installed was of low quality, and the installation was poor and it became necessary to appoint a Supervisor of Water in 1850. The water remained insufficient. In 1850, a reservoir was built in Hope's Garden to serve the 32nd Infantry at Fort England, which collapsed due to heavy rains, but was replaced by a smaller one that is still in existence and was used during the 1973 drought. Between 1858 and 1859, up to a month could pass with some households not being supplied with water even though they still had to pay for it. The proposal to build a bigger reservoir was approved in 1859, but the absence of a Governor and money problems delayed progress. By the end of 1860, the construction of a reservoir at Grey Dam was complete (Mullins, 2011).

A drought from 1865 to 1867 proved that the Grey Dam reservoir was insufficient to supply the town, and an alternative source was needed in view of a threat by the Military to leave the town if a better source was not provided (Mullins, 2011). The removal of troops would have been risky because the Military assisted the town with guarding their border and providing water to the troops and the town (Mullins, 2011). The never-ending leaking pipes, the water quality problems, and the shortage of water were all experienced from the earliest days of the town's establishment (Mullins, 2011; O'Keeffe, 2011). Drought and financial constraints constantly inhibited any progress made was in resolving the water supply challenges, and similar problems continue to torment Makhanda residents today.

This section shows that, from the beginning, the establishment of Makhanda was linked to issues of water (Mullins, 2011). Long droughts, coupled with population growth as the town developed, are the main reasons for the insufficient water supply within the town (Mullins, 2011). Further, the apartheid policies, which divided the races and disadvantaged the poor, non-white population sections of the town, exacerbated the inadequate water service delivery in Makhanda, particularly in the Eastern side of the town (Irvine, 2012; Lancaster, 2013). All of these factors form part of the continued historical reason for the poor service provisioning that prevails on the Eastern side of town.

3.5. Makhanda Water Supply

The need for enhanced water storage facilities became evident in the 1800s when the population began to outgrow the water supply infrastructure. To meet the growing needs of Makhanda residents, industry and education institutions dams were constructed over time (Mullins, 2011). Currently, Makhanda's water is supplied separately from two separate sources, the Eastern Supply System, and the Western Supply System (*refer to Figure 11 below*) The western side of Makhanda is supplied from two local dams, Settlers Dam and Howieson's Dam, both situated in the Kariega River catchment. Water is pumped into the Howieson's Dam, and up to Waainek Water Treatment Works, where it is later released through the pipe reticulation system and lower level reservoirs to taps on the western side (O'Keeffe, 2011).

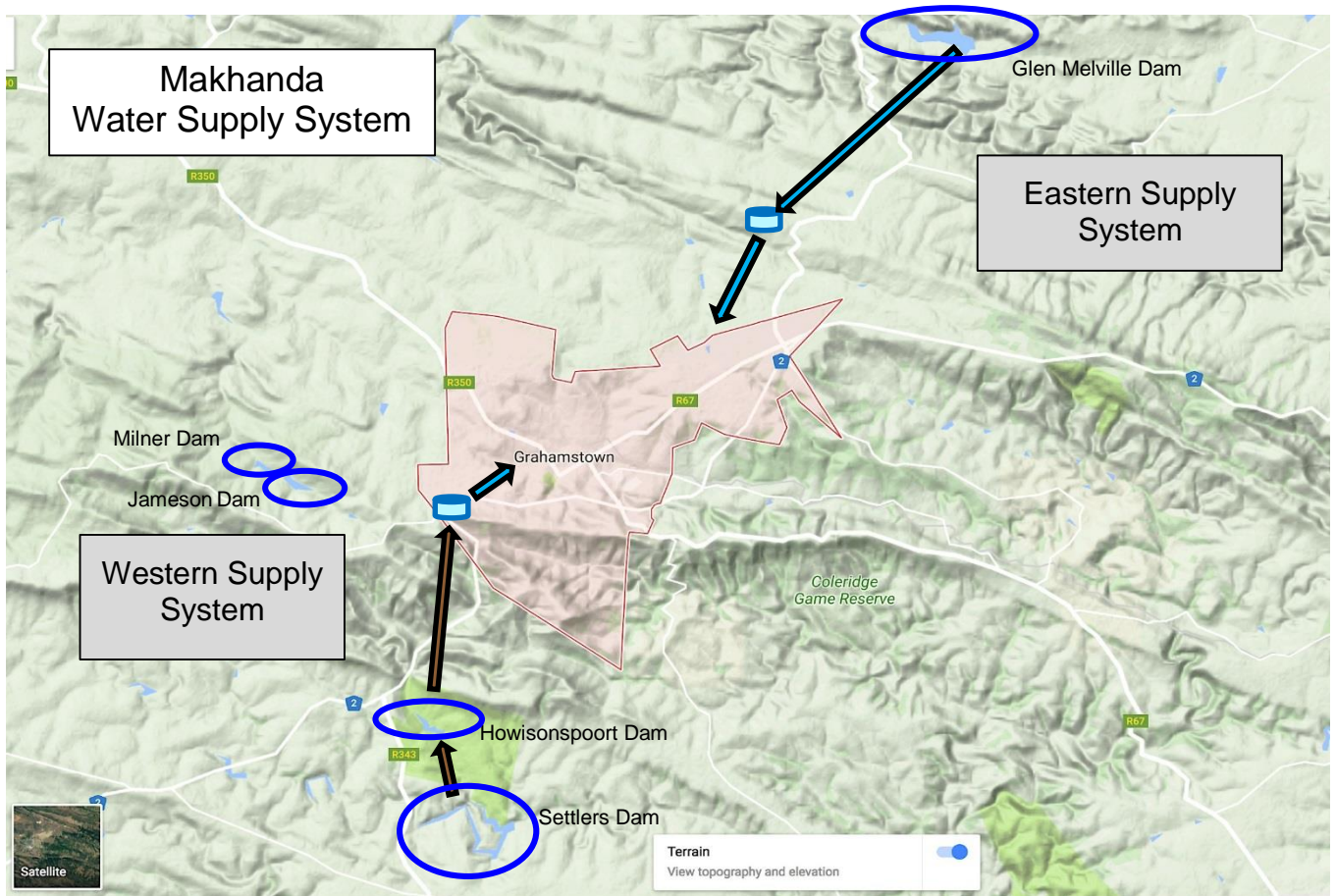


Figure 11: Makhanda water supply system. It receives water from five water sources in two Systems: 1) Western Supply System comprising Settlers Dam, Howieson’s Poort Dam, Jameson Dam, Milner Dam; and 2) Eastern Supply System comprising the Lower Orange-Fish Government Water Scheme via the Glen Melville Dam. The relative sizes of the Dams supplying Makhanda: Glen Melville: Medium; Settlers: Big; Howison’s Poort: Small; Milner: Tiny; and Jameson: Tiny, (Weaver, 2017: slide 2).

In effect, this means that the MLM owns the western water supply; however, none of the dams is located within the MLM boundary, thus MLM does not have water of its own. The little rain that falls within the town goes straight into the Bloukrans River (Amatyana, as it is locally known), which flows into the sea at Port Alfred. There are two tiny dams, Milner and Jameson Dams, located at the top of New Years’ River catchment; raw water from Jameson Dam is transferred by gravity into Milner Dam below it, then into the Waainek Water Treatment Works (MLM, 2017).

Apart from the recognised challenges of a lack of technical capacity and the outdated infrastructure, which negatively affect the quantity and quality of water in the municipality,

invasive species also contribute to the low runoff that ends up in the dams (Mullins, 2011; O’Keeffe, 2011). The frequent droughts threaten the western water supply because it depends on rainfall to replenish local dams through runoff (O’Keeffe, 2011).

The town water supply comes from different catchments, and in the 1970s, Makhanda local water supplies were increased through the Orange-Fish-Sundays Inter-Basin Transfer Scheme (OFSIBTS) (DWA, 2013), which supplied the Eastern side of Makhanda (*refer to Figure 12 below*) (O’Keeffe, 2011). The water comes from Katse Dam in Lesotho, operated under the Lesotho Highlands Water Authority (LHDA) (Nakayama, 2003; Great Fish River Water User Association, 2016). It passes through the Gariep Dam in the Free State, and from there the water is transported via a long tunnel that leads to the Fish River, is connected to a weir, and another tunnel to the Glen Melville Dam, located to the north east of Makhanda (Great Fish River Water User Association, 2016).

Orange – Fish River Transfer

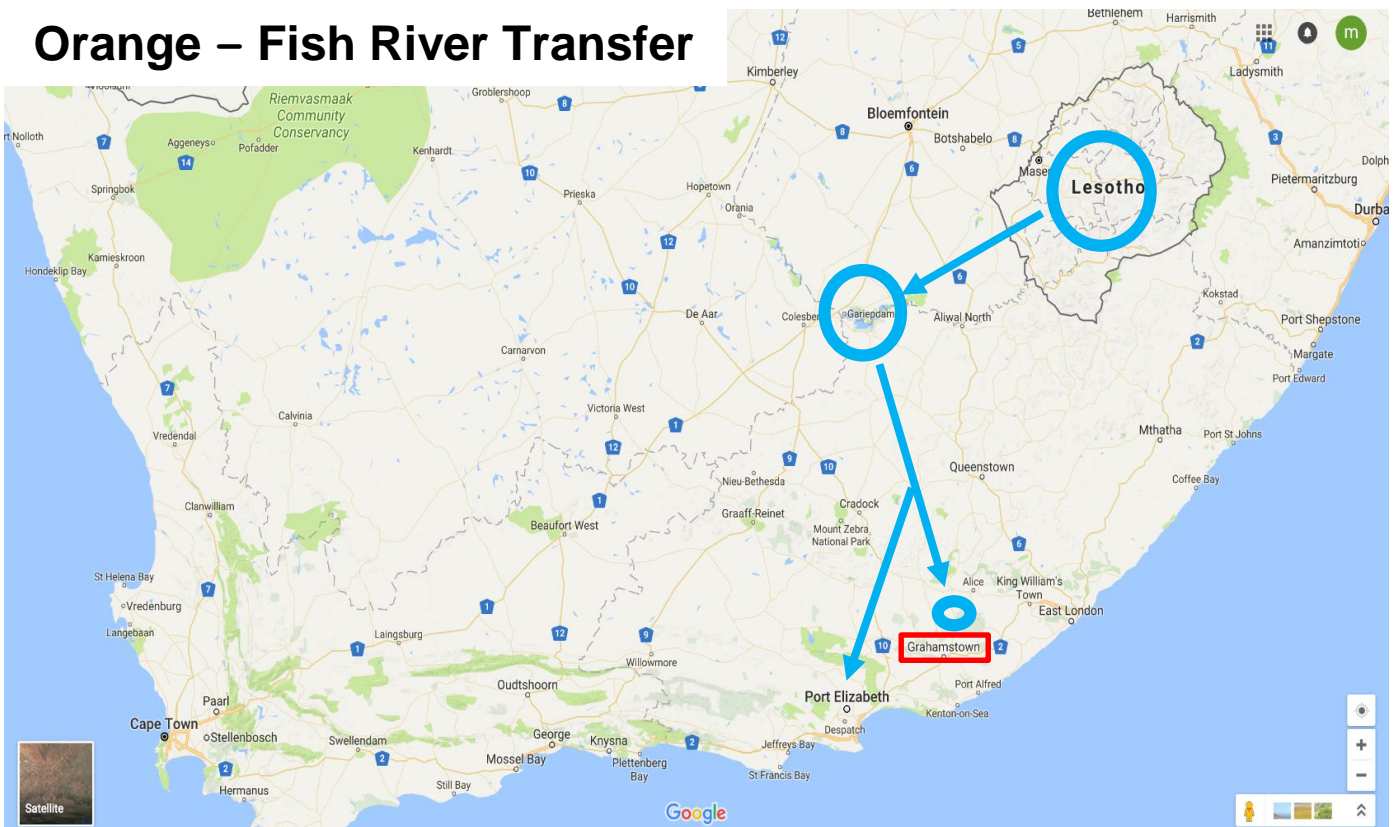


Figure 12: Map showing the location of Makhanda in relation to the Orange-Fish-Sundays Inter-Basin Transfer Scheme. Water is sourced from Katse Dam in Lesotho, going through the Gariep Dam in the Free State, down to the Glen-Melville off-channel storage dam in Ecce River, (Source: Weaver, 2017: slide 3).

Glen Melville is treated at James Kleynhans Water Treatment Works, then pumped into the Botha's Hill Reservoir (O'Keeffe, 2011). Though the supply is said to be secure on the Eastern side of town, the demand currently exceeds the production capacity (10 ML/day) of the plant, hence there is an overnight regulation of the Botha's Hill Reservoir, which is the main reservoir that feeds the area (O'Keeffe, 2011). The water pressure from the plant is so high that there is a pipe that connects James Kleynhans to the Western water supply, to reduce the pressure when water is released. Water going through the Fish River is saline so water on the eastern side tastes worse than water from the western side.

The OFSIBTS supplies a number of areas such as the Great Fish and Sundays River Valleys, primarily for agricultural purposes, as well as Port Elizabeth city for urban and industrial use. Port Elizabeth and the Great Fish and Sundays River Valleys depend on the Scheme, and so it cannot be regarded as an unlimited water source for Makhanda because the water is required by big centres as well as by Makhanda (Mullins, 2011). From Glen Melville, water passes into a storage dam along the Ecca River, from where water is distributed for irrigation below the dam, and for domestic use in Makhanda. (O'Keeffe, 2011).

Although residents are dissatisfied with services (and face outages as well as poor water quality) across both Makhanda East and West, Makhanda East continues to suffer the most due to the residents' inability to afford alternative means of water supply such as rainwater tanks and boreholes (Weaver *et al.*, 2017). Stakeholders in Makhanda East have been excluded from proper services since the apartheid era, and the struggle for proper access to services continues as the effects of population growth and long droughts are increasingly felt. Other centres such as Riebeek East and Salem seem to be overlooked as Makhanda alone places pressure on the MLM's available resources (Weaver *et al.*, 2017). The effects of drought continue to place MLM finances and service delivery under so much strain that neither the West nor the East is satisfied with their services.

3.6. Underlying Water Services Management Issues

The MLM has been without a permanent Municipal Manager for years, and in 2018, the Sarah Baartman District Municipality appointed a temporary manager from the district office to hold the position for three months, during which time he had to address some of the MLM's challenges and appointed a permanent Municipal Manager (Capa, 2018). In one of his speeches to the residents,

the temporary manager reported that he had driven around the MLM, including the small centres surrounding the municipality (MacLennan, 2018). He identified the main challenges as a poor supply of basic water and sanitation, poor roads from the town centre to the townships, and the farm areas; most staff members in managerial positions did not reside within the MLM, meaning that the problems affected them minimally, which is why they did not pay them enough attention; and that there were not enough staff in critical positions to address management concerns and service provision (Pillay, 2018, *pers. comm.*).

Other challenges were that suppliers had refused to continue to provide the municipality with goods or services until they had settled their accumulated debts (Lang, 2018; Pillay, 2018). The municipality's contracted Blue Drop (potable water quality) management and provider of bulk potable water withdrew their services due to debt, leaving the Municipality without enough funds to buy essential chemicals to treat water (MacLennan, 2017). The municipality sometimes even fails to collect refuse from residents due to unrepaired vehicles, and this had led some residents to dispose of their refuse in open residential areas, creating a major pollution problem in town (Pillay, 2018, *pers. comm.*). Many health hazards may arise from the improper burning of such wastes within the residential areas (MacLennan, 2018).

There are a number of residents' organisations, which monitor the municipality's accountability and pressurise the municipality to serve the residents more effectively, among them, the Grahamstown Residents Association (GRA), Makana Business Forum (MBF), Concerned Citizens Committee to Save Makana (CCCSM), Unemployed People's Movement (UPM) and others (Lang, 2018). The MLM's poor administration has led concerned citizens to protest many times demanding that the municipality address the countless issues that include failing infrastructure, and poor provision of most services, especially water supply and sanitation (MLM, 2017). Dissatisfaction reached a point on the 6th November 2018 when residents held a protest to demand the dissolution of the MLM Council because residents felt that it had failed them. A team of activists submitted a petition of over 20 000 signatures demanding that the MLM Council be dissolved to the Department of Cooperative Governance and Traditional Affairs (CoGTA) in Bisho on the 9th November 2018 (MacLennan, 2018).

The core of this study is the inequities of water supply and infrastructure, and an inquiry into working with stakeholders in the water management forum towards a strategy that will move

towards a communally desired future. In their annual report for 2015-2016, the municipality claimed that it was only able to supply enough water to those in formal settlements, and not those in the informal settlements and farms (MLM, 2016). Clearly, there is a need for stakeholders to work together in determining how to pool resources in order to reach equity in the provision of essential services like water and sanitation. This study aimed to work with such stakeholders and as mentioned in Section 1.3.2, Catchment (Water) Management Forums (CMFs) are the first place where participation provides a practical way. Therefore, I, as the researcher worked closely with the Makana Water Forum.

3.7. Makana Water Forum

The Makana Water Forum (MWF) (initially, the Upper Kowie Water, Sanitation and Catchment Management Forum (UKWSCMF)) is one of the water and sanitation forums established through the Minister of Water and Sanitation's instruction in 2016 to bridge the gap between government and members of the community ("*Water, sanitation forum ready to work in Kannaland*", 2016). Its vision reads as follows: "To strive towards a secure, healthy biodiversity and adequate water resources for a healthy water catchment and for reliable water supply, quality and dignified sanitation delivery for all, through proactive stakeholder participation within the Makana Water Forum" (Makana Water Forum, 2017:4). The MWF functions within the Kowie River catchment, which falls with the Mzimvubu-Tsitsikamma Water Management Area (M-T WMA), and institutionally administered by the Mzimvubu-Tsitsikamma proto-CMA. However, MWF focuses on the upper reaches of the river, which covers the MLM. The MWF is administered from Makhanda City, but the surrounding urban centres of Salem, Alicedale, Seven Fountains, and Riebeek East are supported by the MWF. Since Makhanda does not get water from its catchment, the quaternary catchments where the dams which supply the town are situated are included in the MWF (Makana Water Forum, 2017).

The name of the Forum was changed from the UKWSCMF to MWF in 2017 when most residents made it clear that they did not identify with the name 'Kowie' because it is commonly used to refer to another place. The residents advised that the name be changed to Makana Water Forum (MWF) because people connect better with the political boundaries than with water resource management units. This was a case of how the Water Law and the actual practicality of

its provisions are disconnected and end up confusing the managers who have to deal with implementing of the legislation, and in turn, end up confusing residents.

That the name had been problematic was clear in that as soon as the name had changed, more residents attended meetings organised by the MWF. The MWF was established in 2016 through a consultative process. In 2017, representatives from the Department of Water and Sanitation (DWS), Makana Communications, Rhodes University (Institute for Water Research and MobiSam), Rhodes Music Radio (RMR), Private Eye Community Watch Project, Makana Infrastructure and Maintenance, and Makana Communications held a meeting to kick-start the functioning of the Forum. In that year [2017], the MWF committee held seven meetings and at least four meetings to update the public on the situation of water services.

Other events that were organised by the Forum apart from the ones about updates were the development of the local CMS in June and September 2017, the water tour in September 2017, and the support for the Makana Water Conservation Campaign in May 2018.

In towns such as Makhanda, the effects of apartheid still exist; in the differences in social practices and access to different services, in education, and many other aspects, and the segregations that are deeply embedded within people, could potentially hinder proper collaboration (Tshoose, 2015). For instance, the historically marginalised communities may not feel comfortable planning for water management in the same space as the more privileged groups because they feel that their challenges are different. This opened an opportunity for this study to investigate how injustices could influence participants' comfort, participation and contributions in a collaborative space such as the one provided for by an APP.

3.8. How Epistemic (In)justice Was Evaluated

From the literature on adaptive planning and that of epistemic (in)justice, a colleague and I developed an evaluation framework in order to address some of the key principles of these theories (*refer to Table 1 on page 84*). The evaluation framework was divided into two, process criteria and process outcome. Process outcome evaluated participants' understanding of the relevant concepts that were used, their satisfaction, their experience of equality of voice, and their experience of learning and co-learning; process inclusiveness, and process flexibility became the criteria that were used to investigate epistemic justice. This section explains what these

components of the evaluation framework meant for this study and how they were related to epistemic (in)justice.

Evaluation contributes towards collecting the social capital gained through the adaptive processes, in order to deal with complexities (Linnenluecke *et al.*, 2017). An understanding of relevant concepts is linked to epistemic justice in that insufficient effort to make all the participating stakeholders understand the concepts would have inhibited the participants' full participation in the knowledge creation space. Lack of understanding would constitute an injustice against the participants because those who did not get a good understanding of the concepts would find it difficult to follow the conversation, let alone contribute in the space where collective meaning of the different components of the APP was made. In particular, it would be a case of hermeneutic injustice because, by being unable to contribute, participants would be denied the opportunity to interpret their own world so that the CMS could make sense to them during the implementation phase (Fricker, 2007). However, we are aware of the fact that participants might choose to mention some things that are of greater importance to them, which means that failure of a concept to have 100% common understanding does not necessarily mean that those who did not mention it did not hear about it during the process. However, such an injustice could also be a matter of urgency.

Satisfaction refers to the stakeholders' attainment of their hopes about the task in which they participate (Walsh and Schaeffer, 2008; Li, Ng, and Skitmore, 2013). Satisfaction occurs when the outcome of the experience meets or exceeds an individual's expectations, whereas dissatisfaction occurs when the experience falls below the expected outcome (Walsh and Schaeffer, 2008; Li *et al.*, 2013). Evaluating participant satisfaction is important to evaluate in order to improve collaborative approaches; satisfaction affects stakeholder buy-in and the successful implementation of adaptive plans (Gessler, 2009). Some of the satisfaction indicators include whether participants felt comfortable, listened to, understood, the friendliness of other participants and the facilitating team, the venue, process convenience, and how much they trust the information source (Hamersma, Heinen, Tillema, and Arts, 2018). Satisfaction is used to test epistemic justice because when people are invited to a workshop where the aim is to develop a strategic plan; their expectations rise because, as stakeholders, they hope to get their interests into the plan. If the APP fails to satisfy a large proportion of the participating stakeholder interests, that

would be some form of epistemic injustice towards the unsatisfied participants. For instance, dissatisfaction due to, participants' views being ignored over others' because of their social positions would constitute testimonial injustice.

The principle behind adaptive management is learning-by-doing because knowledge about natural resources is not complete, and there is room for more perspectives (Berkes, 2009; Ison, 2010; Allen *et al.*, 2011). Learning is thus an integral part of adaptive management, and learning goals and expectations are different for the different participants in adaptive planning spaces (Gunderson, 1999; Folke *et al.*, 2005). Armitage, Marschke and Plummer (2008) suggest that learning goals and expectations include, but are not limited to, i) learning as a good idea for participants, ii) learning for new approaches to tackle problems, and iii) learning in order to understand a sudden change in one's environment. These learning goals were used to discuss the learning outcomes of the APP from participants' reflections.

Along with the other factors that contribute towards participants' feeling of being respected in their capacity as knowers, equality of voice plays a central role; it was vital that participant views were taken seriously and respected in their diversity in the workshop. Equal voice is an integral part of a just system (Verba, 2006) and testimonial injustice here would occur when a speaker's voice received unfair treatment because of the speaker's social identity (Fricker, 2007; Catala, 2015; Glass and Newman, 2015). Participants' perception of equal voice plays an essential role in the acceptance of the policy or law (Verba, 2006).

Inclusiveness refers to the level of participation given to people in a decision-making process (Lockwood *et al.*, 2010; Hamersma *et al.*, 2018). When tested for in governance situations, such as the case of the development of the local CMS, inclusiveness is based on the extent to which input is searched for from different perspectives, how much recognition and respect for diversity exists and the presence of legislation which supports stakeholder participation (Lockwood *et al.*, 2010). Inclusiveness is important also because natural resources are collectively owned (Lockwood *et al.*, 2010). In the case of an APP, epistemic justice would be realised if participants felt like other participants, and received the same attention as others.

Flexibility refers to the ability to change form or shape (Tasan-Kok, 2008). Adaptive management acknowledges that policies must satisfy social objectives, must be continually modified and must be flexible and adaptable to the surprises experienced in complex systems

(Gunderson, 1999; Pahl-Wostl, 2007). A flexible approach values diversity, accepts uncertainty and strives for participation (Tasan-Kok, 2008; Williams, 2011). Flexibility is related to epistemic justice because when multiple interests are considered in planning in changing circumstances, flexibility in planning makes it possible for the suggested plans to be part of the trial and error process, regardless of whether the option was suggested by the first person in the rank of authority or from a marginalised background.

This chapter has outlined the motivation for this study. Through the TPNP project, IWR supported the establishment of the Makana Water Forum, and I was introduced to the Forum through this relationship. The Forum's activity of developing their local CMS and the inequalities that existed within the MLM provided a platform for this study to explore what epistemic (in)justices could contribute to the local community's willingness to participate in such a platform. The first inhibitor of participation discovered by the Forum committee was the name of the institution, which was changed from being 'Upper Kowie Water, Sanitation and Catchment Management Forum' to 'Makana Water Forum'. Once that problem was dealt with, this study investigated the more personal experiences of stakeholders that either enhanced or inhibited their willingness to participate in an APP, which was a promising approach in working towards adaptive IWRM as proposed by the TPNP project team.

CHAPTER 4: RESEARCH METHODOLOGY

4.1. Introduction

Given the complex nature of the Makhanda context, particularly how sensitive the water situation is, the methods used to engage with the residents needed to acknowledge these facts. This acknowledgement was shown in this chapter through pragmatism as the preferred paradigm. The use of participant personal reflections as a data collection method helped to get participants' feelings about the workshop without them feeling intimidated that someone might not approve their opinion. The chapter goes on to show how the framework for evaluating epistemic (in)justice was developed, and the ethics that guided the research methodology.

4.2. Research Paradigm and Methodology

A research paradigm frames the researcher's philosophical orientation to their research. It also acts as a lens through which the researcher chooses their methodology, methods and data analysis (Kivunja and Kuyini, 2017). The paradigm in which this study has been conducted was pragmatism. Pragmatism accepts multiple realities to be studied through research and advocates breaking down the boundaries between research and everyday life (Feilzer, 2010; Morgan, 2014). As centred in pragmatism, this study seeks solutions to real-world problems, focusing on truth that is useful, whether it is objective or relative in nature, and emphasising a commitment to social justice and change through the research process (Feilzer, 2010).

Under the research paradigm of pragmatism, the main complementary methodological approaches that have been adopted are that of transdisciplinary research and Participatory Action Learning and Research.

4.2.1. Transdisciplinary Research

Natural resources and social systems are so interlinked that they form complex social-ecological systems (CSES), which are difficult to manage because their response to interventions cannot be predicted (Cilliers *et al.*, 2013; Clifford-Holmes, 2015; Folke *et al.*, 2016). Transdisciplinary (TD) research leads to mutual learning between academic, professionals, and communities, and this produces the rich knowledge base that is needed to explore complex systems (Walter, Helgenberger, Wiek, and Scholz, 2007) because it harnesses a diverse range of knowledge types,

which breaks the boundaries between different knowledge domains to generate a stronger knowledge base (Cilliers *et al.*, 2013). To answer complex questions such as those to do with catchment management, Anderson (2012) suggests that many epistemic contributions are required. Ison (2010) calls it “learning-by-doing”, where people with different histories, emotions, instruments and understandings come together towards a common goal and, in the end, they are transformed in knowledge and practice.

The TD approach has been used more since the realisation that giving preference to single epistemological perspective has not been successful in knowledge generation (Miller *et al.*, 2008), nor has it effectively resolved problems (Pizarro, 1998). In adopting a transdisciplinary approach, the different stakeholder groups were recognised, and each group’s contribution to the process was acknowledged (MaxNeef, 2005; Walter *et al.*, 2007; Lang *et al.*, 2012). The TD approach enabled the research to tackle problems that were relevant to those experiencing them (Nicolescu, 1997; Goodyear, 2007 and Miller *et al.*, 2008).

An adaptive planning approach was used, whose purpose is to function in a transdisciplinary mode with academics, professionals, and the rest of the concerned community (Pollard and Du Toit, 2008, 2011). An Adaptive Planning Process (APP) is based on the engagement between stakeholders from different disciplines working towards concerted decision-making (Rogers and Luton, 2011). The APP aligns with transdisciplinary research because they both recognise different ways of knowing, and that those differences lead to better understanding of CSESs (Folke *et al.*, 2005; Lockwood *et al.*, 2010). The different knowledge types that are used in both approaches yield different interventions to problems, therefore, the best resolutions are found through learning-by-doing where different interventions are continuously adjusted, as more information is gathered (Ison, 2010; Palmer and Munnik, 2018; Palmer and Munnik, 2018). This methods section gives an account of how the principles of TD were applied in the use of an APP by a local catchment to develop their Catchment Management Strategy (CMS).

4.2.2. Participatory Action Learning and Research (PALAR)

Participatory Action Learning and Research (PALAR) refers to “a holistic, integrative concept that incorporates related concepts and values such as collaboration, participation, communication, community of practice, networking and synergy” (Zuber-Skerritt, 2015:6). In this study, PALAR’s reflective component was used to harness the transdisciplinarity that was represented in the APP

workshops. PALAR follows this cycle of events: collaborative identification of needs, deciding on the best course of action, implementing the action, evaluating and deciding what further action to take, based on participants' critical reflection upon the process" (Wood and Zuber-Skerrit, 2013:5). PALAR differs from other action research methods in 1) its strong emphasis on both learning and research, and 2) the 3Rs: relationships, reflection and recognition. The three components that PALAR uses to encourage participation and commitment are the start-up workshop, creation of learning sets, and celebration of milestones (Zuber-Skerritt, 2011), all of which are summarised by the 3Rs.

The fact that learning and research are made explicit in the PALAR process allows community members to connect better with the method used, and each member can decide which aspect they want to focus on based on the context (Wood and Zuber-skerritt, 2013). The inclusion of the learning aspect introduces less intimidation for those who are not highly skilled researchers because it reminds them that mutual learning is meant to happen as the research takes place (Wood and Zuber-Skerrit, 2013). PALAR gives the marginalised members of the community a voice as they develop and take ownership of solutions to complex problems in their lives (Zuber-Skerritt, 2011). The learning capacity it instils in participants makes PALAR better at sustaining university-community engagement projects as participants pass on their newly learned skills to others (Green and Kearney, 2011).

Green and Kearney, (2011) compare PALAR to the metaphor that says, "Teach a man how to fish and feed him for a lifetime". By following the PALAR approach, participants get to solve problems that affect their lives through learning (*how to fish*) together and from each other's experiences and knowledge (Green and Kearney, 2011; Kearney *et al.*, 2013), and some will pass on the new skills to others (*feed for a lifetime*). The approach incorporates people's genuine experiences and understandings of themselves, as well as their contexts into the knowledge production process (Zuber-Skerritt, 2015), that has not been diluted by the western traditional context (Davies, 2016).

4.3. Methods

Implementing the broader project towards adaptive Integrated Water Resource Management (IWRM) was done through the development of a local Catchment Management Strategy (CMS)

using APP workshops held in the MLM. Since an APP as part of SAM assumes epistemic justice, PALAR added the capacity for my study to explicitly check for this through its reflection component. The PALAR approach was used in conjunction with the APP to enhance the SAM process by getting input from people who engaged with the process about their experience of epistemic (in)justice through the introduction of a reflective session and a reflective tool during the APP. During the APP workshops, stakeholders who were willing to participate were asked to engage with a reflective tool. This tool asked participants to reflect on themselves and the workshop, particularly the approach (APP) that was used. An evaluation framework, developed through consultation of literature, was then used to analyse participant reflections and assess the level of epistemic (in)justice in the APP.

4.3.1. Adaptive Planning Process (APP)

The Adaptive Planning Process (APP), which is the planning component of Strategic Adaptive Management (SAM) [Section 2.4.2] was used in a workshop setting, where the participating stakeholders from the upper Kowie River catchment developed the basis for their local CMS (Rogers and Luton, 2011; Palmer and Munnik, 2018). The CMS development process was done over two workshops, one in June 2017, and another in September 2017. Initially, only one workshop was planned for, but a diverse stakeholder representation was not initially achieved, with low representation from the eastern side of Makhanda and other surrounding centres. A second workshop was held, focused on improving representation from previously under-represented groups, which was successful.

Workshop 1

The Department of Water and Sanitation (DWS) with the Makana Local Municipality (MLM), in collaboration with the Makana Water Forum (MWF), organised a two-day workshop, and the Rhodes University Institute for Water Research (IWR) team facilitated the SAM process. Invitations were sent out to participants electronically (email) and telephonically, in addition to a notice being published in a local newsletter for two consecutive weeks.

The workshop took place over two consecutive days, 13th and 14th June 2017. The first day of the workshop introduced participants to the visioning process and covered the following aspects: reaching a consensus on the future, values and operating principles; eliciting the context for setting

objectives; and, eliciting vital attributes of the system to be managed. The second day of the workshop covered the final aspects of the visioning process (evaluating and consolidating the attributes; and, recording the determinants of, and constraints and threats to, the vital attributes), as well as introducing the participants to the process of formulating an objectives hierarchy, which covered the following two aspects: formulating high-level objectives, and documenting the APP outcomes.

On the first day of the workshop, only people contacted telephonically, and a few who responded to their emails had confirmed their attendance, with approximately 20 confirmed attendees. Day one of the workshop started later than scheduled to give people who may have been running late, the opportunity to be there when the APP was introduced because the APP is consensus-driven decision-making, and we needed people to start on the same page. This led to the session starting 30 minutes late, with 27 participants – although we ended the day with 29 participants (*refer to Table 2 on page 85*). Those who came early helped the team with setting up the chairs, tables, placing material on the tables and wiping the tables and chairs. The MLM communications team came in early, too, to set up the sound, and projector.

Day two of the workshop saw a minor drop in attendance from 29 participants on Day 1 to 16 participants on Day 2. It was, however, comforting to have the majority of participants from Day 1 return, as this gave me hope that we had done something right on the first day and that maybe those who did not come back had unavoidable reasons for absenteeism. The day started with a recap of the previous day discussions, then moved to working on the vision statement using the points that participants had given under what future they would like for their catchment. The research team had taken the points and turned them into a single and continuous statement, on which the stakeholders from the second day worked, re-arranging the wording into a collective vision that fitted all the points. Then the next steps of the APP were dealt with. The atmosphere felt more ‘settled’, with people more aware of what the workshop is trying to achieve, and willing to give it a chance. There was no longer any tension or nervous energy in the room. When it was time to hand-out reflection questions, there was better receptivity than the previous day, and I felt more optimistic. I HAD HOPE! During tea and lunch, people even had some follow-up discussions about the issues that were raised, and some stakeholders engaged with each other seeking more clarity from those who had raised issues in the workshop.

A. The Visioning Process

Introduction

The first task of Day one was to introduce everyone present and the stakeholder they were representing. In facilitating the visioning process/APP, the facilitator introduced the APP and asked for permission to proceed with it. Rules of Engagement were introduced to the stakeholders, and these included the fact that everyone was required to give their own perspective, and that everyone needed to accept the perspectives whether they agreed with them or not, and that questions be asked after listening carefully to others. The facilitator then gave participants a few minutes to think about what their three main water concerns were in the catchment and write three of them down. The facilitator went around the room asking that each participant speak about their one main concern regarding water issues in their sub-catchment. All concerns voiced were recorded and used as the agenda for the workshop. Every concern was written on a board visible to the whole group, allowing everyone to witness that his or her ideas were being taken down and thus taken seriously. After all participants had spoken, the facilitator provided an opportunity for stakeholders to mention any concerns that may be important, but which had not been mentioned.

This engagement set the context for the facilitator to define the different concepts that were going to be dealt with throughout the engagement and included the definitions of terms such as Catchment, catchment management, Catchment Management Agency (CMA), Water Management Area (WMA), and Strategic Adaptive Management (SAM). The facilitator briefly presented how the terms fitted together, how they were related to that day's workshop, and how they linked to the development of a Catchment Management Strategy (CMS) – which illustrated the need for an adaptive approach to planning. As the facilitator went through the introduction and definition of terms, people seemed interested in what she was saying as they listened attentively and sometimes even nodded their heads to show approval of what was being said.

After a short break, the following steps of the APP (Rogers and Luton, 2011; Palmer and Munnik, 2018) were followed.

Reach a consensus on the future, values and operating principles

This step gave a description of the participants' roadmap to the growth of their catchment, including their values in terms of water management. On the pieces of paper provided, participants

were asked to write down the three values they would like to guide their engagement in water resource management in the catchment. All their responses were carefully written on the flip chart visible to the group by the facilitator, after which, each participant stated what their desired future characteristics for the catchment would be, and again, all responses were noted on a flip chart. The IWR team assisted in combining the statements that came out of participants' written desired future characteristics and incorporated all of them into a vision statement for the sub-catchment. It would have been ideal to do it together with all the participating stakeholders, but there was not enough time because the stakeholders already pointed to the fact that the workshop was taking too much of their time.

Reflection session

Participants were then asked to reflect on the workshop that far before a short break, just to understand whether everyone was following the discussion. Participants were introduced to the idea of reflecting on the process that they were involved in and why it was important for them and the process itself. The importance of the participants engaging with the written reflections was to give them a safe space in which to record their thoughts about what worked for them and what did not work. The feedback from the reflections would also help to work on improving the APP for the future and help sustain the implementation of the outcome of the workshop in the long run.

Participants were given the reflective tool (refer to Appendix 1) and asked to engage with it as part of the reflective process.

Elicit the context for setting objectives

This step was used to paint a common picture of the context of the area that was to be managed. The STEEP (social, technological, environmental, economic, political) framework was used to give a rich picture of the context. Values are the fundamental context – and the STEEP characteristics are seen through the lens of values: V-STEEP (Rogers and Luton, 2011)). For this part, large sheets of paper were placed on tables, with each having a heading of one STEEP characteristic. Stakeholders were asked to move from sheet to sheet to write down all they knew about the Upper Kowie catchment regarding the characteristic on each sheet. Five charts were provided, each with one of the following headings: social, technological, environmental, economic, and political characteristics of the STEEP framework. Participants went around the

room to write points under any of the headings until they were satisfied with the lists. There were more negative traits on the charts than positive ones.

After lunch, some people had left, while some were not coming back for the second day, and the facilitator adapted the process by dividing the group into those who were coming back and those who were not. This was done so that those who were not coming back could contribute to the important step of the APP, the objectives hierarchy, which was to be dealt with on the second day of the workshop. While they worked on the objectives with the facilitator, the facilitator asked her team to work with the other group on the next step of the APP eliciting essential characteristics of the system to be managed. Two parallel sessions thus led to the end of the first day of Workshop 1.

Elicit essential characteristics of the system to be managed

This described those special characteristics of the catchment that could affect the management of water. In this step, the lists of the STEEP characteristics were spread on the floor where all participants could see them when seated in a circle. The stakeholders then referred to them to determine the essential characteristics of the catchment that they wanted to maintain, develop or improve in an open discussion with everyone. Stakeholders worked together, constantly referring to the STEEP characteristics, while one person wrote down what was agreed on. Even at this stage, it was a challenge trying to get the stakeholders to think of positive attributes, which may have been a result of the many water quality and quantity challenges with the dominating MLM.

Evaluate and consolidate the attributes

This was the first step on the second day of Workshop 1, and the step checked the attributes in terms of those that complemented each other and those that were contradictory. In this step, the participants (in an open discussion) grouped some of the characteristics, depending on how closely they were related, until only twelve essential characteristics were chosen from the lists drawn up during the last session of Day 1 (Eliciting essential characteristics of the system to be managed). The facilitator placed the list in front of the group, and top attributes were decided on. The plan was to end up with ten, but participants felt they were settling on twelve, which was fine because the APP is stakeholder-centred, and their decisions held centre stage.

Record the determinants of, and constraints and threats to, the vital attributes

This step considered those factors or processes, which might either promote or inhibit the vital attributes. For this part, sheets of paper were spread out across the room, with each containing a vital characteristic; and spaces provided for participants to write down those the determinants, threats, and their solutions to the essential characteristics. As they engaged with these charts, participants seemed to have some discussion before writing their ideas down, which was an interesting sight. Here, the municipal workers were mostly observed engaging more with political attributes.

B. Objectives Hierarchy

Formulate high-level objectives

This step placed the objectives in increasing order in terms of rigour or achievability, from the most difficult to do in practice, to the most practical activity that can be measured. For this step, the participants were first given a piece of paper to write down how they felt the desired future or vision could be achieved, taking into consideration the values and principles, together with the context. The objectives would help to maintain the essential characteristics, while overcoming their threats and constraints. Then they collectively synthesised each step in a form of critical discussion, which led to modifications where necessary, until a final hierarchy was agreed upon (*refer to Figure 13 below*). The hierarchy had a single item at the top, which was then deconstructed into further objectives until the last level was made up of achievable and measurable items.



Figure 13: Stakeholders from Workshop 1 moving pieces towards building an objectives hierarchy.

Documentation of the Adaptive Planning Process outcomes

The research team volunteered to document the outcomes from the flip charts onto a printable format that could easily be sent out to all other people, possibly for verification that the document actually contained their ideas.

Workshop 2

In order to prepare for the Workshop 2, the written reflections in response to the reflective tools that were collected during Workshop 1 were thematically analysed. The initial results were reported back to the Makana Water Forum (MWF) committee (Section 3.5). What dominated participants' reflections was constant mention of participants' dissatisfaction with the lack of representation of other stakeholders in the workshop. The point was discussed by the MWF committee, and it was agreed that more invitation methods should be incorporated into the next workshop to increase representation. Participants pointed out in Workshop 1 reflections the decline

in the number of attendees on Day 2 of Workshop 1 to the workshop taking too much of participants' time. For this reason, Workshop 2 was scheduled to take place over one day. The date for the workshop was discussed by the MWF committee, and from there, the stakeholder database was updated. Since this was a Forum initiative, Forum members were asked to fill in other contacts that they had, which they did. With the list ready, the invitation/advertisement for the workshop was designed, and the venue was booked.

With everything in order, the stakeholder contacts available, venue booked, transport organised, and date and time decided upon, invitations were sent out. The invitations were sent out through personalised emails to the stakeholders whose email addresses were in the database; others were drafted in letter-form and placed in the Makana Local Municipality (MLM) Councillors' pigeonholes at the City Hall. Invitations were displayed in some supermarkets where permission was granted, while other invitations were taken to the local taxi rank of Makhanda and given to as many people as possible, with a brief explanation of what the invitation involved. Three different contacts of the MWF committee members were given for people to confirm their availability, but the response rate was quite low.

During this challenging moment of low response, the Forum committee engaged in my colleague's Change Laboratory workshop, where I reported on the progress of organising Workshop 2 and the low response rate became one of the challenge that I mentioned. This proved valuable because people who had worked in such situations several times before were present, and they made some useful suggestions. Coordinating a workshop and inviting people, asking for so much of their time required detailed attention. The most valuable suggestion was to personalise the email to suit each organisation and its mandate. Although I had written letters addressed to these organisations, I needed to explain in depth how the workshop would directly benefit them.

To overcome the challenge of not knowing how many people to expect, we visited the MLM office of the Speaker to seek for the Speaker's assistance in getting members of the Council interested in participating and inviting people from their wards. Even though we could not meet the Speaker herself, we were welcomed, and informed about the correct channels for sending an email to the office so that the Speaker could be formally informed. Subsequently, the stakeholders who had been emailed were called either personally or through their organisations, depending on the contact details on the database. The MWF was also invited to join the Eastern Cape Water

Caucus (ECWC) on their slot on Radio Makhanda, where further information about the workshop was given to the radio audience. These different modes of inviting stakeholders led to an encouraging number of responses confirming availability.

Workshop 2 took place on the 20st September 2017, at Noluthando Hall in Joza. The workshop started on time, with a little translation at the beginning. It was a rainy day, but there was a promising attendance as sixty-five people signed the attendance register, though only forty-one responded to the reflective questions. There was some positive energy in the room, especially during group discussions where stakeholders made discussed in their language of choice. Table 3 on page 86 shows the stakeholder composition of those who responded to the reflective questions. The water and sanitation portfolio chairperson officially opened the workshop, but did not stay. The room kept on filling up and more chairs needed, until the half-circle sitting arrangement had people sitting behind others.

A. The Visioning Process

Introduction

First, participants introduced themselves around the room, explained whom they represented and what their concern about water issues was in their area. All the concerns were written on a flip chart, after which the facilitator introduced the concept of the catchment, what it is, and what it entails. She also explained all the uncertainties a catchment comprised, referring back to all concerns mentioned. The facilitator also described the Upper Kowie catchment, using maps to illustrate some of the characteristics such as that it is in the upstream of other areas, hence the need to protect water resources within the catchment. From the list, which seemed to consist mainly of water service delivery issues within the MLM, the facilitator emphasised how the services are provided by the resource. She mentioned some of the elements within the catchment, including the different stakeholder interests, which also depended on the resources, and how each needed to give input on how to care for them. The description highlighted how complex catchments were; thus showing why an adaptive approach to planning was necessary.

Having established that catchments were complex, the facilitator then introduced APP, and SAM, together with what a CMS was, and how it was meant to give all those who are interested

in water resources management an opportunity to speak about their catchment, in a holistic manner.

Reach a consensus on the future, value and principles

A list of values from Workshop 1 was put up on the screen, and participants were asked to add any that had not been covered, after which, participants worked in groups, to describe their desired future for the catchment. The vision that was formulated during Workshop 1 was placed on the screen, and as the groups presented, the stakeholders together decided how the points meshed with the first vision, the purpose being to end with a similar vision for the Upper Kowie River catchment. To ensure that the points raised about the desired future were independent from those of Workshop 1, the vision from Workshop 1 was only put up after the groups in Workshop 2 had finished working on their own.

Elicit the context for setting objectives

In this step, each group was tasked with the description of an item of the STEEP (social, technological, environmental, economic, and political) context; every group wrote their piece and one member presented the group's ideas to the rest of the attending stakeholders, who had the opportunity to add or clarify some points (*refer to Figure 14 below*).



Figure 14: The stakeholders in groups at Workshop 2 as they described the different STEEP (social, technological, environmental, economic, and political) characteristics of the catchment; one group member is presenting to the rest of the stakeholders.

Elicit essential characteristics of the system to be managed

In the same groups, stakeholders were asked to highlight the key characteristics of the catchment (characteristics that need to be maintained, developed, and managed to enable the achievement of the vision). The task also required stakeholder to mention the determinants (enablers), constraints (restrictions) and threats (dangers) to effective maintenance of key characteristics. As groups reported, the list was written on an open flip chart and consolidated; similar ideas being clustered together.

Reflection session

Participants in Workshop 2 were also introduced to the reflection component of this study and shown that reflecting on their experience of the process could promote better relations among participants because feedback on some of the discomforts would be anonymously reported to the group in order that they might be resolved before conflict could develop within the group. Before breaking for lunch, participants were then given a reflective tool (refer to Appendix 1), containing eight questions to reflect on. On this occasion, it was made clear that reflecting was completely optional, and those who were going to engage with the questions were asked to fill in a consent form so that their responses could be used for research.

B. Objectives Hierarchy

After lunch, the final step was to build an objectives hierarchy. Although some stakeholders had left during the lunch break, many had stayed for the last session of the day. Participants sat in a circle, with enough space for everyone to see what was on the floor. The facilitator explained briefly what the objectives hierarchy was: to consider everything said and done throughout the day, and then decide what needed to be done to reach to the vision. Participants were asked to rank the objectives in order to reach the vision, and the highest-ranking objectives, were expanded into achievable and measurable actions that could be assigned to specific actors. This marked the end of Workshop 2.

Documentation of the Adaptive Planning Process outcomes

The research team volunteered to document the outcomes from the flip charts, and compiled the outcomes of Workshop 1 and Workshop 2, to end up with a single local CMS for the Upper Kowie (refer to Appendix 5).

The APP was developed to promote better implementation of adaptive Integrated Water Resource Management (IWRM) in South Africa. The purpose was to have a stakeholder-centred, learning-centred approach, where stakeholders would work together towards a common vision, by building a joint picture of the environment under planning.

The next section describes the literature-based evaluation framework used to develop the reflective questions that participants were asked to engage with.

4.3.2. Reflections as a Data Collection Method

A reflection is defined as taking time to think about past events or experiences and assessing what happened, how it happened and why it happened, so that progress can be tested (Pearson, 2007; Wood, 2015; Castleberry, Payakachat, Ashby, Nolen, Carle, Neill and Franks, 2016). Reflections are particularly important as feedback from them can improve knowledge-creation processes and help researchers improve their understanding of the process and the project (Horowitz *et al.*, 2009). At the same time, participants gain new skills and capacity from the process, which means a co-learning approach, where the researcher learns from the participants, while the participants learn from the process itself (Zuber-skerritt, 2015). Reflection has an empowering impact on all who participate, both community members and researchers (Green and Kearney, 2011). It shows how the context unintentionally models our reasoning (Zuber-skerritt, 2015). Reflections, if carried out critically, can lead to a sustainable transformation in participants; internal reflection leads to insights that can reverse people's former attitudes where external motivation is unsuccessful.

During the APP workshops, stakeholders were asked to engage with a reflective tool about their experience of the process used in the workshop. The critical reflections could lead participants to question their assumptions and come up with their own shared ways of knowing. The reflective process could also give participants the opportunity to think deeply about their experience and improve their own self-awareness (Wood & Zuber-Skerritt 2013). The reflections thus formed the reflective component of a Participatory Action Learning and Research (PALAR), as well as being a critical component of the data collection for this research.

The reflective questions were translated by one isiXhosa first language-speaker, and were reviewed by two other isiXhosa first-language speakers.

4.4. Development of an Evaluation Framework for Epistemic (In)justice in an APP

Consultation of literature allowed the development of an evaluation tool (*refer to Table 1 below*) in order to assess epistemic (in)justice in an APP, based on participants’ experiences as presented in their engagements with the reflective sessions and tools introduced into the process. An evaluation framework should consider both the process criteria and process outcomes (Conley and Moote, 2003). Literature from previous studies was used to guide the development of a new framework that was specifically adjusted to assess epistemic (in)justice (Conley and Moote, 2003; Frame *et al.*, 2004; German and Taye, 2008). Six components were proposed to form the criteria for evaluation of epistemic justice in the APP, and were divided into process criteria and process outcomes. Under process criteria, the following were surveyed: flexibility and adaptability, and inclusiveness; while process outcomes were: understanding of the process and concepts, equality of voice, participant satisfaction, and participant learning and co-learning.

To assess participant benefits, the framework aimed to ascertain whether they had a common understanding of the concepts being used, whether the process met participants’ goals, whether it allowed for co-learning and whether it promoted equality of voice. To assess process success, the tool tested for process’ ability to be flexible and adapt to different scenarios, and whether its facilitation provided equal opportunities for all.

Table 1: Evaluation Framework showing the criteria that was used to investigate epistemic (in)justice in an APP

Process criteria and outcomes	Descriptions
1. Understanding the process and relevant concepts	Participants have a common understanding of the process and the relevant concepts used during the APP.
2. Participant satisfaction	The process takes into consideration the needs and interests of all participants.
3. Participant knowledge understanding	The process allows for the transfer of knowledge between participants.

4. Equality of voice	The process allows free expression of opinions by participants.
5. Process flexibility and adaptive	The process is flexible to the context of the study area and allows for participants' creativity and adaptive planning.
6. Inclusiveness	The process is carried out in an inclusive manner. The facilitator is well trained and provides participants with equal and balanced opportunities during the process.

4.5. Research Participants

The participants who collaborated in this study were a mixture of professionals, academics and local community members who agreed to respond to the reflective questions that were administered during the APP workshops. A mixture of purposive and random sampling methods was used. Purposive sampling was used because the stakeholders who participated in the workshops were specifically selected on the basis of their role in water resource management, or their experience of local water provision. Participants were invited from the broader public through platforms such as radio, newspaper and social media (Facebook), so there was a random sampling of the population who responded to the call to be involved, showing an interest in water-related issues in the MLM. While not all those who participated in the workshops responded to the reflective questions, the study managed to gather a number of different stakeholder perceptions. The final research participant composition was made up of the following stakeholder groupings (*refer to Table 2 and Table 3 below*): Government, Education, Public Benefit Organisations and/or Non-Governmental Organisation (PBO/NGOs), Residents, Commercial farmers, Emerging farmers, and Community representatives.

Table 2: List of Workshop 1 participating stakeholder groups

Stakeholder group	Representing organisation(s)	Number of participants per stakeholder group
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Government	Albany Museum, Department of Water and Sanitation (DWS), Makana Local Municipality (MLM), Albany Museum,	9
Education	The following departments from Rhodes University: Environmental Learning and Research Centre (ELRC), Pharmacy Department, Institute for Water Research (IWR)	7
Residents	Makhanda Residents' Association (GRA), private residents and consultants	3
PBO/NGOS	Public Service Accountability Monitoring (PSAM), Private Eye Community Watch Project (PECWP), Environmental Monitoring Group (EMG)	6
Community representatives	Traditional Healers Programme (THP)	1

Table 3: List of workshop 2 participating stakeholder groups

Stakeholder group	Representing organisation(s)	Number of participants per stakeholder group
Government	MLM, DWS, Cooperative Governance and Traditional Affairs (CoGTA), Local Economic Development (LED),	10
Community representatives	Ward Committee members, Community Workers Programme (CWP), Private residents	14
Emerging farmers	Riebeek East	3
PBO/NGOs	Private Eye Community Watch Project (PECWP), Eastern Cape Parks and Tourism Agency (ECPTA), Oldenburgia Conservancy	4
Unidentified	Stakeholders who preferred that their identity was not revealed	10

4.6. Data Analysis

4.6.1. Qualitative Research

A qualitative analysis was used to derive meaning from the participant reflections because of its ability to uncover knowledge about how people feel or think about the scenario under investigation (Thorne, 2000). Data collection can be in the form of observations, interviews, focus groups, documents, photography and many others (Ruggunan, n. d.; Bazeley, 2009; Castleberry *et al.*, 2016; Nowell, Norris, White and Moules, 2017). Qualitative data analysis is one of the most challenging processes in research because the researcher uses their understanding of the research participants and that of the study itself to interpret the results (Basit, 2003). It is advisable that researchers engage with their data collection as much as possible in order to improve their interpretation (Ruggunan, n. d.; Nowell *et al.*, 2017). This meant that I had to engage with all aspects of the data collection process, including engaging with participants to observe them to achieve an understanding of the data for better informed interpretation.

Analysing reflective responses qualitatively provided an opportunity to gain a better understanding of the impacts of the workshop and the APP on the participants (Castleberry *et al.*, 2016). Qualitative research results in the generation of meaning out of words rather than numbers, especially when there is not enough known about the matter being investigated (Patton and Cochran, 2002). This type of research helps to recognise that what matters to people is based on their subjective experience, their social context, and their history (Thorne, 2000; Patton and Cochran, 2002). In this study, qualitative research helped to unpack the different factors which influenced participants' experience of epistemic (in)justice during an APP, and the study managed to report quite insightful findings with more meaning to the citizens rather than numbers which would not mean much to the majority of the population in the context of the study.

Thematic Analysis and Coding

Thematic analysis looks across all the data to identify the common issues that recur and identify the main ideas that summarise all the views collected (Patton and Cochran, 2002:23). Codes are sign posts of the data that one has to analyse, and they are used to give a collective meaning (sign post) to a cluster of related transcriptions within the data (Attride-Stirling, 2001; Basit, 2003). Coding simplifies and reduces the data in terms of what matters and what does not in order to ease the processes of analysing and writing the results (Patton and Cochran, 2002; Nowell *et al.*, 2017).

Codes mapped out the broader ideas that each participant perspective was trying to convey by grouping them under similar headings (Basit, 2003). An inductive approach was used to manually select themes from participant reflections, in order to give the study an opportunity to highlight issues other than those relating to the research question, which could assist with better interpretation of the results (Braun and Clarke, 2006). Inductive thematic analysis refers to an approach where themes are based on the data itself rather than as predetermined and based on theory (Maguire and Delahunt, 2017).

The following steps, based on Nowell et al. (2017) were followed to perform the thematic analysis for this research.

- a) **Reading transcriptions:** The researcher thoroughly read all the data to become familiar with and identify ideas and patterns within the data. The step was used to assess the content of the overall data, and some initial ideas were drawn from the data.
- b) **Generating initial codes:** Preliminary ideas were identified at this stage, by answering the important question: ‘What is going on here?’ (Patton and Cochran, 2002; Nowell *et al.*, 2017). Each question was examined on its own, and similar ideas were grouped into codes. The process resulted in around ten codes per question, which emerged out of the data. These codes were turned into graphs in order to assist with a visual picture of the patterns and to assist with the next steps.
- c) **Searching for themes:** Portions of the data from the preliminary codes were linked into more substantial ideas, which gave a clearer meaning of what the trends in the data were. The themes were constructed from ideas that seemed to repeat in the data, and the meanings behind the themes.
- d) **Reviewing themes:** This step entailed examining the themes in the preceding step and comparing them against the data in order to check for coherence, especially in terms of whether the theme correctly reflected all the data under each theme. By the end of this stage, separate, clearer and fewer (from around ten to less than five) themes per question were decided on. In order to illuminate researcher bias and to verify the accuracy of the coding process, each step was repeated by an independent coder (the research supervisor)

for code checking, with a result of 90% overall accuracy. The final codebook and themes were worked through collectively until any disagreements were resolved collectively.

- e) **Defining and naming themes:** Data from the two workshops, with some differences, were merged. The first workshop ran for two days, while the second one took one day, with some similar questions posed across both workshops. For this step, the overlapping questions posed across the two workshops were compared against the evaluation framework, which was developed to check epistemic (in)justice (Table. 1).
- f) **Writing up about the themes:** The stage basically provides a logical and coherent account of the themes, supporting them with direct quotes: a narrative of what the themes reveal about the participants' perceptions was developed (see Chapter 5). Prominent findings and their meaning in comparisons to the literature were shown, using them to build an argument. Items that were in the data, but not in the literature were also pointed out to show some of the contributions of the study.

4.7. Research Ethics

As one of the requirements of working with human participants in engaged research, it is the researcher's responsibility to consider the concerns that the participants would have towards their participation in the research (Patton and Cochran, 2002). Rhodes University's protocol for involving human participants was considered in drafting the ethical considerations for this study (Rhodes University Ethical Standards Committee, 2014).

4.6.1. Information to Participants

The researcher identified herself as a Rhodes University research student and requested participants' permission to use their reflective responses in a research project to complete her Masters in Water Resources Science. Participants were told that the project was intended to investigate their experience of the workshop in terms of their opinions being respected, and the extent of their feelings of being free to participate during the CMS development process. They were asked for permission to record their dialogues in the workshop, and for pictures to be taken. Participants were informed that this is part of a research project and that it could lead to a Master's degree, publications in journal articles, conference presentations and other research outputs.

4.6.2. Participants' Privacy

Participants were assured that all the information they provided throughout the course of the research would be kept confidential between them, the researcher and the researchers' two supervisors. The proceedings that were audio recorded with participants' permission were kept in safe locations such as the researcher's password protected drive and were played only to verify information from the workshop, and were accessible only to the researcher. All raw data would be deleted after a period of five years when all the information had been used for the research.

In order to maintain confidentiality, the researcher would not keep the participants' reflections for no more than two years, and all hard copies would be kept in locked cabinets in the community engagement division. All participants were assured of anonymity in publications emanating from the work: only the researcher would have access to participant names, while the supervisors could look at the raw data.

4.6.3. Possible risks to participants

Water was a sensitive issue in the study area because of the inadequate service provision in the Makana Local Municipality (MLM) (Weaver *et al.*, 2017). There were possible risks of some members feeling uncomfortable or offended by other people's perceptions on different issues, and this was resolved by stating the rules of engagement from the beginning among the participants themselves. Everyone's opinion should be respected, as the workshop aimed to get all the epistemic communities represented. All parties involved followed the rules of engagement that were set at the beginning.

4.6.4. Right to Withdraw

It was made clear that participation was completely voluntary, and participants signed a consent form which included a statement about their right to withdraw, but could not ask that all the group data generated during their participation be deleted and not be used. The researcher read out the form to the participants before they signed to ensure that all the clauses were covered.

This chapter has shown that pragmatism was the chosen paradigm for its ability to break the boundaries to break the boundaries between research and everyday life. The TD approach to the

way in which the APP workshops were organised and conducted allowed the study to harness the diversity of knowledge among the participating stakeholders. The reflection component of the PALAR approach made it possible for this study to touch on real pressing issues in the catchment. The evaluation framework for epistemic (in)justice helped to answer the research question of how much epistemic (in)justice was experienced by the upper Kowie catchment participants in an APP workshop. The outcomes of the reflections are analysed and discussed in the next chapter.

CHAPTER 5: RESULTS AND DISCUSSION

5.1. Overview

This chapter presents the results of the study during two strategic adaptive planning workshops held with stakeholders from the Upper Kowie catchment in developing their local Catchment Management Strategy (CMS). Results and discussion based on the analysis of the reflective tools (refer to appendix 1) used during the workshops are presented first in Section 5.2, and corresponding frequency tables for the analysis of each question can be found in Appendix 2. The results from both workshops have been combined to present an overall picture of participant's engagements with reflective tools across the workshops in Section 5.3. Section 5.4 of this chapter presents the results and a discussion of the analysis based on a comparison of the participants' engagement in reflections against the evaluative framework developed to investigate epistemic (in)justice in the application of the Adaptive Planning Process (APP).

5.1.1. Initiating the CMS Process, Observations of Participation, and the Use of Reflections

The first workshop was held in June 2017 at the BB Zondani Hall in Makhanda, and the second workshop was held in September 2017 at the Noluthando Hall in Makhanda. The initial research plan was to have an unchanging group of participants to reflect on the guiding questions, but because some stakeholder groups were not represented in the first workshop, two workshops with different stakeholder compositions were held.

During the Workshop 1, participants engaged in building a description of their context following the STEEP (social, technical, environmental, economic, and political) framework. Large A1 flip charts were placed around the room, each for one of the STEEP characteristics, and stakeholders were asked to write what they knew about their area under those headings. Participants seemed to prefer to quietly write down their points under each section and move on to the next one with little interaction taking place. Some participants took more time to write responses under some characteristics than others, depending on where their interests or expertise lay. Interestingly, Municipal representatives seemed to be interested in filling in mainly the political characteristics. It could have been a matter of not understanding the instructions, or they simply felt this was their field of expertise. However, this focus on political aspects gave other people less opportunity to contribute to that aspect.

After the reflective responses from Workshop 1 had been analysed, a summary of the finding was sent out to the participants for further comment on what was said during the workshop, together with a request to add anything that had been omitted. Each participant also received a list of the pressing issues revealed in their reflective responses.

Workshop 2 ran over one day, 20th September 2017 and was adapted to respond to the suggestions and recommendations that surfaced from the reflective process of Workshop 1. For example, when many people who were invited to the first workshop could not attend, the team assumed that lack of transport to the venue could have contributed, and so transport was provided for Workshop 2. Another issue arising from participant's reflections was that the workshop took up too much of people's time, and this led to Workshop 2 running for one day rather than two. Many things had to be adapted in the process to accommodate the reduced time. Three reflective tools (with sixteen questions covered) were administered to participants during the two-day Workshop 1, while only one tool (covering eight questions) was administered in Workshop 2. We were aware that participants may not have been willing to answer all sixteen reflective questions from the Workshop 1 all at once, and only eight questions from the three reflective tools of the Workshop 1 were selected and administered to participants at Workshop 2. All participants who had attended the first workshop were invited to the second workshop, and they were made aware that the two workshops would be similar, differing only in terms of the stakeholder representation.

The seating arrangement during the workshop evidenced division: government officials and other professionals occupied the front seats; other stakeholders, like the Emerging farmers, community workers' programme, ward committee members, and other residents who had attended preferred seats further away from the front. The seating arrangement led to little diversity when the time came for group work, but seemed to have made the stakeholders more comfortable. One group felt there were too many issues, and they did not know where to start, but the facilitator attended to them, and they were able to jot down a few social points during the STEEP description in Workshop 2.

The information above explains how Workshop 1 and 2 are connected, why they are different, and why some adjustments were made. The next step examines the implications of this information for the results, and to compare them [Section 5.3] to achieve an overall picture. Overlap between the two workshop results was inevitable, given the similarity of the questions,

and the overall picture combines the results under the eight overlapping questions from the two workshops. There were some contradictory responses in participant reflections between the first and second workshops because of the necessary adaptations made in response to suggestions that surfaced after Workshop 1. For instance, Workshop 1 participants mentioned a lack of engagement among participants, while participants from Workshop 2 noted effective participant engagement. This change was the result of implementing recommendations from Workshop 1 responses on improving stakeholder engagement, for example, through small group discussions.

5.1.2 Participants and Their Engagement with the Reflective Tool

The purpose of adaptive planning is to have all stakeholders who may be interested in participating participate in planning able to be a part of the process over the implementable period of the strategy, and beyond. Written reflections were added to the adaptive planning workshop mainly to extract as much information as possible about participants' subjective opinions about the workshop in order to retain participants over time, and ensure collaboration among stakeholders throughout.

During Workshop 1, participants were: government officials, Public Benefit Organisations/ Non-Governmental Organisations (PBO/NGOs) representatives, Education (RU) representatives, Commercial farmers, and residents (predominantly from Makhanda West with only a few representatives from Makhanda East). The workshop excluded representation from other surrounding areas like the farms and the township, but the surrounding areas of Salem and Riebeek East were included in the second workshop, together with good representation from the township (Makhanda East). During reflective sessions, participants used the semi-structured reflective tool to reflect on their experience of the Adaptive Planning Process (APP). All questions were open-ended, which gave participants the opportunity to give reflective responses that were as long as participants desired. Workshop attendees who participated in the reflective sessions were clustered according to the particular stakeholder group whose interests and views they represented in the workshops for the analysis process. Stakeholder clusters, represented organisation(s) and a number of participants under each group are shown in Table 4 below. Residents and Community representatives were separated, with Residents representing associations, and Community representatives representing Community leaders who had to report to the community as one of their mandates.

Table 4: Stakeholder representation during Workshop 1

Stakeholder group	Representing organisation(s)	Number of participants per stakeholder group
Government	Albany Museum, DWS, MLM,	12
Education	ELRC, Rhodes Pharmacy, IWR	7
Residents	GRA, Private residents and Consultants	3
PBO/NGOs	PSAM, Private Eye Community Watch Project (PECWP), EMG	6
Community representatives	Traditional Healers Programme (THP), Ward committee members.	2
Commercial farmers		2

On the 13th June 2017, Day of Workshop 1, 27 and 29 participants took part in two reflective sessions, respectively.

The first reflective session took place before tea, after the initial briefing and knowledge-sharing session presented by the facilitator. Participants showed mixed feelings about this step, some were impressed, others confused, while others looked angry, indicating that the message was not made clear from the outset that participants would be requested to engage in a written reflection session. The lesson for the research team the necessity of explaining that part of the process more clearly in the future. One of the angry participants confronted me to express their opinion that the research component of the workshop was a waste of his time. To calm him down, I explained that the strategy that was being developed was meant to inform decision-making both locally within the MLM, and regionally in the Mzimvubu-Tsitsikamma Water Management Area (M-T WMA). The research part of the process was done to assist the new institution (Makana Water Forum) on how to enhance public participation. That response helped him understand that the planning was not an IWR research project, but an initiative towards a statutory plan.

The first reflection tool of Workshop 1 contained seven questions. One of the questions focused on the explanation of the APP, and another on whether participants thought the APP was useful for the development of their local CMS. The other questions asked for participants'

assessment of the process: what was most satisfying; what was most frustrating; what participants could improve in their communication with others; what participants could change if they could get a chance to start the workshop from scratch; and what participants would prefer to spend more time on. The questions were an attempt to get participants to reflect on what the APP was, examine their expectations, and what they found they found exciting about the APP from the outset. The questions also prompted participants to make recommendations for further engagements. The results showed that Government participants seemed to have the most positive attitude among the stakeholders. Education, PBO/NGOs and Resident participants were more critical. Participants managed to point to all the traits of the APP, especially that the APP was inclusive of a wide range of stakeholders. Time allocation and participant representation were of most concern to participants, particularly for stakeholders from Education, PBO/NGOs, and Commercial farmers.

The second reflective session took place before participants broke for lunch, which was after collective goal-setting activities had taken place. Twenty-seven participants completed the first reflective tool, while twenty-nine participants completed the second reflective tool. The increased participation in the second session was due to the arrival of two more participants later in the day. When second reflections came just before lunch break, only a few people seemed uncomfortable, suggesting that participants became more comfortable taking part in the reflective process and understood the value of doing so after taking part in the first one. The reflection tool consisted of five questions, focused on: whether participants' contributions were taken seriously; how participants could better be included in the drafting of the CMS, what participants' goals were for the day and how the goals evolved; what their goals for the next meeting were; and whether participant felt as though everyone was given equal opportunity to participate.

The second reflective tool aimed at investigating participants' experience of inclusivity during the APP, after engaging with more aspects of it. The results show that participants had a positive experience of inclusivity as the affirmation responses had high occurrence frequencies under the questions. However, PBO/NGOs were more critical on the matter of inclusivity as they featured under the negative responses more frequently than other stakeholder groups. Interacting and networking with different stakeholder groups seemed important for the stakeholders representing Government, Education, and PBO/NGOs. Apart from a lack of engagement among stakeholders, and unclear focus of discussion, there were many positive responses about

inclusiveness in the APP. Participant responses were particularly interesting in light of this study, as they showed a high level of reflexivity from participants in relation to participation and knowledge co-creation in the context of epistemic injustice.

Day 2 of Workshop 1 took place on the 14th June 2017, with only one reflective tool, and sixteen participants involved in the reflective session. Thirteen were participants who had returned from the first day, plus three more participants who joined the workshop on the second day without having attended on the first day. The reflection tool was made up of four questions administered before breaking for lunch on the second day of the first workshop. The questions were: the definition of the APP after engaging with it; whether participants found the process useful for the development of the local CMS; whether participants felt included in the APP; and participants' general comments and remarks on the entire process. It was hoped that this tool would provide evidence that participants had a confident, clear understanding of the APP and its purpose. However, the results show that there was low evidence to indicate a proper understanding of the concepts, maybe because of the drop in the number of attendees.

Participants in Workshop 2 comprised: Government officials, Community representatives (mainly community workers programme and ward committee members), Emerging farmers (or formerly 'resource-poor farmers') and PBO/NGOs representatives. Thirty-nine participants responded to the reflection tool on the day of the workshop, while two more people reflected on the questions a few weeks later when the research team did follow-up visits with the participants, bringing the total number of reflections from participants in Workshop 2 to forty-one, while sixty-five were in attendance. The Workshop 2 had a slightly different composition of stakeholders than Workshop 1 (*refer to Table 5 below*).

Table 5: Workshop 2 stakeholder composition

Stakeholder group	Representing organisation(s)	Number of participants per stakeholder group
Government	MLM, DWS, CoGTA, LED,	10
Community representatives	Ward Committee, Community Workers Programme	14
Emerging farmers	Riebeek East	3

PBO/NGOs	ECPTA, Private Eye Community Watch Project (PECWP), Oldenburgia Conservancy	4
Unidentified	Stakeholders who preferred that their identity was not revealed	10

There were more participants in the Workshop 2 than Workshop 1, but many participants in Workshop 2 did not respond to the reflections and many chose to remain anonymous in terms of their stakeholder grouping. It was later discovered that some participants in Workshop 2 could not read or write. In order to follow up and get more people to respond to the reflective questions, especially those who could not respond during the workshop, follow-up visits were conducted with participants three weeks after the second workshop. Contacting participants proved difficult, and although the follow-ups only yielded two new respondents, they did allow us to clarify many responses from participants in the reflective tool.

Workshop 2 provided for one reflective tool during one reflective session, consisting of eight questions that had been selected from the three sets of reflective tools in Workshop 1. The reflection session took place just before participants went for lunch, after many aspects of the APP had been dealt with, and the only objectives hierarchy aspect of the process remained (refer to Appendix 5). The questions focused on: participants’ explanation of APP after engagement, what their goals for the engagement were, what was most satisfying to them, what they would change if they could start the workshop over, and how they felt they could be better included in the drafting of the CMS. The other questions were aimed at eliciting whether facilitation provided equal opportunity for all to participate; whether participants felt their contributions were taken seriously, and for participants to share any other thoughts which may not have been covered in the other questions. As with Workshop 1, many participants pointed out that they were disappointed by the lack of representation of other stakeholder groups. Other people went on to suggest that team pay more attention to inviting more people next time. One of the major challenges to IWRM, following this experience, is finding a way to bring all stakeholders together to participate in the ways they expressed they would like to, though it may be a struggle to achieve in practice.

5.1.3 Using the Framework to Evaluate Epistemic (In)justice

The evaluative framework developed for this study tests for participants' understanding of the relevant concepts used during the APP, satisfaction, equality of voice, learning and co-learning, inclusiveness, and process flexibility and adaptability. Results from the overall picture analysis were primarily used in the analysis with the evaluative framework. The findings from Workshop 1 questions that were not repeated in Workshop 2 were used to support the discussions of the results.

5.2. Reflective Tool Analysis: Workshop 1 and 2

5.2.1. Workshop 1

Reflective Tool 1

Question 1: Explain as much as you can about the Adaptive Planning Process

Participants were prompted to reflect on what they had learned so far in the workshop. The question asked participants to explain as much as they could about what they thought the APP was following a brief introduction about the purpose of the workshop. The question aimed to find out how much the participants knew about the APP before engaging with it, as well as how well the facilitator was able to explain the relevant concepts to the participants. By exploring how different stakeholders understood the process before and after the facilitator's explanations, the workshop could be adapted so that all stakeholders could start engagement with the process on the same page.

Three major themes emerged in participant responses: A. Plan in complex systems, B. Process is inclusive and allows for knowledge sharing and C. Map a vision, starting with baseline information (*refer to Figure 15 below*). Theme A had the lowest frequency (20%), Theme B had a 37% frequency of 37 %, and C a frequency of 43%.

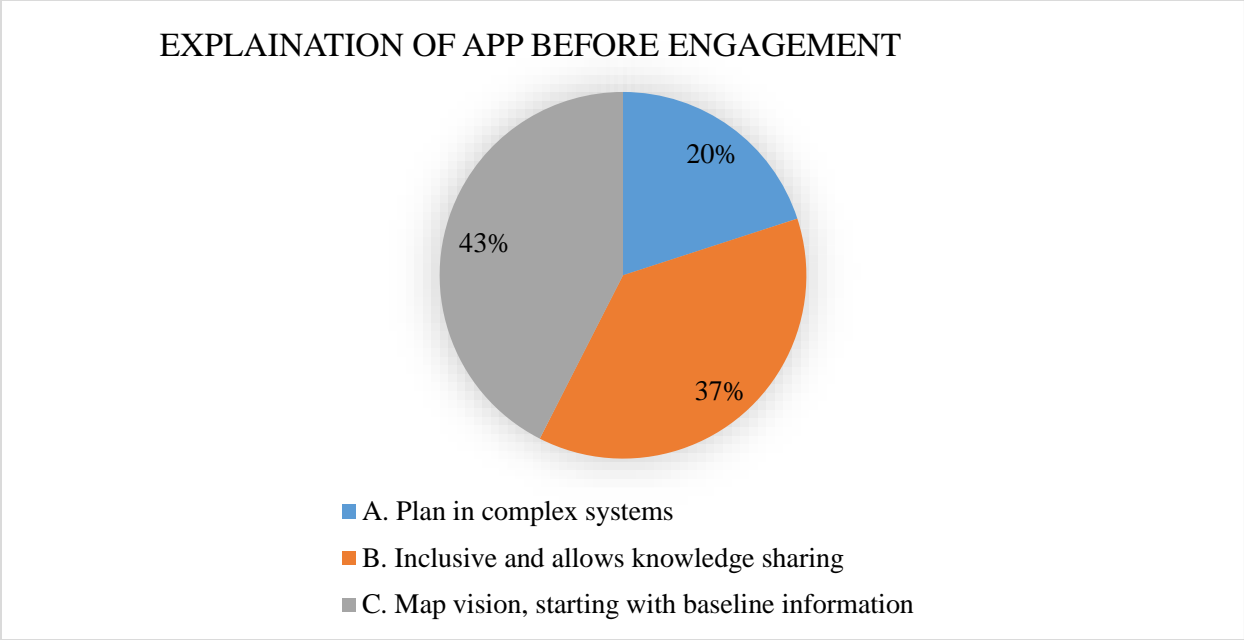


Figure 15: Theme prominence in participants' description of Adaptive Planning Process before engagement, distributed across the total frequency of responses.

Participants’ reflective responses under Theme, A, explained their understanding of the APP as planning in complex systems. Here participants specifically noted that the process involved a set of flexible steps that were responsive and able to adapt to uncertainty, and that those involved should have the skills to make a plan when things changed because of the uncertainty. For instance, Participant 21 wrote under this theme: *“It is about being able to adjust one’s initial plans when faced with unanticipated/unforeseen circumstances,”* and Participant 25 wrote, *“It is a process used to gather people’s concerns about water management, their plans to manage water and the ways in which they are to cope under uncertainty.”* Participants further said that the adaptation of plans happened as more information is gathered and more knowledge became available.

In the second theme, B, participants described the APP as inclusive and allowed stakeholders to share knowledge in their reflections. Some people felt the process was inclusive of a wide range of voices, especially those affected by the problem at hand (mentioning, in particular, the water crisis in Makhanda). Participant 6 wrote, for example, *“In this case, it can work to solve the problem of water shortage in Makhanda because it involves all the people who are affected by the water issue and it takes into account all their opinions”*. Participants felt that by including everyone’s voice, the process gave stakeholders the opportunity to share knowledge and learn from

each other. They pointed out that the knowledge gained influenced changes in planning, and that stakeholder participation and buy-in were key in the process. However, one participant pointed out that they felt, at that point, that the process involved more lecturing than actual engagement among the participants.

Under the third theme, C, which emerged in participant reflections, participants pointed out that the process started by describing the baseline information, which was then used to map a future vision for improvement. Participant 22 said, *“It is a participatory process requiring multiple voices to register concerns and map a vision for improvement. The process selects solutions and resources/ timescales necessary for implementation”*.

Across the different themes, stakeholder representation varied within each theme and across themes. The stakeholder breakdown of each theme is shown in Figure 16 below.

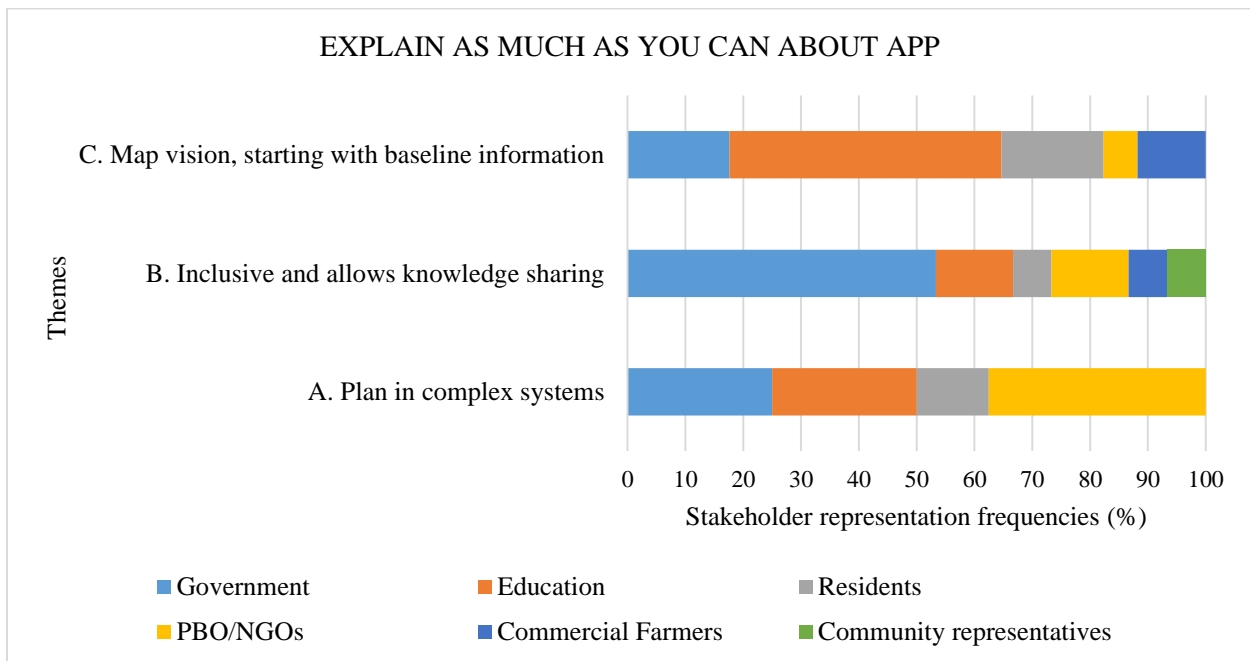


Figure 16: Distribution of the stakeholder groupings under participants' explanation of an Adaptive Planning Process before engagement.

Within Theme A (plan in complex systems), PBO/NGOs had a frequency of 37.5% and the highest representation, while Education and Government followed with an equal representation making up 25% of the responses. Residents represented the remaining 12.5%, while Commercial farmers

and Community representatives had no representation under the theme. Theme A had the lowest diversity in stakeholder representation. All the stakeholder groups were represented in Theme B (inclusivity and knowledge sharing). The highest represented stakeholder group was Government at 53.3%, followed by Education and PBO/NGOs at 13.3%. Residents, Commercial farmers, and Community representatives all represented 6.7% of this theme⁷. This is the only theme in which Community representatives were represented. Theme C (map vision starting with baseline information) was the highest occurring theme, and all stakeholder groups except for Community representatives were represented. Education dominated the theme making up 47.1%, followed by Government and Residents equally at 17.6%. Commercial farmers represented 11.8%, followed by PBO/NGOs at 5.9%.

Question 2: Do you feel as if the process will allow us to meet our goal of developing the strategy (CMS)?

The second question asked stakeholders if they thought that APP would allow them to meet the goal of strategy development, based on the short description about the purpose of the workshop. The question aimed to find out the participants' perceptions regarding the usefulness of the process from the overview presentation of the concepts. Figure 17 below shows that of the 25 responses to the question, 92% of the respondents felt positive that the APP would lead to a successful development of the strategy, and the remaining 8% were not yet convinced.

⁷ It should be noted there was only one Community representative who responded to this question; therefore, the 6.7% represents 100% Community representatives here. See frequency Table 2.2 in Appendix 2.

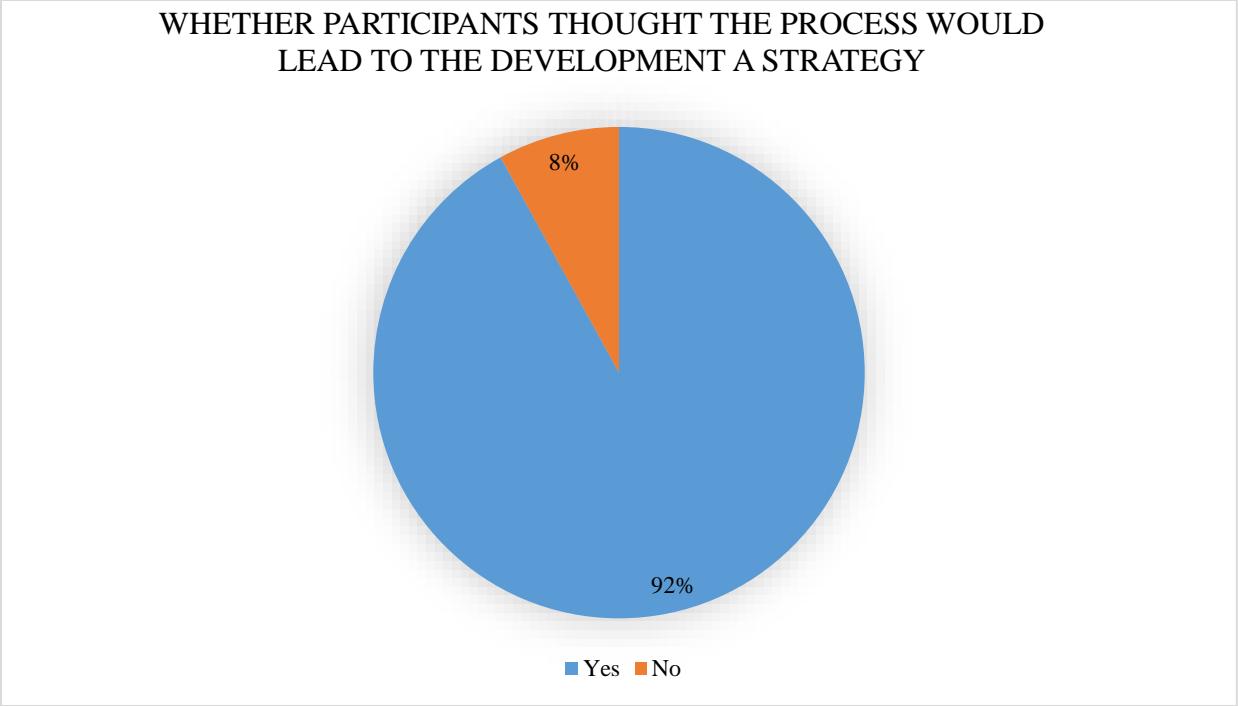


Figure 17: Theme prominence on whether participants felt positive that the APP would achieve the strategy development.

Participants who responded positively in their reflections wrote that the APP was a foundation for solutions through its identification of concerns and inclusion of a range of stakeholders. Participant 6 wrote: *“Yes- everyone in Makhanda is affected by the water crisis and everyone should say something/ voice out concerns about water shortages and what can be done to improve the situation”*. Participants pointed out that every individual’s input would positively add value to the strategy as it was being developed, and the fact that it included many people meant that real needs of the community would be identified and assist the MLM to strategise better. Participant 12 wrote, *“Yes- the inputs will add value and identify real needs of the community and will further assist the municipality to strategise better”*. The strategy development was seen by some participants as a positive step towards a contingency measure put in place in order to address the current water crisis. Following this, participants felt that the inclusion of many voices also meant that different ideas would be gathered in order to strategise and come out with solutions. Participants also mentioned in their reflections that two days were not sufficient for the whole strategy, but the APP would be an appropriate process to make a start. Participants also expressed

their excitement about hearing what other people from different spheres of life thought about the water crisis in Makhanda.

Some participants felt positive but added suggestions to their reflection as to what they felt would ensure further success of the process. Participants felt that the process had the potential to take them to the strategy if it met certain conditions: for example, if more stakeholders were invited to the workshop, and if participants were given more opportunity to engage with each other. Some participants felt they needed more information to ensure success. A few participants were worried about sustainability and the implementation of the outcomes of the process, but also felt that if communities were informed about the water saving tips that were given in the process, the worries about sustainability and implementation would be resolved. *“Yes- it may because it is facilitative - allowing for the gathering of different kinds of ideas. But achieving this may need to stick to a more defined and clear way of discussing the relevant themes”*, wrote Participant 21. Participants further pointed to the fact that the process would probably lead to the strategy, but would require follow-up to make sure that it actually happened, while other participants felt that sustainability would be realised if the issues in the strategy were addressed immediately and if there was support from the community people and government.

A few participants responded more negatively or sceptically, expressing concern about the success of the process based on the fact that it was still early in the process and there was a lack of stakeholder representation. *“No - it is a starting point and a means of gathering concerned individuals. It will hopefully assist (but not necessarily allow) in meeting goals”*, wrote Participant 24. Participant 27 wrote, *“I am not sure. I am anxious that these meetings despite good intentions struggle to get adaptive participation and I worry that the strategy will not be relevant in the end. I am sure there will be learning though and hopefully, points of intention can be taken forward”*. This participant was concerned about the applicability of the strategy without proper representation.

Question 3: What was especially satisfying to you about today’s work?

Participants were asked to reflect on what they found to be most satisfying about the day’s work. Stakeholder satisfaction is important in the long-term success of an APP. Figure 18 below shows the aspects of the APP that satisfied the participants. Three major themes emerged in the participant reflections: A. Process was inclusive of a wide range of stakeholders; B. Good lessons from

facilitation; and, C. Too early to say. Theme A had the highest occurrence in participant reflections at 71%. Theme B and C followed at 17.9% and 10.7%, respectively.

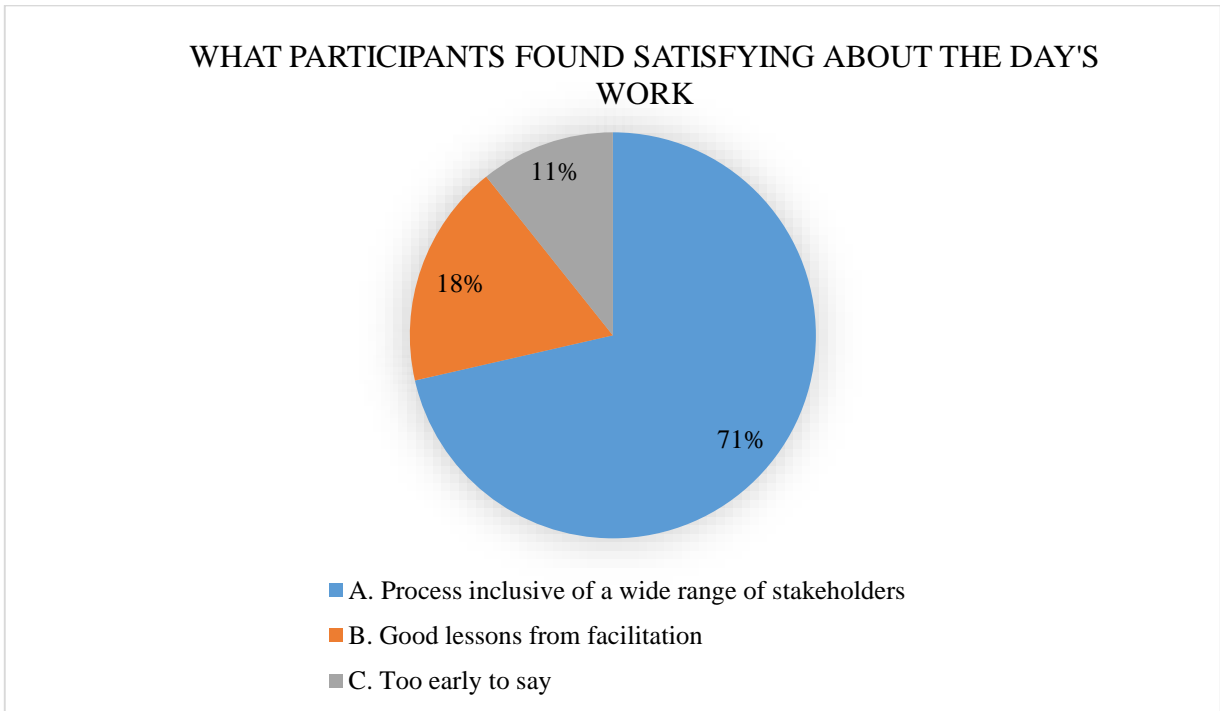


Figure 18: Theme prominences under what participants found most satisfying about the day's work.

Under Theme A (inclusive process with a wide range of stakeholders), participants pointed out that the process was inclusive, and gave everyone an equal chance to speak about water concerns. The diverse range of participants and institutions represented satisfied participants, and made them realise that many of their concerns were aligned. For some participants, the similarity in concerns was an incentive for reaching joint solutions (thus achieve the purpose of engaging in APP). Many participants expressed that their satisfaction was a result of the municipality's presence at the workshop, and that the municipality's presence in that space gave them hope that they were doing something about water issues. This could be confirmation of how much influence local government has on public participation in water resource management. The fact that everyone was given an equal opportunity to contribute catchment information and concerns about water was especially satisfactory to participants.

Under Theme B (good lessons from facilitation), participants were satisfied by the facilitation during the workshop. Some participants wrote in their reflections that the facilitator respected everybody's opinion and that she created a friendly and accommodating space in which all felt free to talk. Participants were also encouraged to use their personal experiences to participate in the workshop, and there was openness as there were no obstacles such as a wrong or right answer. The presentation that the facilitator made taught participants valuable lessons, especially about the catchment.

However, some participants felt it was too early for them to be satisfied, and these answers emerged under Theme C. One person had not noticed anything at this stage, except the cold hall. Someone else was not yet sure, but pointed to the fact that the workshop started later than the stated time. Another participant was not yet satisfied at that point, as the reflection exercise came too early in the process when little had been covered.

Stakeholder representation varied within each theme and differed across the themes, as represented in Figure 19 below. At least three stakeholder groupings were represented under each of the themes. Commercial farmers only appeared under Theme C, Community representatives only appeared under Theme B, and PBO/NGOs were only represented under theme A.

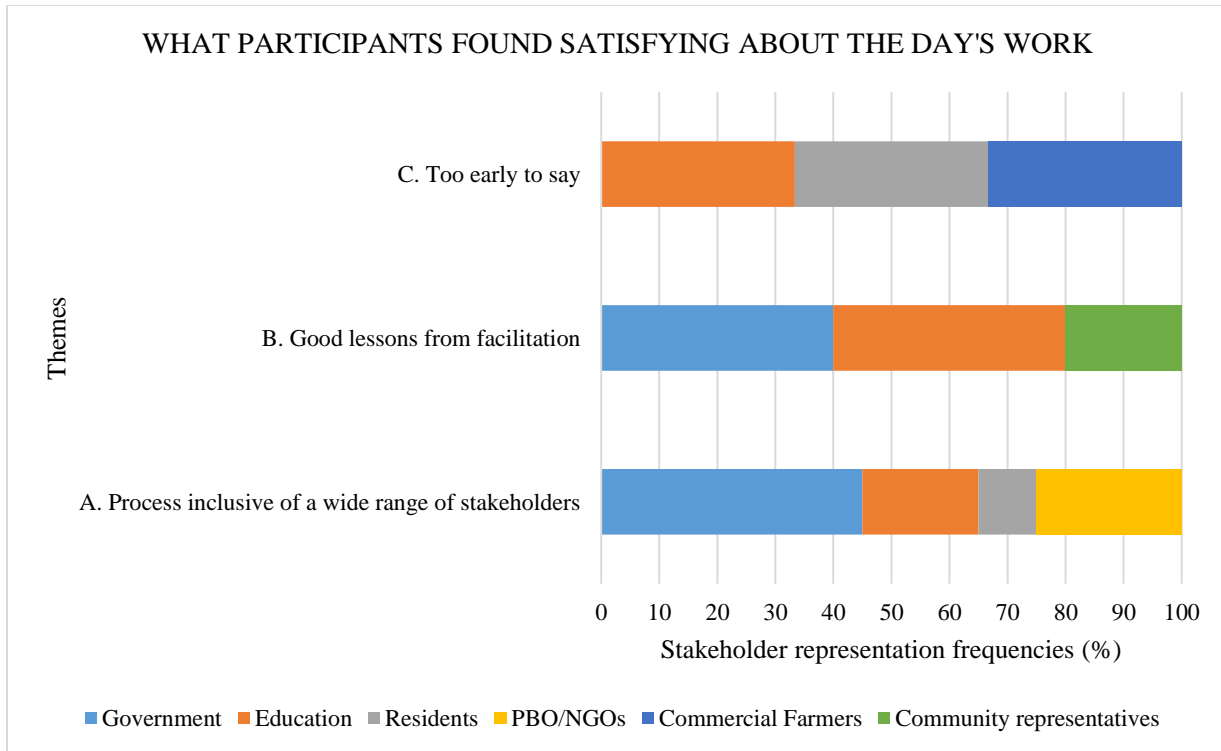


Figure 19: Distribution of the stakeholder groupings across the themes which occurred under what participants found to be most satisfying about the day's work.

In Theme A (inclusive process and a wide range of stakeholders), the highest represented group was Government with 45% of the theme. Education and PBO/NGOs were almost even as the second most represented groups with 20% and 25%, respectively. Without the representation of Commercial farmers and Community representatives under the theme, Residents represented the final 10 % of the theme. In Theme B (good lessons from facilitation), only Government, Education and Community representatives featured. Government and Education represented 40% each, while Community representatives made up 30 % of the theme. Under Theme C (too early to say what was satisfying), Education, Residents and Commercial farmers were equally represented (33.3%) each.

Question 4: What do you find frustrating about it?

Stakeholders were asked to reflect on what they found to be frustrating about the process in order to discern stakeholders' feelings about the process, and provide input as to what aspects needed to be improved. Four themes emerged from participant reflections: A. Time considerations; B. Concerns, no solutions; C. Lack of representation; and, D. Nothing. Theme C had the highest

representation of 43 % in participant reflections, followed by Theme D at 25%. Themes A and B followed with 18% and 14% respectively. Theme prominence is reflected in Figure 20 below.

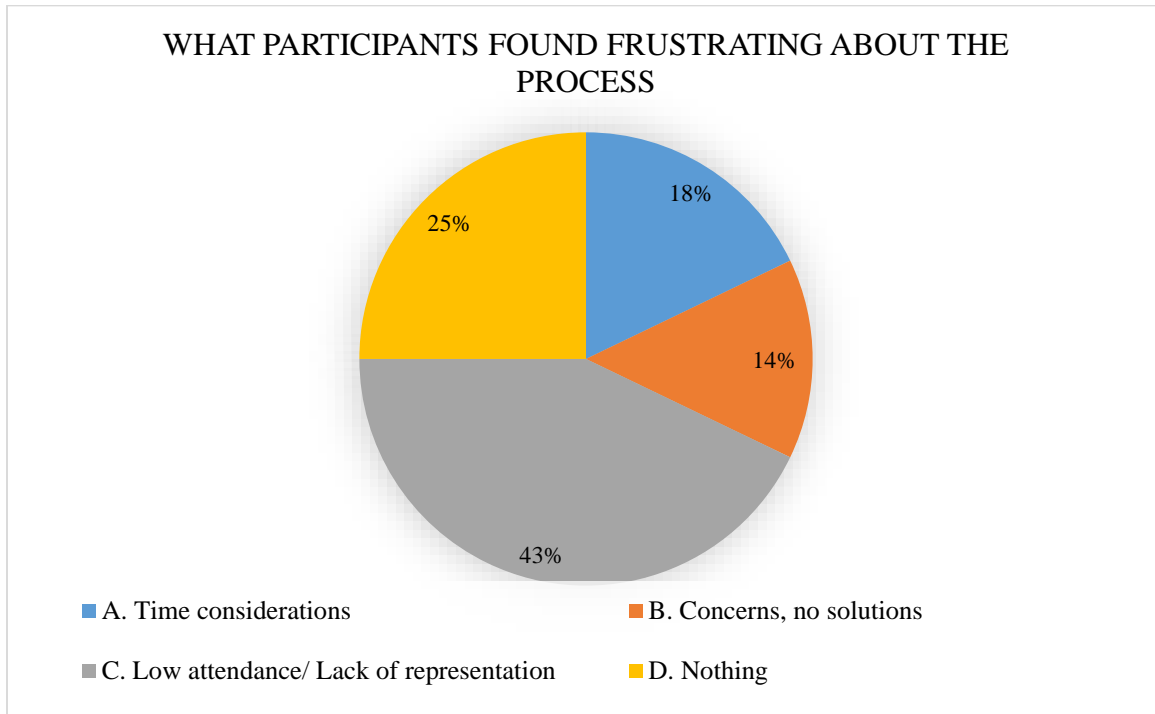


Figure 20: Theme prominence of what participants found frustrating about the day’s work.

The most frustrating aspect about the day’s work was the lack of representation by other stakeholder groups, but a significant number of people reported that they were frustrated by nothing at that point. The variety of stakeholder groups represented under time considerations (*refer to Figure 21 below*) shows that the theme was also important despite its relatively low prominence.

Under Theme A (time considerations), participants felt that the process was slow, adding to the fact that the meeting started late, took longer than it was supposed to, and clashed with people’s other commitments. Participants’ reflections showed that they felt that another time-wasting factor was that the strategy had not been articulated immediately in the presentation at the start of the process. Participants felt that better time control could have helped to avoid clashes and retain some key representatives until the end. Participant 18 wrote, “*It could be shorter so that key representatives are able to stay until the end*”.

Under Theme B (concerns, no solutions), participants felt that the process concentrated on problems without attaching any solutions to them, focusing on the negativity. Participant 25 reflected: *“The fact that the process revolves around negative issues and one does not encourage eliciting the positive issues that could rather be improved for effective management”*. Participants reflected that there was insufficient detail regarding the concerns that were expressed, and they were frustrated that many concerns were mentioned, but not all of them were going to be solved immediately. One participant was frustrated by the fact the community was not taking the issue of water scarcity in Makana Local Municipality seriously.

Theme C (lack of representation coupled with little engagement among present stakeholders), occurred in most participant reflections. Participants felt that critical stakeholders were not represented, especially civil society and councillors, while researchers and officials had high representation. *“I was expecting community members, critical audience to be part of this, but I am surprised that it is only having researchers and officials present”*, wrote Participant 21 in their reflection. Some participants doubted the effectiveness of the process without full stakeholder representation because they wondered if there were adequate human resources to address the challenges, especially political will and Residents’ participation; another participant was worried about their Councillor was not participating. Yet another participant was frustrated by because their entire team was not participating. In contrast, a participant expressed frustration at being among strangers. Mutual support is a factor that is frequently overlooked in organising collaborative spaces; the literature and research focus attention on the the benefits of collaboration and neglect the support necessary for confident participation. This response highlights the complexity of public participation: what may be satisfying for individuals within the group may not work for other individuals within the same group.

Theme D (nothing) showed that a number of people found nothing frustrating about the process at that point - except the cold weather on that day. Some participants said nothing was frustrating them yet because they felt that the process started properly by collecting the concerns and Participant 24 wrote, *“Nothing yet, I presume this is the starting point and collection of concerns is the first instance”*.

Stakeholder representation varied across and within the themes (*refer to Figure 21 below*).

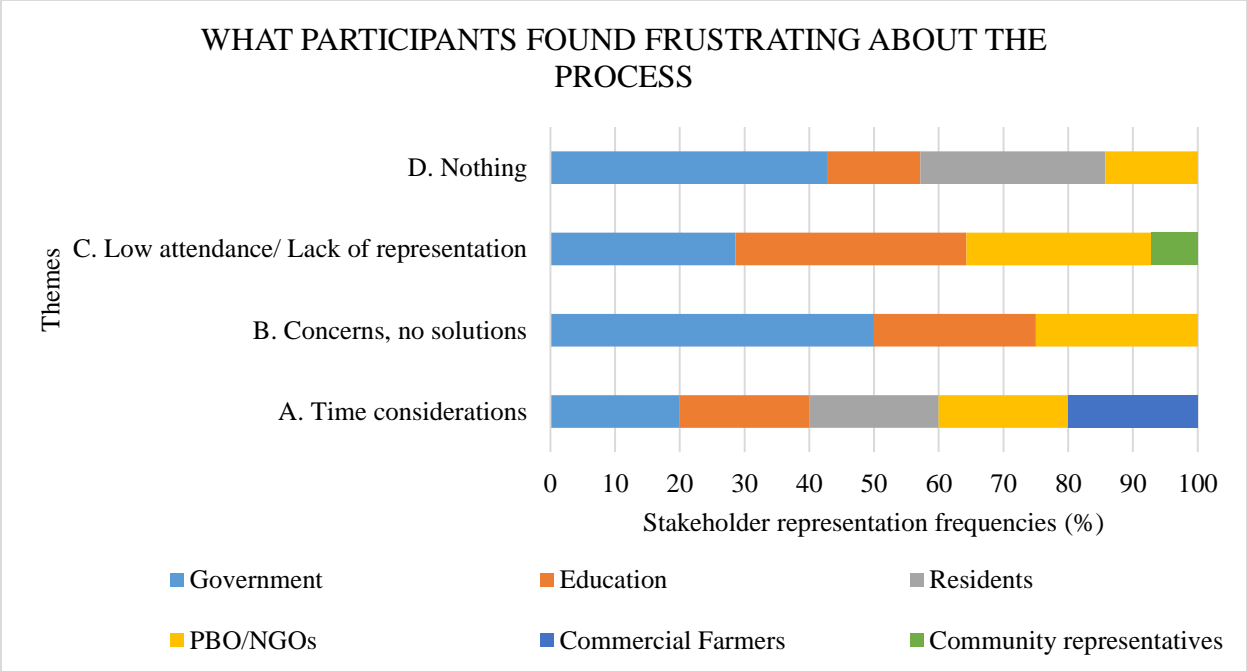


Figure 21: Distribution of the stakeholder groupings across the themes under what participants found to be frustrating about the day’s work.

While Theme C had the highest occurrence of participant reflections, there was more variety under Theme A, where five stakeholder groups were represented. The least represented stakeholder group, Community representatives were only represented under Theme C, and Commercial farmers were only represented under Theme A. Government, Education and PBO/NGOs were all represented under all the themes that occurred.

Under Theme A, all stakeholder groups were represented equally with 20%. This is the only theme where Commercial farmers were represented, which was not surprising because they generally arrive at these events on time. Community representatives did not appear under this theme. Theme B had the lowest overall representation, Government represented 50% of the theme, while Education and PBO/NGOs equally represented 25% of the theme. Theme C (participants found low attendance or lack of representation frustrating) was dominated by Education at 42%, with Education followed closely by Government at 33%, which was followed by PBO/NGOs and Community representatives at 17% and 8%, respectively. Government was the most strongly represented under Theme D at 43%, while Residents followed at 29%. Education and PBO/NGOs each had 14 % representation under the theme.

Question 5: In my communication with others, I feel I can improve....

Participants were asked to reflect on what they felt they needed to improve in their communication with other people. The question aimed to encourage participants to think about what needed to change in the way they communicated in order to make the space more comfortable for them and other people (refer to Figure 22 below). This question challenged participants to think more deeply about who they are in a crowd, as being aware of their strengths and weaknesses could help them to develop coping skills, and therefore strengthen the team's work.

Three themes emerged from participant reflections: A. Listen and increase my knowledge; B. Speak clearly; and, C. Too early for the question. Theme prominences are shown in Figure 22 below. Theme A had the highest occurrence at 58% in participant reflections. Theme B had the second highest occurrence at 27% and was followed by Theme C at 15%.

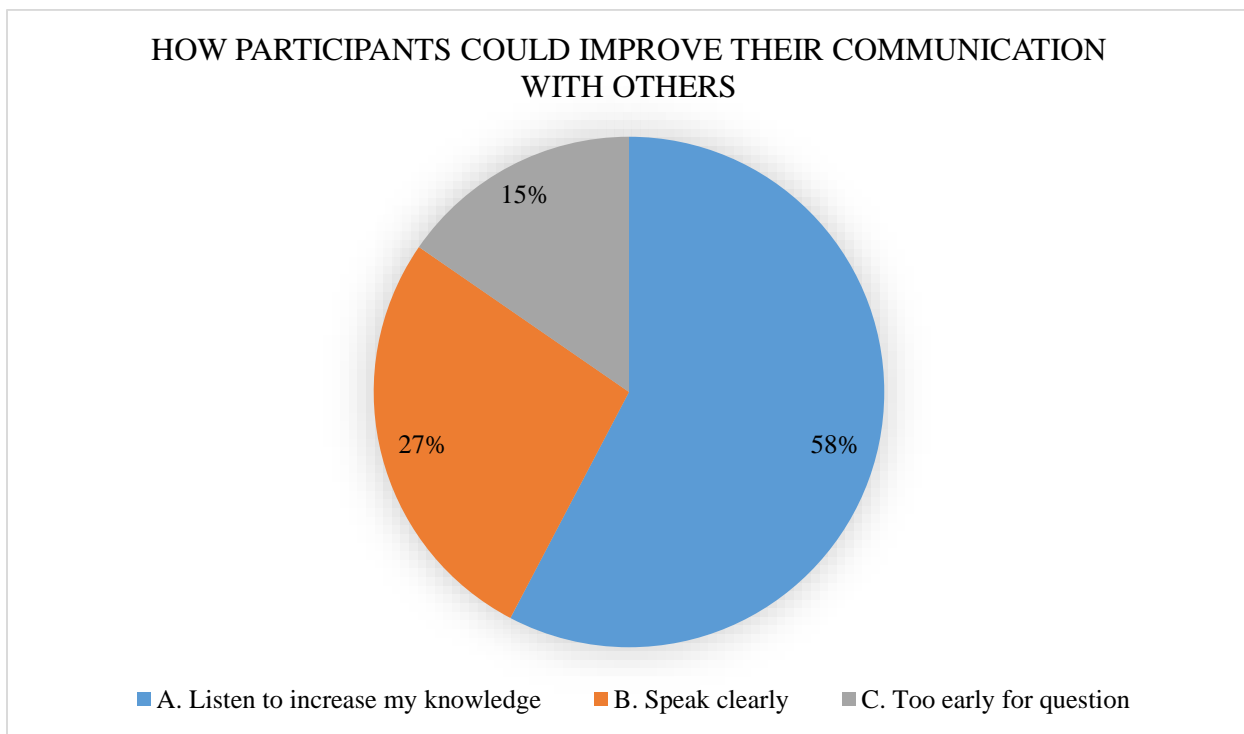


Figure 22: Theme frequencies that occurred under what participants could improve in their communication with others.

Under Theme A, participants showed that they would like to improve their listening skills in order to improve their knowledge to be able to disseminate accurate information to other people.

Participants felt that the process helped them learn to give other people an opportunity to take turns in contributing knowledge about their catchment. Participants mentioned that they would improve the way they communicate with the communities in Makana about the new information that participants got from the workshop about water scarcity. Some participants would improve their ability to listen to everyone's point of view without any bias. As Participant 5 eloquently worded it, *"I might be too quick to dismiss business rate payers' associations/ large scale farmers etc. coming from a justice perspective, I have to be aware of my bias against those who I assume have power and money"*.

Theme B showed participants reflecting on their desire to improve their communication by speaking clearly; they would like to be clearer in making their contribution to the process so that they do not take up too much time. *"I am often afraid to take up talking space – I often have burning ideas so I think I can become better at articulating"*, said Participant 27. Other people would work on speaking louder so that everyone can hear what they have to say. Participant 21 wrote, *"I can improve my voice projection so that everyone gets to hear what I say"*. Participants would also encourage other people to speak clearly in the language of their choice. Other participants felt like they could help in improving stakeholder participation in water resource management in Makana.

Under Theme C, some participants felt that the question came too early for them to think critically about the particular skills they would like to improve, but felt there was always room for improvement. Some people felt it was even irrelevant to the matter at hand, which shows that the learning aspect of the APP was not explicit at the beginning. Participant 10 wrote, *"This question is very vague; it does not speak to what we are here to do"*. Other participants mentioned that the question was confusing to them because there had not been much communication when the reflective tool was administered, and so participants were not sure what to communicate yet. *"I don't know how to answer this because there hasn't been much two-way communication yet"*, wrote Participant 9, while Participant 1 said, *"What I communicate is not clear, what is it that I must communicate?"* These responses indicated that, for many participants, there had not yet been much by way of participatory activity in the process.

Stakeholder representation across the different themes varied (*refer to Figure 23 below*).

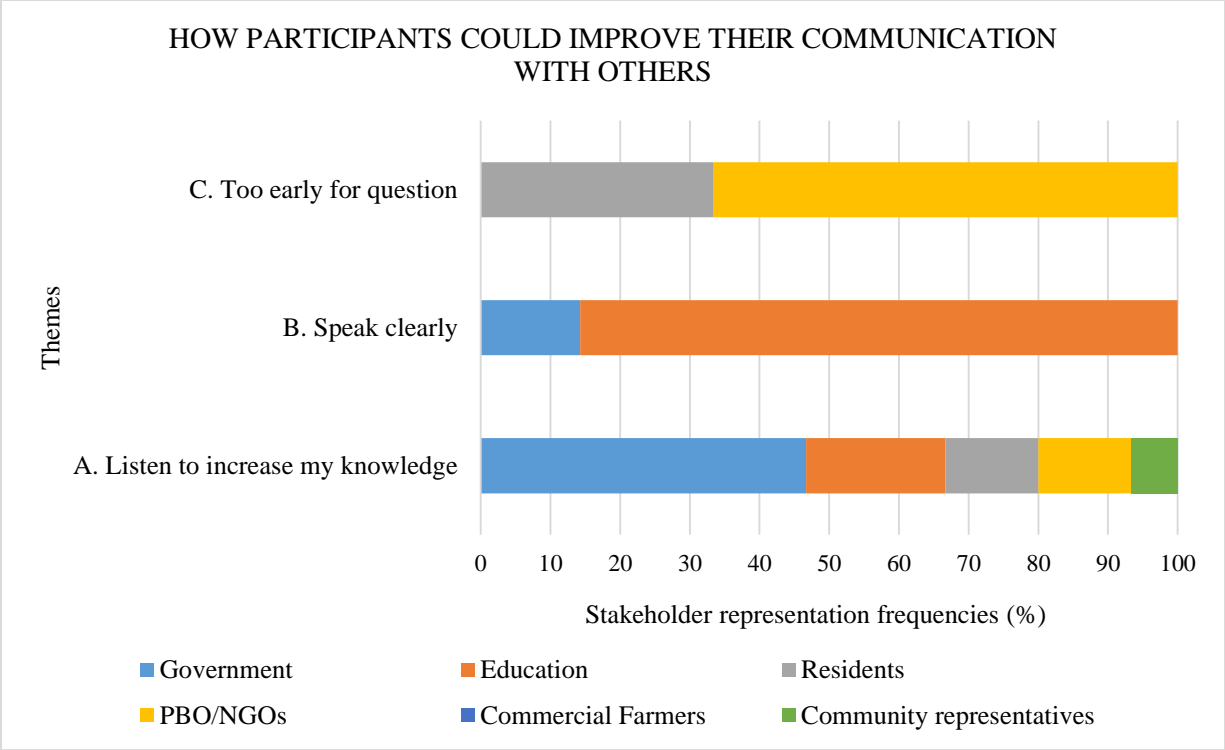


Figure 23: Visual representation of how the different stakeholder groupings featured across the total frequencies of the themes which occurred under what participants could improve in their communication with others.

Theme A had the highest number of stakeholder groups represented (five groups), showing that this theme resonated with most participants. The other two themes both had two stakeholder groups represented. Commercial farmers did not respond to this question and were therefore not represented under any of the themes.

Theme A (improve listening skills to gain more knowledge to share with others) was dominated by Government with 47% representation. The second most represented stakeholder group was Education with 20%, followed by equal representation by Residents and PBO/NGOs at 13%. The least represented was Community representatives at 6.7%, though this constituted 100% of their representation when the reflective questions were answered.

Question 6: What would you change if you had a chance to do this meeting over again?

The main concern expressed in response to this question focused on time management (*refer to Figure 24 below*). This question again aimed for participant input so that the APP could be improved to achieve better results in future applications.

Three themes emerged from participant reflections: A. Manage and save time; B. Increase participant representation, and, C. Nothing. Theme A had a rate of 37%, followed by Theme B at 33%, and then Theme C at 30%.

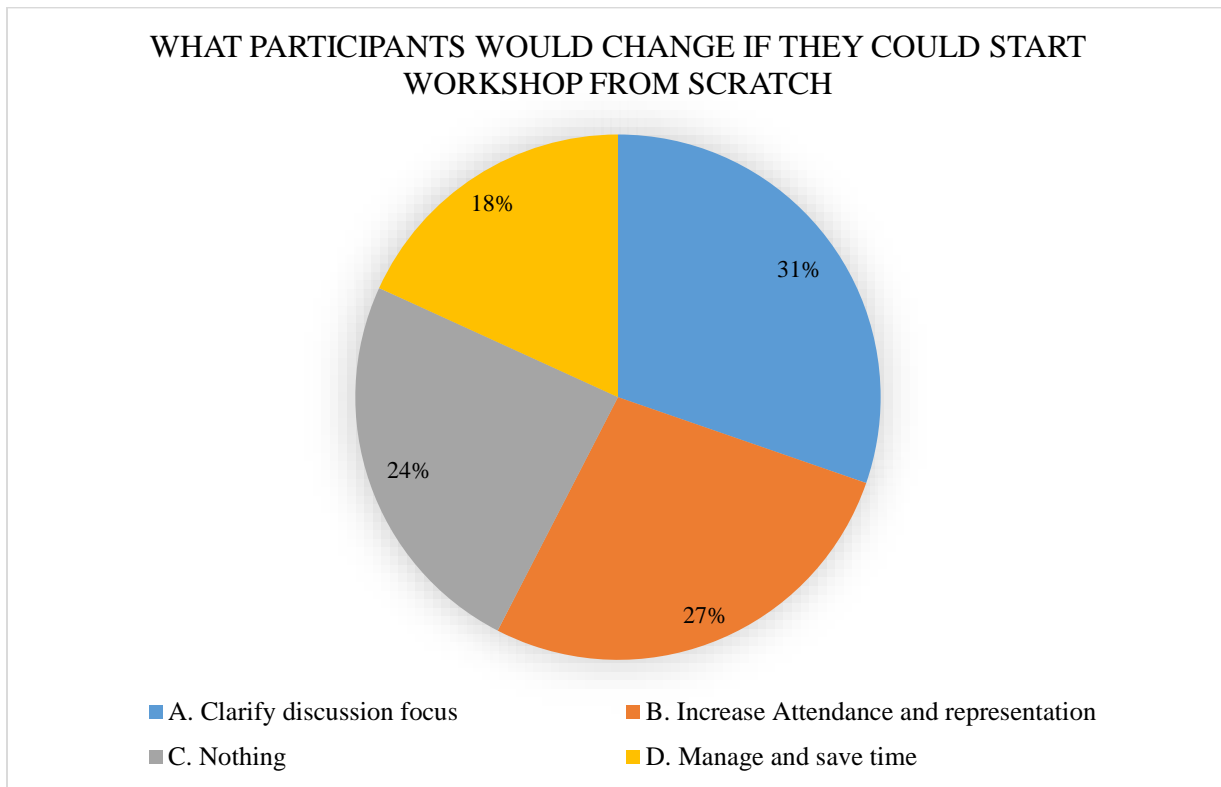


Figure 24: Proportions of the themes that occurred under what participants would change if they could start the workshop from scratch.

Under Theme A, participants expressed anxiety that the process was too slow, making it difficult to retain all relevant stakeholders. Participants felt that the process could have started with a presentation of a specific topic, such as what the current water management situation was, or provide a pre-defined list of concerns so that delegates could just add on and prioritise them as a way to save time. In other words, participants felt the focus of the discussion should be made clear from the outset, and the focus should be on finding solutions to the problems currently being experienced. Participants felt that little time was spent explaining the concepts because the workshop started late, which meant the explanation they had received not been useful.

Under Theme B, participants felt more effort should be made in calling people to attend the workshops in order to increase the representation of stakeholders, especially community

members. *“I would make community members- critical water users - my primary target group for attendance”*, wrote Participant 21. Participants pointed out that they would bring in more groups like the Emerging farmers, ward committees, Eastern Cape Water Caucus, and the MLM, especially the engineering department that deals with infrastructure. Members highlighted the fact when more stakeholder groups were present, the level of discussion and engagement among participants should also be increased in order to ensure that the workshop became a space where participants were more active. Participant 11 went on to suggest that *“Making it less ‘school-like’. More meaningful engagement, lots to discuss, not so much time”*. Another participant expressed their frustration with the lighting in the venue and advised that there were better venues in the township. Participants felt that they should also spread the word to those who could not attend so that many people could know about the process.

Under Theme C, participants claimed they would not change anything about the day’s work because they thought the meeting was going well. Someone felt that it was difficult to say because they were not sure what the end result of the process would be, while one participant felt that the assessment (reflection) came too early. Someone would add a list of satisfactions to that of concerns, in order to some positive feedback.

When it came to stakeholder groupings under the different themes, all the themes had many stakeholder groups represented (*refer to Figure 25 below*).

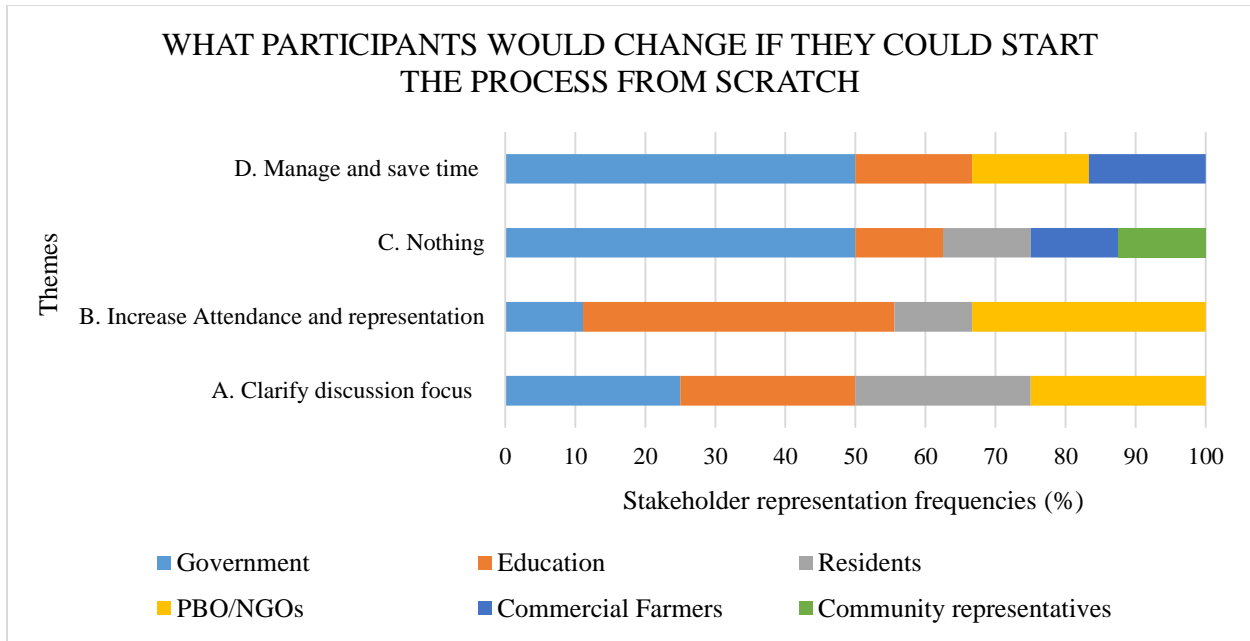


Figure 25: Distribution of the stakeholder groupings across the themes under what participants would change if they could start the workshop over.

Themes A and C were dominated by Government at 40% and 50% representation respectively. Theme B was dominated by Education at 44%. Education, Residents, and Government were represented under all the Themes, while Commercial farmers were represented under Themes A and C, and Community representatives were only represented under Theme C.

Question 7: What would you like to spend more time on in this process?

This question prompted participants to reflect on aspects of the APP they thought were going to be more important in fulfilling whatever goals they had brought to the workshop. The question would also surface some of the expectations that participants had about the APP, in order to check for satisfaction later in the process.

Three themes emerged from participant reflections under this question: A. Focus on solutions, B. Increase representation, and, C. Time allocation. Theme A had the highest occurrence (60%) of the 25 participant reflective responses. The second highest occurrence was Theme B at 24%, followed by Theme C at 16%. The theme prominence is shown in Figure 26 below.

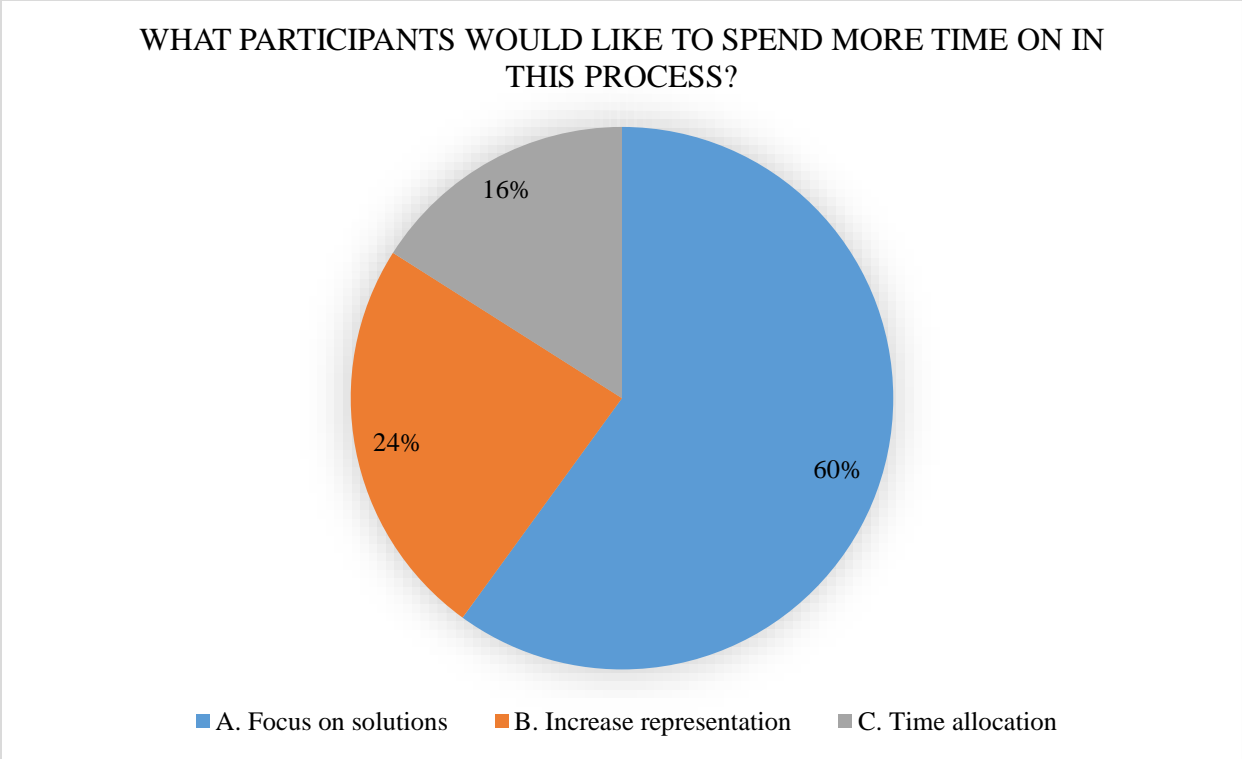


Figure 26: Theme prominence under what participants would like to spend more time one in the process.

As the reflections showed, the majority of participants under theme A would like to focus on solutions. The participants wanted to listen to each other’s concerns and search for ideas that could be consolidated towards solutions and the development of the strategy. Some participants even suggested that the solution should be within realistic budget constraints, as there was no point in discussing things that were beyond their control such as climate change. Participants would expand on concerns regarding water-related problems, and ensure that their communities were taking good care of water.

Under Theme B, the issue of increasing representation came up again, with emphasis on increasing numbers of community members for more consultation with Residents, and more engagement with their concerns and satisfactions. Participant 6 said, *“Develop strategies to attract more people especially community people (township residents) to attend such meetings”*. Meaningful engagement featured again, where participants suggested that small group dialogues and physical exercises to demonstrate what it means to work together would also give them the opportunity to build relations and common ground. Participants felt that the roles and

responsibilities of stakeholders should also be defined in the process. Participants would also focus on building relationships and common ground with different stakeholders.

Under Theme C, the issue of time came up again as people felt that time for reflections could be changed because it was a bit early in the process. Participants would spend more time explaining concepts or what the process entailed in order to avoid misunderstandings.

The stakeholder breakdown across and within the themes are shown in Figure 27 below.

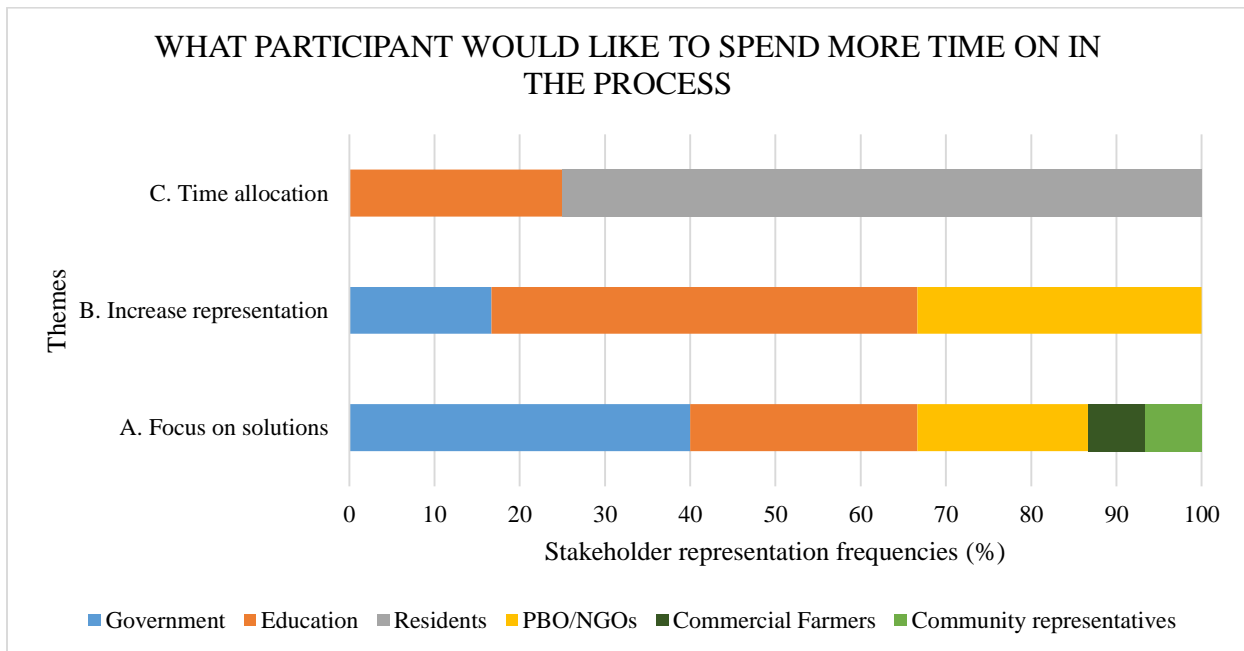


Figure 27: Visual representation of how participant stakeholder groups were distributed under the themes that occurred under what participants would like to spend more time on in the process.

Stakeholder groupings under the themes differed from five under the most occurring theme, A to two under the least occurring theme, C. All stakeholder groups were represented under at least one theme. Government dominated Theme A at 40%, with Commercial farmers and Community representatives at 7% representation each. The second and the third represented groupings were Education (27%) and PBP/NGOs (20%), respectively. Residents were only represented under Theme C (75% of the theme), while Education dominated Theme B (27%).

Reflective Tool 2

Question 1: Do you feel as though your contribution is taken seriously in the discussion?

The question aimed to surface participants' experience of equality of voice in the APP. Equality of voice is one of the goals of collaborative methods like the APP, and a major factor in terms of epistemic justice. As seen in Figure 28 below, 93% of the participants who responded to the question felt their input was taken seriously, although 7% did not feel their input was taken seriously.

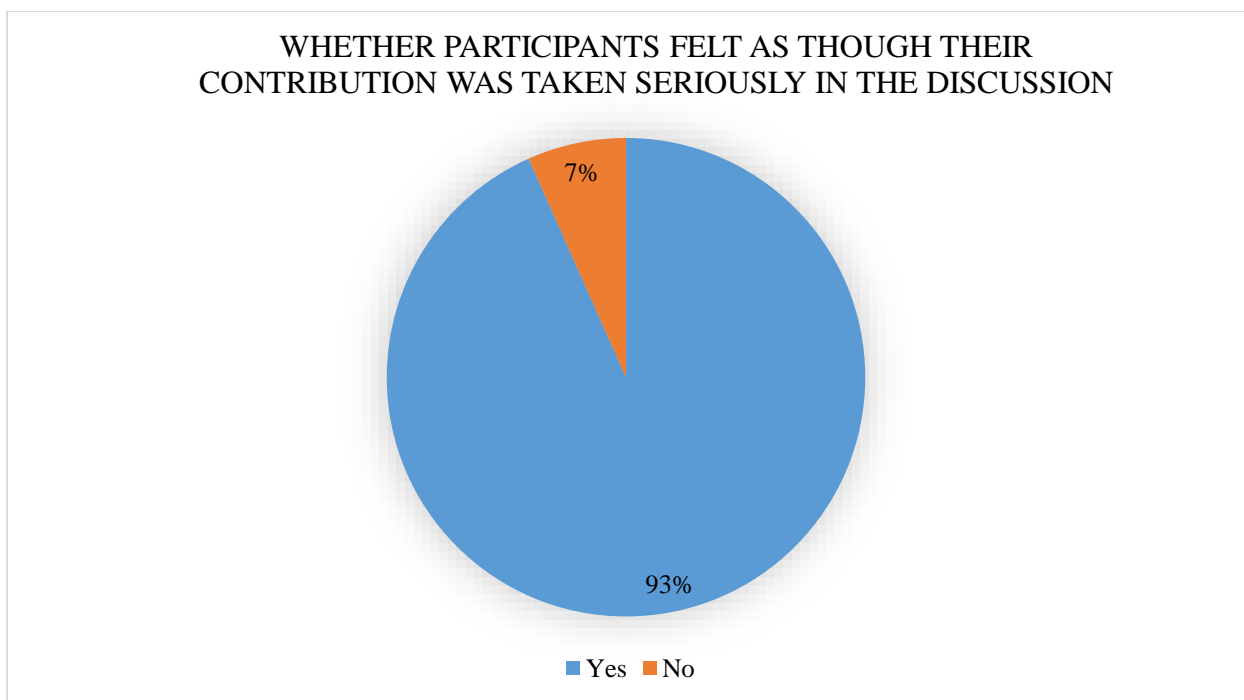


Figure 28: Proportions of themes under whether participants felt like their contributions were taken seriously.

Participants who answered 'yes' felt included because everyone who attended was given an opportunity to participate, and those who were shy were really encouraged to speak as there were no wrong answers. Participants felt as though their opinion was sought throughout the workshop, and there was an opportunity to add further details to participants' points. Everyone's contribution was listened to and recorded, and some were captured in a further discussion of points, which showed that everybody's ideas were valuable and contributed towards developing the plan. Participants felt that the information collected was going to be used to build a better community.

No one laughed at input from anyone else; rather, the floor agreed that everyone's point was recorded. Participants liked the facilitator's enthusiastic interaction with everyone, regardless of who they were, and her affirmation of participants' views was comforting and encouraging. "*The facilitator is writing down my contributions and I think it is because she feels they are worth so*", wrote Participant 21. Participants pointed out that the facilitator did not hesitate to make time to clarify in detail issues that members were not clear on. Another participant felt included, but felt that there had not been much discussion, and Participant 27 wrote, "*I don't feel like there has been much of a discussion - I feel my contribution have been taken seriously though. Includes and understood and writing down*". This reflection makes it clear that the APP is inclusive, but falls short in participatory practice at times.

The whole (100%) of option B was occupied by just PBO/NGOs. For participants who said 'no', one of the reasons given was that the participants felt that opportunities to contribute were limited. The other reason given was that there was no mention of how NGOs were going to be assisted to give the information back to the community.

Question 2: How do you feel you could be more included in the drafting of the CMS?

Participants were asked to reflect on what would make them feel more included in the drafting of the strategy. The question aimed at finding out how to further include participants in the APP and the outcome was meant to inform further engagements over the period that the strategy was to be implemented. Therefore, careful interaction between the role players was required.

Three themes emerged from participants' reflective responses: A. Information about other meetings: B. More interaction among participants: and, C. Clarify focus of discussion (*refer to Figure 29 below*). The highest occurring theme was Theme A with 44%, followed by Theme B with 22%. Themes C and D registered 17% each.

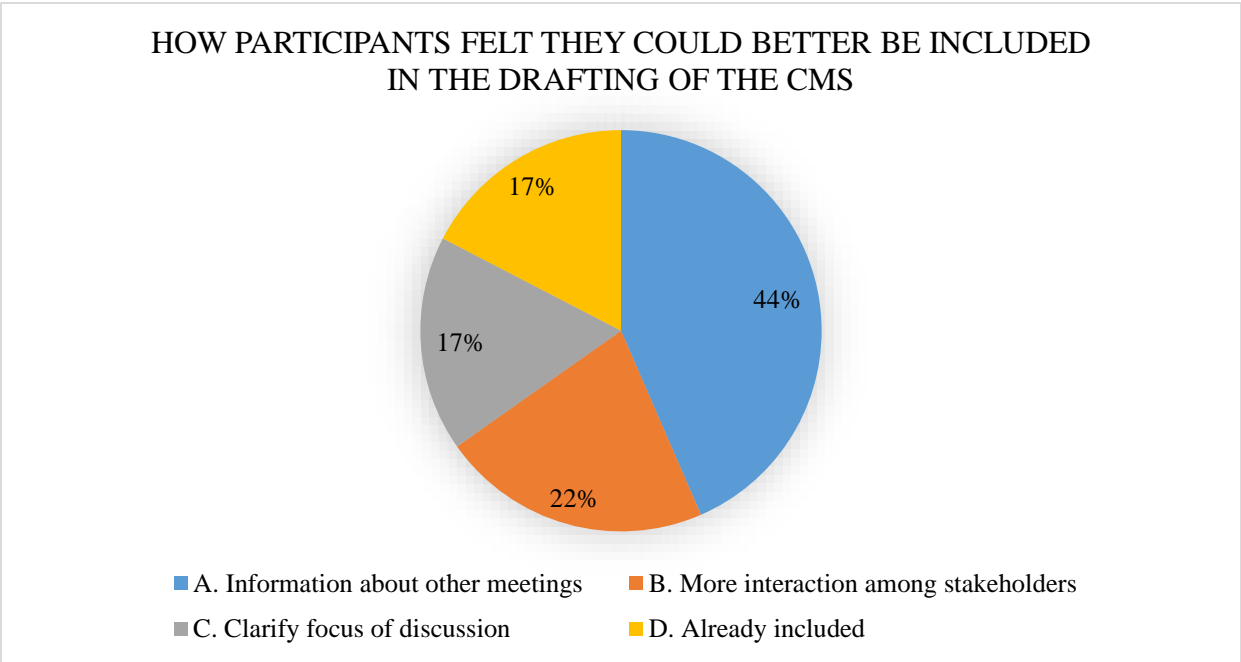


Figure 29: Theme prominences under how participants felt they could be better included in the drafting of the Catchment Management Strategy (CMS).

Under Theme A, participants reflected that they would appreciate being invited to more meetings to get more ideas from different stakeholders. Participants suggested that it could be helpful if stakeholders would be given a task to present during the meeting, before each meeting. *“I feel I would need to come to more meetings like this - and maybe have some “homework” to go away with, and come prepared to next meeting”*, reflected Participant 5. This idea matches well with one where a participant suggested that materials be distributed before the workshop. Some people would like to be given the opportunity to interact and comment on the drafts, and their organisations to be acknowledged for their participation.

Under Theme B, participants would feel more included if more stakeholders were part of the process, especially heads of Government departments who can make influential decisions. The people who participated could help by spreading the word and encouraging other people to also attend and participate. The issue of interaction among participants came up again under this question, where Participant 11 wrote, *“The sessions should be more interactive for the audience, allowing for ideas and knowledge sharing that will inform the strategy”*. Participant 27 also said,

“I feel included in the session. I think the session would be more inclusive at issues and tensions and learnings and understandings and it included more discussion (perhaps small groups)”.

Under Theme C, people felt that the focus of discussion should be made clearer, and picked up on an idea that surfaced under Theme A, that is, circulating materials before the workshop so that people were aware of what the workshop is about. Another participant felt that the matter at hand had been delayed and that ideas for the CMS might have to be added at a later stage, probably after the workshop.

Under Theme D, a number of participants said they felt included already.

Stakeholder groupings across the themes ranged from two to three groupings per theme as seen in Figure 30 below. Government, Education and PBO/NGOs dominated the responses. Commercial farmers and Community representatives were not represented.

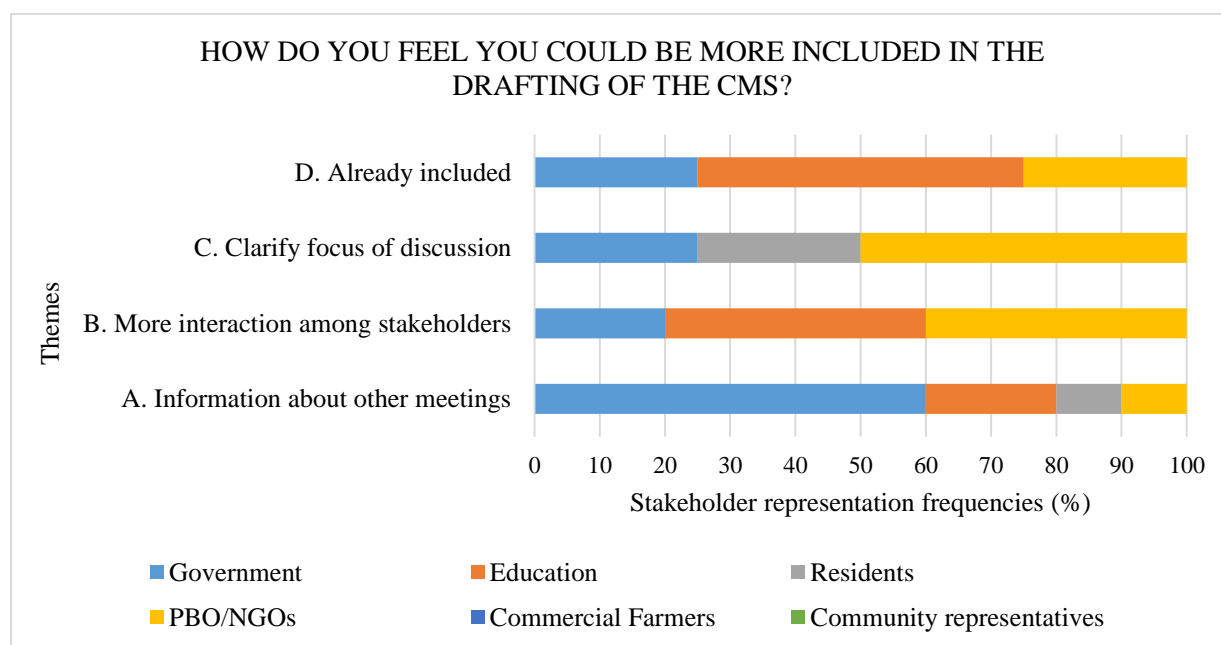


Figure 30: Distribution of stakeholder groupings across the themes on what extent participants felt they could be better included in the drafting of the Catchment Management Strategy (CMS).

Government dominated Theme A (60%); Education followed at 20%, and Residents and PBO/NGOs were equally represented at 10%. Theme B had equal representation from Education and PBO/NGOs at 40%, and Government at 20%. The highest represented stakeholder group in

Theme C was PBO/NGOs occupying 50% of the theme. Government and Residents followed equally at 25% each. Of the four participants who already felt included under Theme D, 50% represented Education, while Government and PBO/NGOs were equally represented at 25% each.

Question 3A: What were your goals for today's engagement?

Participants were asked to reflect on their goals for the day were regarding the workshop. The question prompted participants to highlight what their expectations were of the workshop from the moment they received the invitation and the short introduction to the purpose of the workshop. This reflection aimed to elicit ways to sustain the collaborative working space at the planning stage so that it becomes easier to follow the adaptive cycle for the implementation of the strategy over the five-year period.

Four themes emerged from participant reflections: A. Collaboratively come up with solutions; B. Interact with different people; C. Observe the process; and, D. Listen, learn and share the information (*refer to Figure 31 below*). The results show that in Workshop 1, participants were eager to listen and learn as this theme (D) had the highest occurrence rate in the participant reflective responses, (40%) followed by Theme A with 28% occurrence in participant reflections, followed by Themes B and C at 20% and 13%, respectively.

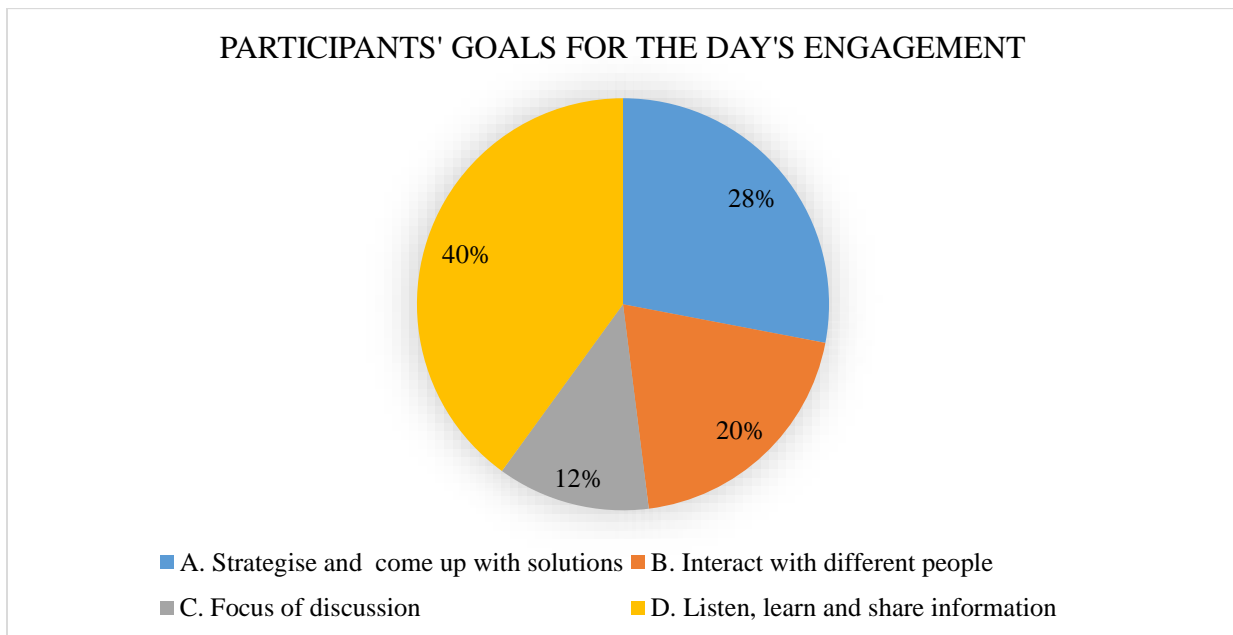


Figure 31: Proportions of themes in participants' goals for the day's work.

Under Theme A, participants mentioned that they wanted to work strategically towards coming up with solutions. Some people hoped to find some solutions to water challenges in the municipality through the development of the strategy. *“My goals were to discuss and assess the issues and come out with solutions that can be implemented”*, wrote Participant 3.

Under Theme B, participants anticipated meeting the different stakeholders present in the area in order to develop good relationships with them. Some participants had specific target groups that they were interested in interacting with, for instance, one participant wanted to engage meaningfully with Municipal management, while another participant wanted to interact with farmers.

Under Theme C, participants wanted to observe and evaluate the process, and assess how useful it would be for other purposes. Participant 9 expressed their interest in learning the *“HOW TO”* of SAM, while Participant 11 wrote, *“Goal- develop a catchment management strategy and evaluate the use of the workshop for other advocacy initiatives”*. An official wanted to learn how to conduct a similar session with other forums in future, which suggests that the process indeed holds potential for the department.

Under Theme D, participants planned to listen to each other so that they could learn from others, and pass the message on to people who did not attend the workshop. Participant aimed to learn about the catchment and understand how the issue of water management could be addressed to enable social equity in access to quality water. *“My goals were to understand how the issue of water management can be addressed so that society has access to health and quality water”*, wrote Participant 16. Participants also hoped that listening to others would give them a platform to contribute where they could.

Stakeholder representation across the different themes varied from three stakeholder groups to four under each theme (*refer to Figure 32 below*).

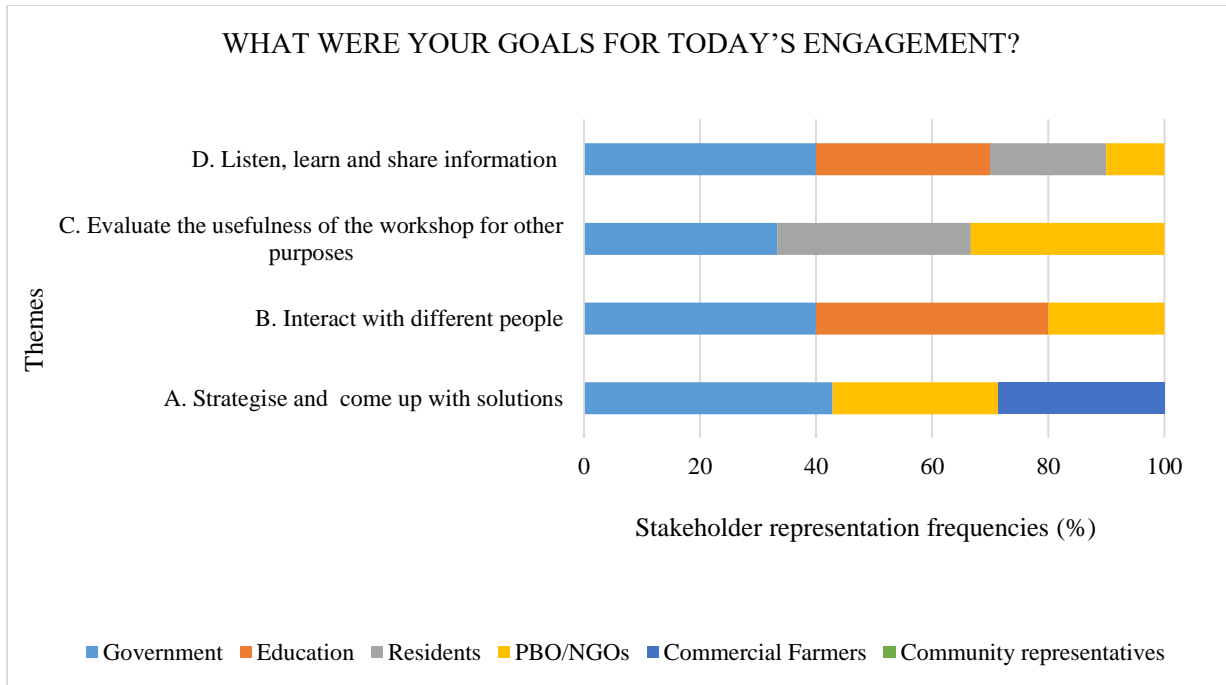


Figure 32: Distribution of stakeholder groupings across the themes occurring under what participants' goals for the day work were.

Only Theme D, the highest occurring theme under the question, had four stakeholder groups represented; the remaining themes received responses from three of the groups. Community representatives were not represented in any of the themes under this question. While the other groups were represented at least two themes, Commercial farmers were only represented under one theme, A, and Government and PBO/NGOs had representation under all four themes. Government had the highest representation under Theme A at 43%, while PBO/NGOs and Commercial farmers were at 29% each. Government and Education dominated theme B at 40% each, while PBO/NGOs occupied the remaining 20%. The three stakeholder groups that were represented under Theme C were: Government, Residents and PBO/NGOs, and all had equal representation of 33.3% each under the theme. Theme D had four stakeholder groupings, making it the theme with the widest stakeholder grouping, and the stakeholder groupings were: Government 40%, Education 30%, Residents 20% and PBO/NGOs 10%.

Question 3B: Did your goals change? How?

In both Workshops 1 and 2, participants were asked to reflect on whether their goals had changed during the process. The question was designed to test the research assumption that participants

underwent some kind of learning through the APP. In terms of the assumption made at the beginning of the research, if participants' goals changed, that would be a sign of learning; no change meant there had been no learning from the process. Goals being met was either a sign of learning or no learning, depending on the participants' justification of their given response. In the second reflective tool used in Workshop 1, the hypothesis gained support; goals changed because participants realised something new through the process, for instance, Participant 10's goals changed because they learned that APP was not about simply finding solutions, but about laying a foundation from which solutions would stem. Participant 22, on the other hand, learned from what other people in the room said, which in turn expanded on Participant 22's prior knowledge. The hypothesis, however, was called into question because when participants' goals did not change, they pointed out that this was not due to a lack of learning, but because their goals were already aligned with new information they had gained. Similar results about the hypothesis were seen in workshop 2 where this question was repeated.

Three themes emerged in participant responses in Workshop 1: A. Goals met, B. Goals changed, and C. Goals not changed (*refer to Figure 33 below*). Goals being met had the highest rate of appearance, occurring eight times among participant reflections and showing that most participants were satisfied with the APP.

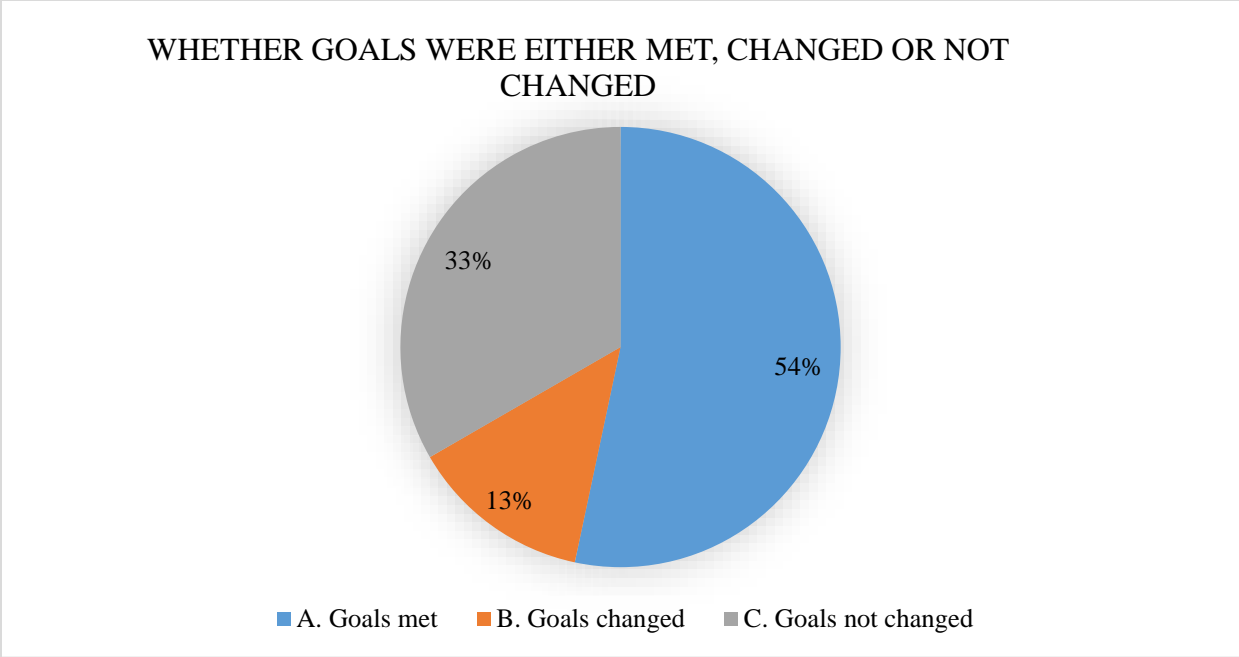


Figure 33: Theme prominence under whether participants’ goals were met, changed or not changed.

Theme A shows that more than half of the participants said they felt goals were met, and the goals that were met were those of listening to the views of others and contributing when necessary, interacting with different stakeholders, and the points that they had hoped would be discussed did come up. *“To hear the views of the attendees about the Forum, their inputs and suggestions, concerns also and understanding of the day. Yes, people participated well, inputs were well thoughtful and on point, everyone is taken seriously”*, said Participant 12.

Under Theme B, participants felt that their goals had changed. Participants explained that their goals expanded as they engaged more with the process and listened to others speak. Participant 22 wrote, *“Engage and interact with municipal management meaningfully. My goals expanded as others were met and I listened to others speak”*. One participant had intended to be an observer but instead ended up wanting to participate: *“Goal was to see how the workshop, the writing of the “How to... SAM” - largely helpful. Goals changed in that I found I wanted to participate rather than simply observe”* (Participant 9). Another participant explained how their goals had changed: *“My goal was to actively participate in this platform and contribute to strategising about the water problems. Yes, the goals changed. This is more of a brainstorming*

session limiting the opportunity to share meaningful ideas” (Participant 10). The issue of engagement came up once again.

Under Theme C, people’s goals did not change, not necessarily based on lack of learning. In their reflections, participants pointed out that one of their reasons for the unchanged goals was that learning about the Makana Water Forum and figuring how to contribute remained a goal for the participant. Another reason was that someone had met part of their goals and was waiting for the final stage of the process to determine whether all would finally be met. Another participant’s goal to come up with strategies of saving water and ensuring that everybody got water in Makana remained unchanged at this stage.

The stakeholder variation between and within themes is shown in Figure 34 below. Commercial farmers and Community representatives were not represented. There were more stakeholder groupings represented under Theme A than the other two themes, while Theme B had the least number.

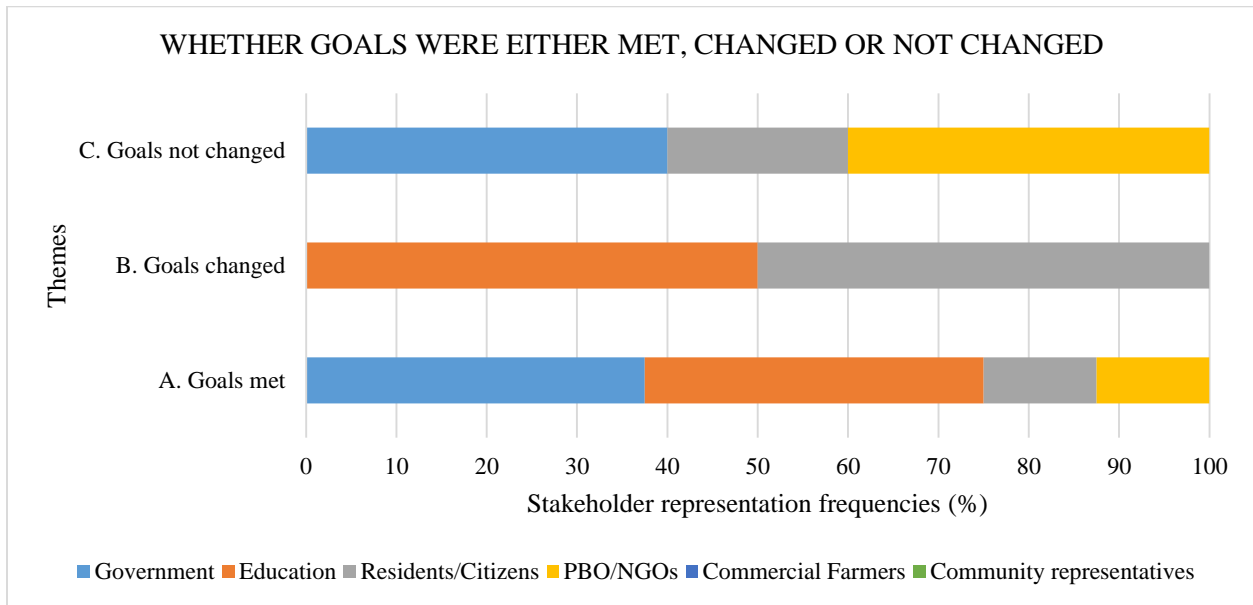


Figure 34: Representation of how stakeholder groupings were distributed across the themes: whether participants’ goals were met, changed, or not changed.

Only Theme D, which was the highest occurring theme under the question had four stakeholder groups represented; the rest had three. Community representatives were not represented under any of the themes. While the other groups were represented in at least two themes, Commercial farmers

were only represented under one theme, A. Under Theme A, Government and Education had equal representation of 37.5% each, while Residents and PBO/NGOs had 12.5% each under the same theme. Only Education and Residents were represented under Theme B, and were equally represented (50%). Under Theme C, Government and PBO/NGOs represented 40% each, while Residents accounted for 20%. Education was the only one not represented under Theme C.

Question 4: What is the one goal you would like to set for yourself for the next meeting?

Participants were asked to reflect on their goals for the next day’s meeting. The question was aimed at surfacing whether participants had learned anything through their engagement with parts of the APP on the first day of the workshop, and they learned enough to plan the next day around the purpose at hand.

The results indicated that participants had gained an understanding as evidenced through the themes that emerged from the participant reflective responses. Two themes emerged: A. Stakeholder networking, and, B. Contribute towards the development of the strategy. The figure shows that Theme B had the highest occurrence rate of 72% while Theme A was at 28% (*refer to Figure 35 below*).

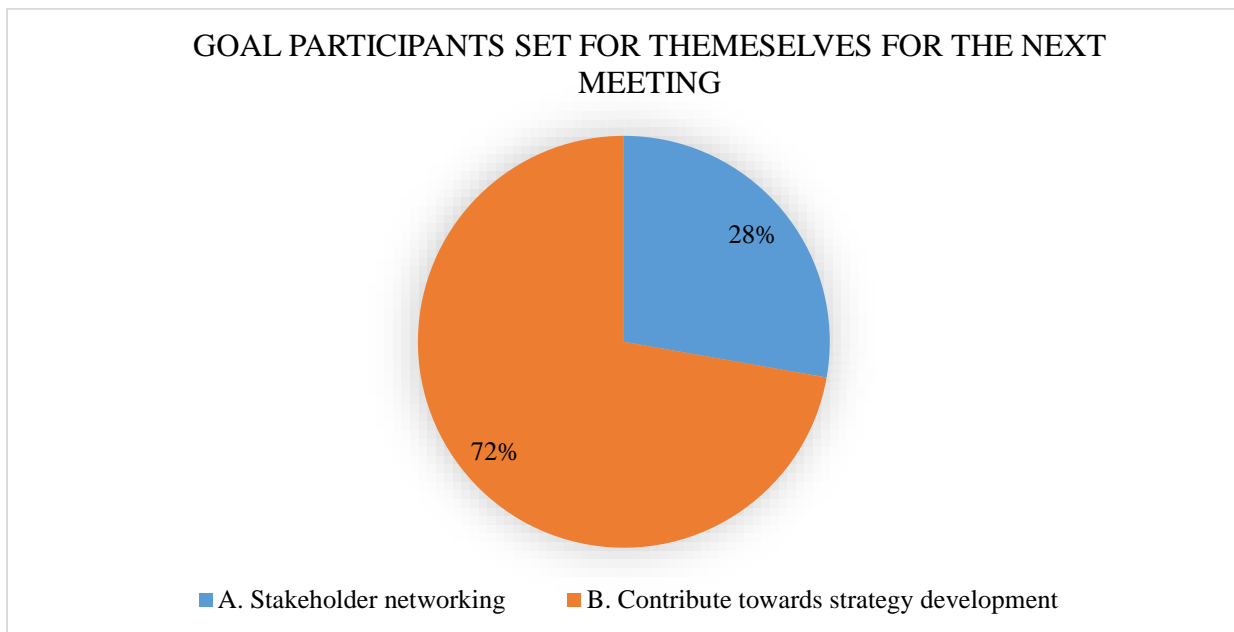


Figure 35: Proportions of themes under what goals participants would like to set for themselves for the next meeting

Under Theme A, participants reflected that they would actively encourage more historically disadvantaged individuals to attend, especially people from the Makhanda Township and their institutions, such as the Eastern Cape Water Caucus. Other participants would also help those members from the disadvantaged backgrounds prepare for and participate in the workshop. Participants felt that if they invited all the other people, participants would link and form networks with other stakeholders in the catchment. Participant 28 wanted to make sure that community-based organisations were given an equal responsibility to communicate the message to the rest of their communities.

Theme B showed that participants would like to contribute towards the development of the strategy. Participants would like to achieve this goal by listening to others with the purpose of learning from them, and contribute accordingly. Participants would check whether any concerns had been addressed and if actions to meet the concerns had been implemented. Other goals evident in participant reflections were to develop a CMS and get objectives of stakeholders aligned, so that stakeholders could work towards providing more focused and practical solutions to the problem. Participants wanted to share the information that they gained in the workshop with their communities so that the communities might help with implementing some of the solutions.

Stakeholder representation across and within each theme is shown in Figure 36 below.

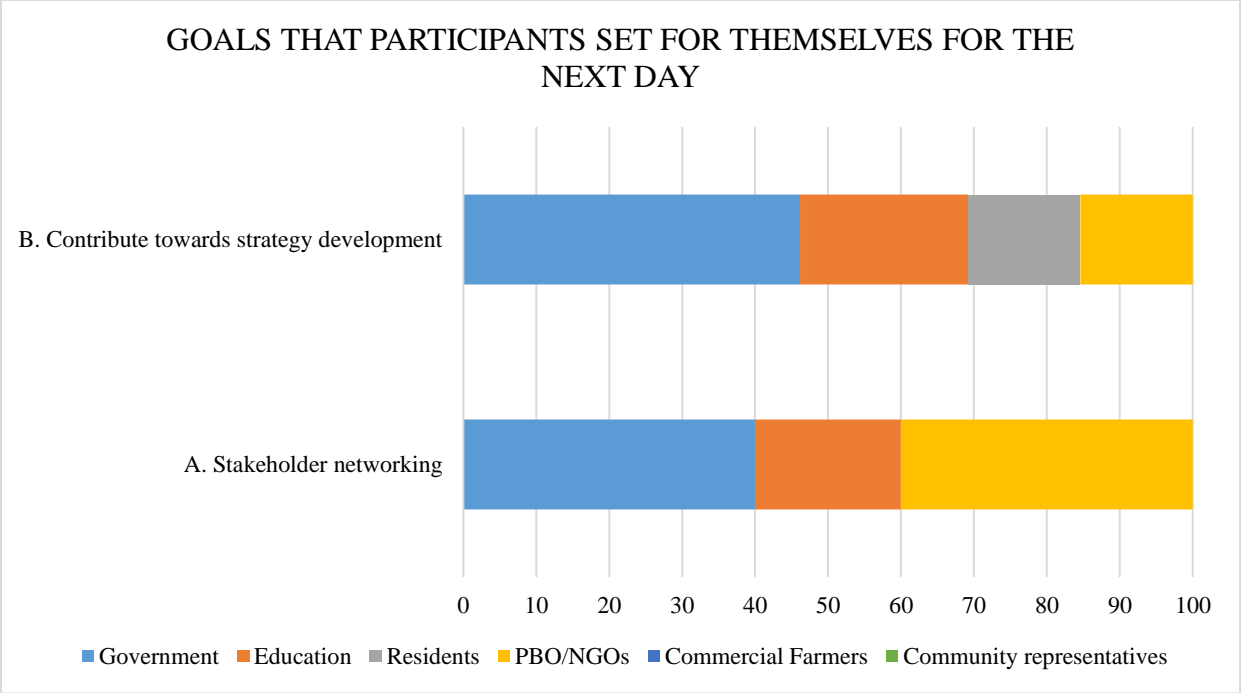


Figure 36: Distribution of stakeholder groupings under what was the single goal participants would like to set for themselves for the next meeting.

Theme A had three stakeholder groups represented, while Theme B had four. Commercial farmers and Community representatives were not represented under this question. Government and PBO/NGOs both were 40% under Theme A, followed closely by Education at 20%. Government dominated Theme B, occupying 46% of the theme, while Education, Residents and PBO/NGOs had representation at 23%, 15%, and 15%, respectively.

Question 5: Is the facilitation giving equal opportunities for all to participate?

Another way to assess the level of epistemic justice is by giving everyone equal opportunity to contribute their knowledge. Participants were asked to reflect on whether facilitation was providing equal opportunity for all to participate. The question aimed at discerning any inequalities in the time given to each participant during the process. The question also aimed at exploring process inclusivity through the way the workshop was facilitated.

The results presented in Figure 37 below show that participants were happy with the level of inclusiveness in the APP. The large majority (96%) of participants responded positively, and all

stakeholder groups were represented. Only one participant representing PBO/NGOs responded negatively (4%) in participant reflections.

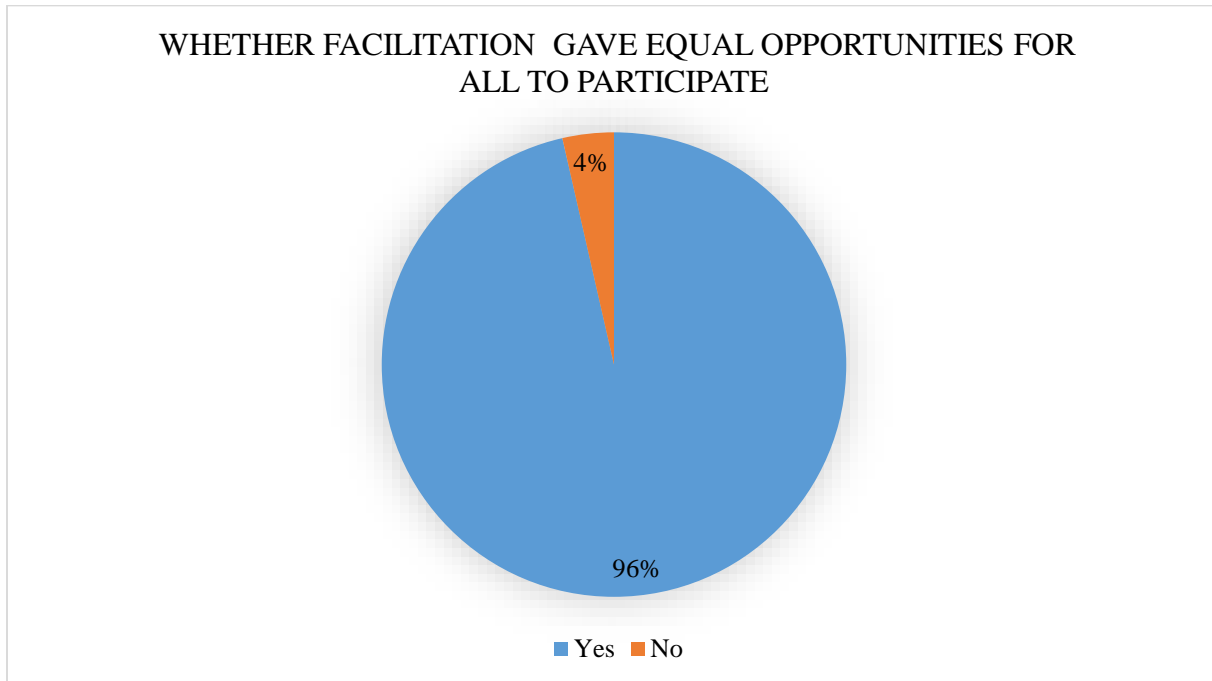


Figure 37: Proportions of responses to whether facilitation provided equal opportunities for all to participate.

Some participants who responded positively simply responded ‘yes’. Other participants who responded ‘yes, but,’ expressing a concern about the process maybe not providing participants the opportunity to fully express their views. Participant 27 wrote, *“Yes, but as I mentioned before, I think the process would be enriched through more engagement by participants in small groups so that multiple different views can be surfaced”*. Participant 13 reflected: *“Yes but ndicinga ukuba abantu mabafumane ithuba elinintsi lokuthetha, lonto ingenza bavele nezisombululo”* (which translates to *yes, but people should be given more time to speak, that could help to come up with a solution*).

Only one participant responded ‘no’ to this question and their reason was still lack of proper engagement. *“No, facilitation must allow the audience to engage concurrently, facilitation is speaking and the audience is listening”*, said participant 10.

Reflective Tool 3

Question 1: Now that you have engaged with the strategic planning so far, can you please state what it is?

The participants were asked to define an APP again, but this time after more engagement with the process. The reason for repeating the question was to assess whether the concepts had been adequately explained to the participants and whether they had learned anything new through their engagement over the day.

Three themes emerged from the participant reflections: A. Collaborative and participative process; B. Lays a foundation to set future objectives, and, C. Plan in changing circumstances (refer to Figure 38 below). Theme B had more prominence at 68% occurrence in participant reflective responses. The second most frequently occurring theme under the question was Theme A at 27%, followed by Theme C at 5%.

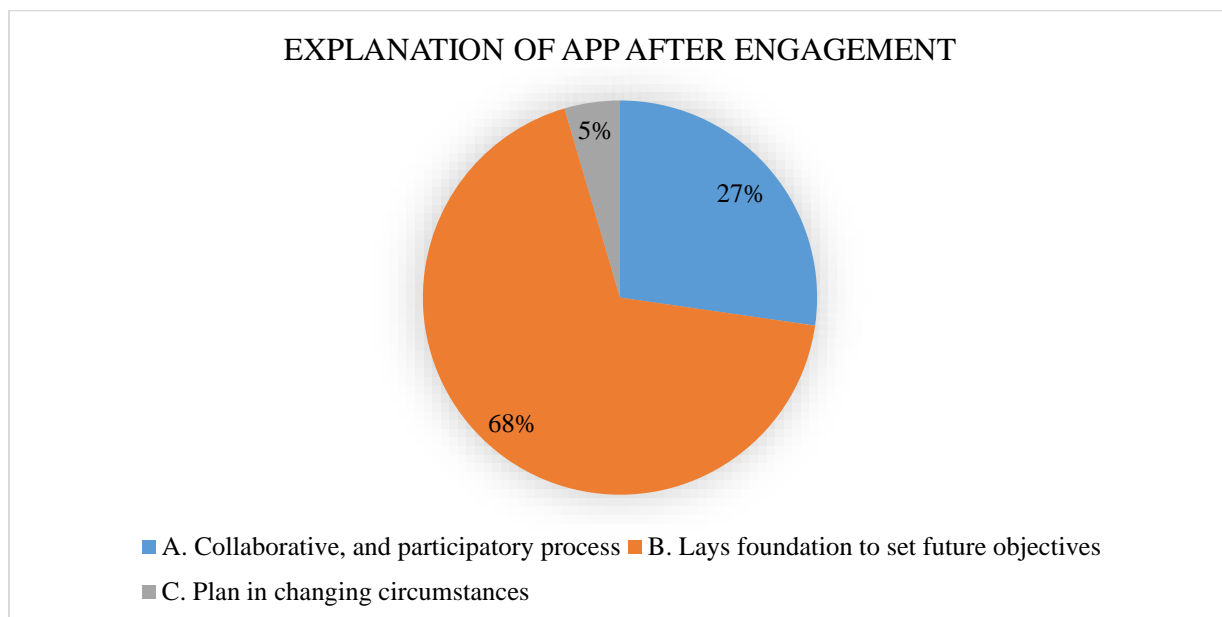


Figure 38: Proportions of themes under participants' explanation of Adaptive Planning Process (APP) after engagement.

In Theme A, participants defined the APP as a collaborative and participative process for co-developing a management strategy for the catchment by getting different perspectives. Participants further explained that APP used all knowledge types as a means to get to solutions for the concerns that were mentioned in the future. The process is a means of working with all relevant stakeholders in order to make sure that water is used responsibly and wisely. Another important element of the process is that the stakeholders need to reach a consensus on many issues in order to prioritise what needs to be addressed.

Under Theme B, participants defined the APP in terms of laying a foundation in order to construct future objectives. Participants pointed out that in this case the process was used to address the water and sanitation problems in their catchment in order to fulfil the main aim of the water and sanitation department. *“Is a way of addressing the main aim of water and sanitation department”*, wrote Participant 16 in their reflection. Other participants defined the process as a comprehensive and clever way to get to the vision that was set for the future of the catchment because it was made up of high-level planning and objectives hierarchy in a stepwise process. Participants further mentioned that APP acted as a guideline towards good governance in water resource management by incorporating different ideas. Participants felt it would assist the municipality or the DWS to monitor progress in the catchment. Some participants said APP was a method of mapping out a way forward from the current water situation towards finding sustainable solutions to the problems. Participant 28 wrote, *“It is the way in which we are going to keep and manage our catchment area in a systematic, effective and sustainable way for the future generation”*.

Only one participant touched on the fact that the process considered complexity under Theme C, as they said, *“... It involves the objectives that need to be done in order to achieve the goal as well as an alternative plan if crisis arise”*.

The distribution of stakeholders across and between themes is given in Figure 39 below.

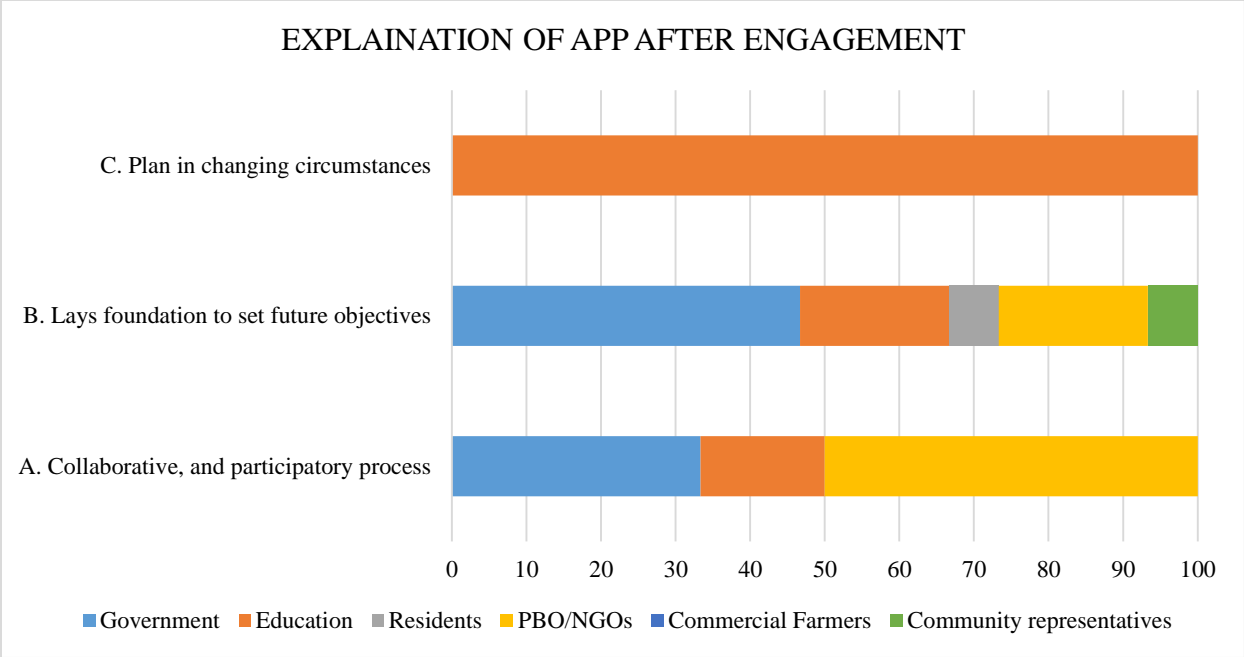


Figure 39: Visual presentation of stakeholder groupings under participants’ explanation of Adaptive Planning Process (APP) after engagement.

Theme B had five groups of stakeholders, the highest number of stakeholder groupings represented, while only one stakeholder group was represented under Theme C. Only Commercial farmers were not represented in Theme B. Theme A was dominated by PBO/NGOs (50%), followed by Government with 33% and Education at 17%. Government dominated Theme B at 47%, while Education and PBO/NGOs had represented 20% each.

Question 2: Do you feel it helps to achieve a good Catchment Management Strategy (CMS) for our catchment?

Based on their experiences of the process, the stakeholders were asked to reflect on whether they felt the process would help to achieve a good strategy. The question aimed to find out if participants thought APP was the appropriate process in the development of the integrated CMS, where role players in the catchment are given the opportunity to make decisions regarding the future of their catchment. The responses that participants gave were A. Yes, and B. Not sure (refer to Figure 40 below). Theme A had the highest prominence at 92%, while B had 8%. While only Residents were represented under Theme B, Theme A represents four stakeholder groupings, with Government dominating (50%). Education came second under Theme A (33%), while PBO/NGOs and Community representatives each occupied 8% of the theme.

WHETHER PARTICIPANTS FOUND THE WORKSHOP USEFUL FOR THE STRATEGY DEVELOPMENT

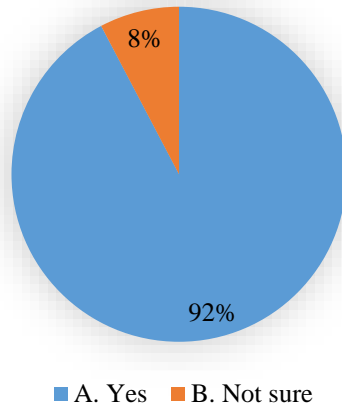


Figure 40: Proportions of participant responses to the usefulness of the workshop useful in developing the strategy.

Participants who responded ‘yes’ explained why they found the process useful for developing the strategy: including diverse perspectives; the process considers all aspects in planning for the future; the strategy will serve an important purpose, and the process gave input into the bigger picture of the CMS implementation.

Participants said the process was useful because the process was inclusive of a wide range of stakeholders and therefore a diverse range of perspectives, which meant more ideas. Including different stakeholders fostered a sense of ownership and active citizenship, and acted as a learning and networking opportunity for participants. Participant 5 wrote, *“Yes - it is good in terms of including diverse perspectives, fostering a sense of ownership and active citizenship, and as a learning and networking opportunity for participants”*. Participants said the process was particularly good in that stakeholders were given the opportunity to reflect on their concerns. Participants added that the process allowed everybody to participate and freely contribute knowledge, and everyone’s ideas were written down in order to be added to the final strategy.

Participants responded positively because the process considered many aspects of planning, which was good for catchments because they are complex and difficult to manage. *“Yes-catchments are complex and difficult to manage. They, therefore, require a comprehensive plan to manage them accordingly”*, explained Participant 8. The strategy considered what the current state

was and how to go about overcoming the challenges to a good catchment. Participants also pointed to the fact that the process identified the interests of stakeholders, which might direct resources more efficiently and productively.

Participants felt that the strategy would ultimately serve an important role in the catchment because it provided a workable focus and easier methods of forward planning to ensure that the catchment is kept healthy. The strategy would assist planners to stay on track and it required that its message is conveyed to the rest of the community. The CMS will guide the Catchment Management Agency (CMA) as well as institutions like the MWF would benefit from the strategy itself. Participant 20 said, “*Yes - this CMS will be a guiding document for CMA as well as institutions like UKWSCMF (the initials were changed to MWF, which is now Makana Water Forum) will benefit a lot from this CMS*”. Maybe the process would help everyone in in Makana to have enough and clean water at all times.

Only one participant said no, and wrote, “*Yes/No- the process is input to a CMS - it is “hopefully” appropriate*” (Participant 24).

Question 3: One of the purposes of Adaptive Planning is to include everyone’s input in the final product (CMS). Has this been achieved in the particular engagement?

Participants were reminded that one of the purposes of the APP was to include everyone’s input in the final product, which was the catchment management plan in that case. Participants were asked to reflect on whether this had been achieved in their particular engagement. Participants had to choose between two responses: A. Yes and B. No. Option A had an occurrence of 87%, while option B was made up of the remaining 13% (*refer to Figure 41 below*). Government occupied 46% of Theme A, while Education came second at 23%. The least represented group were under Theme A, Residents and Community representatives at 8% each. Government and PBO/NGOs equally occupied 50% each of Theme B.

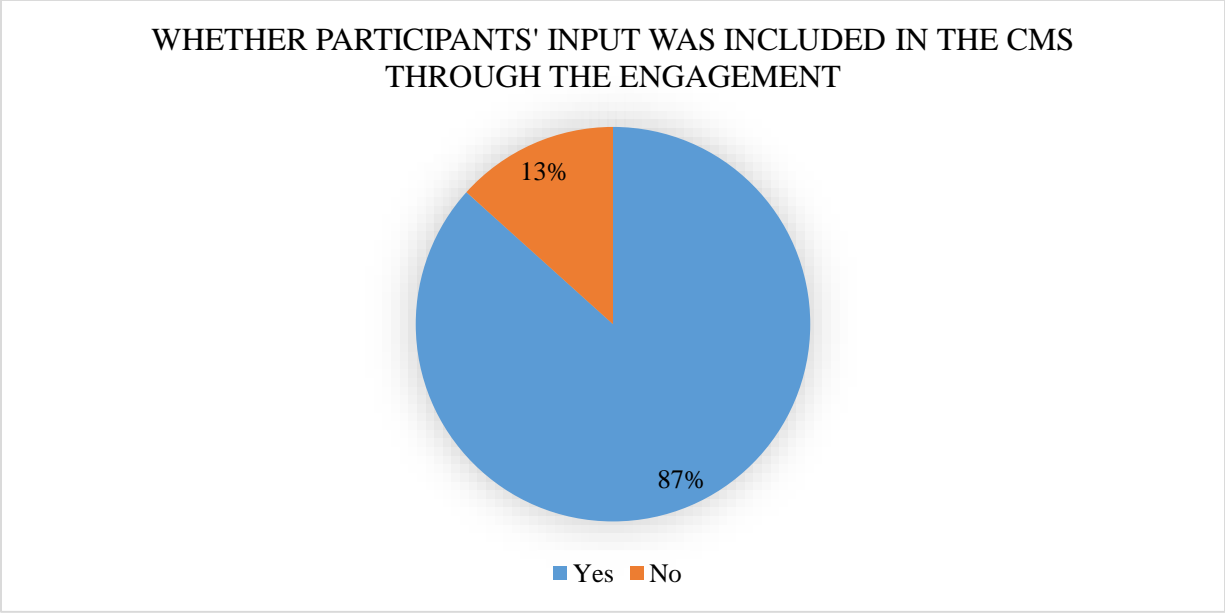


Figure 41: Proportions of themes under whether everyone’s input had been included in the Catchment Management Strategy (CMS) through the engagement.

Participants who answered yes raised a number of important issues. Participants pointed out that other sectors of society were not represented. One suggestion was about revising the methods that were used to attract more people to attend the workshop, through media like newspapers, local radio stations and many more, and constantly reminding everyone about the workshop. *“Yes - if the way of inviting the community could improve as the community members did not attend. Maybe have a constant reminder of the workshop”*, wrote Participant 16 under Theme A. Participants further suggested that transport could be provided, especially for people who lack resources.

Participants thought it would have been more inclusive if the last session was facilitated differently. Here is what Participant 8 wrote under this point, *“Yes - the final session could have been facilitated in a way that was more inclusive of the participants- if we did this would we have finished”*. One member expressed their concern about the use of charts was because they limited people and their ideas. *“Yes - there is a need to allow people to write all their ideas in their own space as opposed to writing in a big chart. This method or way of collecting ideas tends to limit people into space provided on the charts”*, said Participant 25.

Moreover, while participants felt included, they also felt that more could be improved regarding the explanation of concepts. Participants suggested that the facilitator’s introduction

could be aimed at improving participants' understanding of Integrated Water Resource Management (IWRM). Another participant felt there needed to be some clarifications on certain issues: *“Yes - this may have been addressed at the beginning of Day 1, but there needs to be a clear link between the outputs from this workshop and the CMS. How does the Makana (Upper Kowie) CMS fit with the strategy of the proto-CMA, or with strategies of other CMSs from other catchments? There was too little outline of the framework outside of this meeting”*.

Participants, who responded negatively, did not feel included in the process. One of the reasons evident from participant reflections was that some people remained quiet most of the time, and this is what Participant 5 said, *“No - for the most part, the process is successful. Some people remained quiet, on the edges, not sure how to contribute, but you can't force people to participate. And maybe they will be more confident next time”*. Participant 26 attributed the lack of participation to the excessive use of abbreviations throughout the process. *“No - the uses of abbreviation should be minimised or the word must be said in full, it results to not everyone participating”*, wrote Participant 26 in their reflective response to the question.

Question 4: Please share any other feelings/ thoughts you might have regarding the strategic planning process or about the workshop in general?

Finally, participants were asked to reflect more broadly on their experience of the workshop. The question aimed at probing participants to express all their thoughts, feelings, and experiences or maybe give more input into the process on issues that might not have been properly dealt with in the guiding questions that were given in the reflective tools. Three themes that emerged were: A. Workshop was useful; B. Increase representation; and, C. Time allocation (*refer to Figure 42 below*). The results show that participants generally enjoyed the learning experience through the APP, with Theme A at 69% prominence. Themes B and C, occurred at 16% and 15%, respectively in participant reflections.

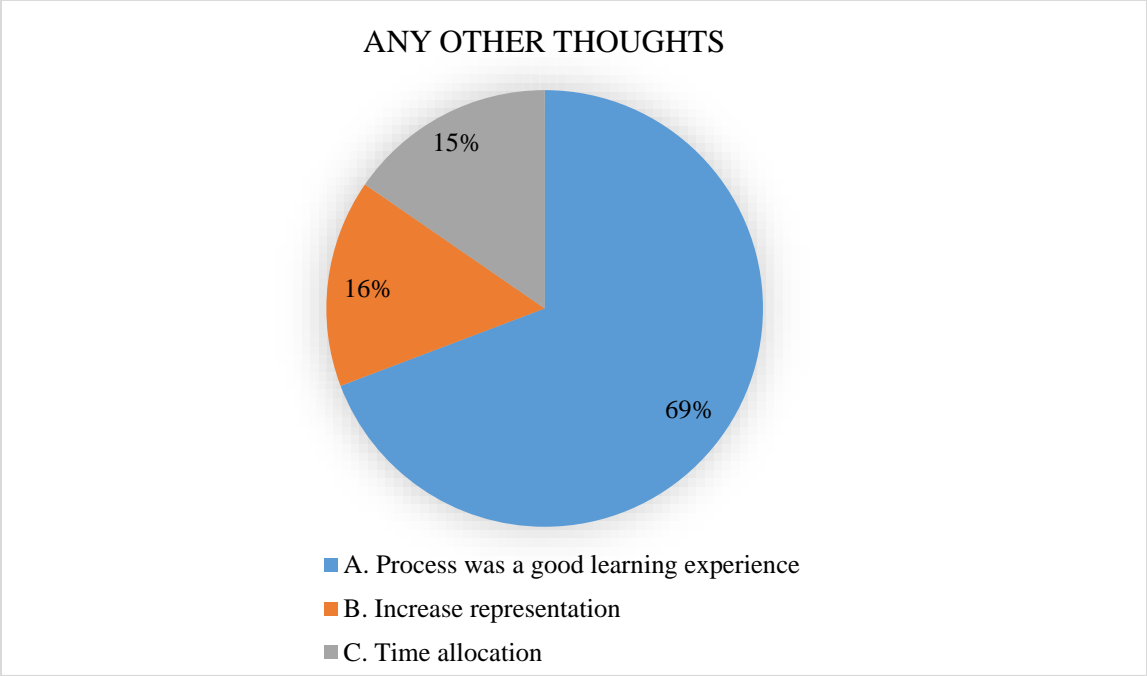


Figure 42: Theme prominence under participants’ general thoughts about the day’s work.

Under Theme A, participants felt that the process was useful because they gained more information about issues that were not initially clear to them. Participants found the workshop a rewarding experience where stakeholders were working together, and the engagement process was pleasant. Participants would be interested attending a similar workshop in the future. Participant 16, for example, wrote, *“It was a very pleasant and engaging process. I learned a lot from it. I would happily attend a similar workshop”*. In their reflections, some participants said that the process had opened their eyes in terms of what to expect when engaging with stakeholders during strategic planning. Participants pointed out the process was facilitated clearly and was understandable – even those who were late could easily catch-up. Another participant felt that it was a well-rounded workshop, and the outcome was achieved. Participant 19 thought the workshop was a success, and could, therefore, be used as a model for other areas in developing their strategies, saying: *“From the perspective of the DWS the workshop success can be used as a model to other catchment areas where the strategy needs to be developed”*.

Under Theme B, participants emphasised the issue of representation once more. One member thought there was better representation from key stakeholders such as the municipality, but more political leaders that needed to be involved. Another participant advised that the

organising team should invite more government departments so that the message from the workshop could reach higher levels of government heights: *“This workshop must include even government departments to be part so that they can even convey a message to others”* (Participant 17).

Theme C centred on the issue of time, and one participant felt that the workshop took up too much time and the participants ended having difficulty in concentrating. The participant further suggested that the workshop ran for a period of three days, over shorter hours per day, saying: *“The workshop takes up a lot of time and I personally find it difficult to concentrate. Perhaps it should be conducted in three days to reduce the number of hours spent on each day”* (Participant 25). Participant 24 felt that the reflection component was given too much time on the first day, and that only one reflection tool could have been administered instead of two.

Stakeholder representation varied between themes, though there was less variation of stakeholders within themes than was the case in responses to other questions (*refer to Figure 43 below*).

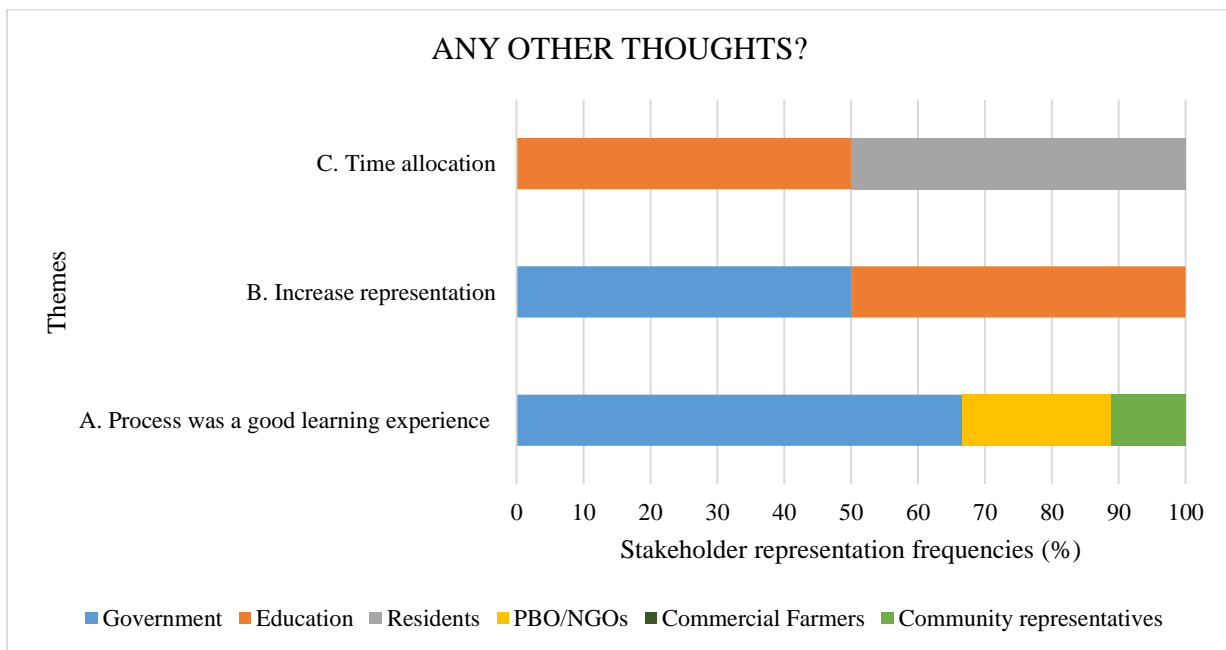


Figure 43: Distribution of stakeholder groupings across the themes that occurred under the participants’ general thoughts about the day’s work.

The most obvious trend from the graph is that Government had more representation under Theme A. Interestingly; Residents are only represented under Theme C, while Education was represented under all the themes. Only two groupings were represented under Themes B and C, and Education occupied 50% of each of the two themes.

5.2.2. Workshop 2

Question 1. Explain as much as you can about the Water Planning Process

The first question asked participants to explain as much as they could about the APP on the assumption that enough was covered for participants to define what APP was, based on their experience. The question encouraged participants to reflect on what they thought APP was, drawing on the explanation given by the facilitator at the start, coupled with the lessons learned through participants' engagement with the process. The question aimed to find out whether participants found the concepts clear from the start, as one of the purposes of APP is ensure that stakeholders are on the same page in order to participate fully.

Three themes emerged from the participant reflections: A. Baseline information and knowledge about water management; B. Inclusive process/planning, and, C. Sustainable management (*refer to Figure 44 below*). Theme A had the highest frequency in participant reflections, occupying 53% of all the 38 responses that were given under the question. Theme B was the second most occurring theme (28.9%), followed by Theme C with 18.4%.

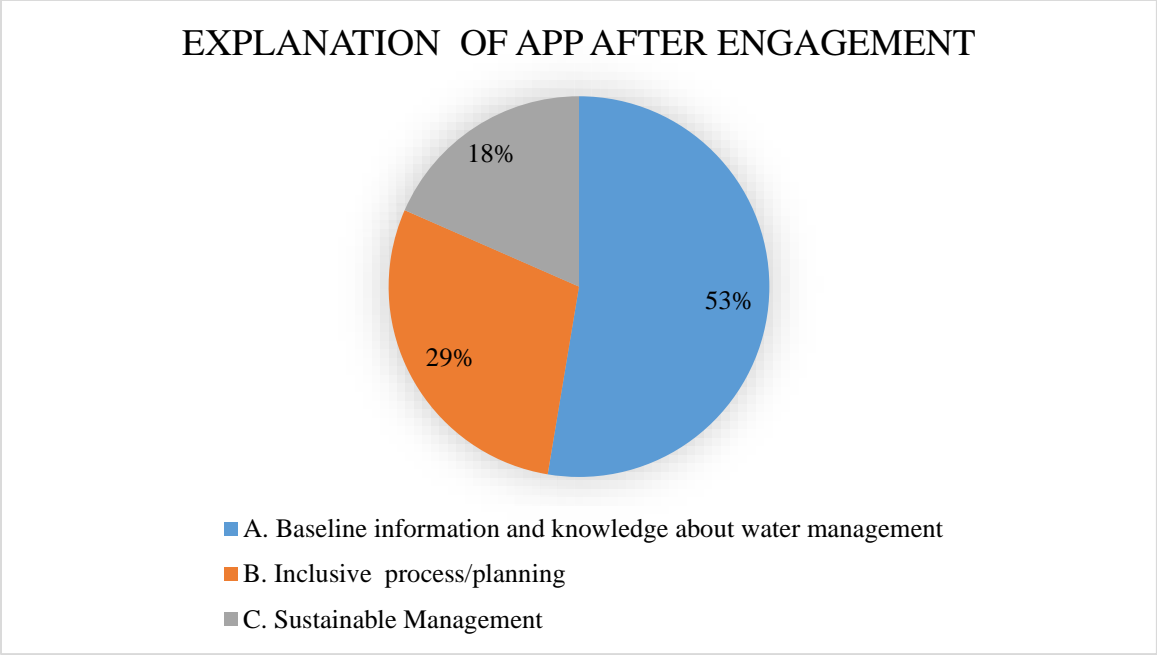


Figure 44: Proportions of themes under participants’ explanation of APP after engagement.

Under Theme A, participants defined the process in terms of giving baseline information and knowledge about water management in the catchment. Participants found that the process was educational, and participants learned from the facilitation and from each other about water conservation. Some participants mentioned that the information was well structured because it started by identifying needs and gave a brief description of the catchment before it moved to planning. Participant 5 wrote, *“The planning process was good. The information is structured in a proper manner and allows opportunity for stakeholders to interact with one another”*. Participants added that the APP entails challenges that are being faced through water consumption and agricultural water use and improvement from government to community.

Under Theme B, participants described the process as inclusive of a wide range of stakeholders and it gave everyone the opportunity to participate freely and give an opinion about the future of water in their area. A participant pointed out that the process required that other stakeholders not present understand the process. Inclusivity was also evident in that the concerns of each participant were identified and themes around the vision were developed. Participant 2 reflected that they had learned that they could participate in water issues through the process and they wrote: *“This workshop about the water planning process is my first experience and I personally did not know that we as residents have rights to be involved”*. Participants also said that

the process gave opportunity for stakeholders to interact with one another, and Participant 35 wrote: *“To work together towards a mutual, realistic and attainable goal”*.

Under Theme C, other participants felt the process could potentially lead to sustainability. Many of the responses under this theme of sustainable management were suggestions on how the process could lead to sustainable management. Some participants said that the municipality needed to fix infrastructure so that the quality of drinking water was good and the citizens did not get sick. Participants believed that the municipality could sustain a good catchment by putting money aside during budget allocations for initiatives like the APP, and for fixing the pipes and making dams for cattle to drink in the farm areas. Participant 18 wrote: *“When there are budget allocations, we wish that the municipality would put aside money for the fixing of water”*. Participant 40 added, *“In Riebeeck, we use boreholes for cattle to drink, we ask that dams be made for the cattle”*.

Stakeholder representation under the three themes differed from four groupings to five groupings per theme (refer to Figure 45 below).

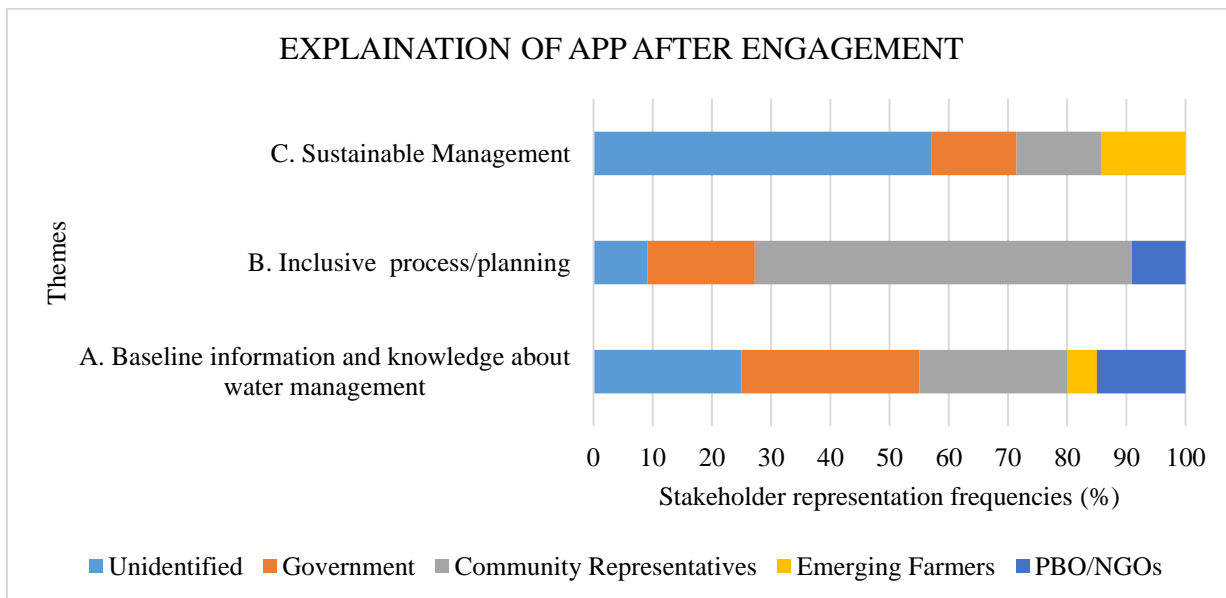


Figure 45: Distribution of stakeholder groupings under participants’ explanations of Adaptive Planning Process (APP) after engagement.

The Government group was the highest represented under Themes A (30%), followed closely by the Unidentified group and Community representatives equally both with 25%. Community representatives dominated Theme B (63.6%) of the whole theme, while the Unidentified group dominated Theme C. Under all three themes, Government, Community representatives and the Unidentified groupings are represented. It is worth noting that all the stakeholder groupings were represented under Theme A, confirming that this aspect of the process was made clear throughout the workshop to the most participants across stakeholder groupings.

Question 2A: What were your goals for today's engagement?

This question aimed to uncover whether lessons from the process were going to influence their initial goals.

Four themes emerged in participants' reflections: A. Learn, reach solutions and share information, B. Building relationships, C. Observe the process and D. Get solutions to problems. Theme A occurred most frequently in participants' reflections (65%), while the frequencies of the other three themes were 14% for Theme C, 11.6% for Theme D, and 9.3% for Theme B (refer to Figure 46 below).

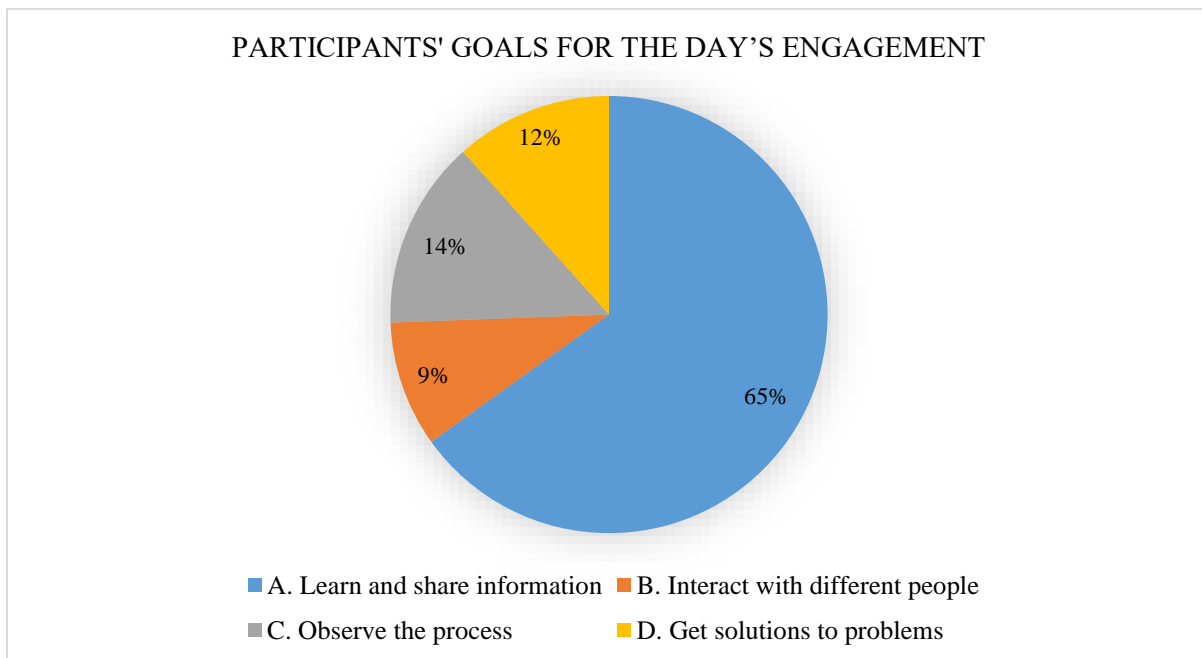


Figure 46: Proportions of themes under participants' goals for the day's engagement.

Theme A showed that participants wanted to learn so that they could share the information from the workshop with people who could not attend; they wanted to learn about water in Makana and find out what the solutions to their problems were. Participants wanted information about catchment forum and management, to be educated more about water challenges, and to gain knowledge about why they needed to save water. Participant 15 wrote, *“To get more information in order to assist in my community as I am working on the ground with the community”*. Many participants sought to participate in sharing the information they had with other stakeholders as input into the process, while other people wanted to share the information from the workshop with people in communities who did not attend. Participants’ goals were to have inputs on how to manage catchment areas, and share the role they play in the municipality around water and sanitation. *“Share my expertise and role I had played in our municipality around water and sanitation”*, wrote Participant 12. In the process, some people aimed to establish a vision for future water expectations and make sure it was politically, socially and environmentally acceptable. Participant 20 came to hear the solutions to the concerns that were mentioned in the first workshop and they said, *“In my thinking I was waiting for the solutions from the last meeting”*.

Under Theme B, the participants’ goals were to interact with different people to build relationships with other stakeholders. One participant specifically wanted to build the relationship between Rhodes University and the community as it was important for the development and implementation of water programmes. Other participants wanted to get a clear picture of the stakeholders involved in water usage, management and conservation, in order to share ideas on how the catchment could be better managed. One participant wanted to engage with the municipality’s engineering and infrastructural services officers, in particular.

Under Theme C, participants reflected that they attended the workshop in order to observe the process and understand how useful it would be in speaking to needs in the catchment. Others were there to observe because they did not know what the workshop was about and responded: *“I was not aware of this workshop because no one explained to me. I am happy to come”* (Participant 14).

All stakeholder groupings responded to the question. Each grouping is represented under at least two themes (*refer to Figure 47 below*).

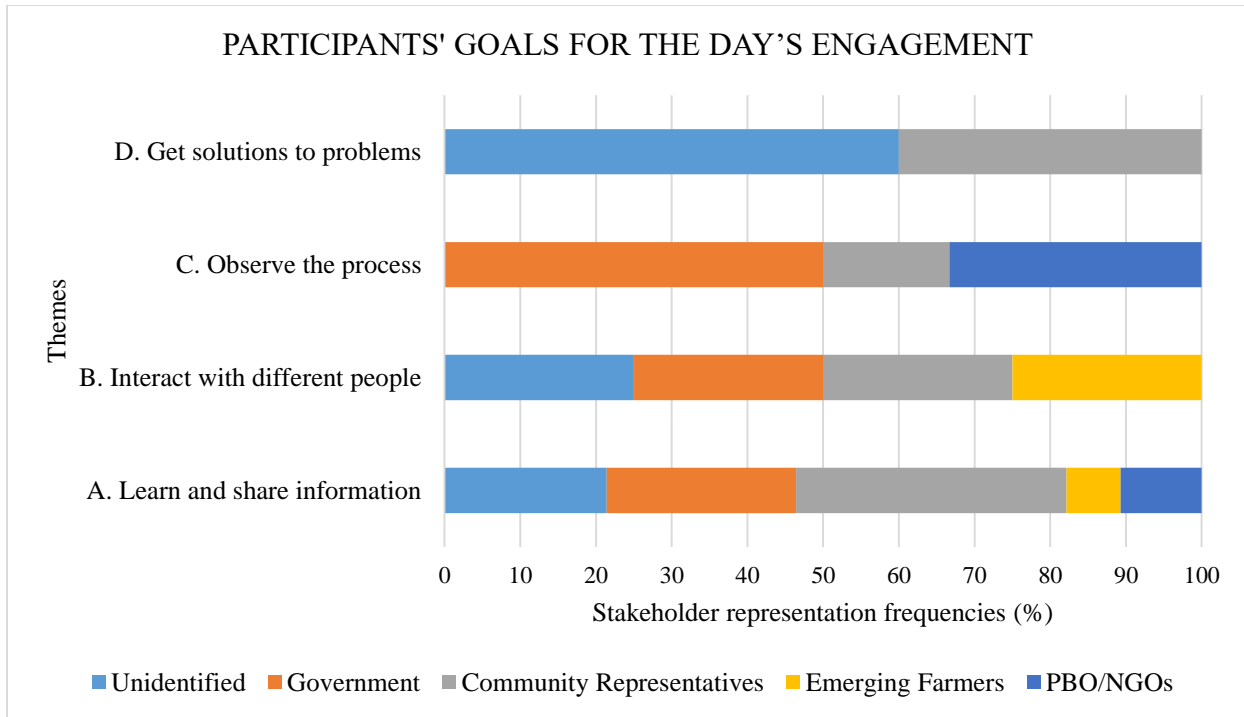


Figure 47: Distribution of stakeholder groupings under participants' goals for the day's engagement.

Theme A occurred most frequently under participants' goals for the day's engagement, all the stakeholder holder groups were represented. Each stakeholder's group was represented under at least two themes.

While Community representatives were represented under all the occurring themes, they only dominated Theme A (35.7%). The four stakeholder groups under Theme B were equally represented (25% each), and Emerging farmers were the only group without representation under the theme. Government made up half of Theme C, while PBO/NGOs and Community representatives together made up the other half at 33.3% and 16.7%, respectively. Theme D consisted of 60% Unidentified group, and 40% Community representatives. Of the three Emerging farmers who responded to the reflective questions, two fell under Theme A⁸.

Question 2B: Did the goals change as the discussions proceeded? How?

⁸ Only three emerging farmers responded to the reflective tool, thus one representative of emerging farmers under a theme constitutes one third of the stakeholder grouping.

A follow-up question about goals prompted participants to reflect on whether their goals had changed, and, if so, how the goals had changed. This question aimed at finding out what gaps the process of the workshop had filled.

The reflective responses were: A. Goals changed, and B. Goals not changed. Of the 40 responses, 60% responded that their goals had changed, while 40% said theirs had not changed (refer to Figure 48 below).

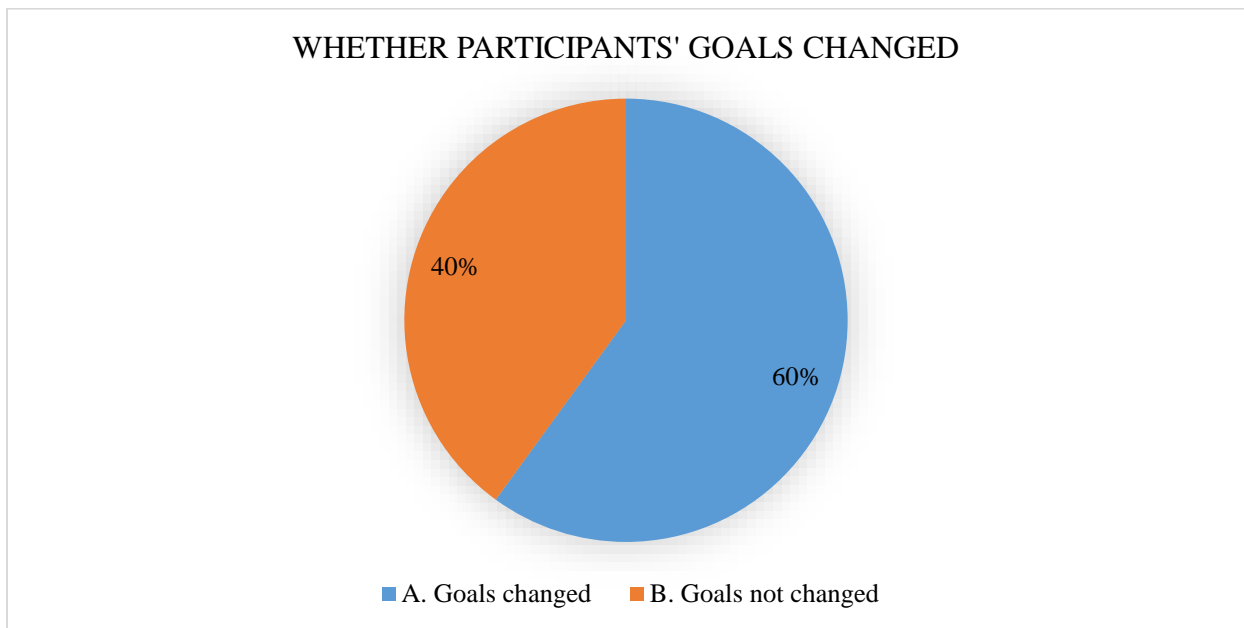


Figure 48: Proportion of themes under whether participants' goals had changed or not.

Many participants' goals changed because as the discussions proceeded participants learned how to conserve water. Participants said they were the ones who gave input on how to manage the catchment, and the presentations and discussions improved their understanding. "Yes, because some of the views came from the floor. We had our ideas about water catchment in Makana", Participant 17 wrote. Other participants had found that the workshop was a good learning experience; it had improved their knowledge and changed how they thought. Some participants realised that solving the water problems was not as simple as deciding and presenting solutions, but what was important was getting the information to the relevant actors.

However, quite a number of participants' goals did not change, and the hypothesis here was that unchanged goal was a sign of no learning. However, another reason for most participants'

goals not changing could be because their goals had been met through the process. For instance, Participant 8 wrote, “No, the ideas that came out of the process were in line with the vision I have for the catchment”, while Participant 18 said, “There is no change because we put forward our thoughts as the residents (or citizens)”. Another participant dissatisfaction with the lack of progress from the first workshop outcomes.

Question 3: What was especially satisfying to you about today’s work?

This question was an important one in identifying the sustainability of APP. The APP workshop outcome (the local CMS), is meant to be implemented over a period of five years, and if sustainability is to be achieved, then stakeholders have to be satisfied.

Three themes emerged in relation to participant satisfaction: A. Participation by all; B. First presentation; and, C. Nothing (refer to Figure 49 below).

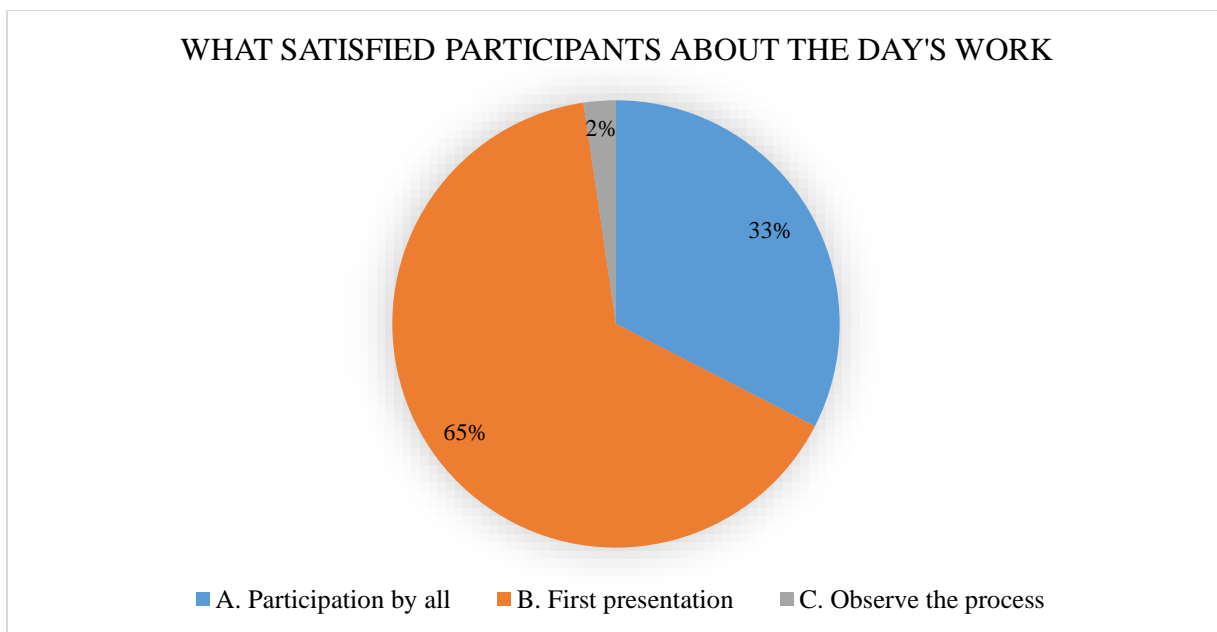


Figure 49: Theme prominence under what was most satisfying to participants about the day’s work.

Under Theme A, participants were satisfied by seeing all the people who had come together to work on the water issues of Makhanda. Participants pointed out that the method used gave individuals the opportunity to voice their concerns and look for solutions. Participants expressed that they could freely share what their knowledge with others. Other participants felt there was proper engagement, which gave participants the opportunity to know how other people perceived

the prevailing circumstances. Participant 14 wrote, “*Participation in groups knowing how people think*”. Another satisfying aspect as written in participant reflections was how dedicated and committed the stakeholders were in participating in the process. “*Noticing that residents are interested to participate and play roles in the water and sanitation business*”, wrote Participant 35 in their reflection.

Under Theme B, participants said they were satisfied the lessons learned from the first presentation and the discussions that stemmed from it. Participants learned about the water restrictions that were in place at that moment, and that made them realise that the municipality was actually doing something about water issues in the area. Participants also learned what a catchment was and what the dam levels were in the catchment, and what that meant. The scientific input illustrating how water got to the tap made some people realise that they did have a role to play in water conservation.

Under Theme C, Participant 21 was not yet satisfied by anything in the process.

All the stakeholder groups responded to the question, and all the stakeholder groups were represented under Themes A and B, while Government was the only group represented under Theme C (*refer to Figure 50 below*). This is interesting because the expressions of satisfaction seem to coincide with the participant goals of interacting with different people and learning from the process.

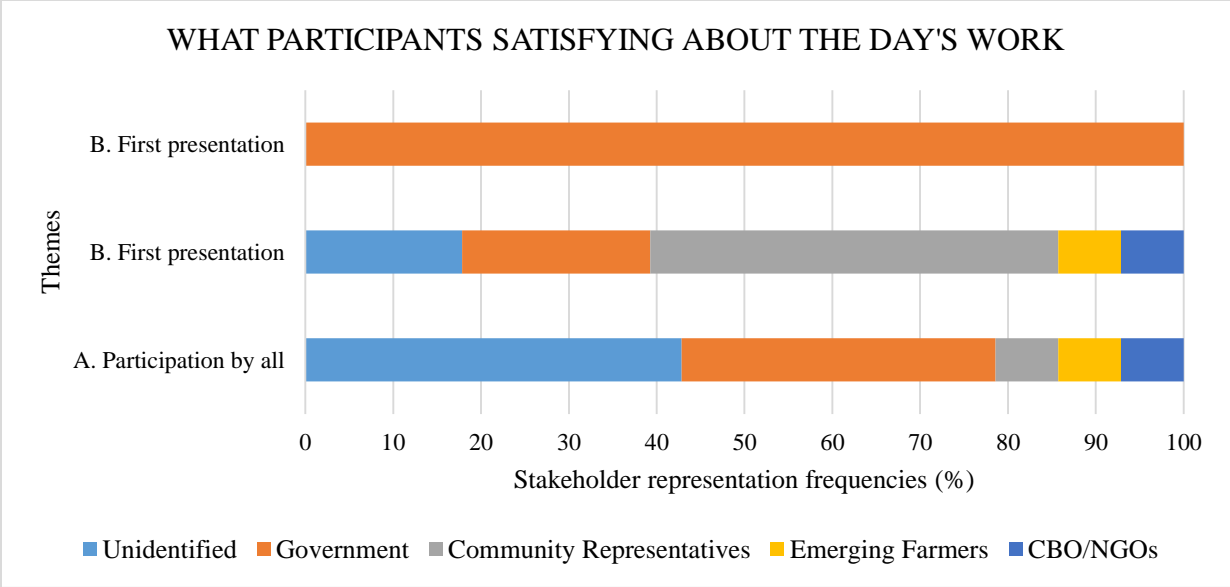


Figure 50: Distribution of stakeholder groupings across themes that occurred under what was most satisfying to participants about the day’s work.

The highest represented stakeholder grouping under theme A was the Unidentified group, which occupied 42.9% of the theme and was closely followed by Government at 35.7%. Although Community representatives had low representation under theme A relative to how many participated in the process, they dominated theme B at 46.4% of the theme.

Question 4: What would you change if you had a chance to do this meeting over again

When asked what they would change if they could do the meeting over again, five themes emerged in participant responses: A. Increasing representation; B. Nothing; C. Increase workshop time; D. Capacitate MLM; and, E. Clarify discussion focus (refer to Figure 51 below). The question aimed at enabling participants to give input into the process by telling the team things that did not work for them. Such input would enable the organising team to improve facilitation. The highest occurring themes were Theme B with 34.4% and theme A with 31.1%. The other three themes had a low occurrence in participant reflections.

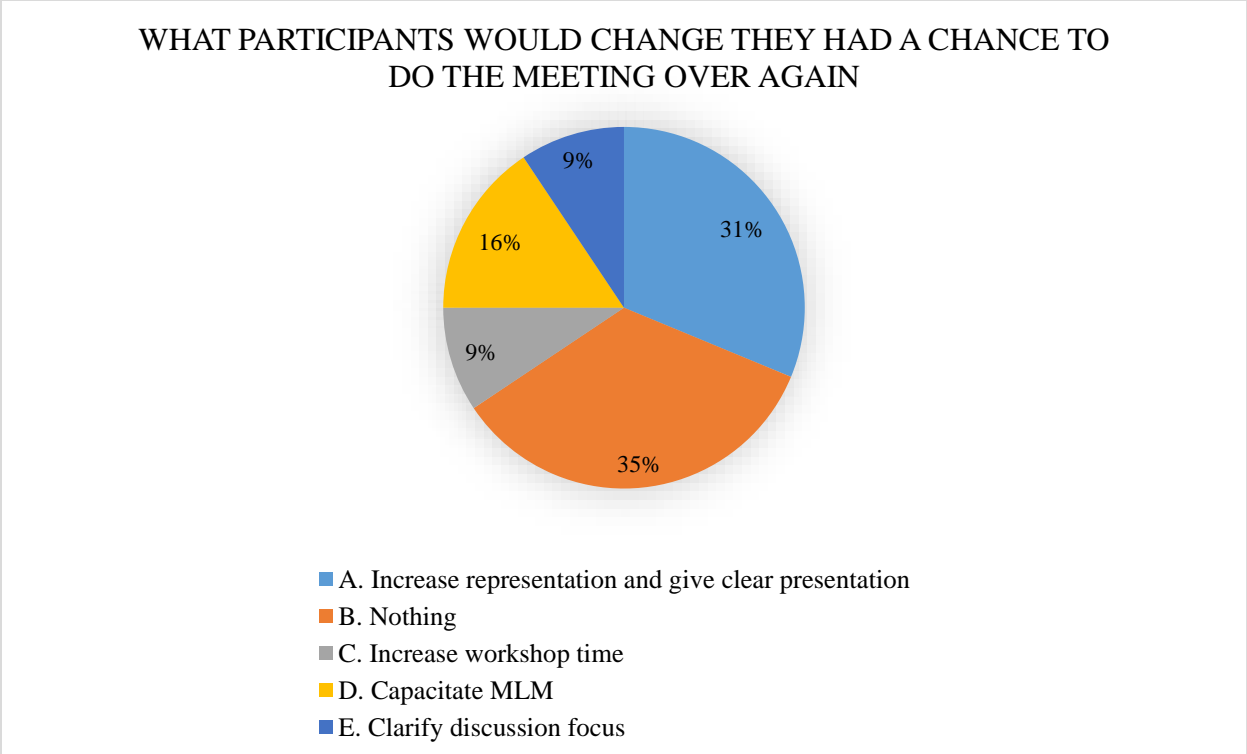


Figure 51: Theme prominence under what participants would change if they had a chance to start the meeting from scratch.

Under Theme A, participants suggested increasing representation of other stakeholders such as directors, ward committees, Emerging farmers and many other relevant stakeholders in the municipality who had decision-making power. Participant 34 said, “*Ensure that political principals attend as they influence decision-making*”. One participant reflected that they would also change the venue as a way to attract more people to the meeting because the hall that used was rather cold.

Participants under Theme C reflected that they would increase workshop time in order to accommodate more content because the content was useful. Another time issue that was raised was that of sending out invitations in time.

Under Theme D, participants reflected that they would use the presentation to educate the municipality to respond quickly so that people may stop complaining. Participant 15 wrote, “*If you can give all opportunity to educate more community members and the workers of the municipality about saving water because they do not respond quickly when you report about water*”. Other participants pointed out that they would change the infrastructure with more dams and better-

quality water so that residents could stop complaining about water. Some participants would assist the municipality by ensuring that taps were properly closed, and that kids do not play with water infrastructure.

Under Theme E, participants would clarify the discussion focus by picking a specific topic to deal with in more depth, like manholes spilling sewage, look for risks and solutions, the level of catchment degradation, and many other relevant topics.

Although so many suggestions were made, Theme B, the second most prominent theme, suggested that participants felt that nothing needed to be changed. Participants thought that everything that was said and done was all important and that the meeting was productive and satisfactory.

Stakeholder representation under the different themes showed some interesting trends (refer to Figure 52 below).

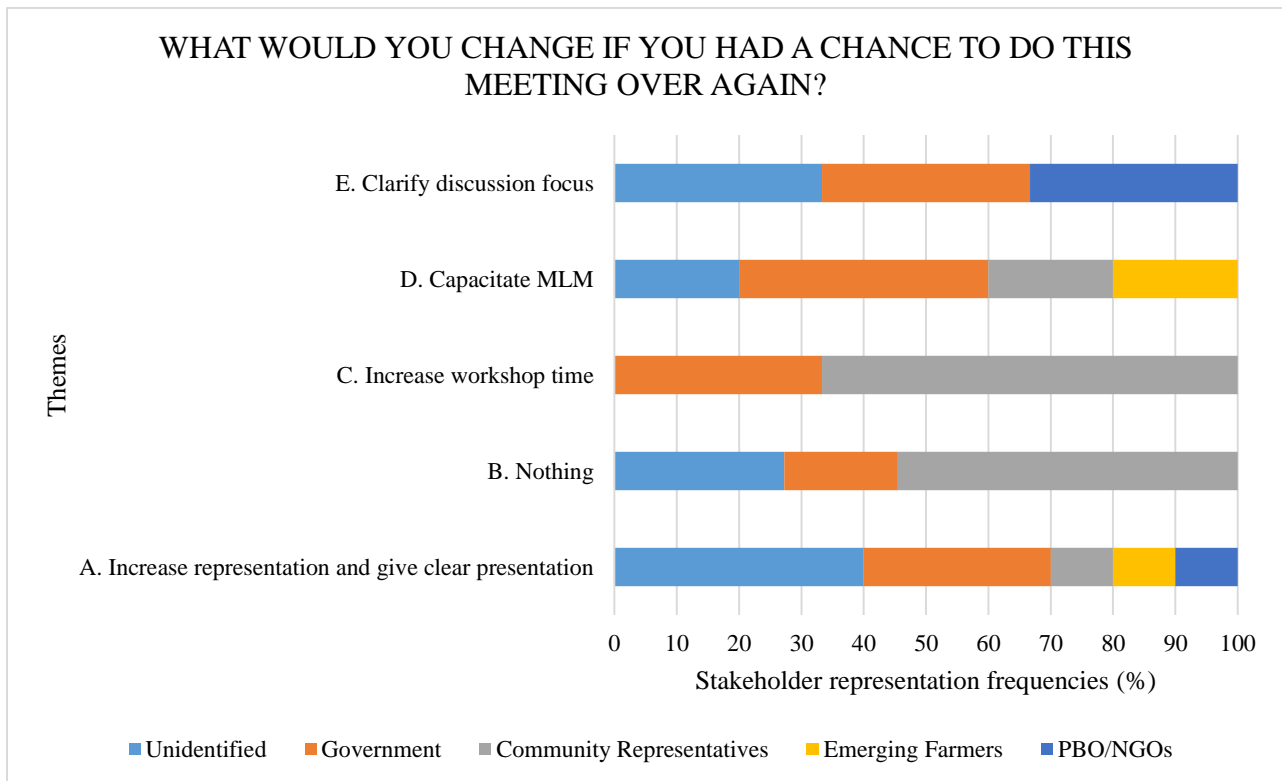


Figure 52: Distribution of stakeholder groupings across themes that occurred under what participants would change if they had a chance to start the meeting from scratch.

It was not surprising to have all stakeholder groups represented under theme A, because from preceding questions, representation has been mentioned, even from the first workshop. Failure to achieve representation has been found as one of the challenges encountered in collaborative processes such as the APP (Frame *et al.*, 2004). Government was represented under all the five themes, but only dominated theme D. Community representatives dominated theme B and theme C, representing 54.5% and 66.7% of the themes, respectively. The stakeholder grouping represented under the E were the Unidentified group, Government, and PBO/NGOs, all equally at 33.3% of the theme each.

Question 5: How do you feel you could be more included in the water planning?

To be sustainable, the process needs to be tailored to fit its context; the context in this case is the people who will be involved from beginning to the end, thus this question aimed to reveal how best the participants would like to be included. Three themes emerged from participant reflections: A. Invite more people and accommodate all; B. Capacitate MLM to fix infrastructure; C. Already included; D. More workshops to be conducted, and E. Presentation clarifying specific issues (*refer to Figure 53 below*). Theme B was the most frequent theme in participant reflections (29%). The second most occurring theme was Theme E at 27%, followed by Theme A with 24%. Theme D had an 18% frequency, and the lowest occurring theme was Theme with C 2%.

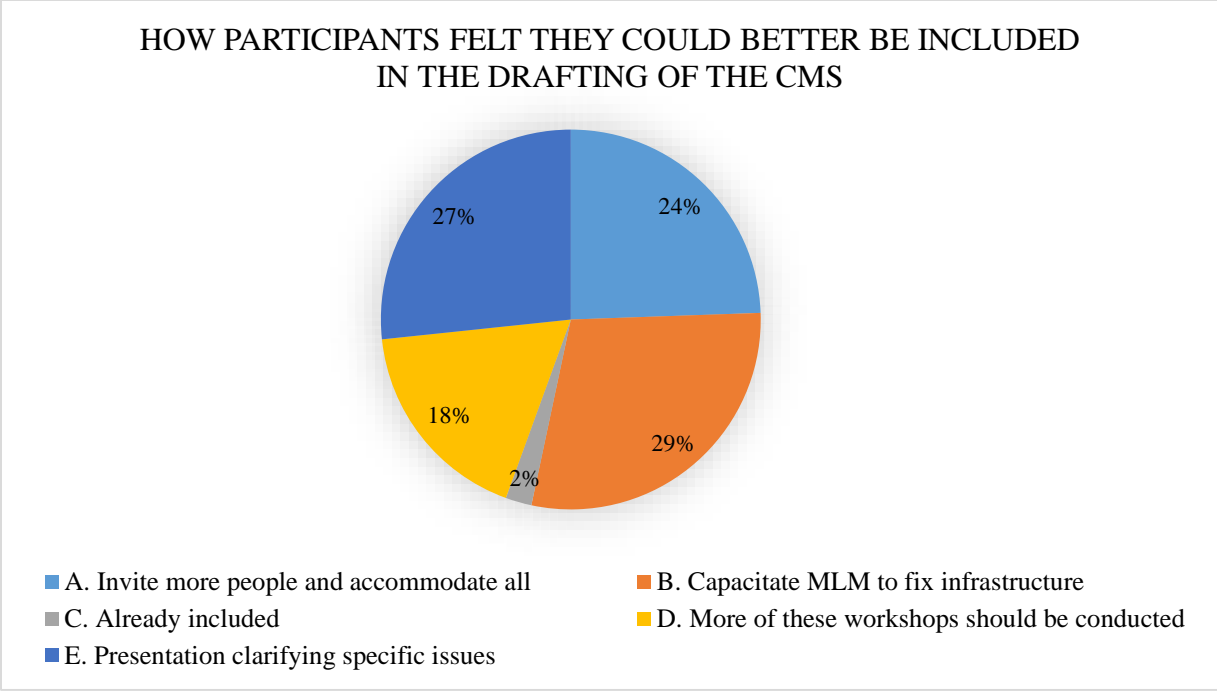


Figure 53: Proportions of themes in response to how participants felt they could be better included in drafting of the Catchment Management Strategy (CMS).

Most participants under theme A reflected that they would invite more people and accommodate them, particularly more social participants and other nationalities. Participant 12 wrote, *“It’s still good at the moment but what motivates me is to have more social participants and all nations represented”*. Some participants felt that, as committee leaders, they had to be involved so that they could go back to their communities and spread the word. Some participants felt that teachers, schools, councillors, heads of departments and many relevant stakeholders should be brought in to also share their views.

Under Theme B, participants advised that MLM be capacitated to fix infrastructure; for example, participants suggested that Rhodes University probably had people who could teach the municipality how to carry out some of the tasks, so improving their response rate by giving them some strategic plans for the system of fixing the problems. Participant 2 wrote, *“At Rhodes University, there are people who are very clear about this topic to teach the people in the MLM because they are failing us, know nothing about their jobs”*. Participants also suggested that the MLM could prioritise the issues of sanitation and infrastructure by separating the drinking water

from the wastewater so that when there was drought enough water could remain to drink. Participants pointed out that the municipality could hire more staff to fix leaking pipes.

Participants’ reflections under Theme C indicated that they felt included already.

More people could also be included through more workshops (Theme D) where they could get the opportunity to raise their views, and a scoreboard kept in order to seek progress because maintenance is key.

Under Theme E, participants believed that everyone could be accommodated through a presentation to clarify specific issues, like a study diagram indicating how the components of a water and sewer system work together, or how the catchments around Makhanda yield water and how the city pollutes water for downstream users. Another factor that participants felt could be clarified was the role of PBO/NGOs, political structure and forums in the municipality, and possibly holding workshops on treating water.

The stakeholder distribution between and within each theme is represented in Figure 54 below.

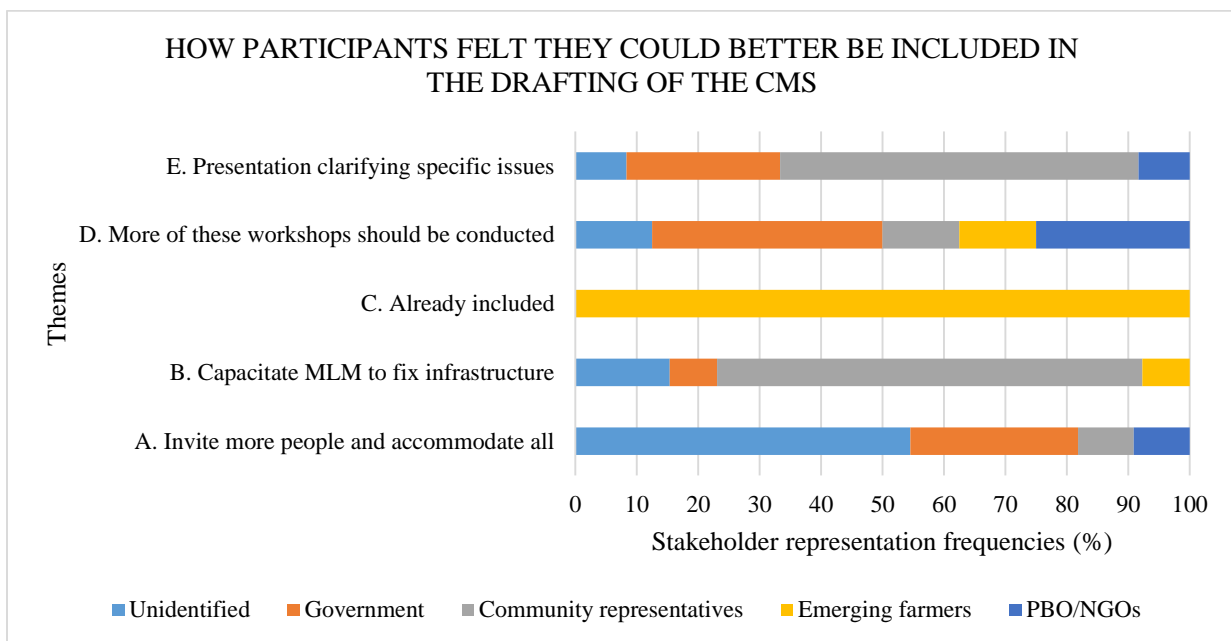


Figure 54: Distribution of stakeholder groupings under how participants felt they could better be included in the drafting of the Catchment Management Strategy (CMS).

All stakeholder groupings were represented under Theme D, suggesting that more workshops need to be conducted, coupled with implementation of what was decided on in the workshops. Themes A, B, and E each had four stakeholder groupings represented, while only one stakeholder grouping appeared under Theme C. Community representatives dominated Theme B, but had no representation under Theme C, which is interesting because even though the groupings previously acknowledged the process for being inclusive, the results show that service delivery has an impact on the extent to which stakeholders are willing to participate in the APP. The graph also shows an interesting trend where each stakeholder grouping is represented under at least three themes. Community representatives also dominated under Theme D (58%), with Government at 25%, followed by Unidentified group and PBO/NGOs at 8% each.

Theme A was dominated by the Unidentified stakeholder group at 55%, followed by Government at 27%, and Community representatives and PBO/NGOs following equally at 9% each. Community representatives occupied most of Theme B at 69%, with Unidentified group at 15%; the least represented groups were Government and Emerging farmers at 8%. Emerging farmers at 100% of Theme C were the only stakeholder group who explicitly stated that they were already included without giving suggestions for improvement. Government dominated theme D at 37.5%, followed closely by PBO/NGOs at 25%, and the Unidentified group, Community representatives and Emerging farmers were each at 12.5%.

Question 6: Is the facilitation giving equal opportunities to all who to participate?

Participants were asked to reflect on whether they felt the facilitation gave equal opportunity for all stakeholders to participate. One of the contributing factors to epistemic injustices in engagement spaces such as the APP is facilitation that only accommodates a few people in the room. Once facilitation makes the mistake of excluding other participants, the engagement process no longer serves the purpose for which it was enacted in the first place. Participants were given the options of A. Yes and B. No. Of the 41 responses to the question, option A had a frequency of 40 (97.6%), while option B occurred only once in participant reflections (*refer to Figure 55 below*).

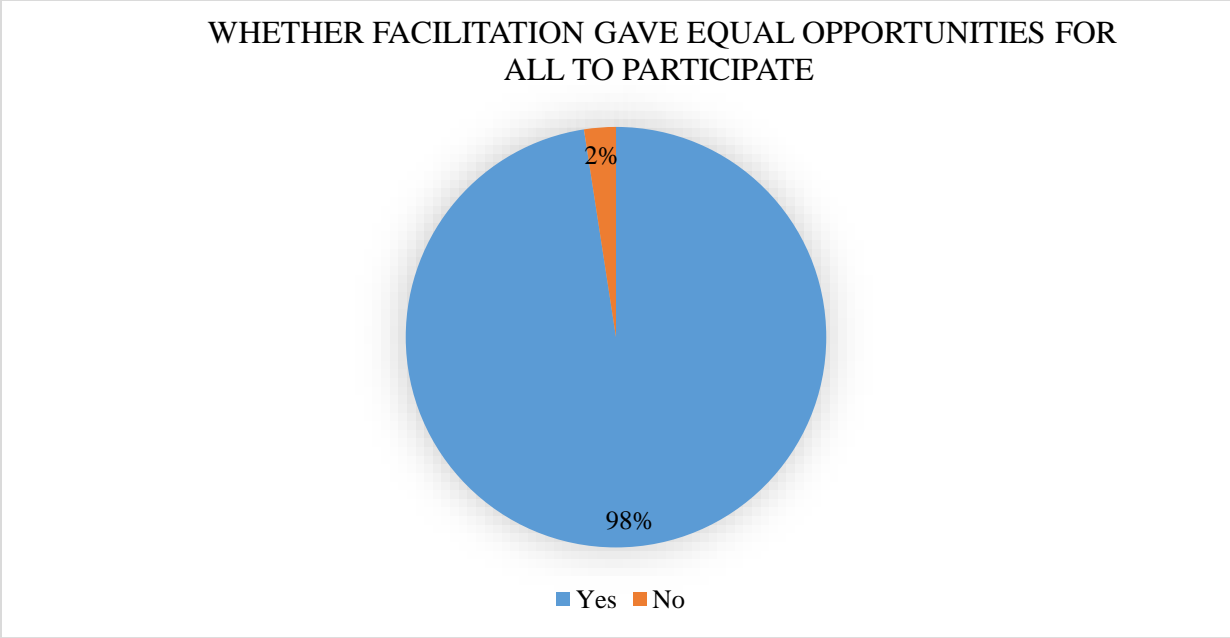


Figure 55: Proportions of themes under whether facilitation gave equal opportunities for all to participate.

Almost all the participants simply responded ‘yes’ to the question, while two members added that they were given equal opportunity to participate, but the mode of communication need to be improved. All the stakeholder groups were represented under the option.

Theme B appeared only once and the reason the participant felt that participation was not providing equal opportunity was that most community members were not educated, which also applied to the issue of communication mode. The only stakeholder grouping that was represented here was Community representatives.

Question 7: Do you feel as though your contribution is being taken seriously in the discussion?

The question prompted participants to reflect on how seriously they felt they were being taken as they gave their contributions into the proceedings, thus unpacking the question of participant inclusivity through the APP. The information was also intended to assist the facilitation team in improving the process. Participants were given two options: A. Yes, and B. No. Option A accounted for 95.1% of the responses, while option B was 4.9% (refer to Figure 56 below). Participants were also given the option of motivating their responses to explain what made them feel either taken seriously or not.

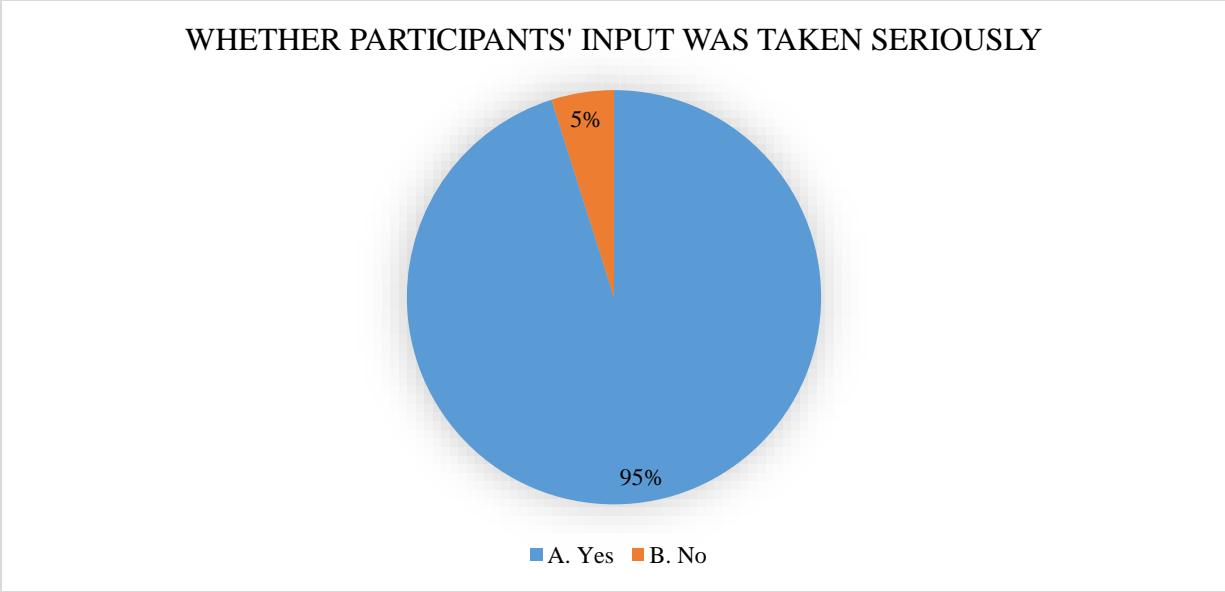


Figure 56: Proportions of participant responses under whether participants' input was taken seriously.

Under Theme A, the majority of participants responded 'yes'. Participants felt they could talk freely, and that other people listened to them, even if they needed clarification. Participants noted that the facilitator made time to explain whatever participants felt needed further explanation. Participants felt their views and ideas were captured in writing, which meant that the ideas were valuable and gave many hope that they would end up in the outcome. Other participants felt that everyone was freely participating, and participation by shy people was encouraged, as there was no wrong answer. Participation was also encouraged as participants could speak in a language of their choice. Other people were happy because they were getting useful information that they said they were going to pass on to their colleagues who did not attend. These reflections highlight, in particular, how the APP corrected different forms of epistemic injustice in the way it was facilitated. Testimonial injustice, for instance, was dealt with through the rule of no wrong answers because the APP is stakeholder-centred and everyone's knowledge is assumed to be credible. Hermeneutical injustice correction was evident as participants mentioned that they felt free to make contributions using the language of their choice, and when participants' views were all recorded, they felt they were able to participate effectively, free from epistemic discrimination and with epistemic credibility.

Under Theme B, participants reflected that they did not feel included because the workshop revolved around ideals instead of realities. Participant 10 wrote: “No, the workshop is all about ideals and not about realities. Realities about mismanagement, political interference, short-term notices, etc.”. Participant 21’s reflection provided another reason: they did not feel included because, in their experience, meetings like this one hardly influence change. “No - I don’t think so because all these workshops and meetings we talking the same things all over again nothing changed”.

Question 8: Please share any other feelings/ thoughts you might have regarding the water planning workshop in general?

The last reflective question asked participants to share any other ideas that they did not get to cover through the other reflections. Three themes emerged from participant reflections: A. Workshop was a useful learning experience; B. Include more people for learning; and, C. More workshops and more work on the ground needed (refer to Figure 57 below). Themes A and C were almost even at 42.1% and 44.7%, respectively. Theme B was the lowest occurring theme in participant reflections, but its appearance reinforces the important role this idea played throughout the general participant responses.

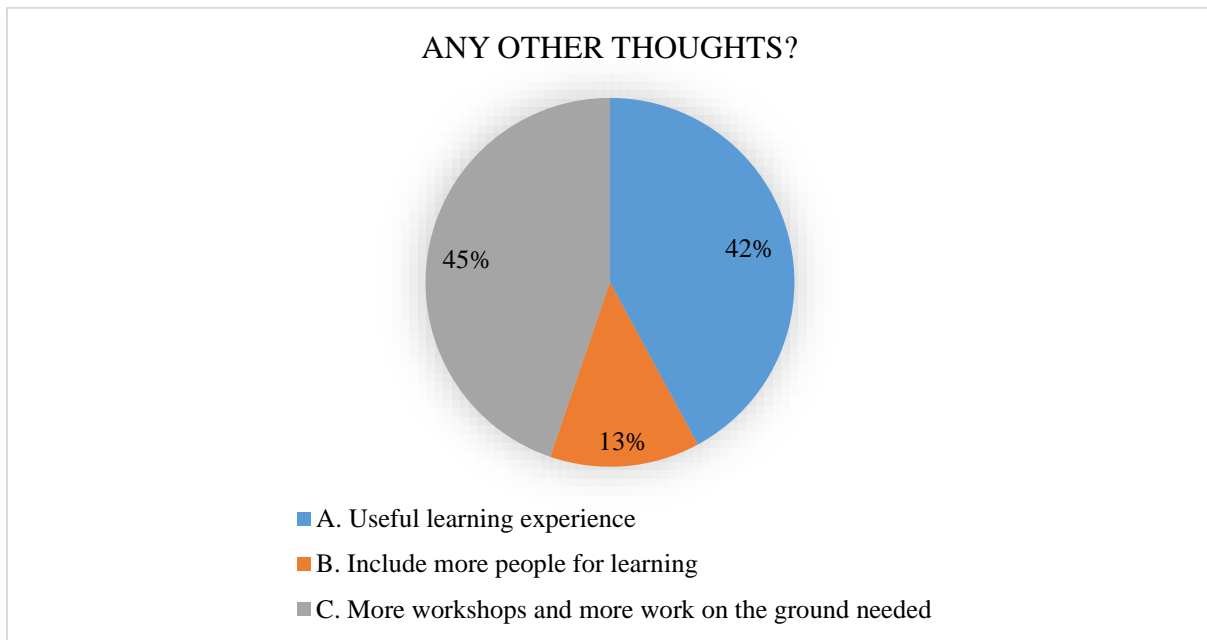


Figure 57: Theme proportions under participants’ general thoughts about the day’s work.

Under Theme A, participants felt the workshop was useful and that many more needed to be carried out in order to benefit more people. Participants thought the workshop was a good learning experience because it captured all the concerns that needed to go into the strategy. Participant 4 added that the process would be more useful if a scoreboard was kept to monitor progress of during the implementation of the CMS. One participant expressed the need to have more interpretation from English to isiXhosa. Other participants pointed out that more still needed to be done in terms of facing reality and talking about how polluted the city was, also in terms of the workshops influencing real change. Participant 21 wrote: *“As I have already said, these workshops are talk shows nothing has been done so far to address the crisis”*. One participant, during follow up interviews, expressed frustration over the process requiring that the facilitator went round the room asking everyone to speak. The participant said that made them uncomfortable because sometimes they did not really have anything to say.

Under Theme B, people re-emphasised the issue of increasing representation because everybody deserves to learn from these workshops, especially people in rural areas. Increasing representation would make the message about ways to save water spread faster and might lead to stopping water wastage. Participants mentioned that APP was a good process ensure that a large proportion of the citizens in the catchment participated. *“We need more government departments e.g. agriculture, environment and local economic development”*, wrote Participant 37. One participant thought it would be nice for their team to be part of the workshop so they could share their experiences with everyone present.

Under Theme C, many issues regarding service delivery were raised, especially with regard to water quality and endless pipe leakages caused by dilapidated infrastructure. Participants emphasised the inclusion of more stakeholders. Participants felt positive that since the APP brought so many government officials, especially the municipality, maybe sustainable solutions would follow. Nevertheless, some participants expressed their lack of trust in participatory processes because the same things were discussed but nothing was done on the ground. Emerging farmers emphasised the issue of infrastructure in the form of dams for their crop and livestock production, and raised the issue that the MLM tends to neglect their areas when it came to service delivery.

Stakeholder representation under the themes ranged from four groupings to five within each theme and across themes (refer to Figure 58 below).

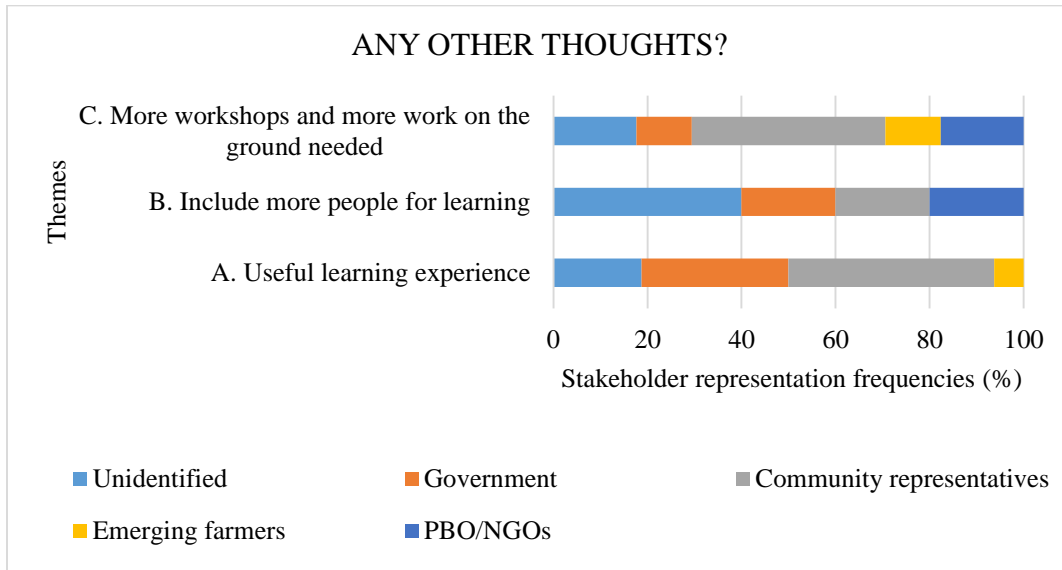


Figure 58: Distribution of stakeholder groupings under participants’ general thoughts about the day’s work.

Each stakeholder grouping was represented under at least two themes. Community representatives dominated Themes A and C, at 43.8% and 41.2%, respectively. The Unidentified group dominated Theme B (40%).

In this case, the results also indicated how poor service delivery played a significant role in influencing participants’ willingness to participate in the APP. Participants verbally expressed their frustration about being invited to events where issues of water were discussed, when they continued to stay without water over long periods. The issue of small groups was impressive to many and was commended on its ability to promote co-learning among the participants. However, time alteration did not yield positive feedback from the workshop; participants thought the time was too short for proper articulation of the full contents of the workshop. The point about time helped us to highlight some of the contradictions that tend prevail in the collaborative spaces, and need to be taken into consideration before engaging with such approaches. Time constraints constitute a serious challenge in an APP because people from different backgrounds and knowledge base are brought into a shared space, to work towards a joint picture. Some people take more time to assimilate information than others do, and if caution is not taken, there is danger of

moving forward with only a few people, while leaving many people behind, as seems to have happened during this workshop.

Workshop 2 highlighted the effects of the ‘muddled’ Water Law, which separates the resource from the services that are provided by the resource. We were reminded of how unaware some stakeholders were about their relationship with the resource, because to most, water comes from the tap, and the municipality has to make sure that water is available when residents open their taps. There was not much comment on how to take care of the resource so that it can sustain the services that it provides. This gap needs further investigation, but is beyond the scope of this research.

5.3. Overall Picture

The responses given by the Upper Kowie catchment representatives from Workshop 1 and Workshop 2 across all stakeholder groups were combined to provide an overall picture of the development of their local CMS. The stakeholder composition of the two workshops was different, and bringing the two workshops together through the comparable reflective questions used during both workshops (*refer to Table 6 below*), results in a clear picture of all the stakeholder groups who participated and their understanding of and response to the local CMS development process. The total number of stakeholders was as follows:

Table 6: Participants composition for the overall picture

Stakeholder groups	Number of representatives
Government	22
Education	7
Residents	3
PBO/NGOs	10
Commercial farmers	2
Community representatives	16
Emerging farmers	3

Unidentified	10
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5.3.1. Participant learning and understanding of concepts

The overall picture covered two questions under participants’ understanding of relevant concepts and learning: firstly, an explanation of the APP; and, secondly, how participants’ goals changed as they engaged with the APP. Participants showed a good understanding of the APP in their they explanation of what it was. Learning about and getting a better understanding of what the APP was influenced how participants’ goals and expectations changed. There was room for improvement in terms of making an important aspect about the APP more accessible to a wider audience – planning under changing and uncertain circumstances.

1. Participants’ understanding of the Adaptive Planning Process

Participants across both workshops were asked to reflect on what their understanding of the APP was after it had been briefly explained to them and they had engaged with some parts of it. The following are the combined themes from participants’ reflective responses: A. Collaborative and inclusive process; B. Lays foundation to set future objectives; C. Planning in changing circumstances; and, D. Sustainable management (*refer to Figure 59 below*). Overall, the best understood features of the APP were that it laid a foundation to set future objectives (45.8%), and that it was collaborative and inclusive (40.7%), respectively.

EXPLANATION OF APP AFTER ENGAGEMENT

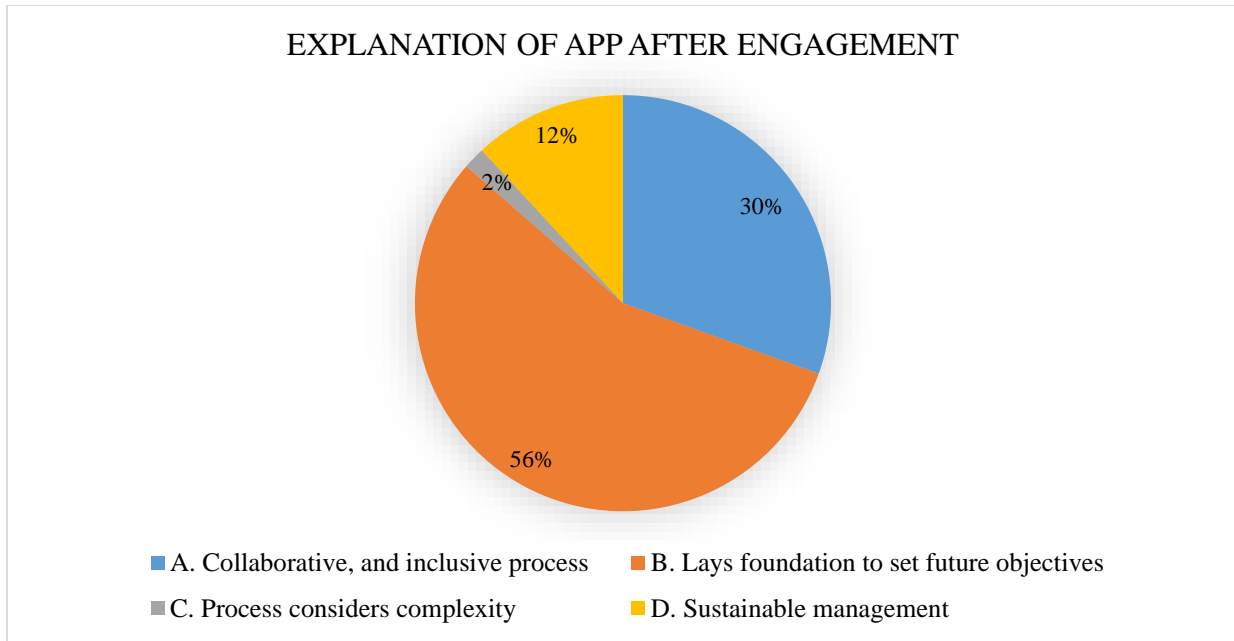


Figure 59: Overall representation of the themes that occurred under participants' explanation of Adaptive Planning Process after engagement.

Themes A and B occurred in both workshops, while Themes C and D occurred in Workshops 1 and 2, respectively. The occurrence of Themes C and D in different workshops, when both were accurate could be due to difference in stakeholder interests, because the workshops had different in stakeholder compositions. Theme A was more prominent than other themes in Workshop 2, while Theme B was important for participants in Workshop 1. Theme C occurred only once in participant reflections, and shows a major gap in understanding across stakeholder groups.

The stakeholder representation under the themes provided a clearer picture of how the different stakeholders were represented under the different themes (*refer to Figure 60 below*).

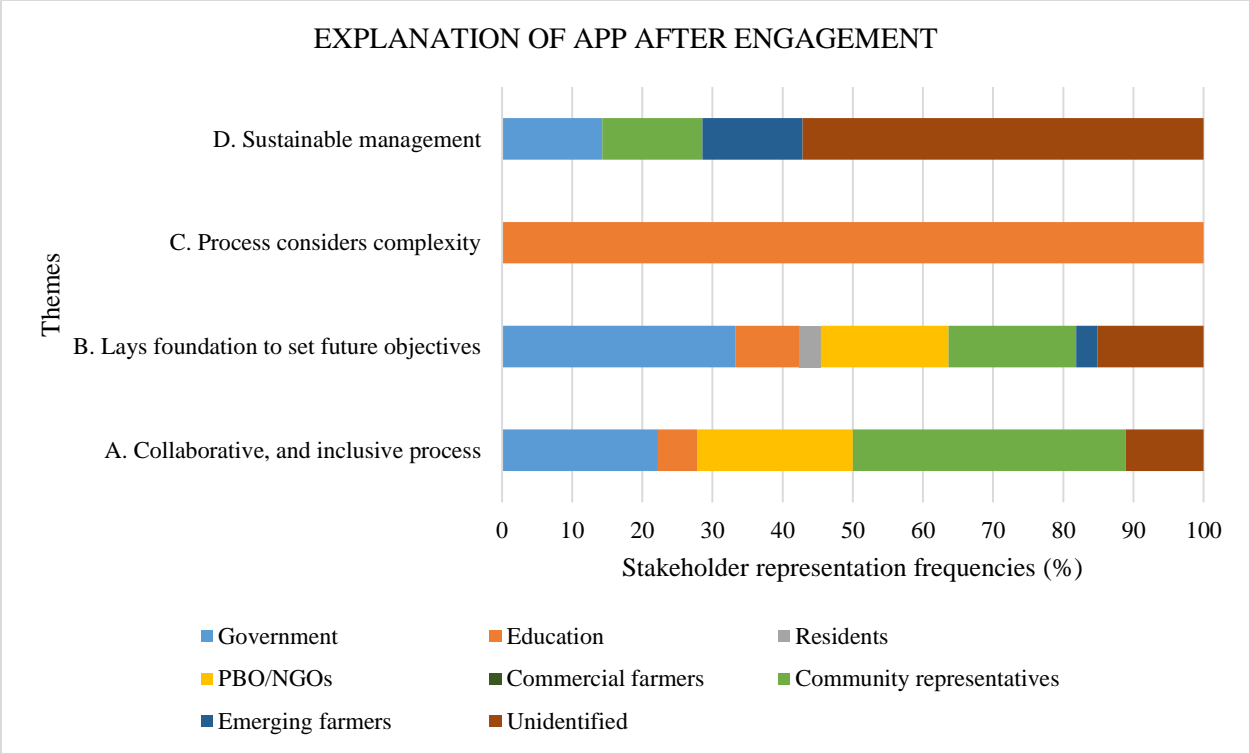


Figure 60: Overall distribution of stakeholder groupings under participants’ explanation of Adaptive Planning Process (APP) after engagement.

There are several trends worth noting: Theme C, which focused on the APP’s ability to plan in changing circumstances, had only one stakeholder grouping represented under it, while the other themes had at least four groupings. Unsurprisingly, Education was the only grouping represented under Theme C because complexity is a commonly used concept in their field. Commercial farmers are not represented under any of the themes because they only attended Day 1 of Workshop 1, and the question only came on Day 2. It is interesting that the issue of APP’s inclusiveness did not stand as part of its explanation for Emerging farmers, even though represented under themes in other questions acknowledging the APP’s inclusiveness. Community representatives accounted for the highest portion of Theme A, while Government dominated Theme B. Community representatives could have found this particular feature about the APP interesting because they are seldom invited to planning workshops where their contribution of knowledge is considered equal to that of other stakeholders such as government officials and the other professionals. They are usually invited to training workshops, where professionals come with knowledge, and participants are expected to listen and learn, without contributing much.

2. Participants' goals for the meeting/workshop

Participants were asked to reflect on what their goals or purposes for attending the meeting were. These reflections help both to track participant satisfaction, and test participants' learning experience in the process through tracking how participants' goals evolved as they engaged with the APP. Details about both aspects are presented in this section, but are also be referred to under assessment of the process.

The first question (what were your goals for today' engagement?) prompted participants to think about what their initial goals and expectation were about the APP; that is, upon receiving the invitation, what was the one incentive that encouraged them to commit to attending. Participants goals included: A. Collaboratively come up with solutions; B. Interact with different people; C. Evaluate the usefulness of the workshop; and, D. Learn and share information (*refer to Figure 61 below*). The obvious trend on the graph is that of the 68 responses to the question, Theme D had the highest occurrence in participant reflections, making up 56% of the overall frequency of responses. There was no significant difference in the occurrence rates of Themes A, B and C, and they occupied the remaining percentage of the overall frequency.

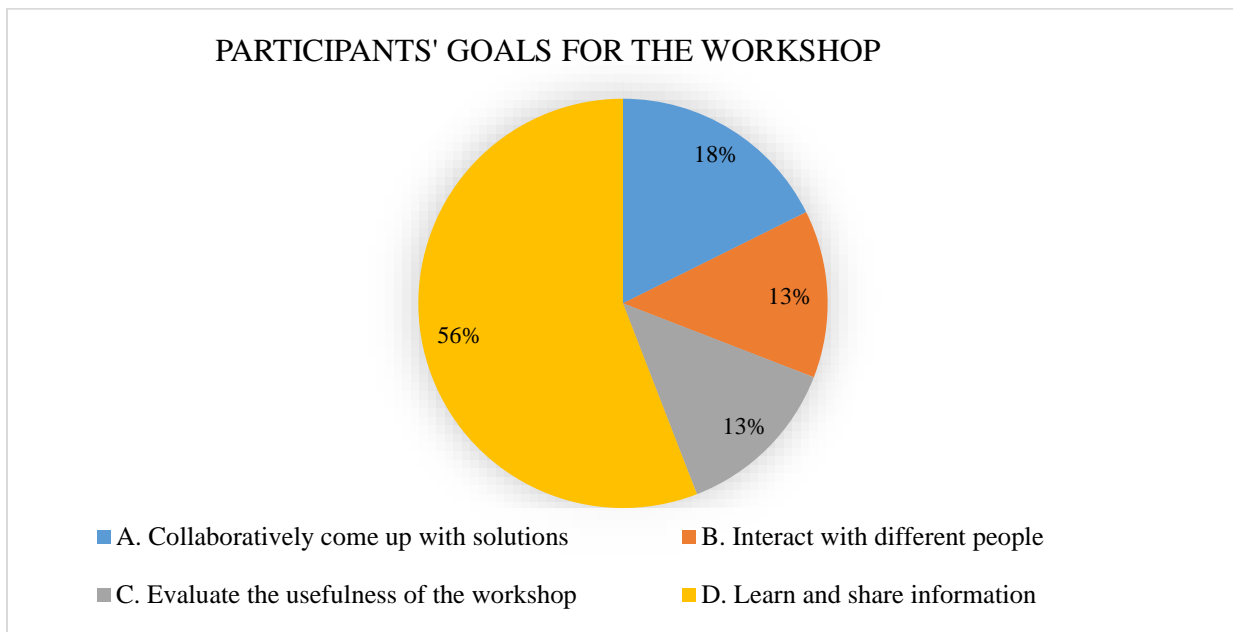


Figure 61: Overall representation of the proportions of themes under participants' goals for the workshop.

The themes show participants' understanding of the concepts. Themes A and B can be combined to relate the stakeholder-centredness of the APP, while Theme C and D relate to APP's learning orientation. Theme A dominated in Workshop 1, while Theme D had the lowest frequency. In contrast, Theme D had the highest frequency in Workshop, while the other themes together only occupied 35% of the responses. The high occurrence of Theme (collaborately come up with solutions) in Workshop 1 can be attributed to the fact that many participants in Workshop 1 came from professional backgrounds, and came to the workshop with preconceived ideas of what a strategic planning would entail. Workshop 2 on the other hand consisted mainly of historically disadvantaged community members; they usually get invitations to similar settings to be given information, without necessarily being asked for much input. There is evidence of inequality under this question.

Figure 62 below indicates the stakeholder groupings within the total frequencies of the occurring themes.



Figure 62: Overall distribution of stakeholder groupings under participants' goals for the workshop.

There were at least four stakeholder groupings of the eight stakeholder groupings under each theme. Government, Community representatives, and PBO/NGOs were represented under all the four occurring themes in the question, with Government being strongly represented under all of them.

2A: Whether participants' goals changed

To test for participants' learning, the second part of the question asked participants to reflect on how their goals evolved as they engaged in the APP. Figure 63 below shows the three themes emerging from participant reflections across both workshops: A. Goals met; B. Goals changed; and, C. Goals not changed.

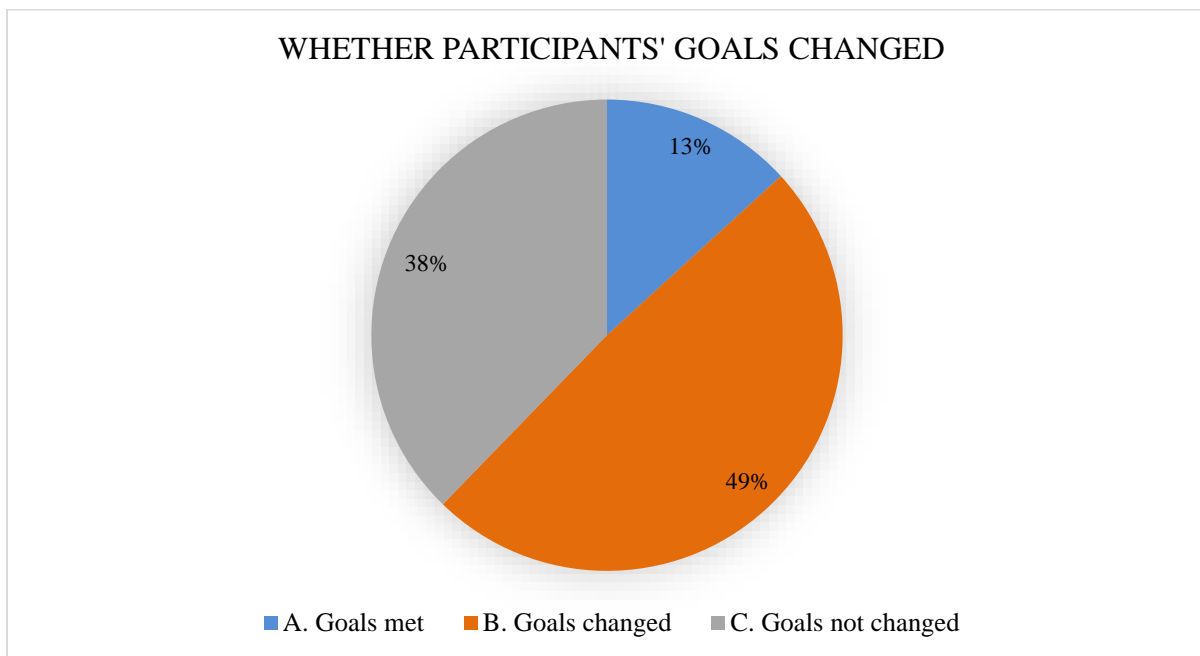


Figure 63: Representation of overall proportions of themes under whether participants' goals had changed.

Initially, the assumption was that goals met would be a sign of participant satisfaction, changed goals a sign of learning, while goals not changed would mean no learning. The assumption was accurate to a certain extent because under goals met, participants were satisfied that the process met some of their goals, which include; interacting with people from other organisations, learning about the catchment, and contributing towards solutions. In addition, participants' goals changed because of learning from the APP. For instance, Participant 9's goals changed from wanting to be

just an observer, to wanting to participate, while engaging with the APP changed how other stakeholders thought about water conservation. Co-learning also occurred as one participant confirmed that their goals expanded as they listened to other stakeholders speak in the APP. However, the hypothesis was not completely accurate because learning was the reason why many participants' goals did not change. For instance, some people's goals did not change because the process was in line with their vision for the catchment.

The results show that goals did or did not change as participants interacted with the process and understood better what the matter at hand was. Some participants' goals were met, other participants' goals changed as more was said and done. Some participants' goals remained unchanged, and as explained in their reflective responses, either because participants felt that issues would be dealt with later in the process, or participants' goals were aligned with the matter at hand.

Many participants' goals seemed to have changed, and Community representatives dominated the theme (Theme B) (*refer to Figure 64 below*). All other groups seemed to be represented under at least two themes, except for Emerging farmers who were only represented under Theme A. Commercial farmers said what their goals were in only the first part of the question, but not represented under how their goals progressed.

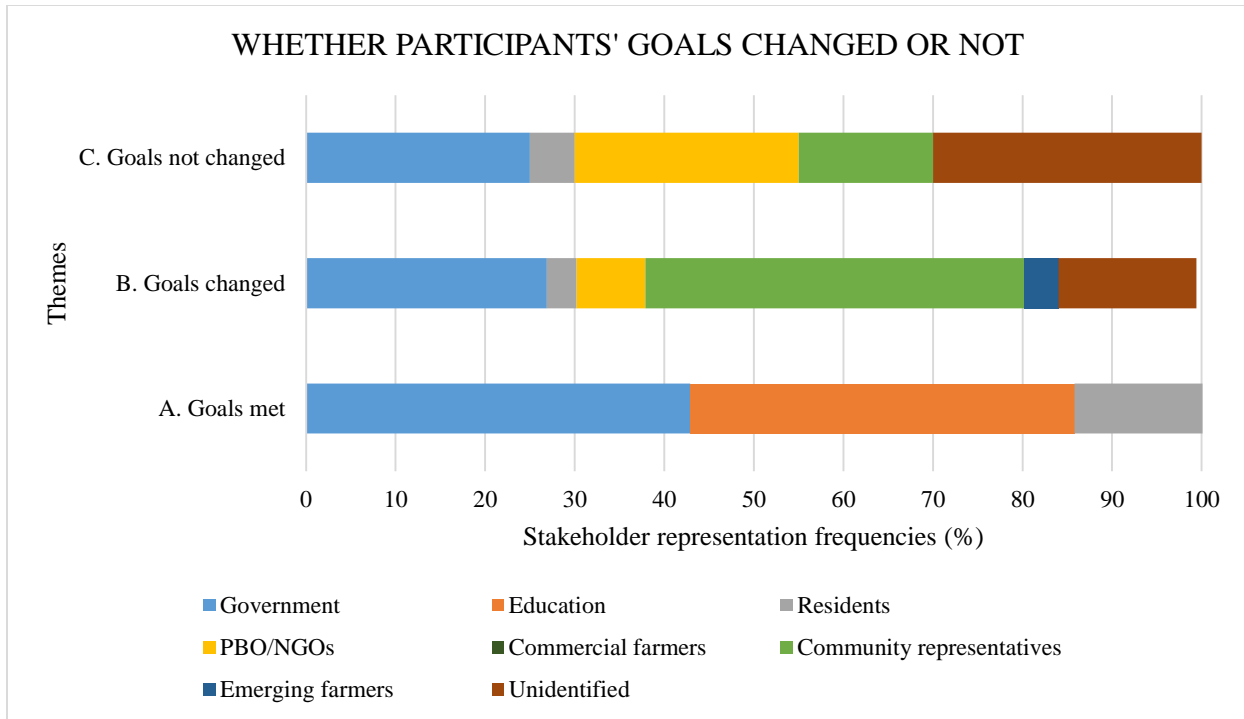


Figure 64: Distribution of stakeholder groupings across themes under whether participants' goals changed.

5.3.2. Participants' assessment of the process

Questions on assessment of the process were: what was most satisfying to participants about the day's work; and, what participants would change if they were given the opportunity to start the process from scratch. Themes emerged across both workshops that expressed positive attitudes and some suggestions for improving the APP. When the workshops were combined, the positive comments outweighed the number of limitations brought up by participants. Community representatives showed the highest prominence under the positive themes, while Government and PBO/NGOs were most prominent under the more critical themes. Commercial farmers, on the other hand, were only represented under themes that indicated dissatisfaction such as time allocation and not being satisfied yet. Emerging farmers were evenly distributed across the different themes.

3. Participant satisfaction

Participants reflected on what they found to be most satisfying about the day's work. Interestingly, the following themes all emerged in both workshop reflections: A. Process is inclusive of a wide range of stakeholders; B. Lessons from the first presentation; and, C. Not yet satisfied (*refer to*

Figure 65 below). Theme A showed the highest prominence, accounting for 57.7% of the total frequency of responses. Theme B had a 36.6% occurrence, while Theme C was quite low at 5.6%.

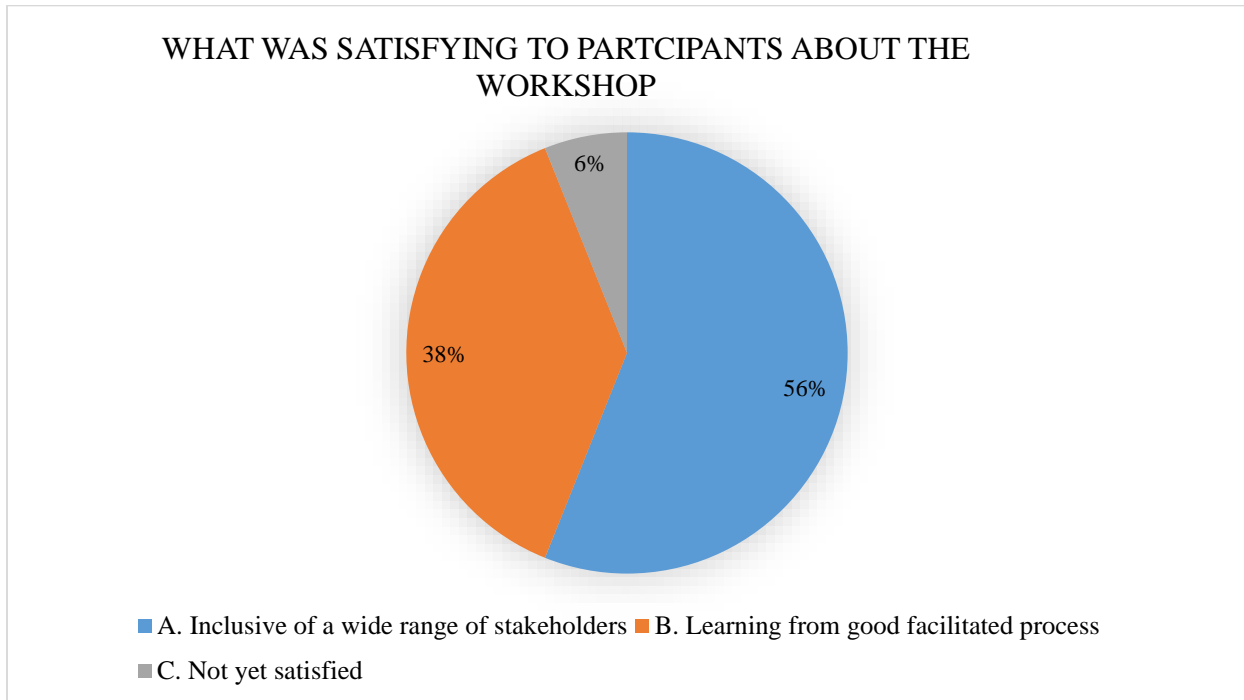


Figure 65: Representation of overall theme proportions under what was most satisfying to participants about the workshop.

There was an interesting trend between participant goals and participant satisfaction; the aspects under participant satisfactions aligned with the themes under participants' goals. For instance, participants' goal to collaboratively come up with solutions, and their goal to interact with different stakeholders, can be associated with Theme A - where participants were satisfied by the APP being inclusive of a wide range of stakeholders. Theme B also aligns with participants' goals to observe the process to learn how it can be applied for other purposes, and to learn from the process and share the information with others. This shows that the themes were made quite clear in both workshops, and that APP was doing something right for the stakeholders, which could contribute to sustainability in the implementation of the strategy if it was to be approved.

Figure 66 below shows how different stakeholder groupings were represented under each theme.

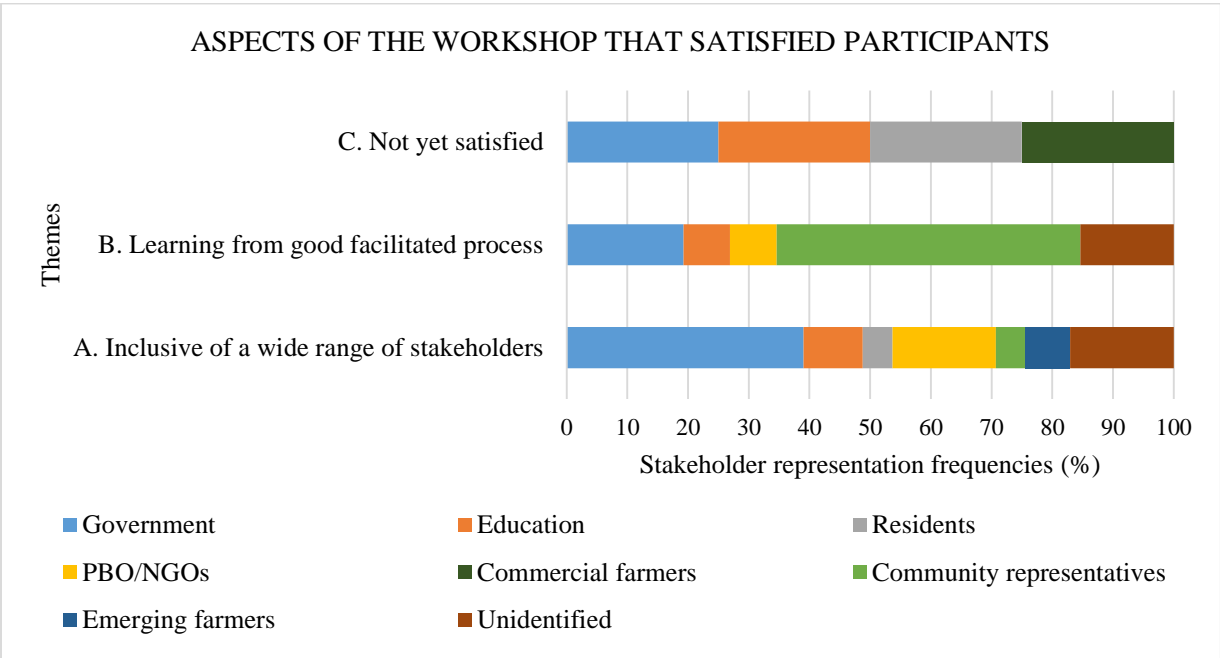


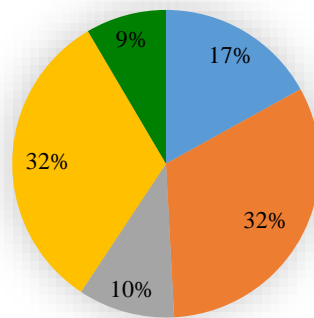
Figure 66: Overall distribution of stakeholder grouping across the themes which emerged under what was most satisfying to participants about the workshop.

All the stakeholder groups responded to the question. Government and Education are represented under all the themes, while farmer groupings were represented under one theme each. It is interesting that Emerging farmers are represented under the theme of the inclusiveness of the process because they have been previously excluded from decision-making processes. Another important trend here is that Emerging farmers, who are usually excluded from decision-making platforms, commented on the aspect of inclusivity.

4. Aspects of the workshop that needed modification

Participants were asked to reflect on the workshop thus far, and mention some of the aspects of the workshop that they would do differently if they could start all over again. The themes that came up across both workshops were: A. Manage and save time; B. Increase representation; and, C. Nothing (refer to Figure 67 below).

WHAT PARTICIPANTS COULD CHANGE IF THEY WERE TO START THE MEETING ALL OVER



- A. Time considerations
- B. lack of representation and lack of engagement between participants
- C. Clarify discussion towards solutions
- D. Nothing
- E. Capacitate MLM

Figure 67: Representation of overall theme proportions under what participants could change if they could start the meeting all over again.

Under the reflective question, the new graph produced different results from the results of the two workshops when separated, possibly because while in Workshop 1 the most important aspect the responses reflected was managing and saving time, in Workshop 2, increasing representation was of greater importance.

There was a contradiction however: members from Workshop 1, which took place over two consecutive days, advised that two days was too long for stakeholders to be available, while Workshop 2 members felt there was not enough time to satisfactorily develop the strategy over the single day of the second workshop.

All the stakeholder groupings are represented under more than one theme, which shows that there was a high response rate to the question (*refer to Figure 68 below*).

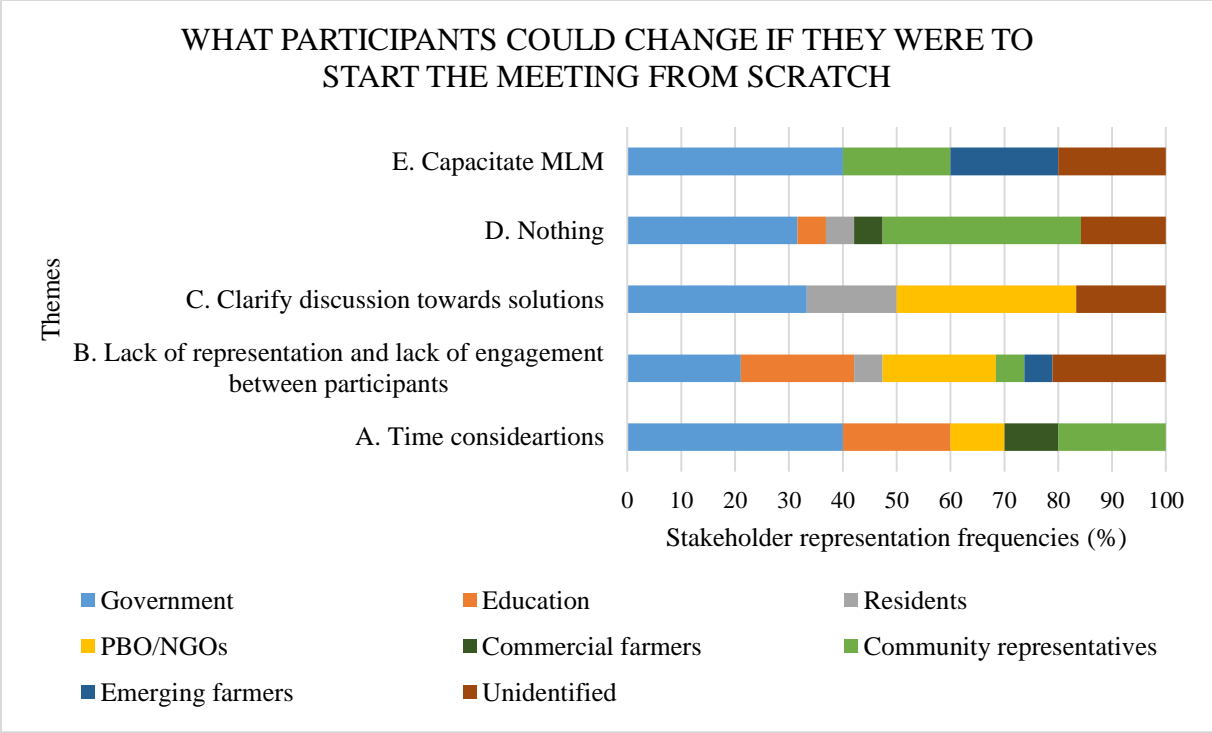


Figure 68: Overall distribution of stakeholder groupings under what participants could change if they had a chance to start the meeting all over again.

In the overall picture, Theme B (lack of representation; lack of engagement between participants) was more prominent than the other two themes in participant reflections, and all stakeholder groups were represented except Commercial farmers. The second highest occurring theme was C, where Government and Community representatives were equally represented with the highest number under the theme. Theme A had the lowest number of appearances in participant reflections, and the theme was dominated by the Government stakeholder group (40%).

5.3.3. Process inclusivity

The questions under process inclusivity were: whether participants felt their contributions were being taken seriously; how participants could be better included; and, participants’ experience of inclusive facilitation. There was confidence among participants about the APP’s inclusivity of diverse perspectives. Improvement of stakeholder representation and focus of discussion were mentioned here as means to improve the APP’s inclusivity. An interesting theme emerged under these questions in relation to capacitating MLM to fix infrastructure because it highlighted the significance of service delivery in influencing participants’ willingness to participate in the APP.

The PBO/NGOs stakeholder group seemed to appear mostly under the themes that were critical towards the APP's inclusivity, while the other stakeholder groups were more confident. The reason for PBO/NGOs being critical could possibly be because of their regular interaction with participatory processes and/or their activist sensitivities, which align with their organisations.

5. Participants' perception of the level of respect for their knowledge

Participants were asked to reflect on whether they felt as though their opinions were taken seriously. The question prompted participants to think about whether the way the workshop was conducted in a way that made them feel that their opinions or not. Participants were given the following options, A. Yes, and B. No, and space provided to justify their choice. Participants were overwhelmingly positive across both workshops (*refer to Figure 69 below*). All the stakeholder groups were represented under option A, while only Government and PBO/NGOs were represented under option B, with PBO/NGOs dominating the Theme B (75%), and Government with 25% (*refer to Appendix 2*).

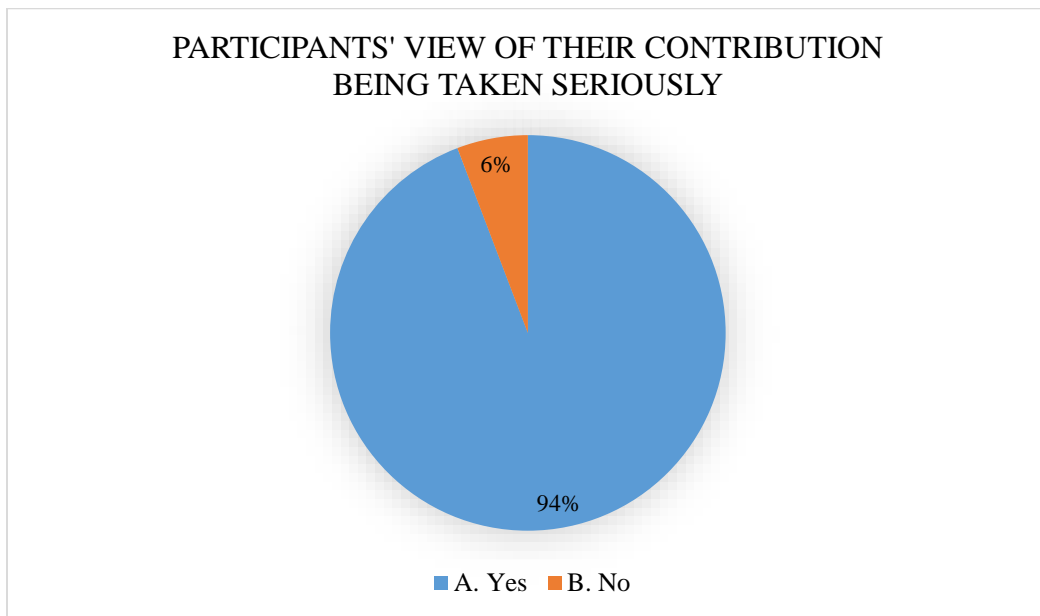


Figure 69: Representation of overall proportions of stakeholder responses under participants' view of whether their contribution was taken seriously.

Participants who responded positively across both workshops wrote that they felt as though they were being taken seriously because everybody's opinion was listened to, and recorded on a big chart where they could see. Participants added that, where necessary, participants' points were

discussed further. Participants pointed out that they got information that they could pass to other people who could not attend.

Participants from both workshops who responded negatively expressed their frustration over the limited opportunity that was provided to participants to contribute.

6. Ways that participants could be better included going forward

Participants were asked to mention the ways in which they would feel more included in the development and drafting of the strategy. A range of themes emerged from the participants' reflective responses across the two workshops: A. Get information about other meetings; B. Include more stakeholders and increase interaction among stakeholders; C. Give clear focus of discussion; D. Capacitate Makana Local Municipality (MLM) to repair infrastructure; and, E. Already included (*refer to Figure 70 below*).

Theme A occurred the highest number of times (28%) in participant reflections, while Themes B, C and D were almost even at 22%, 24%, and 19%, respectively.

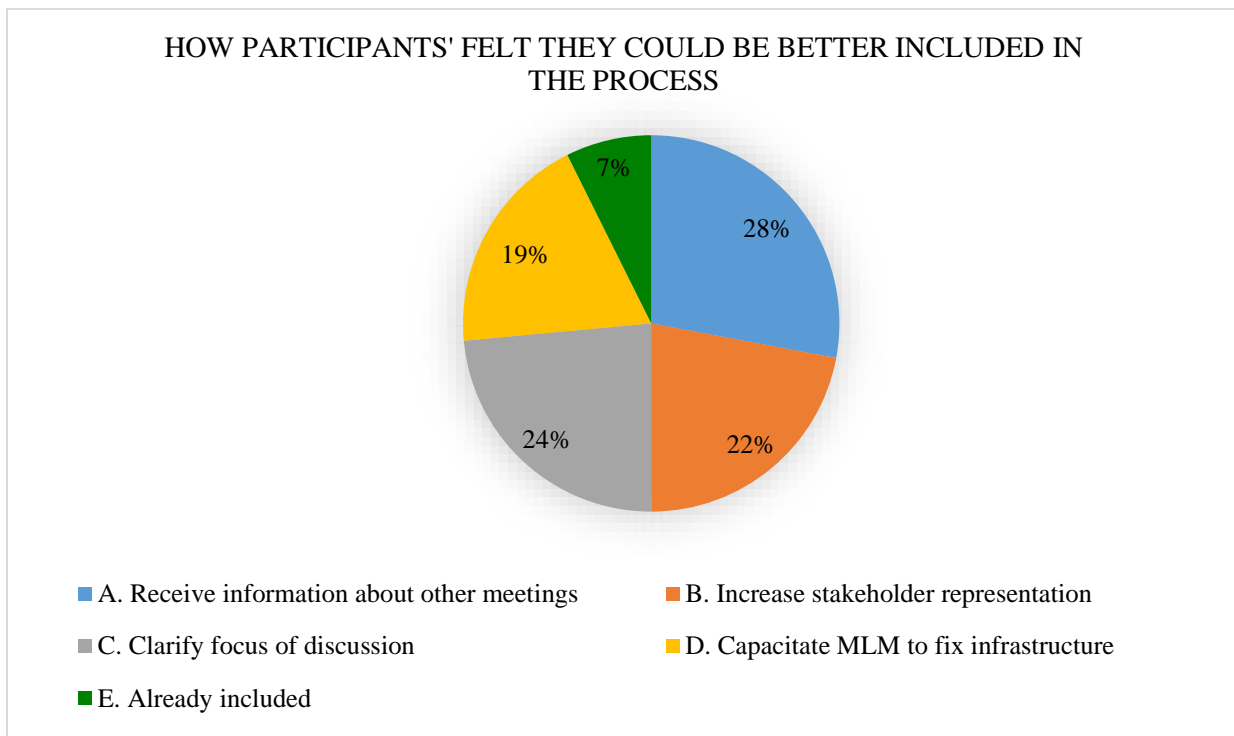


Figure 70: Representation of overall prominences of themes under how participants felt they could better be included in the drafting of the Catchment Management Strategy (CMS).

Under theme A, participants felt they could better be included through invitations to more workshops of similar structure, being let to comment on drafts, and have their organisations acknowledged for their participation. Under Theme B, participants pointed out that they could better be included if more people were encouraged to attend the workshop, especially social groups; increasing interaction among them, and accommodating their values, and respecting their views. In Theme C, a clearer discussion focus, mainly towards finding solutions could enable participants feel better included. Under Themes D, participants made a suggestion that MLM asked Rhodes University for assistance to fix the infrastructure. Participants felt already included under Theme E.

Stakeholder distributions in the themes can be seen in Figure 71 below.

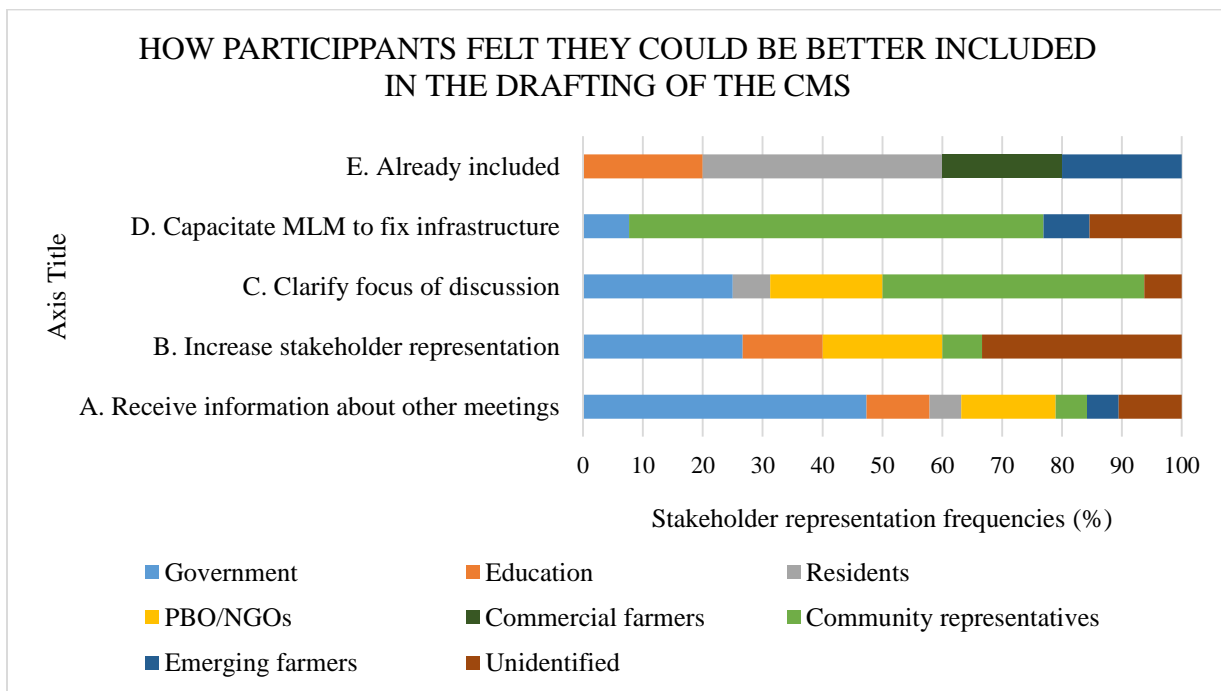


Figure 71: Overall distribution of stakeholder groupings under how participants felt they could better be included in the drafting of the Catchment Management Strategy (CMS).

Given history of Makhanda (Chapter 3), the way Community representatives dominated Theme D was quite interesting because the stakeholder grouping mainly consisted of stakeholders from Makhanda East. Another interesting trend on the graph is that Education is not represented under themes C and D, which could be a sign of the disparities that exist between this stakeholder group and the other stakeholders.

7. Participants' feeling about facilitation's inclusivity

Participants reflected on whether they felt as though the facilitation during the workshops was giving equal opportunity for all to participate. Making sure that everyone participates is one of the traits of the APP, and it was important for participants to comment on how they felt. Participants were given two options: A. Yes, and B. No (*refer to Figure 72 below*). Space was provided for participants to justify their responses. Option A had the highest number of appearances in participant reflections, occurring 62 times (97%). Option B occurred five times in participant reflections (3%). All the stakeholder groups across both workshops had representation under option A, while three groups were represented under B, and they were, Education, Resident and PBO/NGOs.

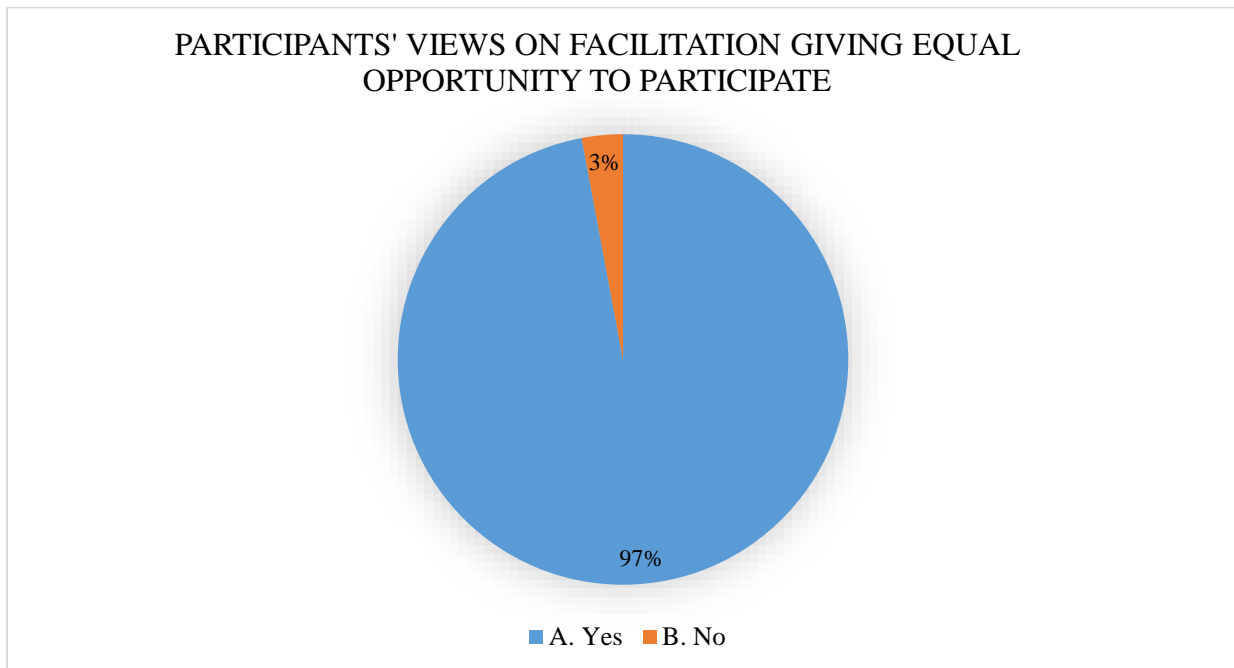


Figure 72: A representation of overall proportions of participant responses under whether facilitation was giving equal opportunity for all to participate.

In Workshop 1, participants responded negatively to the question because they felt there was little engagement among stakeholders. Many suggestions in the participants' reflections in Workshop 1 were incorporated into Workshop 2, such as the suggestions that participants should be given more time to speak, and that could be done through small group engagements.

4.3.4 General Remarks

8. Participants' final remarks on the workshop

Participants were asked to give any final thoughts about the workshop and four themes emerged across both workshops: A. Workshop was useful and a good learning experience; B. Increase representation; C. Time allocations; and, D. More needs to be done (refer to Figure 73 below).

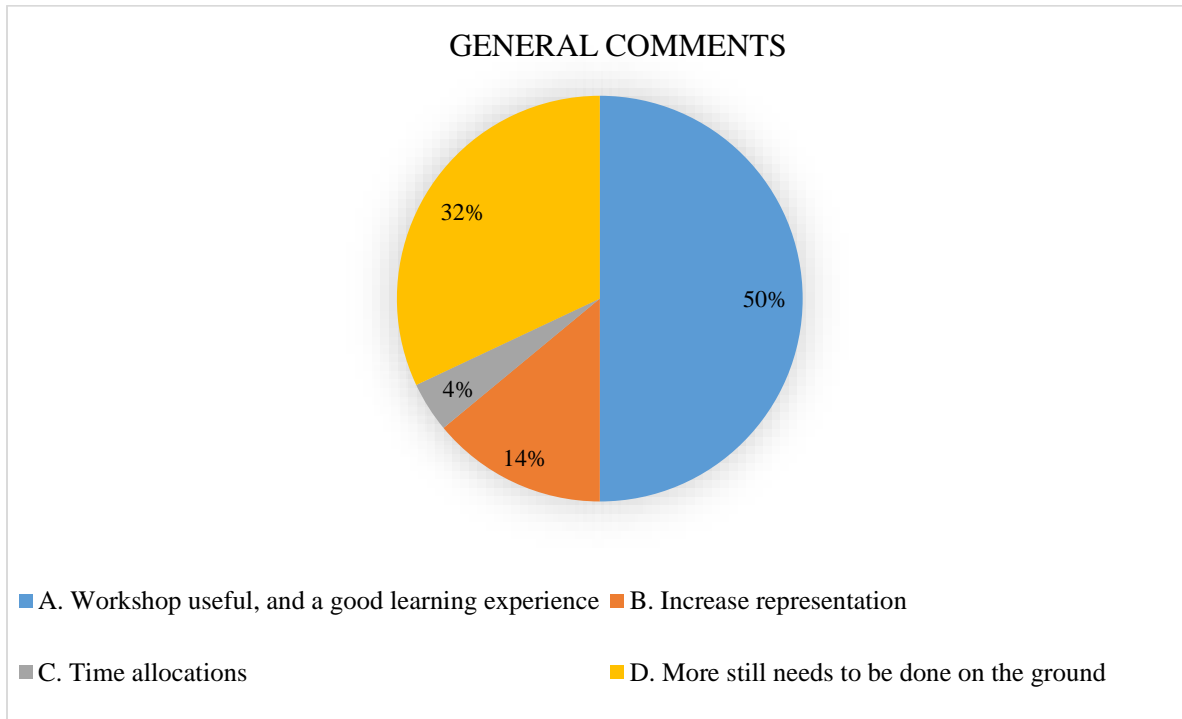


Figure 73: Representation of overall proportions of themes under participants' general comments about the day's work.

While Themes A and B both came in the Workshops 1 and 2; Theme C only came up in Workshop 1, and Theme D occurred in Workshop 2. Theme A occurred in both workshops, but in workshop 1, participants expanded the point to comment on good facilitation. Theme A had the highest prominence (50%) across the workshops, and Government was most strongly represented. Theme D (32%) was the second highest occurring theme, with Community representative having the highest representation. Emerging farmers are only represented under theme D, Residents under only C, and Education under B and C.

The stakeholder distribution across the themes can be seen in Figure 74 below.

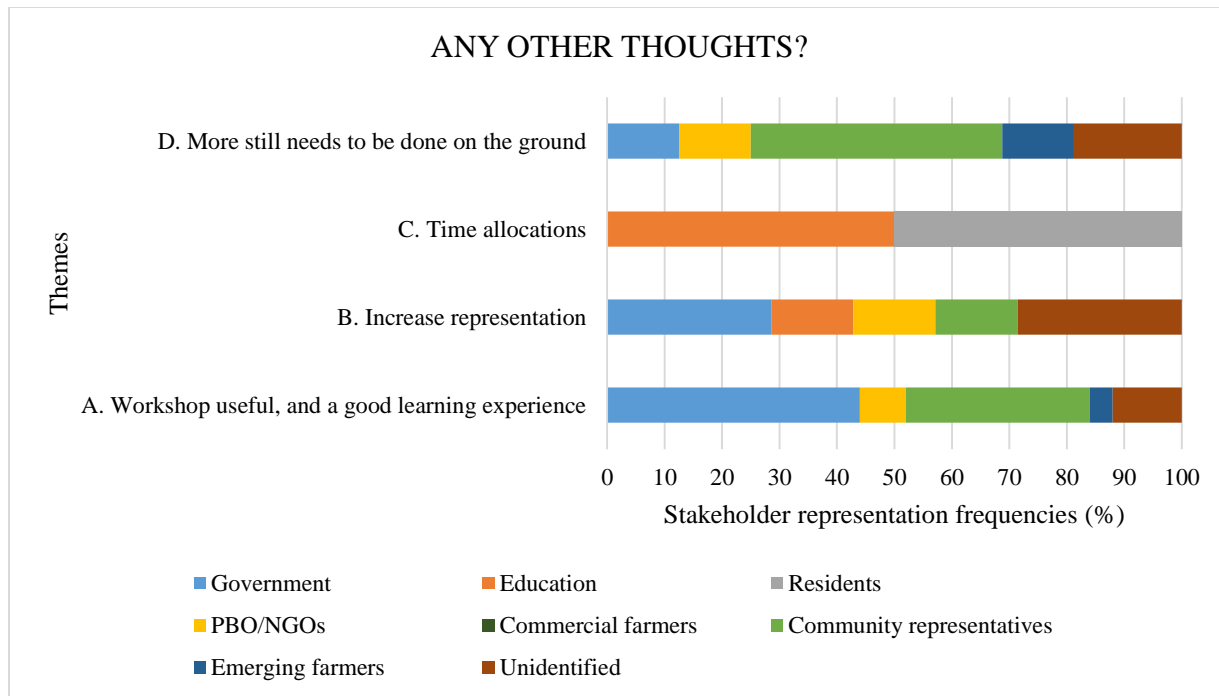


Figure 74: Overall distribution of stakeholder groupings across the themes that emerged under participants’ general comments about the day’s work.

The results under the general comments show that some participants re-emphasised the themes such as increasing representation and time allocation. The participants concluded by commending the APP as a useful learning experience, but suggested that more work needed to be done on the ground. Community representatives, in particular, dominated the theme that highlighted that more work on the ground was necessary, and expressed concern that the workshops were all talk, but no action. This is unsurprising, given that they face the harsh realities of a lack of service delivery and poor water management on the ground on a daily basis, particularly as they represent communities from Makhanda East.

5.4. Reflection Outcomes Assessed Against the Framework – the Question of Epistemic (In)justice

An evaluation framework was developed (*refer to Table 1 on page 84*), to assess the level of epistemic (in)justice during the APP workshop, as experienced by the participants. The framework evaluates:

1. Participants’ understanding the process and relevant concepts;

2. Participants' satisfaction with the APP (Walsh and Schaeffer, 2008; Li, Ng and Skitmore, 2013);
3. Participant learning and co-learning (Allen and Jacobson, 2009; Allen *et al.*, 2011) through the APP;
4. Equality of voice (Lockwood *et al.*, 2010);
5. Process flexibility and adaptability (Tasan-Kok, 2008; Gielen and Tasan-Kok, 2010);
6. Inclusiveness.

In this section, the themes that came up under the reflective questions covering both workshops are compared against the evaluation framework. The numbers given under each criterion, reflect the number of occurrences of a particular theme across all the questions where the theme occurred. The percentages were calculated by dividing the number of occurrences by the total number of all the responses to the questions under which the particular theme occurred. For example, the theme 'clarifying the discussion focus' occurred 11 times under the question which asked participants what they would change about the APP (57 responses), and 14 times under the question of what could be done to make participants feel better included in the drafting of the local CMS (63 responses). To calculate the occurrence rate (percentage), the total number of occurrences was divided by the total responses under the two questions combined to give:

$$\text{Occurrence rate (clarify discussion focus)} = \frac{\text{Theme Occurrences}}{\text{Total number of responses under question (s) where theme occurred}}$$

$$\begin{aligned} \text{Therefore: Occurrence rate (clarify discussion focus)} &= (11+14) / (57+63) *100 \\ &= 21 \% \end{aligned}$$

In a collaborative space like the APP, different forms of epistemic injustice may be experienced, either as testimonial injustice or hermeneutic injustice. Epistemic injustice occurs when people are undermined in their capacity as knowers, and is termed 'testimonial' when a speaker's views are dismissed/discredited because of the speaker's identity; hermeneutic injustice occurs when people's experiences are misunderstood because the speaker lacks the collective resources to describe the experiences (Fricker, 2007; Anderson, 2012; Glass and Newman, 2015). The purpose of this section is also to use the reflective outcomes to reveal which forms of epistemic (in)justice were experienced by participants.

Table 7 below summarises the results of the analysis using the reflective tool, and shows: the criteria being tested from the framework, and the description of each criterion as used in the project; the key findings from the participant reflections relevant to each criterion; and the outcome of whether the criteria were met or not. Five of the six criteria were met, and one criterion (5. Process flexibility and adaptive) was not met. This suggests an overall high level of epistemic justice facilitated by the APP.

Table 7: Summary of the analysis of epistemic (in)justice using the reflective framework. The evaluation criteria used to investigate epistemic justice/injustice and their descriptions; the key findings under each criterion and the results under each in terms of whether they were met or not

Process criteria and outcomes: Description	Key Findings	Results (criteria met/not met)
<p>1. Understanding the process and relevant concepts: Participants have a common understanding of the process and relevant concepts used during the APP, in the context of IWRM</p>	<p>Participants had a common understanding under targeted question that APP was:</p> <ul style="list-style-type: none"> • A collaborative and participatory process (45% occurrence) • Laying the foundations for future objectives (55% occurrence) • Leads to sustainable management (18% occurrence) <p>40% Accuracy in participants' common understanding because APP's main traits include:</p> <ul style="list-style-type: none"> • Adaptive • Learning-oriented • Stakeholder-centred • Value-driven towards shared desired IWRM <p>Understanding beyond targeted questions (relevant themes emerging throughout reflections):</p> <ul style="list-style-type: none"> • Stakeholder-centred (Inclusive of a wide range of stakeholders) 	<p>Met (with some deficiencies)</p>

	<ul style="list-style-type: none"> • Learning-oriented (learn and share information, useful learning experience, lessons from presentation) <p>Represented stakeholders under commonly understood concepts across targeted and non-targeted questions:</p> <ul style="list-style-type: none"> • All stakeholder groups represented under at least one theme 	
<p>2. Participant satisfaction: The process takes into consideration the expectations and goals of participants, and the process is enjoyable.</p>	<p>Process on expectations and goals of participants:</p> <ul style="list-style-type: none"> • Learn and share information (30%) • Collaborate and come with solutions (17%). • Interact with different people (16%) • Observe the process (10%) <p>Participants attitudes of enjoyment:</p> <ul style="list-style-type: none"> • Positive attitudes (all goals met): <ul style="list-style-type: none"> ○ Useful learning experience (50%) ○ Lessons from presentation (52%) ○ Inclusive of a wide range of stakeholders (55%) ○ Nothing needs to change (35%) ○ Goals met (10%) • Negative attitudes: (suggestions by participants to make APP better) <ul style="list-style-type: none"> ○ Clarify the focus of discussion (21%) ○ Increase stakeholder representation (26%) ○ Time allocation (18%) • All stakeholder groups represented 	Met

<p>3. Participant learning and co-learning: how participants experienced learning, and whether co-learning was experienced among participants.</p>	<p>Learning experienced through facilitation:</p> <ul style="list-style-type: none"> • Positive experience: <ul style="list-style-type: none"> ○ Lessons from good facilitation (55%) ○ Goals changed (37%) ○ Useful learning experience (50%) • Negative experience: <ul style="list-style-type: none"> ○ Clarify the focus of discussion (21%) • Stakeholder groups featured under learning: <ul style="list-style-type: none"> ○ All stakeholder groups represented, except Commercial farmers • Co-learning experienced: <ul style="list-style-type: none"> ○ Goals changed (37%) ○ Goals not changed (21%) 	<p>Met</p>
<p>4. Equality of voice: Participant views are taken seriously and respected in their diversity in the workshop.</p>	<p>Participants' views were taken seriously (93% occurrence)</p> <ul style="list-style-type: none"> ○ All stakeholder groups represented <p>Participants' views not taken seriously (7%)</p> <ul style="list-style-type: none"> ○ Stakeholder groups represented Government, PBO/NGOs, and Unidentified group. 	<p>Met</p>
<p>5. Process flexibility and adaptive: the ability of the APP to be modified to fit the suggestions of the participants and the given context.</p>	<p>What participants suggested need modification under participant dissatisfaction:</p> <ul style="list-style-type: none"> • Time allocations (18% across both workshops) • Increase stakeholder representation (26% across both workshops) • Clarify the focus of discussion (21% across both) 	<p>Not met (engagement did not last long enough to find out)</p>

	<p>Changes that worked:</p> <ul style="list-style-type: none"> • Flexibility was tested in the second workshop, and the use of small groups impressed some participants. Not all the participants accepted adjusted time. 	
<p>6. Inclusive Facilitation: Participants' experience of equal and balanced opportunities to contribute during the process.</p>	<p>Participants' experience of inclusiveness under targeted questions:</p> <ul style="list-style-type: none"> • All are given equal opportunity to participate (98%) • No equal opportunity to participate (2%) • Already included (52%) • Increase stakeholder representation (26%) <p>Positive feedback under questions beyond the targeted questions:</p> <ul style="list-style-type: none"> • Inclusive of a wide range of stakeholders • Collaborative and participatory <p>Suggestions on how to improve process inclusiveness</p> <ul style="list-style-type: none"> • Clarify the focus of discussion (21%) • Capacitate MLM to fix infrastructure (21%) 	<p>Met</p>

5.4.1. Understanding of the Process and Relevant Concepts

Through their application of the APP in the Inkomati-Usuthu catchment, Rogers and Luton (2011) concluded that the APP was applicable to participatory IWRM implementation in SA. Stakeholders need to recognise and accept the concept of V-STEER complexity, and the need for an adaptive, learning-oriented, stakeholder-centred and value-driven management. According to their findings, the process empowered diverse stakeholders to engage in dialogue, and reach consensus on their shared, desired future. For the purpose of evaluating APP against the evaluation framework that was developed to test the levels of epistemic (in)justice in APP, the following characteristics: adaptive, learning-oriented, stakeholder-centred and value-driven, are used to

verify what APP stands for as a collaborative approach to the implementation of IWRM in South Africa; the traits of Strategic Adaptive Management (SAM), of which the APP is the planning component (Rogers and Luton, 2011). The APP is meant to provide benefits such as improving knowledge, understanding, and the quality of decisions (Parkins and Mitchell, 2005).

Criterion 1 of the evaluation framework was directed at finding out whether participants had a common understanding of the relevant concepts about the APP from the introductory session and through engaging with the APP. The criterion also aimed to determine how accurate the commonly understood concepts were, compared to the traits of the APP in literature. The accuracy of the common understanding would determine whether there was epistemic (in)justice in the manner in which concepts were explained, which might have denied participants proper access to understanding the concepts. Another important aspect of assessing Criterion 1 was how accurate common understanding of the concepts was which were reflected beyond the targeted question responses. Figure 75 below shows the themes emerging across participant reflections used to assess whether there was a common understanding of APP, as well as the accuracy of the understanding in relation to literature.

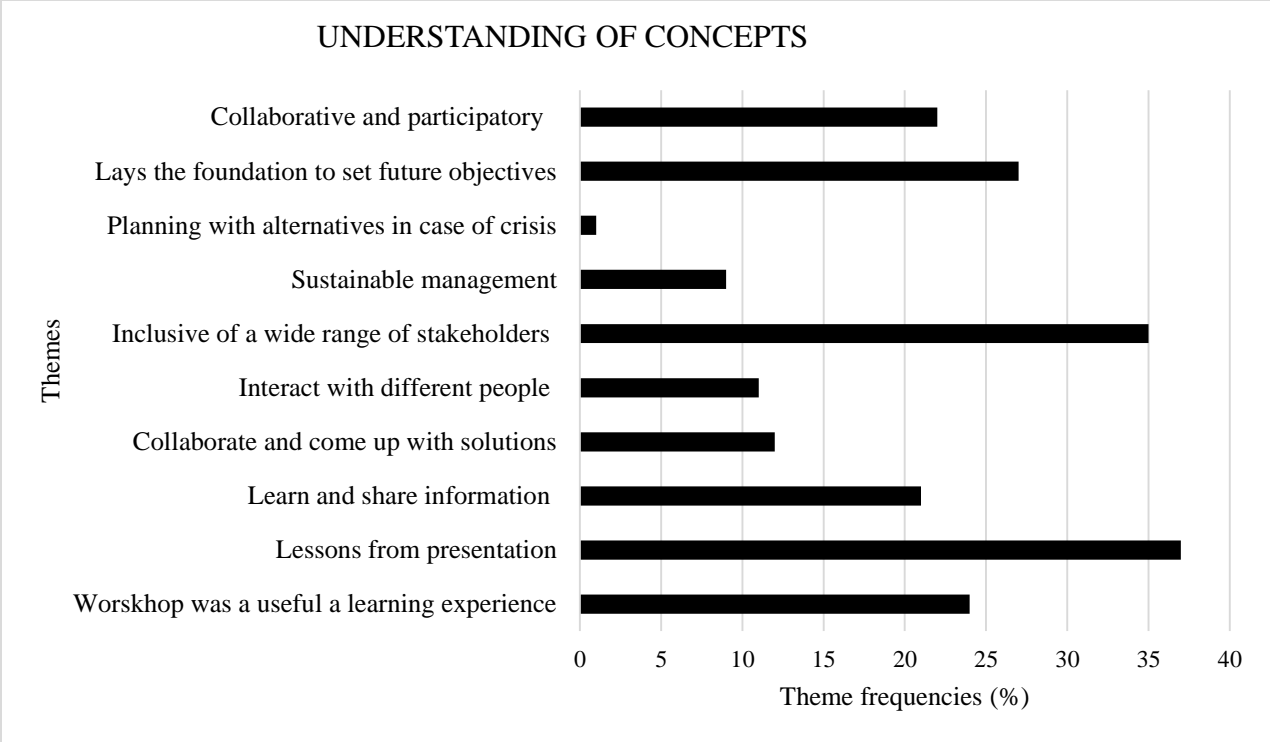


Figure 75: Themes showing participants common understanding of the process and relevant concepts used during the APP, in the context of IWRM across overlapping questions⁹ for both workshops.

The targeted question asked participants to define the APP after engagement. Under the targeted question, participant reflections showed a common understanding that the APP was collaborative and participatory, with a frequency of 45%. Participants understood that the APP laid a foundation to set future objectives (55%). This shows that there was 50% accuracy in the common understanding shown in the targeted question because two defining traits of the APP, which are stakeholder-centred (collaborative and participatory) and value-driven towards a shared desired IWRM (lays a foundation to set future objectives) were roughly correct from participants' commonly understood concepts.

There was no common understanding that the APP was adaptive (planning with alternatives in case crisis arise) as it had only 2% frequency in participant reflections. The fact that the APP was adaptive only occurred once in reflections from Workshop 1, and the only person who mentioned that the APP was adaptive in their reflection belonged to the Education stakeholder

⁹ Overlapping questions are the eight questions asked in Workshop 2, which were selected from the sixteen questions asked in Workshop 1.

group. It was interesting because, during the Workshop 1, a similar question was asked, but before participants had had proper engagement with the APP. During that first workshop, the theme had a 30% frequency of occurrence among participant reflections. This discrepancy raised the question about why the concept was so inaccessible to the participants in Workshop 2. As previously stated, Workshop 1 was made up of people with more professional experience, and so Government, Education, Residents and PBO/NGOs were represented under the theme. When participants were asked to describe APP before proper engagement, PGO/NGOs dominated the theme, but possibly because the PBO/NGOs that were represented were from a university environment (e.g. PSAM), and therefore still a part of the Education stakeholder groups, whereas the PBO/NGOs that were present at Workshop 2 were not university-based organisations. Thus, some people who had responded to the question during Day 1 of Workshop 1 might have been part of those who did not come back Day 2 of the workshop, when the question came up after engagement. Perhaps the groups had heard of the concept before, as there is an emphasis on the subject of uncertainty in many fields. Therefore, during the second workshop, there was hermeneutical injustice, where the concept of adaptability was not made accessible to all the participants.

Generally, there was a common understanding that the APP was stakeholder-centred, learning oriented and worked towards developing a shared desired future through all the relevant themes. Participants' common understanding of the process was evident in themes across reflective responses beyond the targeted question. For example, under what participants' goals were, participants stated that they wanted to learn and share the information, interact with different stakeholders, collaborate and come up with solutions. Under what was satisfying to participants about the APP, participants mentioned that the APP was inclusive of a wide range of stakeholders, and the lessons from the presentation were satisfactory to participants. This amounts to the following common traits under the non-targeted question: stakeholder-centred (interact with different stakeholders, collaborate and come up with solutions, inclusive of a wide range of stakeholders), and learning-oriented (learn and share the information, lessons from the presentation, and workshop was a useful learning experience). Under the untargeted questions, learning-oriented added to the number of accurate common traits that participants provided. Therefore, participants had a good common understanding of three (75%) out of the four traits.

It is important to note that Commercial farmers were not represented in any of the emergent themes possibly because they did not find it necessary to respond to this reflection as a matter of

urgency. The description of the process was not urgent to them, as is evident of their regular response under the themes to do with time allocation; they were there to contribute views on catchment management and move on.

Overall, then, the results indicate a fairly good common understanding of these concepts, with a wide range of stakeholders represented under themes showing a common and accurate understanding. Only Emerging farmers and Commercial farmers were not represented under the two prominent themes that indicated common understanding. There is always an inherent difficulty in reaching an agreement among so many stakeholders with conflicting interests and, bearing this in mind, it can be concluded that there was a common understanding of the APP. Accuracy in common understanding was met (three of four critical concepts), but with some deficiencies, where only one participant mentioned that the APP was adaptive. Some epistemic injustice may have entered the process because the facilitating team was from education, which could explain the reason for Education being the only represented group under the most technical aspect about the APP being adaptive. In all, the criterion for good common understanding of the process and relevant concepts was met, but with the deficiency in making the concept of being adaptive more accessible to a wider audience.

5.4.2. Participant Satisfaction

Stakeholder satisfaction is not necessarily a marker for the success of a collaborative approach, but acts as an incentive for better acceptance and stakeholder buy-in during the implementation of co-designed plans (Walsh and Schaeffer, 2008; Kärnä, Manninen, Junnonen and Nenonen, 2011; Li, Ng and Skitmore, 2013). The second criterion of the framework tested whether the APP met the expectations and goals of participants, and assessed the levels of participant satisfaction. The criterion also used the positive and negative attitudes that emerged from participants' reflections to assess whether participants enjoyed the APP. The three questions asked were: what was most satisfying to participants about the day's work, what their goals were, and what participants could change if given the opportunity to start the process from scratch.

Seventeen themes emerging from participant reflections were relevant for the assessment of participant satisfaction (*refer to Figure 76 below*). Participants' goals of learning in order to share information (30% occurrence) and that of collaborating to come up with solutions (17% occurrence) were met because what participants found to be satisfactory about the APP was the

lessons learned from engaging with APP (51% occurrence) and the fact that the APP was inclusive of a wide range of stakeholders (52% occurrence). The participants seemed to enjoy the APP because the results show positive attitudes (e.g. goals met, nothing needs to change, the workshop was a useful learning experience, lessons from presentation, etc) about the process outweighed the negative attitudes (clarify the focus of discussion, increase stakeholder representation, time allocation).

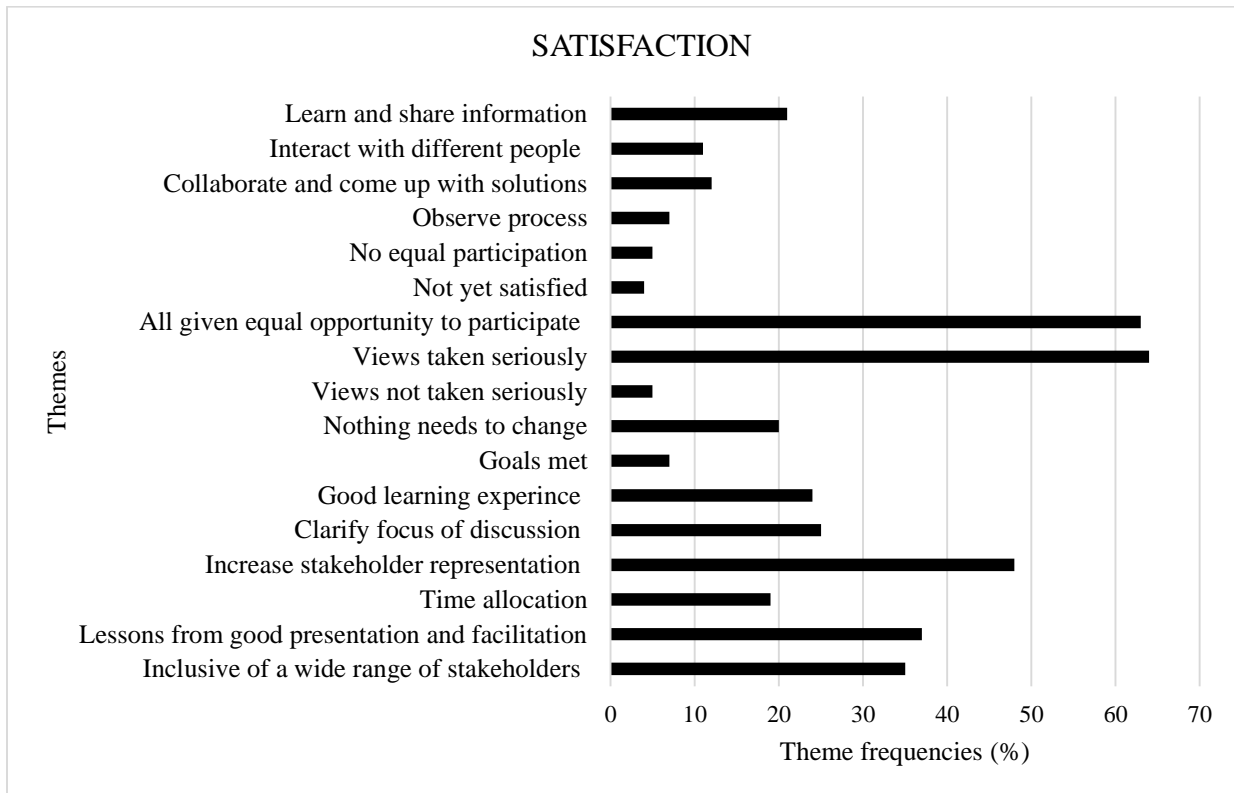


Figure 76: Themes across the overlapping questions, which show participant satisfaction/dissatisfaction.

The results show that participant satisfactions fit with participant goals about the process. For instance, the goal of collaborating to come up with solutions and the goal of interacting with different people had 17% and 16% occurrence in participant reflections, respectively. The goals seemed to have been met in that participants stated they were satisfied that the process was inclusive of a wide range of stakeholders with a frequency of 52% in participant reflections. Participants' satisfaction with the lessons from the workshop met participants' goal of learning in order to share the information and observing the process (10% occurrence).

The high frequency of some of the goals which were met shows that, even though some participants did not initially have specific goals in mind, the themes emerged clearly enough in the APP that participants became conscious of those themes. For instance, Emerging farmers were represented neither under the goal of collaborating, nor that of interacting, but they were represented under the theme where participants expressed satisfaction that the process was inclusive of a wide range of stakeholders. The stakeholders who were represented under the process being inclusive of a wide range of stakeholders were Government, Education, Residents, PBO/NGOs, Emerging farmers and the Unidentified group. Similar groups were represented under lack of representation; however, Community representatives are represented under all three of the questions where the lack of representation theme occurred. This could mean that they had people in mind that they were hoping to see, but did not, because they had many questions regarding water quality and water availability in their catchment. Emerging farmers, a group that had largely been excluded from decision-making platforms, acknowledged the APP for being inclusive, but also mentioned that representation had to be increased in future. The results confirm that the inability of collaborative approaches like APP to achieve proper representation is a downside of such approaches (Frame *et al.*, 2004). The participants view the lack of representation as an injustice as everyone needed the information that was given at the APP workshops.

The lack of stakeholder representation (26% occurrence) seemed most important both explicitly under the question of what participants could change, and implicitly under other questions such as how participants felt they could be better included in the process, and under participants' general thoughts about the workshop. What seemed important for participants was the representation of all the relevant stakeholders because even though APP was found to be inclusive of many people, not all the Upper Kowie stakeholders were represented in each separate workshop. The result is similar to what Frame *et al.* (2004), observed; namely, that one of the challenges embedded in collaborative processes is that stakeholders with similar interests tend to dominate a space, making the environment inclusive, but failing to represent all the relevant stakeholders.

The results show that participants enjoyed the APP for participants, which is a major factor in assessing satisfaction. To test for participant enjoyment, the number of positive attitudes/comments was compared against the number of negative attitudes/comments about the

APP. In Figure 75 on page 186, the themes that reflected participants' positive attitudes towards the APP under the targeted questions were: goals met (10%), lessons from presentation (55%), and inclusive of a wide range of stakeholders (52%). The themes under negative attitudes were: clarify the focus of discussion (21%), increase stakeholder representation (26%), time allocation (18%), and not satisfied yet (6%). Positive attitudes were also reflected across questions beyond the targeted questions: nothing needs to change (35%), good learning experience (50%) views taken seriously (93%), all given equal opportunity to participate (93%), while negative attitudes beyond the targeted questions were no equal participation (7%), and views not taken seriously (7%). The results indicate that seven themes showed positive attitudes, and six out of the seven had high frequencies in participant reflections, while fewer (5) themes, with quite low frequencies of occurrence, emerged in participants' reflections.

Concerns about the process were collected verbally from participants during follow-up visits after the workshop. One participant was not happy to be part of a workshop where plans were around managing water because their area had been without water for several months and nobody seemed to be concerned about their farming activities. Participants from the eastern side of Makhanda felt that participating in that workshop was not useful to them if infrastructure was not fixed, and water quality not improved. It got to a point where participants in one group could not perform a task because they felt there were just too many issues being ignored by the authorities. One participant expressed disapproval during the follow-up visits about the half-circle seating arrangement, while other participants mentioned that going around for views felt as if they were being forced to speak when they were not ready. The issues raised in this paragraph show the apartheid influences and division of the town influenced where participants preferred to sit. Participants' from the Historically Disadvantaged Groups were not comfortable being in the space because, at one meeting, the Makana Water Forum was accused of being insensitive by bringing white Commercial farmers and black resource-poor farmers into one space when the two stakeholder groups did not have similar challenges. The speaker was from a political background, which was another interesting finding that confirmed the fact that politics should not be ignored when working with so many stakeholders.

The criteria of satisfaction were met because participant goals of interacting and collaborating with other stakeholders were met, in addition to participants' goals of observing and

evaluating the process. The biggest take-away of this section is that, learning from the APP and the process's inclusion of a wide range of stakeholders were impressive. However, lack of stakeholder representation worried many participants as it had the highest number of occurrences relative to other themes under participant satisfaction. This indicates that there was a challenge in balancing inclusiveness and over-representation because there were many people who represented similar interests, such as Government and Community representatives (Frame *et al.*, 2004). The theme of representation, apart from being highly important to Upper Kowie stakeholders, is a contribution of this research because it was not found in the literature as a measure of participant satisfaction. Another interesting observation was that the literature on participant satisfaction was more about urban planning (Walsh and Schaeffer, 2008; Li, Ng and Skitmore, 2013; Hamersma *et al.*, 2018) rather than on adaptive planning for natural resources. In that regard, this research makes another contribution.

5.4.3. Participant Learning and Co-learning

The third criterion assessed whether participants experienced the process as an opportunity for learning. This aspect is important because it is one of the reasons why adaptive planning is used to address complex situations (Kato and Ahern, 2008; Rogers and Luton, 2011; Palmer and Munnik, 2018). Only one question aimed directly at finding out participants' experience of learning: how had participants' goals evolved through their engagement with the APP. Six themes emerging from across participant reflections were used to assess the criterion (*refer to Figure 77 below*).

The results indicated that learning in order to share information was one of the participants' goals, with 30% occurrence in participant reflections. Under positive learning experiences, 'lessons from the presentation' had a frequency of 52% in participant reflections, while 'workshop was a useful learning experience' had a frequency of 50%. Another positive learning experience was of participants' goals changing as participants got to engage more with the APP and got a better understanding of how it worked, with a frequency of 26% in participant reflections. Co-learning was mainly reflected under the reasoning for how participants' goals had changed in participant reflections. The only complaint around learning was for the focus of discussion to be clarified, with a frequency of 21% in participants' reflections.

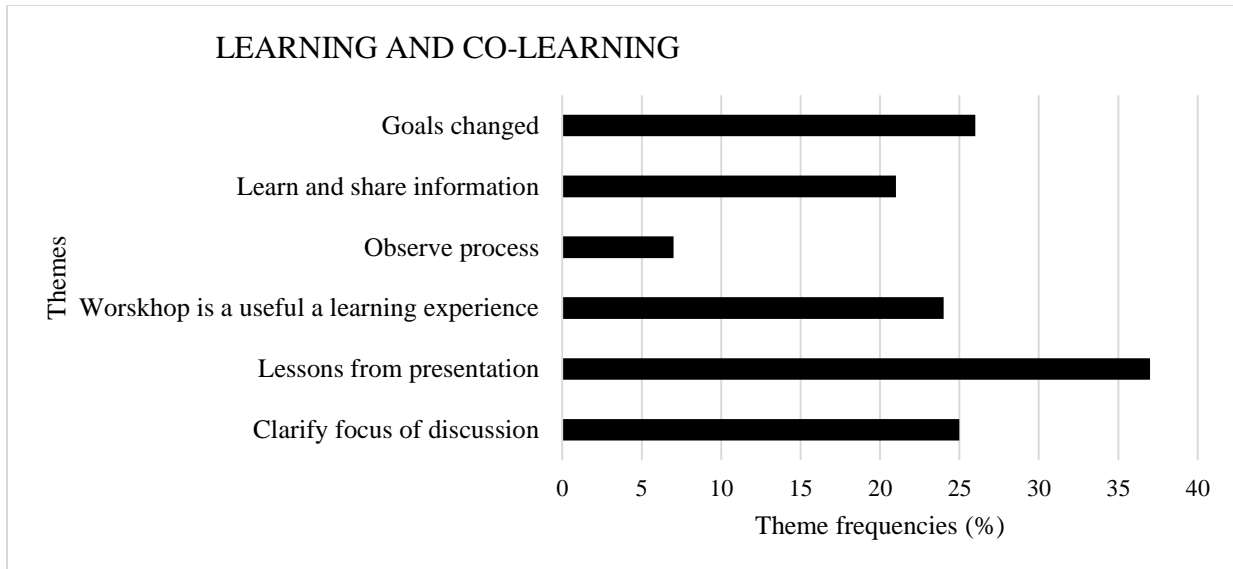


Figure 77: Theme percentages across overlapping questions, which are related to participant learning and co-learning.

Participants' learning experience seemed to match with Armitage *et al.* (2008) findings of participants' learning goals and expectations. Learning in order to equip participants with new ideas occurred where the participants' goals were to observe the process to test its applicability in different scenarios. Participants found the workshop as a useful learning experience, which reflect of what Armitage and colleagues call 'learning as a good idea'. Learning as a way to understand a change in one's environment also took place under the theme 'lesson from a good presentation' because some participants had learned about their catchment, and why there were water challenges. What the literature does not seem to touch on is that participants' reflections showed that they aimed to share the lessons from the adaptive planning space with people who could not attend.

Learning can happen through: a) experiential learning (learning-by-doing), which is the kind where familiarity/involvement with a subject influences views; b) transformative learning, where people's views change due to their exposure to a given a subject matter; and, c) social learning, which is the kind where learning is a result of engaging with other people working towards similar goals (Berkes, 2009; Ison, 2010). Of the three forms of learning, social learning is vital in adaptive planning and management (Folke *et al.*, 2005). In the case of the Upper Kowie catchment (MLM), social learning emerged implicitly under the question of how participants' goals had changed, as evidenced by the fact that goals changed after participants had engaged better with the process and related with other people (*refer to Figure 5 on page 29*) (Ison, 2010).

For instance, one participant's goal changed from wanting to be an observer to being a participant, while someone else pointed that their goals expanded as they sat and listened to other people speak. One participant wrote: *"My goal was to listen and contribute as required, but my goals expanded as I listened to others speak."*

The emergence of learning without being explicitly mentioned to participants confirms that learning is indeed an important feature of adaptive processes (Gunderson, 1999; Folke *et al.*, 2005; Berkes, 2009). Learning seemed to happen at both individual and group level, and both levels are deemed necessary in an adaptive planning space (Armitage *et al.*, 2008; Berkes, 2009). However, participants mentioned that the focus of the discussion was not clear, which might have hindered learning to some extent. Thus, epistemic injustice existed because participants were not clear about some of the points during the discussions. Confusing other people in an adaptive planning space constitutes a form of hermeneutic injustice, where other people are not given enough resources to make their views, knowledge, or arguments understood. If participants got lost, it becomes a challenge for them to follow the rest of the conversation, making it difficult for them to contribute their views about the subject, and therefore, participants were denied the opportunity to explain their experiences.

Armitage and colleagues (2008) suggest that it is important to know who learned in the adaptive space. The environment in which learning is expected to take place is essential, and factors such as class, gender, values, ethnicity, and many others influence power dynamics among the different stakeholders (Castells, 2002; Armitage *et al.*, 2008). In the Upper Kowie case, the impact of power dynamics and spatial fragmentation were evident, as mentioned previously, in the seating arrangements during the regular meetings that the MWF organised, where participants from the eastern side of town preferred to sit at the back, while white farmers and some professional officials sat together in the front seats. The situation was so serious to the extent that the circular sitting arrangement of the APP was criticized by some participants during follow-up visits, because it made participants uncomfortable. This raises the issue of epistemic injustice exhibited towards the other groups who were being introduced to adaptive management and uncertainties of the environment. Community representatives and Emerging farmers seemed to be featured in many of the learning themes, which was unsurprising because they are normally invited to training workshops, where the end goal is to learn more than to contribute their knowledge about

the subject of the day. These two groups (Community representatives and Emerging farmers) belong to the groups that are discriminated against because of who they are, and are rarely asked what they know because they are presumed to know little, and so their collective testimony is ignored (Glass and Newman, 2015). Government dominated almost all the themes that related to learning, and Government representatives might have realised some of the gaps in their field of servicing the communities through a better engagement with the people.

What participants had hoped to learn and whether they achieved the goals cannot be ignored. The goal for most participants was to learn about their catchment, and deduce how they could contribute/ participate as well as achieve a better understanding of the different stakeholders who were also engaged with the process. Learning to gain more ideas was evident as participants also wanted to see all involved in water usage, management and conservation together in order to share ideas on how to better manage their catchment. Other participants came with the goal of learning more about the Makana Water Forum and the Catchment Management Agency. Still other participants came in order to understand how the issue of water management could be addressed so that society can have access to health and quality water and cascade information to others. The fact that participants confirmed that they achieved some of these goals means that, even though some participants expressed their frustrations over the different topics that were dealt with throughout the workshop, the APP workshop gave relevant and important lessons.

What participants actually learned about the adaptive planning workshop is important in order to monitor learning in the long-term of adaptive management (Folke *et al.*, 2005). One participant felt the session was more of a brainstorming that limited the opportunity to share meaningful ideas. When defining APP, Participant 20 said APP was *“To sit down and use all aspects and each other’s knowledge in order to succeed with the goal of development in water, sanitation, and catchment related issues”*. Participants defined APP as the incorporation of ideas, and that it was about learning. Participants further wrote that the planning process of water was very educational had taught them a great deal about water. Others felt APP was about showing each other ways of using water as people from Makana. Under general remarks, participants said the workshop was a good learning experience. The lessons learned increased the hermeneutical resources of the members of the Upper Kowie community (Glass and Newman, 2015), and the people who attended the workshop were better informed about what a catchment is and the

conditions of their catchment, and who the MWF and who the CMA are. The information gained through the APP workshop was a step towards participants possibly realising why it is important to manage water resources, and water and sanitation services holistically; and so, it was a step towards adaptive IWRM (Palmer and Munnik, 2018).

Overall, the results show that learning was experienced in the APP and many expectations were met. However, there are signs of epistemic injustice in the distribution of learning among the different groups because it seems as if stakeholders who represented Education readily understood the content, while other groups managed to catch parts of the discussion. There is also a sign of credibility excess, where it seems as if the stakeholders gave more credibility to the facilitating team to provide the answers because they were from ‘education’, especially among the Community representatives and Emerging farmers. This may perhaps be based on the fact they [Community representatives and Emerging farmers] belong to vulnerable groups in society, and are not conscious of their positions in knowledge generation.

5.4.4. Equality of Voice

The fourth criterion was used to assess how participants’ views were taken seriously and respected in their diversity during the workshops. Participants’ feeling of equal voice plays a vital role in a just system (Verba, 2006). The question that addressed equality of voice asked participants whether they felt as though their contribution was taken seriously. Figure 78 below shows the four major themes, which emerged across participant reflections that were used to assess this criterion, and shows that most participants felt that their views were taken seriously; the theme had 93% rate of occurrence in participant reflections, as well as a representation by all the participating stakeholder groups. That participant views were not taken seriously had 7% frequency in participant reflections, with Government, PBO/NGOs, and Community representatives being the only groups represented.

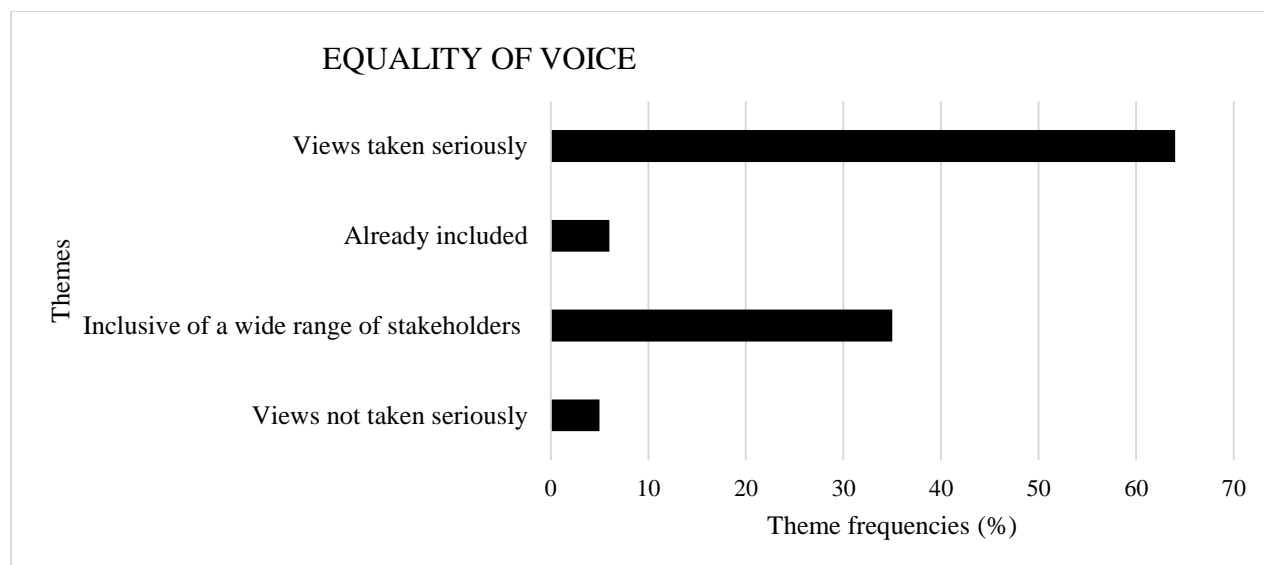


Figure 78: Themes across the overlapping questions which relate to participants’ perceptions of equality of voice.

While the majority of participants felt taken seriously, the minority who did not feel included cannot be ignored. Ignoring the minority would be a form of epistemic injustice because the difference in views can be attributed to many useful factors, and ignoring them may lead to a division and prevent collaboration towards a shared future (Catala, 2015).

Under the question of whether contributions were taken seriously, the response ‘yes’ occurred 63 times out of the 69 responses to the questions, giving the theme an occurrence frequency of 93% in participant reflections. The themes that came up under the reasons for the response were that everybody’s opinion was listened to, and written down where everyone could see. Another reason was that everyone was participating because participation was encouraged by the facilitator. Thus, the participants acknowledged the openness and transparency exercised in the application of the APP (Post, 2006). The results suggest that epistemic injustice was corrected by respecting all views regardless of the social identity of the people who contributed those views (Catala, 2015). The rules of engagement made at the beginning of the workshops stating that everyone’s views were correct, neutralised the hearer’s prejudice against the speaker, and therefore, corrected testimonial injustice (Catala, 2015; Glass and Newman, 2015).

The results show that participants indeed experienced equality of voice. Under what was most satisfying, participants noted ‘hearing from a wide range of stakeholders’ and ‘giving each

and everyone a chance to speak about water concerns. One participant liked that everyone was able to reflect on the process. Another participant liked that there was no wrong or right answer in the workshop, which made people free to participate. That the process accommodated different perspectives was also expressed implicitly under the definition of APP, where participants defined APP as a process that that was inclusive of a wide range of stakeholders, and uses all knowledge types and perspectives. Under the general remarks, one participant felt APP was a good process in terms of including a large number of Makana citizens to participate in their catchment. Therefore, the points mentioned in this paragraph suggest that the majority of participants did not feel belittled or disrespected in their capacity as knowers (Fricker, 2007; Catala, 2015; Glass and Newman, 2015).

Participants reflected that they would like to increase the level of engagement among stakeholders and participants also suggested how equality of voice could be enhanced in future. For instance, under ‘what participants would change’, they mentioned that they would pick a single topic that stakeholders could relate to as a way to clarify the focus of discussion (21% occurrence). This implies hermeneutic injustice on the part of the participants because they did not have the hermeneutic capital to comprehend everything that was said (Glass and Newman, 2015). However, this deficiency could be attributed the fact that preparatory workshops (where time and other resources are invested in giving details of why stakeholders need to work in adaptive ways) could not be held because of time and financial constraints. Another participant suggested that small group engagements could allow multiple views to be surfaced, and this was taken on board during the second workshop.

Some participants, however, felt they were not taken seriously because the response ‘no’ occurred five times in participant reflective responses. The reasons given in Workshop 1 were that the opportunity to make contributions was limited, while in Workshop 2, participants felt like the workshop was based on ideals instead of realities, and that they believed that what was being said would not eventually be implemented. The point about the failure to implement what has been said in the workshop could be mistaken for lack of trust between the facilitating team and the participants, whereas in reality, it is a reflection of the relationship between the MLM and its Residents. This point clearly shows how the issue of how water resource management and water services delivery should not be separated, as the Water Law has done, because most participants

said little about water resources during the workshops, but focused their interest was water services. There needs to be a clear understanding that the services come from the resource, which is why catchments need to be cared for.

There is overwhelming evidence suggesting that the majority of the participants experienced an equal voice in the APP because it was inclusive of a wide range of stakeholders, with different views. Participants admitted that their views were taken seriously because everyone's ideas were recorded without any bias. Added to the confirmation of equal voice, some participants made suggestions of how equality of voice could be improved in future. A small number of participants felt some injustice in the process because they mentioned that the opportunity to speak was limited and referred to the proceedings of the workshop as unrealistic, and based on ideals. What was interesting under the injustices was that only the theme of unclear discussion focus occurred in both workshops, other themes emerged only either in Workshop 1 or Workshop 2. Overall, equality of voice as a criterion that was tested for in the APP was met.

5.4.5. Process Inclusiveness

The fifth criteria of the framework aimed to assess the level of inclusiveness of the APP. The use of inclusiveness in this study referred to participants' experience of equal and balanced opportunities to make contributions during the process. One of the two questions that directly dealt with how inclusive the process was asked participants if they felt 'facilitation gave equal opportunity for all to participate'. Of the 69 responses, 'yes' had a 97% occurrence rate, while the 'no' response had a 3% occurrence rate. The other question asked participants 'what could be done to make them feel better included in the drafting of the local CMS'. While the fact that participants already felt included had a 10% frequency, many other suggestions were given under the question. The suggestions and their occurrence frequencies were: increase stakeholder representation (26%), clarify the focus of discussion (21%), capacitate MLM to fix infrastructure (45%), and receive information about more meetings (24%). Nine themes emerged across participant reflections that were used in assessing criterion five (*refer to Figure 79 below*).

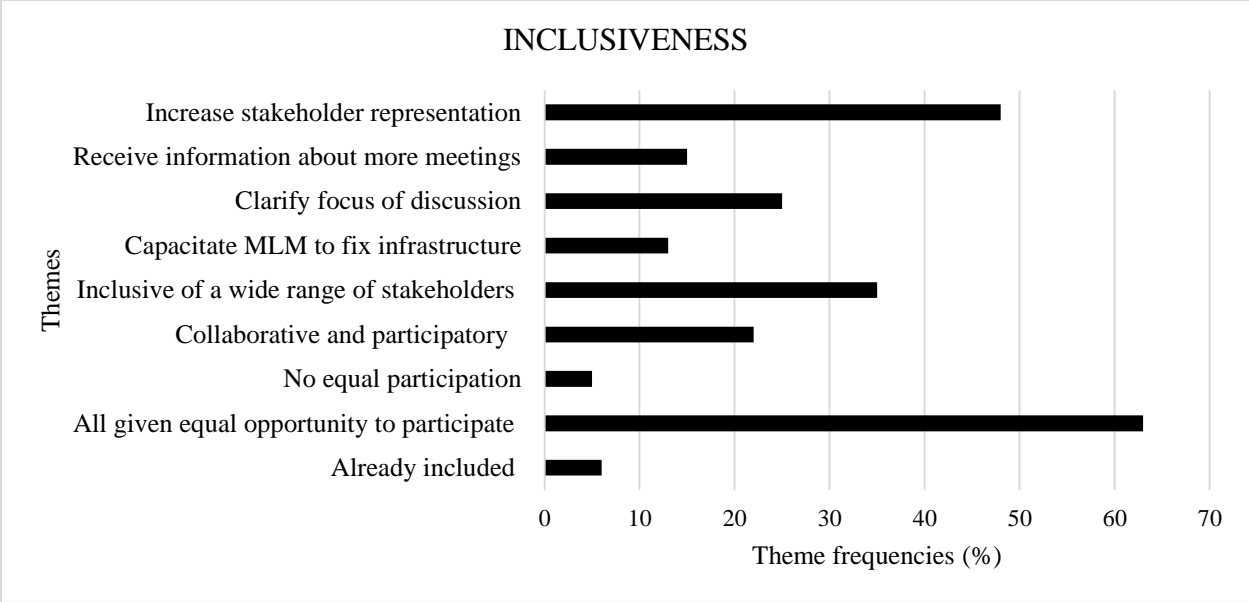


Figure 79: Themes across all the overlapping questions showing participants’ perception of process inclusiveness.

The results show that majority of participants positively experienced equal opportunity to participate, but under the same response, some participants suggested that people should be given more time to speak as that could help to come up with solutions. Some participants suggested that more engagement among stakeholders could enrich the process. The results suggest that the concerns that were mentioned did not have a great impact on participants’ perception of inclusiveness in the APP.

On the other hand, some participants responded negatively, and one participant wrote, *“Facilitation must allow the audience to engage concurrently, facilitation is speaking and the audience is listening”*. These results show that, for both parties - who experienced and who did not experience equal participation the main barrier to complete inclusiveness of the APP was participants being denied more time to express their views.

Some participants felt that the use of English excluded some stakeholders from fully participating. The issue was raised during Workshop 2, where the majority of participants were from the Historically Disadvantaged Groups (HDGs) in the catchment/municipality. A few sections of the workshop were translated after there was a request from the floor in Workshop 2, but the translation lasted for a short while until it was completely omitted towards the end of the

workshop. The language issue came up only once in participants' actual reflections, which implies that some people, especially from the urban side of the catchment are used to the fact that English is often used to conduct community meetings. They did not bring it up possibly because most have learned enough English to get by over time, unlike the Emerging farmers, most of whom have not had the opportunity to learn. That in itself shows the unfairness in the way information and ultimately, services are rendered among the different towns in the MLM. The request for translation might have been forgotten because it was raised by people who could understand English, and from their professional experience, they knew that the actual people who did not understand English would be too shy to speak up.

I remember that shyness because I was in a small group during the V-STEPP exercise, and noticed two participants sitting together and not saying anything in the group, when asked what their thoughts were, they just smiled but did not respond. Reluctant to force them to speak, I moved on, unaware that they were unable to follow most of what was being discussed because the expressions were not familiar to them. They were epistemically marginalised because of the power dynamics surrounding the politics of language. They were denied equal opportunity to contribute their own interpretations about the subject at hand (Catala, 2015), meaning that their knowledge was excluded from the definitions and meanings that were made about the future of their own catchment. The issue of a language barrier is a form of hermeneutic injustice because not enough effort was made to find out how much each participant was comfortable with the use of the English language as the medium of communication during the workshop. In future, it would be useful to have a trained translator who can stop the speakers at intervals to translate everything that is said, because making contributions with the language of the participants' choice is clearly not enough.

The other question that addressed inclusivity asked how participants felt they could be better included in the drafting of the strategy. This question intended to give participants a platform to inform the MWF how they should communicate with the participants in future so that they take ownership of the adaptive process. The theme that explicitly suggested that participants already felt included had a 10% occurrence in participant reflections. While this might seem low, it is a fairly significant response rate when considering the question asked how inclusion could be improved rather than whether or not they felt included.

Other themes suggested that participants would like to be informed about other upcoming meetings (50%); some suggested that there should be more representation and interaction among the stakeholders (26%), and the focus of discussion should be clarified (21%). Another interesting suggestion was that the municipality should be capacitated to fix the infrastructure, with a frequency of 45% in participant reflections. The issue about fixing infrastructure only came up in Workshop 2, which was dominated by historically disadvantaged individuals from Makhanda East and Emerging farmers. This suggests that the town's historical division influenced the level at which some participants were included, and so the results show that participants felt that the APP should be conscious of place in order to allow everyone to enter the knowledge-generation space at a fair position (Murtagh, 2004). Participants mentioned that it was pointless for them to participate in water-related issues when their municipality was failing to provide them with basic water and sanitation services.

Apart from the themes under the direct questions, themes related to inclusiveness occurred under questions beyond the targeted questions. Under the definition of the APP, participants defined APP as a collaborative and participative process, which used all perspectives to achieve its purpose. Under what participants found satisfying about the process, participants mentioned that the process was inclusive of a wide range of stakeholders, and everyone was given equal opportunity to contribute catchment information and concerns with regards to water-related issues in Makhanda. Some participants mentioned that the facilitator created a friendly and accommodating space in which all could feel free to talk.

When asked if they felt as though their contributions were taken seriously, the majority (94%) of participants responded yes, and one of the reasons in support of this response was that the facilitator wrote down their contributions; participants thought it was because the facilitator felt that the responses were worth recording. Other participants mentioned that the facilitator also made time to address any concerns or questions raised during the workshop. One participant wrote, *"Because we are all treated the same level. Questions, answers everybody is participating"*. Under general remarks, participants commented on how good the facilitation was and how easy it was for them to learn from what was said in the presentation.

The criterion for inclusiveness was met in the APP because almost all the participants confirmed their experience of equal participation, with the exception of a few participants who

mentioned clear factors that prevented their experience of equal participation. The fact that all stakeholder groups we represented under the positive response to ‘whether facilitation gave equal opportunity to participate’ is also confirmation that this criterion was met. The results show that the historical segregation and marginalisation of certain groups within the catchment played a significant role in how participants were included, especially in terms of language use. In addition, participants mentioned that the limitation of the APP was that participants were not given enough time to speak. This could have been a result of time constraints because, during both workshops, there was a lot of movement in and out of the venue, together with a challenge of starting late and trying to cover as much as possible with the available time. No matter how infrequent the issue of language surfaced in participant reflections, it cannot be ignored because it possibly contributed to the low response to the reflective questions in the second workshop. While all the participants in Workshop 1 responded to the reflective questions, Workshop 2 had a 63% response rate to the reflective tool.

5.4.6. Process Flexibility and Adaptability

The sixth criterion was used to assess the ability of the APP to be modified to fit the needs of the participants and the given context. The question that could be linked to the APP’s ability to change asked participants what they would change about the process. Two major themes and two minor themes emerged across participant reflections, which have been used in the assessment of the criterion (*refer to Figure 80 below*).

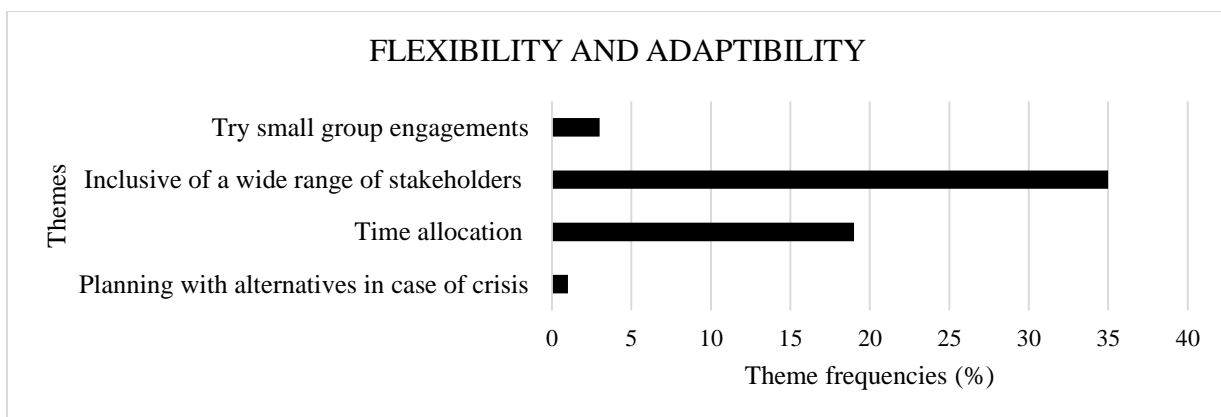


Figure 80: Overall themes which are related to participants’ view of process flexibility and adaptability.

The length of the workshop was adjusted from two days to one day for Workshop 2 because participants from Workshop 1 had criticised that the process took up more time than was necessary. However, participants in Workshop 2 said a single day was too short to fully undertake the huge task of developing a plan. The results show that not all modifications may be appropriate to participants because urban systems, like the Upper Kowie, are complex and the relative meaning of what constitutes ‘too much time to spend at a meeting’ differs across the stakeholder groupings (Gielen and Tasan-Kok, 2010). It is worth pointing out that though they only responded in Workshop 1, first and second reflections, Commercial farmers featured under all the themes dealing with time.

Participants from Workshop 1 suggested that engagement among participating stakeholders be increased through small groups and the suggestion was implemented in the second workshop, where participants were quite impressed with the small group engagements. This was a good example of how the APP can be flexible to suit the needs of the stakeholders. The theme about stakeholder engagement was coupled with that of how the APP was inclusive and accommodated different perspectives, which was also a sign of flexibility because trying to incorporate too many people in planning is sometimes messy and risky (Carr *et al.*, 2012; Arboleda, 2014)

Generally, the research did not find enough evidence to draw conclusions about participants’ views on the flexibility and adaptability of the APP, and so the criterion was not met. However, flexibility was evident in the APP with regard to the flexibility in using diverse perspectives. The theme of time allocation helped us to highlight some of the contradictions that are embedded in collaborative spaces, which is another characteristic of a complex social-ecological system (CSES). However, the engagement with the participants did not last long enough to confidently confirm process flexibility because most participants only encountered the APP only once, and would therefore not be aware of what was modified, and how successful it may have been. However, in this regard, the results show that participants were impressed by the modification of adding small groups during the second workshop.

5.5. Summary of Results and Discussions

In summary, all four of the process outcomes were met, while one of the two process criteria was met. The questions that were only asked in Workshop 1, but could not be asked in Workshop 2 (because of time constraints) revealed many interesting trends about the APP. Some interesting themes emerged under the question of ‘what participants found to be most frustrating about the APP’; under one theme, a participant expressed frustration about being among strangers, an aspect about participatory processes that does not get much attention. Even though there were some differences, the pressing issues in both workshops were similar, as evidenced in the questions which were not dealt with in Workshop 2. These included, lack of representation, clarification of discussion focus, finding solutions to the water crisis in Makhanda. Even the traits of APP that were impressive to participants had many similarities across both workshops, especially the fact that the APP was an inclusive and collaborative process, learning-oriented, and laid a foundation for future solutions.

CONCLUSION

Stakeholder participation plays a central role in Integrated Water Resource Management (IWRM). South Africa's law and policy provide a good environment for IWRM and stakeholder participation through the establishment of institutional arrangements at different spatial scales. However, good legislation is not enough to bring IWRM into reality, particularly with regard to public participation. Stakeholders need to work together in determining how they can pool resources in order to reach equity in the provision of essential services such as water and sanitation. Therefore, the approaches used to engage with the stakeholders in IWRM need to be properly selected to achieve sustainability.

Planning for natural resources is shown to be inherently complex because natural resources are mutually owned and different people have different and sometimes conflicting interests in the resources, and because social and biophysical elements together comprise a complex social-ecological system (CSES). Following this, an approach that manages to incorporate the multiple values that are placed on the natural resources would play an important role in the management of such resources. Strategic Adaptive Management (SAM) through its planning component, Adaptive Planning Process (APP) holds the potential to deal with the complexities associated with the management of natural resources it is centred on stakeholders, and is able to bring multiple stakeholders to work towards a shared future. The relationship between APP and IWRM is that both aim to correct the epistemic injustices of the traditional top-down approaches which were strongly based on expert opinions.

Evaluation was deemed necessary in order to further improve the application of APP for IWRM in SA. This study has shown that the different stakeholders who participated in the CMS development experienced epistemic justice in different ways. Participants' goals of interacting with different people, collaboratively strategising, learning from the process and learning the 'how to APP' were met. APP promotes epistemic justice through: i) the rules of engagement where there is no wrong answer, ii) writing down everyone's inputs, where they can be seen iii) the facilitator's garnering the views of each stakeholder individually, and iv) having everyone seated such that no one sits behind anyone else. The study proved that the addition of reflections enhanced the levels of epistemic justice already promoted by the APP because some of the issues that surfaced in participant reflections were new issues, which had not been raised during the general workshop

discussions. Another outcome of APP was the building stakeholder relationships which happened as stakeholders moved from chart to chart during the other parts of SAM, and during small group exercises.

Generally, the APP holds potential to correct both testimonial and hermeneutic injustices if more time can be taken in conducting the workshops to allow for better explanation of terms, more translation from English into the other two official languages in MLM, isiXhosa and Afrikaans. The study found that, in addition to participants feeling comfortable, listened to, understood, to the friendliness of other participants and the facilitating team, the venue, process convenience, and how much they trusted the information source (Hamersma et al., 2018), the level of representation by other stakeholders influenced stakeholder satisfactions in collaborative spaces like an APP.

Limitations of the study

Sending out invitations, particularly for the first workshop was a limitation of the workshop because the email and phone call modes of communication did not reach anyone whose contact details were not in the Makana Communications' system. Time constraints were a major limitation for the workshops: because of the limited amount of time that stakeholders had for the engagement in the process, isiXhosa and Afrikaans translations (the other official languages in Makana Local Municipality) were not done effectively. The lack of translation added to the epistemic injustice in the process, where language barrier became an injustice for the stakeholders who could not understand English as the workshops were most conducted in English, and the use of translation added the epistemic injustice where language barrier became an injustice for the stakeholders who could not understand English and worked with other stakeholders through a translator. The use of written personal reflections was also a limitation of the research as there were initially no measures in place to accommodate the views of the stakeholders who lacked the ability to write.

Lack of resources such as time and finances affect epistemic (in)justice in the APP because if there had been enough time to conduct the workshops, everything would have possibly been translated and no stakeholders would have been left out. Again, if there had been sufficient time and finances to hold preparatory workshops for the vulnerable groups, it is possible that fewer participants would have commented on the focus of discussions being confusing. Participants also

mentioned that there was limited time for participants to speak, especially in Workshop 1, but the comment did not come up in Workshop 2, possibly because small groups were used.

Recommendations

It would be valuable to establish what it would take to get stakeholders to feel the need to commit their time and resources to IWRM and APP. In order to improve stakeholder representation in an APP, this study recommends that time and money be invested in carrying out surveys where questions which will prompt stakeholders to think about the importance of engaging in an adaptive process are posed. Skipping the initial steps before the drafting stage might have caused some of the injustices that were experienced by Makana Local Municipality (MLM) stakeholders, and this study suggests that if time and financial resources are available, that they should never be skipped.

Based on this study recommended that when adding written reflections, literacy should be considered and other means be used for reflective processes, such as audio-recording the questions and reflective responses.

Further, the reality of political influence in MLM was evident in both workshops where participants were satisfied by the presence of the municipality at the workshop. The content of the workshop outcomes showed that the Residents have a negative perception of their municipality (refer to Appendix 5). This was confirmed in participant reflections where participants raised the issue that the workshops were ‘all talk and no action’, and their emphasis that their municipality be capacitated to provide services. The recommendation with regard to the issue of political influence would be the strengthening of municipality buy-in into the IWRM related activities by the CMFs, and for the CMFs to support the municipality in communicating water delivery services related issues with communities.

Dealing with an angry stakeholder was a lesson, that when conveying the message about the workshop, everything needs to be made clear so that participants are not shocked or feel ambushed into participating in a research. In as much as participants were told that they had a choice to either respond to the reflective tool or not, some people may participate, but either give responses that are not genuine, or pull out of the research later.

Future research

In as much as the questions were around epistemic (in)justice in an APP, the study ended up with a case of having to unravel with issues of participation. Future research should look into what participation really means, both in theory and practice, particularly in the complex context of water resource management.

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Personal Communications

- Palmer, C.G., 2018. Director of the Institute for Water Research, Rhodes University. Makhanda.
- Pillay, T., 2018. Former acting Makana Local Municipality manager, Makhanda.
- Rogers, K., 2017. Director of the Centre for Water in the Environment, University of the Witwatersrand, Johannesburg.

APPENDICES

APPENDIX 1: REFLECTIVE TOOLS

Workshop 1:

Reflection 1

1. Explain as much as you can about the Adaptive Planning Process / Chaza kangangoko unako malunga nenkqubo ye-adaptive planning process
2. Do you feel as if the process will allow us to meet our goal of developing the strategy (CMS)? / Ngaba uziva ngathi lenkqubo iza kusenza sikwazi ukuhlangabeza injongo yethu yokuqulunqa esi sicwangciso? Yes/ Ewe No/ Hayi
3. What was especially satisfying to you about today's work? / Yintoni eyona ithe yakonelisa ngalomhlangano?
4. What do you find frustrating about it? / Yintoni eyona ithe yakonelisa ngalomhlangano? Ikwayintoni ethe ayakuphatha kakuhle?
5. In my communication with others, I feel I can improve.... / Kunxibelelwano kunye nabanye abantu, ndiziva ngathi ndingenzangcono ekubeni....
6. What would you change if you had a chance to do this meeting over again? / Yintoni ubungathanda ukuyitshintsha ukuba ubunonikwa elinye ithuba lokuba yinxalenye yalentlanganiso?
7. What would you like to spend more time on in this process? / Ingaba yintoni ofuna kuchithwe elona xesha lininzi kulenkqubo?

Reflection 2

1. Do you feel as though your contribution is being taken seriously in the discussion? / Ucinga ukuba igalelo lakho kwezintlanganiso lithathelwa ingqalelo? Yes/Ewe or No/Hayi
 - If you answered no, what are the barriers of your participation? / Ukubauthi "Hayi" ingaba yintoni ebangela uzive njalo?

2. How do you feel you could be more included in the drafting of the CMS? / Ingaba yintoni enothi yenziwe ukwenza ngcono le ngxaki?

3. What were your goals for today's engagement, did you meet them? / ingaba beziyintoni iinjongo zakho ngale ntlanganiso yanamhlanje?

- Did they change as the discussions proceeded? How? / Ingaba zithe zatshintsha ngokuqhubeka kwentlanganiso? Njani?

4. What is the one goal you would like to set for yourself for the next meeting? / Ingaba ithini injongo yakho ngentlanganiso elandelayo?

5. Is the facilitation giving equal opportunities for all to participate?

Yes/ No

Reflection 3

1. Now that you have engaged with the strategic planning so far, can you please state what it is? / Nanjengoko sewuthe wayinxalenye kwaye wasebenza nge strategic planning, cacisa kuthethwa kantoni xa kuthethwa nge strategic planning?

2. Do you feel it helps to achieve a good catchment management strategy (CMS) for our catchment? Yes / No / Ucinga ukuba iyanceda ekuphuhliseni iCMS? Ewe / Hayi

3. One of the purposes of strategic planning is to include everyone's input in the final product (CMS), has this been achieved in the particular engagement? Yes / No? Enye yinjongo ze Adaptive Planning Process kukuqinisekisa ukuba igalelo lomntu wonke liyafakwa kwi CMS ezakuthi iphuhliswe, ucinga ukuba ithe yaphumeleliswa le njongo? Ewe/ Hayi?

4. Please share any other feelings/ thoughts you might have regarding the strategic planning process or about the workshop in general? / Uyacelwa ukuba wabelane ngengcinga, noluvo lwakho malunga ne Adaptive Planning Process okanye nge workshop?

Workshop 2

1. Now that you have engaged with the strategic planning so far, can you please state what it is? / Nanjengoko sewuthe wayinxalenye kwaye wasebenza nge strategic planning, cacisa kuthethwa kantoni xa kuthethwa nge strategic planning?

2. What were your goals for today's engagement, did you meet them? / ingaba beziyintoni iinjongo zakho ngale ntlanganiso yanamhlanje?

- Did they change as the discussions proceeded? How? / Ingaba zithe zatshintsha ngokuqhubeka kwentlanganiso? Njani?

3. What was especially satisfying to you about today's work? / Yintoni eyona ithe yakonelisa ngalomhlangano?

4. What would you change if you had a chance to do this meeting over again? / Yintoni ubungathanda ukuyitshintsha ukuba ubunonikwa elinye ithuba lokuba yinxalenye yalentlanganiso?

5. How do you feel you could be more included in the drafting of the CMS? / Ingaba yintoni enothi yenziwe ukwenza ngcono le ngxaki?

6. Is the facilitation giving equal opportunities for all to participate?

Yes/ No

7. Do you feel as though your contribution is being taken seriously in the discussion? / Ucinga ukuba igalelo lakho kwezintlanganiso lithathelwa ingqalelo? Yes /No

8. Please share any other feelings/ thoughts you might have regarding the strategic planning process or about the workshop in general? / Uyacelwa ukuba wabelane ngengcinga, noluvo lwakho malunga ne Adaptive Planning Process okanye nge workshop?

APPENDIX 2: FREQUENCY TABLES

Workshop 1

Reflective Tool 1

Question 1

Table 2.1: Distribution of themes across the overall frequency of responses under participants' explanation of APP before engagement.

	A. Plan in complex systems		B. Inclusive and allows knowledge sharing		C. Map vision, starting with baseline information	
Overall frequency	frequency	%	frequency	%	frequency	%
40	8	20	15	37.5	17	42.5

Table 2.2: Breakdown of stakeholder groupings distributed across the different themes under participants' explanation of APP before engagement.

Stakeholder Groupings	A. Plan in complex systems		B. Inclusive and allows knowledge sharing		C. Map vision, starting with baseline information	
	Frequency	%	Frequency	%	Frequency	%
Government	2	25	8	53.3	3	17.6
Education	2	25	2	13.3	8	47.1
Residents	1	12.5	1	6.7	3	17.6
PBO/NGOs	3	37.5	2	13.3	1	5.9
Commercial farmers	0	0	1	6.7	2	11.8
Community representatives	0	0	1	6.7	0	0
Theme Totals	8	100	15	100	17	100

Question 2

Table 2.3: Response options under whether participants felt positive that the APP would lead to the achievement of the strategy development.

	A. Yes		B. No	

Stakeholder grouping	Frequency	%	Frequency	%
Government	8	33	0	0
Education	6	25	1	50
Residents	2	8	1	50
PBO/NGOs	4	17	0	0
Commercial farmers	2	8	0	0
Community representatives	2	8	0	0
Theme Totals	24	100	2	100

Question 3

Table 2.4: Distribution of the overall frequency of responses under what participants found most satisfying about the day's work across the three themes that came up under the question.

	A. Process Inclusive of a wide range of stakeholders		B. Good lessons from facilitation		C. Too early to say	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
28	20	71.4	5	17.9	3	10.7

Table 2.5: Distribution of the stakeholder groupings across the total frequencies of the themes under what participants found to be most satisfying about the day's work.

	A. Process Inclusive of a wide range of stakeholders		B. Good lessons from facilitation		C. Too early to say	
Stakeholder Grouping	Frequency	%	Frequency	%	Frequency	%
Government	9	45	2	40	0	0
Education	4	20	2	40	1	33.3
Residents	2	10	0	0	1	33.3
PBO/NGOs	5	25	0	0	0	0

Commercial farmers	0	0	0	0	1	33.3
Community representatives	0	0	1	20	0	0
Theme Totals	20	100	5	100	3	100

Question 4

Table 2.6: Distribution of total frequency of responses under what participants found frustrating about the day's work.

	A. Time considerations		B. Concerns, no solutions		C. Low attendance/ Lack of representation		D. Nothing	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Overall Frequency								
28	5	17.9	4	14.3	12	42.9	7	25.0

Table 2.7: Distribution of stakeholder groupings across the total frequencies of each of the themes under what participants found to be frustrating about the day's work.

	A. Time considerations		B. Concerns, no solutions		C. Low attendance/ Lack of representation		D. Nothing	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Stakeholder Groupings								
Government	1	20	2	50	4	33.3	3	42.9
Education	1	20	1	25	5	41.7	1	14.3
Residents	1	20	0	0	0	0	2	28.6

PBO/NGOs	1	20	1	25	2	16.7	1	14.3
Commercial farmers	1	20	0	0	0	0	0	0
Community representatives	0	0	0	0	1	8.3	0	0
Theme Totals	5	100	4	100	12	100	7	100

Question 5

Table 2.8: Distribution of total frequencies of responses under how participants could improve their communication with others.

	A. Listen to increase my knowledge		B. speaking clearly		C. Too early for question	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
26	15	57.7	7	26.9	4	15.4

Table 2.9: Distribution of the different stakeholder groupings across the total frequency of each theme under how participants could improve their communication with others.

	A. Listen to increase my knowledge		B. speaking clearly		C. Too early for question	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Government	7	46.7	1	14.3	0	0
Education	3	20	6	85.7	0	0
Residents	2	13.3	0	0	1	25
PBO/NGOs	2	13.3	0	0	2	50

Commercial farmers	0	0	0	0	0	0
Community representatives	1	6.7	0	0	0	0
Total	15	100	7	100	4	75

Question 6

Table 2.10: Distribution of the different themes under what participants could change if they could start the workshop from scratch out of the total frequency of responses.

	A. Clarify discussion focus to save time		B. Increase Attendance and representation		C. Nothing	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
27	10	37.0	9	33.3	8	29.6

Table 2.11: Distribution of stakeholder groupings across the total frequencies of the themes under what participants could change about the workshop if they could start from scratch.

	A. Clarify discussion focus to save time		B. Increase Attendance and representation		C. Nothing	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Government	4	40	1	11.1	4	50
Education	2	20	4	44.4	1	12.5
Residents	1	10	1	11.1	1	12.5
PBO/NGOs	2	20	3	33.3	0	0
Commercial farmers	1	10	0	0	1	12.5
Community representatives	0	0	0	0	1	12.5
Total	10	100	9	100	8	100

Question 7

Table 2.12: Distribution of themes are distributed across the total responses under what participants would like to spend more time on in the process.

	A. Focus on solutions			B. Increase representation		C. Time allocations	
Overall Frequency	Frequency	%		Frequency	%	Frequency	%
25	15	60		6	24	4	16

Table 2.13: Distribution of the stakeholder groupings across the theme total under what participants would like to spend more time on.

	A. Focus on solutions		B. Increase representation		C. Time allocations	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Government	6	40	1	16.7	0	0
Education	4	26.7	3	50	1	25
Residents	0	0	0	0	3	75
PBO/NGOs	3	20	2	33.3	0	0
Commercial farmers	1	6.7	0	0	0	0
Community representatives	1	6.7	0	0	0	0
Total	15	100	6	100	4	100

Reflective Tool 2

Question 1

Table 2.14: Distribution of the two options across the total responses to whether participants felt like their inputs were taken seriously.

	Yes		No	
Overall Frequency	Frequency	%	Frequency	%
30	28	93.3	2	6.7

Table 2.15: Distribution of the stakeholder groupings under the total frequencies of the themes under whether participants felt like their inputs were taken seriously.

	Yes		No	
Stakeholder Groupings	Frequency	%	Frequency	%
Government	10	35.7	0	0
Education	6	21.4	0	0
Residents	3	10.7	0	0
PBO/NGOs	6	21.4	2	100
Commercial farmers	2	7.1	0	0
Community representatives	1	3.6	0	0
Total	28	100	2	100

Question 2

Table 2.16: Distribution of the themes across the total response frequency under how participants felt they could better be included in the drafting of the CMS.

	A. Information about other meetings	B. More interaction among stakeholders	C. Focus of discussion	D. Already included

Overall Frequency	Frequency	%	Frequency	%	Frequency	%	Frequency	%
23	10	43.5	5	21.7	4	17.4	4	17.4

Table 2.17: Distribution of the stakeholder grouping across the total theme frequencies under how participants felt they could better be included in the drafting of the CMS.

	A. Information about other meetings		B. More interaction among stakeholders		C. Focus of discussion		D. Already included	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Government	6	60	1	20	1	25	1	25
Education	2	20	2	40	0	0	2	50
Residents	1	10	0	0	1	25	0	0
PBO/NGOs	1	10	2	40	2	50	1	25
Commercial farmers	0	0	0	0	0	0	0	0
Community representatives	0	0	0	0	0	0	0	0
Total	10	100	5	100	4	100	4	100

Question 3A

Table 2.18: Distribution of themes across the total response frequency under what participants' goals were for the day's engagement.

	A. Strategise and come up with solutions	B. Interact with different people	C. Focus of discussion	D. Listen, learn and share information
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Overall Frequency	Frequency	%	Frequency	%	Frequency	%	Frequency	%
25	7	28	5	20	3	12	10	40

Table 2.19: Distribution of stakeholder groupings across the theme totals under what participants' goals for the day's meeting were.

	A. Strategise and come up with solutions		B. Interact with different people		C. Evaluate the usefulness of the workshop for other purposes		D. Listen, learn and share information	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Government	3	42.9	2	40	1	33.3	4	40
Education	0	0	2	40	0	0	3	30
Residents	0	0	0	0	1	33.3	2	20
PBO/NGOs	2	28.6	1	20	1	33.3	1	10
Commercial farmers	2	28.6	0	0	0	0	0	0
Community representatives	0	0	0	0	0	0	0	0
Total	7	100	5	100	3	100	10	100

Question 3B

Table 2.20: Distribution of the themes across the total responses to whether participants' goals had changed or not.

	A. Goals met		B. Goals changed		C. Goals not changed	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
15	8	53.3	2	13.3	5	33.3

Table 2.21: Distribution of stakeholder groupings across the theme totals under whether participants' goals had changed or not.

Stakeholder Groupings	A. Goals met		B. Goals changed		C. Goals not changed	
	Frequency	%	Frequency	%	Frequency	%
Government	3	37.5	0	0	2	40
Education	3	37.5	1	50	0	0
Residents/Citizens	1	12.5	1	50	1	20
PBO/NGOs	1	12.5	0	0	2	40
Commercial farmers	0	0	0	0	0	0
Community representatives	0	0	0	0	0	0
Total	8	100	2	100	5	100

Question 4

Table 2.22: Distribution of themes across the overall response frequency under what participants' goals for the next meeting were.

Overall Frequency	A. Stakeholder networking		B. Contribute towards strategy development	
	Frequency	%	Frequency	%
18	5	27.8	13	72.2

Table 2.23: Distribution of stakeholder groupings across the total frequencies of the themes under what participants' goals for the next meeting were.

Stakeholder Groupings	A. Stakeholder networking		B. Contribute towards strategy development	
	Frequency	%	Frequency	%
Government	2	40	6	46.2

Education	1	20	3	23.1
Residents	0	0	2	15.4
PBO/NGOs	2	40	2	15.4
Commercial farmers	0	0	0	0
Community representatives	0	0	0	0
Total	5	100	13	100

Question 5

Table 2.24: Distribution of the options across the overall response frequency under whether facilitation was giving equal opportunity for all to participate.

	Yes		No	
	Frequency	%	Frequency	%
Overall Frequency				
27	26	96.3	1	3.7

Table 2.25: Distribution of stakeholder groupings across the total frequencies of the themes under whether facilitation was giving equal opportunity for all to participate.

Stakeholder Groupings	A. Ys		B. No	
	Frequency	%	Frequency	%
Government	10	38.5	0	0
Education	6	23.1	0	0
Residents/Citizens	3	11.5	0	0
PBO/NGOs	4	15.4	1	100
Commercial farmers	2	7.7	0	0
Community representatives	1	3.8	0	0
Total	26	100	1	100

Reflective Tool 3

Question 1

Table 2.26: Distribution of themes across the overall response frequency under participants' explanation of APP after engagement.

	A. collaborative, and participatory process		B. Lays foundation to set future objectives		C. Plan in changing circumstances	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
22	6	27.3	15	68.2	1	4.5

Table 2.27: Distribution of stakeholder groupings across the theme total frequencies under participants' explanation of APP after engagement

	A. Collaborative, and participatory process		B. Lays foundation to set future objectives		C. Plan in changing circumstances	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Government	2	33.3	7	46.7	0	0
Education	1	16.7	3	20	1	100
Residents	0	0	1	6.7	0	0
PBO/NGOs	3	50	3	20	0	0
Commercial farmers	0	0	0	0	0	0
Community representatives	0	0	1	6.7	0	0
Total	6	100	15	100	1	100

Question 2

Table 2.28: Distribution of themes across the overall response frequency under whether participants felt the APP would help to achieve a good strategy.

	A. Yes	B. Not sure
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Overall Frequency	Frequency	%	Frequency	%
13	12	92.3	1	7.7

Table 2.29: Distribution of stakeholder groupings across the theme total frequencies under whether participants felt the APP would help to achieve a good strategy.

Stakeholder Groupings	A. Yes		B. Not sure	
	Frequency	%	Frequency	%
Government	6	50	0	0
Education	4	33.3	0	0
Residents	0	0	1	100
PBO/NGOs	1	8.3	0	0
Commercial farmers	0	0	0	0
Community representatives	1	8.3	0	0
Total	12	100	1	100

Question 3

Table 2.30: Distribution of themes across the overall response frequency under whether the APP managed to include everyone's input into the outcome of the engagement.

Overall Frequency	Yes		No	
	Frequency	%	Frequency	%
15	13	86.7	2	13.3

Table 2.31: Distribution of stakeholder groupings across the theme total frequencies under whether everyone's input had been included in the engagement.

Stakeholder Groupings	Yes		No	
	Frequency	%	Frequency	%
Government	6	46.2	1	50

Education	3	23.1	0	0
Residents	1	7.7	0	0
PBO/NGOs	2	15.4	1	50
Commercial farmers	0	0	0	0
Community representatives	1	7.7	0	0
Total	13	100	2	100

Question 4

Table 2.32: Distribution of themes across the overall response frequency under participants' general remarks about the workshop.

	A. Process was a good learning experience		B. Increase representation		C. Time allocation	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
13	9	69.2	2	15.4	2	15.4

Table 2.33: Distribution of themes across the overall response frequency under participants' general remarks about the workshop.

	A. Process was a good learning experience		B. Increase representation		C. Time allocation	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Government	6	66.7	1	50	0	0
Education	0	0	1	50	1	50
Residents	0	0	0	0	1	50
PBO/NGOs	2	22.2	0	0	0	0
Commercial farmers	0	0	0	0	0	0

Community representatives	1	11.1	0	0	0	0
Total	9	100	2	100	2	100

Workshop 2

Question 1

Table 2.34: Distribution of themes across the overall response frequency under participants' explanation of APP after engagement.

	A. Baseline information and knowledge about water management		B. Inclusive process/planning		C. Sustainable management	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
38	20	52.6	11	28.9	7	18.4

Table 2.35: Distribution of stakeholder groupings across the theme total frequencies under participants' explanation of APP after engagement.

	A. Baseline information and knowledge about water management		B. Inclusive process/planning		C. Sustainable management	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Unidentified	5	25	1	9.1	4	57.1
Government	6	30	2	18.2	1	14.3
Community representatives	5	25	7	63.6	1	14.3
Emerging farmers	1	5	0	0	1	14.3
PBO/NGOs	3	15	1	9.1	0	0
Total	20	100	11	100	7	100

Question 2A

Table 2.36: Distribution of themes across the total response frequency under what participants' goals were for the day's engagement.

	A. Learn and share information		B. Interact with different people		C. Observe the process		D. Get solutions to problems	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%	Frequency	%
43	28	65.1	4	9.3	6	14.0	5	11.6

Table 2.37: Distribution of stakeholder groupings across the theme totals under what participants' goals for the day's meeting were.

	A. Learn and share information		B. Interact with different people		C. Observe the process		D. Get solutions to problems	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Unidentified	6	21.4	1	25	0	0	3	60
Government	7	25	1	25	3	50	0	0
Community representatives	10	35.7	1	25	1	16.7	2	40
Emerging farmers	2	7.1	1	25	0	0	0	0
PBO/NGOs	3	10.7	0	0	2	33.3	0	0
Total	28	100	4	100	6	100	5	100

Question 2B

Table 2.38: Distribution of the themes across the total responses to whether participants' goals had changed or not.

	A. Goals Changed		B. Goals not changed	
Overall Frequency	Frequency	%	Frequency	%
40	24	60	16	40

Table 2.39: Distribution of stakeholder groupings across the theme totals under whether participants' goals had changed or not.

	A. Goals changed		B. Goals not changed	
Stakeholder Groupings	Frequency	%	Frequency	%
Government	7	29.2	3	18.8
Community representative	11	45.8	3	18.8
Emerging farmers	1	4.2	1	6.3
PBO/NGOs	1	4.2	3	18.8
Unidentified	4	16.7	6	37.5
Total	24	100	16	100.0

Question 3

Table 2.40: Distribution of themes under what participants found to be most satisfying about the day's work.

	A. Participation by all		B. First presentation		C. Nothing	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
43	14	32.6	28	65.1	1	2.3

Table 2.41: Distribution of stakeholder grouping within the total frequency of each theme under what participants found to be most satisfying about the day’s work.

Stakeholder Groupings	A. Participation by all		B. First presentation		C. Nothing	
	Frequency	%	Frequency	%	Frequency	%
Unidentified	6	42.9	5	17.9	0	0
Government	5	35.7	6	21.4	1	100
Community representatives	1	7.1	13	46.4	0	0
Emerging farmers	1	7.1	2	7.1	0	0
PBO/NGOs	1	7.1	2	7.1	0	0
Total	14	100	28	100	1	100

Question 4

Table 2.42: Distribution of the different themes under what participants could change if they could start the workshop from scratch out of the total frequency of responses.

Overall Frequency	A. Increase representation		B. Nothing		C. Increase workshop time		D. Capacitate MLM		E. Clarify discussion focus	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
32	10	31.3	11	34.4	3	9.4	5	15.6	3	9.4

Table 2.43: Distribution of stakeholder groupings across the total frequencies of the themes under what participants could change about the workshop if they could start from scratch.

	A. Increase representation	B. Nothing	C. Increase workshop time	D. Capacitate MLM	E. Clarify discussion focus
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	and give clear presentation									
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Unidentified	4	40	3	27.3	0	0	1	20	1	33.3
Government	3	30	2	18.2	1	33.3	2	40	1	33.3
Community representatives	1	10	6	54.5	2	66.7	1	20	0	0
Emerging farmers	1	10	0	0	0	0	1	20	0	0
PBO/NGOs	1	10	0	0	0	0	0	0	1	33.3
Total	10	100	11	100	3	100	5	100	3	100

Question 5

Table 2.44: Distribution of the themes across the total response frequency under how participants felt they could better be included in the drafting of the CMS.

	A. Invite more people and accommodate all		B. Capacitate MLM to fix infrastructure		C. Already included	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%
44	31	70.5	12	27.3	1	2.3

Table 2.45: Distribution of the stakeholder grouping across the total theme frequencies under how participants felt they could better be included in the drafting of the CMS.

	A. Invite more people and accommodate all		B. Capacitate MLM to fix infrastructure		C. Already included	
Stakeholder Groupings	Frequency	%	Frequency	%	Frequency	%
Unidentified	8	25.8	2	16.7	0	0
Government	9	29.0	1	8.3	0	0

Community representatives	9	29.0	9	75	0	0
Emerging farmers	1	3.2	0	0	1	100
PBO/NGOs	4	12.9	0	0	0	0
Total	31	100	12	100	1	100

Question 6

Table 2.46: Distribution of the options across the overall response frequency under whether facilitation was giving equal opportunity for all to participate.

	Yes		No	
	Frequency	%	Frequency	%
41	40	97.6	1	2.4

Table 2.47: Distribution of stakeholder groupings across the total frequencies of the options under whether facilitation was giving equal opportunity for all to participate.

Stakeholder Groupings	Yes		No	
	Frequency	%	Frequency	%
Unidentified	10	25	0	0
Government	10	25	0	0
Community representatives	13	32.5	1	100
Emerging farmers	3	7.5	0	0
PBO/NGOs	4	10	0	0
Total	40	100	1	100

Question 7

Table 2.48: Distribution of the two options across the total responses to whether participants felt like their inputs were taken seriously.

	A. Yes		B. No	
	Frequency	%	Frequency	%
41	39	95.1	2	4.9

Table 2.49: Representation of the stakeholder groupings under the two option on whether participants felt like their inputs were taken seriously.

	A. Yes		B. No	
	Frequency	%	Frequency	%
Government	9	23.1	1	50.0
Community representatives	14	35.9	0	0.0
Emerging farmers	3	7.7	0	0.0
PBO/NGOs	3	7.7	1	50.0
Unidentified	10	25.6	0	0.0
Total	39	100	2	100

Question 8

Table 2.50: Distribution of themes across the overall response frequency under participants' general remarks about the workshop.

	A. Useful learning experience		B. Include more people		C. More workshops needed and more amendments work on the ground needed	
	Frequency	%	Frequency	%	Frequency	%
Overall Frequency						
38	16	42.1	5	13.2	17	44.7

Table 2.51: Distribution of themes across the overall response frequency under participants' general remarks about the workshop.

	A. Useful learning experience		B. Include more people for learning		C. More workshops needed and more amendments work on the ground needed	
	Frequency	%	Frequency	%	Frequency	%
Stakeholder Groupings						
Unidentified	3	18.8	2	40	3	17.6
Government	5	31.3	1	20	2	11.8
Community representatives	7	43.8	1	20	7	41.2
Emerging farmers	1	6.3	0	0	2	11.8
PBO/NGOs	0	0	1	20	3	17.6
Total	16	100	5	100	17	100

Combined Workshops

Participants' Definition of Adaptive Planning Process

Table 2.52: Distribution of themes across the overall response frequency under participants' explanation of APP after engagement.

	A. Collaborative, and inclusive process		B. Lays foundation to set future objectives		C. Process considers complexity		D. Sustainable management	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Overall Frequency								
59	24	40.7	27	45.8	1	1.7	7	11.9

Table 2.53: Distribution of stakeholder groupings across the theme total frequencies under participants' explanation of APP after engagement.

Stakeholder Groupings	A. Collaborative, and inclusive process		B. Lays foundation to set future objectives		C. Process considers complexity		D. Sustainable management	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Government	5	20.8	10	37.0	0	0	1	14.3
Education	1	4.2	3	11.1	1	100	0	0.0
Residents	0	0	1	3.7	0	0	0	0.0
PBO/NGOs	4	16.7	6	22.2	0	0	0	0.0
Commercial farmers	0	0	0	0	0	0	0	0.0
Community representatives	9	37.5	4	14.8	0	0	1	14.3
Emerging farmers	0	0	1	3.7	0	0	1	14.3
Unidentified	5	20.8	2	7.4	0	0	4	57.1
Total	24	100	27	100	1	100	7	100

Participants' Goals for the Meeting/Workshop

Table 2.54: Distribution of themes across the overall frequency of responses under what participants' goals were for the day's engagement.

Overall Frequency	A. Collaboratively come up with solutions		B. Interact with different people		C. Evaluate the usefulness of the workshop		D. Learn and share information	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
68	12	17.6	9	13.2	9	13.2	38	55.9

Table 2.55: Distribution of stakeholder groupings across the theme totals under what participants' goals for the day's meeting were.

Stakeholder Groupings	A. Collaboratively come up with solutions		B. Interact with different people		C. Evaluate the usefulness of the workshop		D. Learn and share information	
	Frequenc y	%	Frequenc y	%	Frequenc y	%	Frequenc y	%
Government	3	25.0	3	33.3	4	44.4	11	28.9
Education	0	0.0	2	22.2	0	0.0	3	7.9
Residents	0	0.0	0	0.0	1	11.1	2	5.3
PBO/NGOs	2	16.7	1	11.1	3	33.3	4	10.5
Commercial farmers	2	16.7	0	0.0	0	0.0	0	0.0
Community representatives	2	16.7	1	11.1	1	11.1	10	26.3
Emerging farmers	0	0.0	1	11.1	0	0.0	2	5.3
Unidentified	3	25.0	1	11.1	0	0.0	6	15.8
Total	12	100	9	100	9	100	38	100

Whether Participants' Goals Changed

Table 2.56: Distribution of the themes across the total responses to whether participants' goals had changed or not.

Overall frequency	A. Goals met		B. Goals changed		C. Goals not changed	
	Frequency	%	Frequency	%	Frequency	%

53	7	13.2	26	49.1	20	37.7
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Table 2.57: Distribution of stakeholder groupings across the theme totals under whether participants' goals had changed or not.

Stakeholder Groupings	A. Goals met		B. Goals changed		C. Goals not changed	
	Frequency	%	Frequency	%	Frequency	%
Government	3	42.9	7	26.9	5	25
Education	3	42.9	0	0	0	0
Residents	1	14.3	1	3.8	1	5
PBO/NGOs	0	0	2	7.7	5	25
Commercial farmers	0	0	0	0	0	0
Community representatives	0	0	11	42.3	3	15
Emerging farmers	0	0	1	3.8	0	0
Unidentified	0	0	4	15.4	6	30
Total	7	100	26	100	20	100

Participant Satisfaction

Table 2.58: Distribution of themes under what participants found to be most satisfying about the day's work.

Overall Total	A. Inclusive of a wide range of stakeholders		B. Learning from good facilitation		C. Not yet satisfied	
	Frequency	%	Frequency	%	Frequency	%
71	41	57.7	26	36.6	4	5.6

Table 2.59: Distribution of stakeholder groupings within the total frequency of each theme under what participants found to be most satisfying about the day’s work.

Stakeholder Groupings	A. Inclusive of a wide range of stakeholders		B. Learning from good facilitated process		C. Not yet satisfied	
	Frequency	%	Frequency	%	Frequency	%
Government	16	39.0	5	19.2	1	25.0
Education	4	9.8	2	7.7	1	25.0
Residents	2	4.9	0	0.0	1	25.0
PBO/NGOs	7	17.1	2	7.7	0	0.0
Commercial farmers	0	0.0	0	0.0	1	25.0
Community representatives	2	4.9	13	50.0	0	0.0
Emerging farmers	3	7.3	0	0.0	0	0.0
Unidentified	7	17.1	4	15.4	0	0.0
Total	41	100	26	100.0	4	100

Aspects of the Workshop that Needed Modification

Table 2.60: Distribution of the different themes under what participants could change if they could start the workshop from scratch out of the total frequency of responses

	Frequency	%
A. Time considerations	10	16.9
B. Lack of representation and lack of engagement between participants	19	32.2
C. Clarify discussion towards solutions	6	10.2
D. Nothing	19	32.2
E. Capacitate MLM	5	8.5
Overall Total	59	100

Table 2.61: Distribution stakeholder groupings across the total frequencies of the themes under what participants could change about the workshop if they could start from scratch

Themes	A. Time considerations		B. Lack of representation and lack of engagement between participants		C. Clarify discussion towards solutions		D. Nothing		E. Capacitate MLM	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Stakeholder Groupings										
Government	4	40.0	4	21.1	2	33.3	6	31.6	2	40
Education	2	20.0	4	21.1	0	0.0	1	5.3	0	0.0
Residents	0	0.0	1	5.3	1	16.7	1	5.3	0	0.0
PBO/NGOs	1	10.0	4	21.1	2	33.3	0	0.0	0	0.0
Commercial farmers	1	10.0	0	0.0	0	0.0	1	5.3	0	0.0
Community representatives	2	20.0	1	5.3	0	0.0	7	36.8	1	20
Emerging farmers	0	0.0	1	5.3	0	0.0	0	0.0	1	20
Unidentified	0	0.0	4	21.1	1	16.7	3	15.8	1	20
Total	10	100	19	100	6	100	19	100	5	100

Participants' Perception on Level of Respect for Their Knowledge

Table 2.62: Distribution of the two options across the total responses to whether participants felt like their inputs were taken seriously.

	A. Yes		B. No	
Overall Frequency	Frequency	%	Frequency	%
69	65	94.2	4	5.8

Table 2.63: Distribution of stakeholder groupings across the responses to whether participants felt like their input was taken seriously.

	A. Yes		B. No	
Stakeholder Groupings	Frequency	%	Frequency	%
Government	19	29.2	1	25.0
Education	6	9.2	0	0.0
Residents/Citizens	3	4.6	0	0.0
PBO/NGOs	7	10.8	3	75.0
Commercial farmers	2	3.1	0	0.0
Community representatives	15	23.1	0	0.0
Emerging farmers	3	4.6	0	0.0
Unidentified	10	15.4	0	0.0
Total	65	100.0	4	100.0

Ways That Participants Could Be Better Included Going Forward

Table 2.64: Distribution of the themes across the total response frequency under how participants felt they could better be included in the drafting of the CMS.

	A. receive information about other meetings		B. Increase stakeholder representation		C. Clarify focus of discussion		D. Capacitate MLM to fix infrastructure		E. Already included	
Overall Frequency	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
68	19	27.9	15	22.1	16	23.5	13	19.1	5	7.4

Table 2.65: Distribution of the stakeholder grouping across the total theme frequencies under how participants felt they could better be included in the drafting of the CMS.

Stakeholder Groupings	A. receive information about other meetings		B. Increase stakeholder representation		C. Clarify focus of discussion		D. Capacitate MLM to fix infrastructure		E. Already included	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Government	9	47.4	4	26.7	4	25.0	1	7.7	1	20.0
Education	2	10.5	2	13.3	0	0.0	0	0.0	2	40.0
Residents	1	5.3	0	0.0	1	6.3	0	0.0	0	0.0
PBO/NGOs	3	15.8	3	20.0	3	18.8	0	0.0	1	20.0
Commercial farmers	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Community representatives	1	5.3	1	6.7	7	43.8	9	69.2	0	0.0
Emerging farmers	1	5.3	0	0.0	0	0.0	1	7.7	1	20.0
Unidentified	2	10.5	5	33.3	1	6.3	2	15.4	0	0.0
Total	19	100	15	100	16	100	13	100	5	100

Participants' Feeling About Facilitation's Inclusivity

Table 2.66: Distribution of the options across the overall response frequency under whether facilitation was giving equal opportunity for all to participate.

Overall Frequency	A. Yes		B. No	
	Frequency	%	Frequency	%
68	66	97.1	2	2.9

Table 2.67: Distribution of stakeholder groupings across the total frequencies of the options under whether facilitation was giving equal opportunity for all to participate.

Stakeholder Groupings	A. Yes		B. No	
	Frequency	%	Frequency	%
Government	20	30.3	0	0
Education	6	8.8	0	0
Residents	3	4.4	0	0
PBO/NGOs	8	11.8	1	50
Commercial farmers	2	2.9	0	0
Community representatives	14	20.6	1	50
Emerging farmers	3	4.4	0	0
Unidentified	10	14.7	0	0
Total	66	97.1	2	100

Participants' Final Remarks on the Workshop

Table 2.68: Distribution of themes across the overall response frequency under participants' general remarks about the workshop.

Overall Frequency	A. Workshop useful, and a good learning experience:		B. increase representation		C. Time allocations		D. More still needs to be done on the ground	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
50	25	50	7	14	2	4	16	32

Table 2.69: Distribution of stakeholder groupings across the total frequencies of the options under participants' general remarks about the workshop.

Stakeholder Groupings	A. Workshop useful, and a good learning experience		B. increase representation		C. Time allocations		D. More still needs to be done on the ground	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Government	11	44	2	28.6	0	0	2	12.5
Education	0	0	1	14.3	1	50	0	0
Residents	0	0	0	0	1	50	0	0
PBO/NGOs	2	8	1	14.3	0	0	2	12.5
Commercial farmers	0	0	0	0	0	0	0	0
Community representatives	8	32	1	14.3	0	0	7	43.8
Emerging farmers	1	4	0	0	0	0	2	12.5
Unidentified	3	12	2	28.6	0	0	3	18.8
Total	25	100	7	100	2	100	16	100

APPENDIX 3: CONSENT FORM



RHODES UNIVERSITY
Where leaders learn

INSTITUTE OF WATER RESEARCH AND DEPARTMENT OF COMMUNITY
ENGAGEMENT

AGREEMENT / Isivumelwano

BETWEEN RESEARCHER AND RESEARCH PARTICIPANT / Phakathi Komphandi
kwakunye nomthathi nxaxheba kuphando

I _____ agree to participate in Miss Mateboho Ralekhetla, Prof Tally Palmer and Dr Sharli-Anne Paphitis's research, which aims to evaluate the use of strategic adaptive planning with a local Catchment Management Forum to draft input into a catchment management strategy. The researcher will introduce the method and work with the forum to formulate their local Catchment Management Strategy (CMS), and participants and the researcher will write reflections about every meeting. The researcher will give feedback in anonymity about the previous meeting before every meeting as a way to incorporate some of the views and suggestions that may arise in individual reflections (which highlights an adaptive process and incorporation of all perspectives). The research is for a master's research and will be used in publications and presented at conferences.

Mna _____ ndiya vuma ukuthatha inxaxheba kolu phando lwenziwa ngu Nkosazana Mateboho Ralekhetla, kwakunye no Profesa Tally Palmer no Gqirha Sharli-Anne Paphitis, elujonge ekusebenziseni iStrategic Adaptive Planning namalungu eCatchment Management Forum, ukuba negalelo ekuphuhliseni iCatchment Management Strategy eTsitsa River Catchment. Umphandi uzakuthi abhale imizuzu, ejongana nendlela

eqhubekela ngayo intlanganiso. Umphandi uzakuthi enze ingxelo (engabizi gama lamntu) ngentlanganiso ebithi yabanjwa phambi kokuba kuqala enye, ngenjongo zokuqinisekisa ukuba uluvo nengcebiso zabathathi nxaxheba zithathelwa ingqalelo (Nto leyo ebonisa inkqubo ye Strategic Adaptive Planning). Olu luphando lwezifundo ze-Masters, kwaye luzakusetyenziswa ukuphuhlisa amaphepha ezemfundo, lucaciswe nakwi ndibano ezinkulu nabanye abaphandi.

If you agree to participate, I will ask you to 1) engage with the APP by attending our regular meetings and speaking out during discussions 2) give guided reflections about each session, whether the researcher was present or absent.

Ukuba uyavuma ukuthatha inxaxheba, Ndizakucela ukuba 1) ubeyinxalenye yale nkqubo ye-Adaptive Planning ngokuba uhambe ezintlanganiso qho xa zithe zabanjwa, kwaye ubenegalelo kwintlanganiso nganye 2) Unike inkcazelo ngentlanganiso nganye, qho kubanjwe intlanganiso, ekhona okanye engekho umphandi.

In all publications that issue from this research no indication of your identity will be revealed, so they will remain anonymous. All recordings and reflections will be treated as confidential.

Kuwo wonke amaphepha azakuthi aphuhliswe lolu phando, uyaqinisekiswa ukuba akusayi kubhalwa gama lakho, ngoko ke akakho umntu ozokwazi ukuba nguwe obuze nolu lwazi.

I understand that/ Ndiyaqonda ukuba:

1. The researchers are staff members and students of the Department of Community Engagement and the Institute of Water Research at Rhodes University. / Ukuba abaphandi ngabafundi kwakunye nabasebenzi be Community Engagement ne Institute for Water Research kwi Dyunivesithi yaseRhodes.
2. The Researcher Mateboho Ralekhetla can be contacted at 0604354663 or at rmateboho@gmail.com. / Umphandi uMateboho Ralekhetla ndingaxhomana naye emnxebeni ku 0604354663 okanye nge i-imeyile rmateboho@gmail.com.
3. I am free to withdraw from the study at any time. However, I commit myself to full participation unless some unusual circumstances occur or I have concerns about my participation, which I did not originally anticipate. I will not ask the researcher to delete

previous group data collected should I decide to discontinue my participation in the study.
/ Ndinelungelo lokurhoxa koluphando nanini na ndakuziva ndifuna. Kodwa, ndiyazinikezela ekubeni ndibengomnye wabantu abathatha inxaxheba. Andisayi kufuna umphandi alahle ulwazi athe waluqokelela ngexesha bendithatha inxaxheba, xa ndithe ndaziva ndifuna ukurhoxa kuphando lwakhe.

4. I will be asked to answer questions, but I can choose not answer any questions, which I am not willing to disclose. / Ndilindeleke ukuba ndiphendule imibuzo, kodwa ndinelungelo lokungayiphenduli imibuzo endingafuni ukuyiphendula.
5. I am invited to voice to the researcher any concerns I have about my participation in the study and to have these addressed to my satisfaction. / Ndiyamenywa ukuba ndithethe nomphandi ngokuthatha kwam inxaxheba koluphando, kwaye kuthethwe ngazo ukwenzele ndaneliseke.
6. Any publications on the project may contain information about my personal experiences, attitudes and behaviours, but the researcher will use pseudonyms (i.e not my real name) so that I will not be identified by the general reader. / Amaphepha azakuthi aphuhliswe ngenxa yoluphando angaba nalo ulwazi ngam, kodwa umphandi angasebenzisi igama lam lokwenyani kuphando lwakhe kwakunye nakumaphepha azakuthi aphuhliswe.
7. I will not receive monetary compensation for my participation in this research project. / Andisayi kubhatalwa ngokuthatha inxaxheba koluphando.
8. I am aware that this research project has ethical clearance by the Rhodes University Science Faculty Ethical Standards Committee. / Ndiyaqonda ukuba oluphando luthe lavunywa yi Ethical Standard Committee yakwi Dyunivesithi yaseRhodes.

Participant/ Umthathi nxaxheba:

Researcher/ Umphandi:

APPENDIX 4: WORKSHOP AGENDAS

Agenda: Adaptive Planning Workshop 1: 13 th & 14 th June 2017	
Day 1	
Session 1: 9:00 - 11:00	<ul style="list-style-type: none"> ● Introduction and registration ● Issues and concerns related to water, sanitation and catchment ● Description of key concepts ● Reflection (1) on the session – exploring what is new, what we already knew and additional things we know
Tea 11:00 - 11:30	
Session 2: 11:30 - 13:00	<ul style="list-style-type: none"> ● Reach consensus on the vision, values and operating principles ● Reflection (2) - after the developing a shared vision, and values, do we feel respected, and that our views have been heard?
Lunch 13:00 - 14:00	
Session 3: 14:00 - 15:30	<ul style="list-style-type: none"> ● Provide the context for setting the objectives (description of key characteristics of the catchment using the STEEP - defining key Social, Technological, Environmental/Ecological, Economic and Political characteristics)
Day 2	
Session 1: 9:00 - 11:00	<ul style="list-style-type: none"> ● Recap of Day 1 ● Document the essential characteristics of the system to be managed ● Evaluate and consolidate characteristics ● Reflection (3)- Make general comments about the process

Tea 11:00 - 11:30	
Session 2: 11:30 - 13:00	<ul style="list-style-type: none"> ● Record what is required to maintain essential characteristics ● Identify constraints and threats to essential characteristics ● Set management objectives ● Prioritize management objectives
Lunch 13:00 - 14:00	
Session 3: 14:00 - 15:30	<ul style="list-style-type: none"> ● Complete prioritization ● Way forward and identification of strategy development working group ● Conclusion of workshop

Agenda: Adaptive Planning Workshop 2: 20 th September 2017		
Session 1: 8:00 - 10:30	<ul style="list-style-type: none"> ● Introduction and registration ● Rationale to the workshop: Intro to process, what it is all about, what we aim to do, how we are going to do it, what the outcomes will be, how they fit into the bigger picture (IDP, WSDP, CMA/CMS, NWRS, etc.) ● Description of key concepts out of what has been said, what do people feel are some of the important or key sessions that we should prioritise more time for ● Issues and worries 	Are we explaining all concepts and what goes into each session in the intro, or explain at the start of each session
Tea 10:30 – 10:45		
Session 2: 10:45 - 13:00	<ul style="list-style-type: none"> ● Reach consensus on the vision, values and operating principles ● Provide the context for setting the 	<ol style="list-style-type: none"> 1. Pairs 2. Pairs (examples

	<p>objectives (description of key characteristics of the catchment using the V-STEPP - defining key Values and Social, Technological, Environmental/Ecological, Economic and Political characteristics) – draw from people’s existing knowledge and information pack that was circulated in</p> <ul style="list-style-type: none"> ● Reflection (written) 	from last workshop)
Lunch 13:00 - 14:00		
<p>Session 3: 14:00 - 15:30</p>	<ul style="list-style-type: none"> ● Document the essential characteristics of the system to be managed ● Evaluate and consolidate characteristics ● Record what is required to maintain essential characteristics ● Identify constraints and threats to essential characteristics 	
Short break 15:30 - 15:40		
<p>Session 4: 15:40 - 17:00</p>	<ul style="list-style-type: none"> ● Set management objectives ● Prioritize management objectives ● Complete prioritization ● Way forward and identification of strategy development working group ● Conclusion of workshop 	

APPENDIX 5: OUTCOMES OF THE UPPER KOWIE CATCHMENT ADAPTIVE PLANNING WORKSHOPS

Strategic Adaptive Planning (SAM) Workshop: 13 – 14 June 2017: BB Zondani Hall, Fingo Village, Makhanda:

Attendance register (Mateboho)

Prof Palmer introduced herself and the IWR students – Matthew, Mateboho and Sinako.

Prof Palmer explained that Rhodes University had an ethical clearance policy whereby the rights and dignity of humans and animals is a top priority for all activities at Rhodes University. If at any time anyone felt uncomfortable with any part of the process, they were more than welcome to say so.

What is meant by Adaptation? This was where the attendees at the workshop became the voice of the people living in the place / area and their expectations.

Prof Palmer explained what the job was of the forum:

- To gather ideas of the place we live in and how we want to manage it.
- To manage waste.
- To manage how water can be gathered.
- Establish a collective understanding of what we want and how we get there.

We all live on this planet, in a catchment:

Introduction:

A catchment is high ground where water falls and travels downhill in a stream / river.

Catchment Management is the plan for doing something and then putting the plan into action. Even places that have the most water can be mis-managed.

A Catchment Management Agency (CMA) is a form of ‘institutional arrangement’ i.e. a body that coordinates functions of other institutions involved in water-related matters.

The Water Management Area (WMA) is a rather big place.

Strategic Adaptive Management means making a plan when things change.

Who is worried about the water in the place you live? Attendees were asked to write down their top THREE worries / concerns. The list was as follows:

- Management of catchment and eradication of alien vegetation
- Ever increasing population – need water to grow food
- Availability of water for domestic / household use
- Dams drying up and whether the plan will deal with Water Quality i.e. whether Water Quality is compromised if provided from an alternative source
- Access to water for hospitals and communal health centres in rural areas
- Water quality in resources poor areas
- Capacity of wastewater treatment works
- Water Quality / Polluted water
- Water outages & response to these
- Drought
- Municipalities ability to enforce water restrictions
- When water runs out, most vulnerable people are likely to suffer
- Loss of biota / living things in our aquatic ecosystems
- Pollution goes all downstream
- Active participation of residents
- Less rain due to global warming / climate change
- Worried about catchment / water management / alien invasives
- Promote common understanding among stakeholders
- Wastage of water and the way it is used
- Colour of water from taps
- Sanitation / hygiene / health
- Key businesses running out of water
- Distribution of water
- Effective communication to residents about water
- Water security for growing food

- Food security and efficiency
- Farming use of water
- Infrastructure maintenance
- Lack of forward planning – not enough and strategic thinking
- Growing population and new developments
- Urgency
- Efficient use of funding allocated to water
- Residents not heeding call to save water
- Equity / vulnerable
- Price of water – expensive!

Where do we want to be when we run out of water?

Compromise / Consensus:

Compromise = lobbies and argues against each other reaching an understanding.

Consensus = build on common values and a shared understanding / general agreement.

V-STEER: Values / Social / Technical / Economic / Environmental / Political

Values:

- Responsibility
- Understanding
- Caring
- Ubuntu
- Honesty
- Harmony
- Integrity
- Fairness
- Collaborative Management
- Equality
- Inspirational

- Accountable
- Trustworthy
- Transparency
- Critical
- Fulfilling
- Protective (resources)
- Cheering
- Efficiency
- Love
- Kindness
- Forgiving
- Generous
- Disciplined
- Appreciative
- Tolerant
- Solidarity
- Empowered
- Empathy
- Commitment
- Appreciative
- Tolerant
- Solidarity
- Afraid (Fearful)
- Brave
- Creative
- Sharing & Growth
- Knowledge is exchanged
- Inclusive
- Scenic
- Proactive

- Respect
- Brave

Social:

- Community Expectations
- Lack of community participation in water and sanitation initiatives
- Limited information sharing platforms on water and sanitation issues
- Unhappy people due to lack of information / communication
- Access to awareness
- Crime – stealing of infrastructure
- Vandalism
- Makhanda Residents Association (GRA)
- Community Development Workers (CDWs), ward committee members and Ward Councillors to convey message to communities
- Media organisations (Grocott's; Radio Makhanda; RMR)
- Lack of active public participation in community members (and lack of solidarity)
- Division is perpetuated
- Value of clean water and natural flowing rivers in spiritual upliftment. Also river sites used for worship and recreation
- There is a minimum space for NGO's
- Government, Businesses, Academic Institutions, NGO's, Labour movements need to work together to tackle social problems

Technical:

- Access to Inter-basin transfer water:
Limited
Insecure future supply
- Plain water harvesting, urban, subsistence agriculture
- Water allocation decision-making:

Basic human use

Environment

Agriculture

Recreation

- 2 Water Treatment Works and 2 Waste Water Treatment Works: Insufficient Infrastructure:
 - Over capacitated
 - Require upgrading
 - Not enough supply to Makhanda East
- Technical capacity in Makana Local Municipality limited
- Capacity to increase storage e.g. raise dam walls & new dams
- Makhanda East
- High Content of Manganese
- Old Infrastructure
- Treatment Process
- Damage to Infrastructure from frequent sand build up
- No capacity building of unemployed youth interns of technical skill to stop leakages of community taps / water
- Poor alien vegetation management in catchment resulting in reduce flow and low water table
- Lack of community awareness about technical issue of water and sanitation
- Shortage of technical skills in Makana Local Municipality
- Reliance on external contractors for technical projects
- Rhodes University, South African Institute for Aquatic Biodiversity (SAIAB) & Albany Museum knowledge and skills under utilised.

Economic:

- High unemployment rate in Makana – particularly in the township area e.g. Makhanda East
- High amount of non-revenue water

- Billing problems
- Can't afford engineers
- Maintenance budget
- Poverty Up – Expanded Public Works Programmes (EPWP) boost local employment
- Lack of industrial development in Makana
- Seasonal Tourism in Makhanda (Festival)
- University, Schools & Agriculture – sources of Makana income
- Insufficient funding for Working for Water (WfW) and other alien eradication programs
- No existing business programs to developing the Small Medium Micro Enterprises in order to sustain the local economy
- Thousands of Rands flowing out of this municipality – consumer spending must remain inside Makana

Environmental:

- Catchments are heavily infested with invasive alien vegetation
- Clearing and eradication of alien plants improves water retention and release and availability. See Howiesons Poort stream flow
- Working for Water is presently not able to get to all of the alien vegetation that needs to be cleared. We need another plan.
- Pollution
- Well-management of catchments to improve water quality
- Insufficient sewage capacity resulting in the majority of effluent flowing down the Bloukrans River untreated
- Awareness on how to use water sparingly
- Improve biodiversity management plans (biodiversity is threatened by poor water quality)
- Dumping of solid waste
- Poor waste collection by municipality
- Poor land management practices leading to lower water retention and increased runoff and erosion

- Global warming / climate change effect
- Illegal dump sites
- Pollution incidents to our water resources
- River clean-up projects
- Sewerage spillages
- Erosion due to loss of grass
- Possible development of wetlands before sewerage effluent to remove nutrients
- Water pollution in upper catchment leads to biodiversity loss and decreases self-purification capacity of river. Need to assure that water effluent is processed optimally.
- Riparian vegetation needs to be carefully managed to increase stream pollution and not alien encroachment and degradation of stream banks.

Political:

- Political Parties (Council) – ANC, DA, EFF
- Equity and re-dress
- Efficient use of resources
- Indigent policy (preferential allocation to indigent household)
- Gender equity in water allocation and governance
- Administration status of the municipality
- De-Gazette the water users association
- Inadequate enforcement of alien vegetation control legislation
- Ward councillors, CDW's and Ward committees to convey messages to communities
- Top-down approach is no longer relevant
- Integrated Service delivery model
- Lack of political education
- Defining development concert
- Reviewing of policies

What future do we want?

What are the top three characteristics you want from water / a catchment?

Characteristics of a shared future / Top Characteristics:

- Sustainability
- Enough water / Rainfall all the time
- No water leakages
- Equal access and use of water
- Awareness and knowledge of water conservation
- Good enough quality of water – for each users and environmental health
- Well-managed catchment with no alien vegetation
- Good compliance with water restrictions and water quality
- Reliability
- Caring society
- Information to institutions and businesses
- Well-developed and maintained infrastructure
- Limiting development in catchment to balance of water available
- Sustained natural biodiversity / act as a monitor and maintenance of a good catchment
- Catchment that is understood by all
- Efficient and transparent use of public funds
- Equitable policy
- Economic and financial sustainability
- Re-imagining water practices
- Sufficient water distributed equitably
- Include spiritual & beauty needs
- Safe, equal, healthy sanitation.

Shared Vision:

Upper Kowie and Makana Integrated Water Sanitation and Catchment Management

Strategy:

‘Our vision is to have a catchment that strives for social justice (equal access and distribution of sufficient reliable, safe and good quality water and sanitation for equal and meaningful stakeholder participation); environmental sustainability (protects and conserves biodiversity, that is free of alien vegetation and supports sustainable economic growth / development); water use efficiency, economic efficiency and spiritual and cultural practices (well-managed and maintained water system with informed, accountable and responsible users) through equitable, transparent and stakeholder-driven policy and implementation / management.’

Characteristics:

- Orange-Fish River Sustainability
- Infrastructure
- Communications
- Inadequate, Understanding, awareness, learning, support, commitment
- Funding (diverse sources)
- Healthy upper catchment (waste management)
- Existing institutions (maintain civil society organisations) i.e. CMF
- Makana Local Municipality WSA & WSP
- Agriculture economic contribution
- Waste management
- Research / development & innovations
- Poverty / Unemployment rate
- Indigent subsidy

12 Essential Characteristics:

1. Orange-Fish River Inter-Basin Transfer Scheme
2. Old, unreliable and inadequate infrastructure

3. Inadequate communication system
4. Inadequate understanding, awareness, learning, support and commitment
5. Limited and lack of diverse funding sources
6. Situated in the headwaters of the Kowie catchment: highly impacted; downstream users to consider waste management challenges.
7. Diverse number of existing institutions
8. Key economic providers: University, schools, agriculture and industry
9. High existing research capacity for development and innovation
10. High Poverty and unemployment rate
11. Indigent subsidy as MLM source of income
12. The MLM as both water services authority and water service provider.

<u>THREATS/CHALLENGES</u>	<u>SOLUTIONS</u>
1. Orange-Fish River Inter-Basin Transfer Scheme	
<p>Insufficient water (e.g. drought); Economic growth and water required along Orange-Vaal System; Locals polluting the Orange River; Old infrastructure for transferring water from Orange River.</p>	<p>Agreement re: water distribution, particularly in terms of drought water availability; Are some documents in place e.g. gazette water resource classes (Vaal) governing water resource protection and use, National Water Resource Strategy and Reconciliation Strategies; Increase individual and institutional water harvesting; Educate people about alternative ways of dumping waste; Government build new infrastructure (pipes) to transfer water.</p>
2. Reliable upgraded and adequate infrastructure	
<p>Municipality is still wasting thousands of rand on fixing old pipes;</p>	<p>They should allocate a budget for a new water pipes;</p>

<p>Inability of existing water transfer pipes to transport water (old and leaking);</p> <p>Current water infrastructure is inappropriate for a water scarce country and is not responsive to climate change (imported from Victorian England!).</p>	<p>Government must invest in building new water transfer pipes;</p> <p>Focus on appropriate technology;</p> <p>Need to re-imagine / decolonize our water infrastructure, e.g. compost toilets (starting in wealthy suburbs!), harvesting storm-water, keeping water in the land where it falls, rehabilitating grasslands, etc.</p>
<p>3. Inadequate effective communication system</p>	
<p>People / citizens are all in the dark – they don't know about the water situation in Makana;</p> <p>Means they are not saving water because they don't know how serious the crisis is;</p> <p>Means people cannot prepare or 'adapt' to problems with quality or supply.</p> <p>Not realising how serious the water crisis really is.</p>	<p>More meeting of this Forum;</p> <p>Stakeholders from this Forum share what they learn through public meetings, radio, newspapers, WhatsApp groups;</p> <p>Getting more people connected to MobiSam;</p> <p>Campaigns through churches;</p> <p>Information shared on Grahamstown Radio and Rhodes Music Radio.</p>
<p>4. Inadequate good understanding, awareness, learning, support and commitment</p>	
<p>More crime because people don't know the importance of copper taps, etc;</p> <p>Misuse of water due to lack of knowledge;</p> <p>Leaking taps that are not fixed by community members;</p> <p>No personal responsibility for water saving;</p> <p>No culture of the importance of water.</p>	<p>Community awareness and supporting the stakeholders by providing capacity building.</p> <p>The NGO's to disseminate the info to the community;</p> <p>Educate people to use water efficiently (Workshop & other community programmes);</p> <p>Municipality avail themselves to fix taps;</p> <p>Involve ALL Makhanda schools and learning institutions in water saving schemes – competitions / games.</p>

	Demonstration on water saving from the top e.g. Mayor, VC, Principals.
5. Limited and lack of diverse funding sources	
Poor quality of funding applications; Lack of project management application writing skills e.g. Adopt a river programme in Makana; No investment in the town; Existing businesses will consider relocating; Proliferation of unemployment rate; The outlook of Makana will be bad.	Funding for CMG activities: CMF register as NPO or funding supporting NGO; Capacity building in effective funding application production and support; Makana should find a way on how to mobilise finances to sustain its services / projects before they can look for outside sources; Use the expertise available in Makhanda Less focus on politics and more on getting the job done.
6. Situated in the headwaters of the Kowie Catchment: highly impacted; downstream users to consider waste management challenges.	
Continued and ongoing littering; Pollution challenges; Additional demand for water use.	Make bylaws, stricter fines for littering/water pollution especially for businesses; Educate society on water use efficiency; Study water availability, understand, implement findings and informed decision-making and water resource development; Why not create jobs (e.g. working for water) for collection of litter – so provide incentives; Provide decent remuneration for recycling (e.g. plastic collectors).
7. Diverse number of existing institutions	
Not enough awareness; Lack of support; Lack of information / knowledge to the people;	Involve churches in awareness campaigns; Municipal meeting; ward meetings (school meetings e.g. SGB & Parent meetings);

Many different sectors (agriculture, industry, water services institutions; water management ins) with poor coordination.	Stakeholder engagement forums to consensus building on water usage and demand availability.
8. Key economic providers: University, schools, agriculture and industry	
Inadequate support; Drought (agriculture) Universities are under extreme financial pressure; Entrepreneurship is not adequately supported; Huge reliance on grants – threatened by corrupt governance.	Diversify key economic providers; Ensure Makhanda remains an environment where key economic provider still want to operate.
9. High existing research capacity for development and innovation	
Silo culture within university departments; Poor relationships between University and Municipal actors / decision-makers; Lack of trickle down from university knowledge and research; Research often doesn't take political realities / challenges to implementation into account. Requires transdisciplinary and transgressive learning. Researchers are activists! Researchers do not communicate well with policy regulators.	Use Science Expo learners as water ambassadors in schools and communities; More interdisciplinary research, including researchers from outside the university i.e. citizen scientists; social learning; lots of good applied research done by NGO's; Improve communication between researchers and policy regulators; Guidelines needed on appropriate research by diverse groups while meeting Quality Control and Assurance Measures.
10. High Poverty and unemployment rate	
Low industrial potential in Makana i.e. job availability; Insecure water drives poverty and poorer households are most vulnerable when water quality and quantity is jeopardised;	Jobs should be created in the water sector, including leak fixing / artisanal plumbers; rainwater tank installation and maintenance; water quality testing; water educators;

<p>Few businesses hiring unskilled local committee members.</p>	<p>Should be a focus on water saving industries for jobs;</p> <p>If we prioritise water security for poverty alleviation, need to recognise how crucial water is for ‘informal’ job sector e.g. car washes, creche’s, subsistence farming;</p> <p>Create businesses to empower unskilled local committee members;</p> <p>Municipality should invest in township economy and give tenders in cooperative initiatives and SMME’s.</p>
<p>11. Indigent subsidy as Makana Local Municipality source of income</p>	
<p>Low numbers of registered people;</p> <p>Failure to re-register;</p> <p>Lack of knowledge;</p> <p>Lack of title deeds;</p> <p>Informal settlements;</p> <p>Insufficient supporting documents.</p>	<p>Awareness campaigns;</p> <p>Door-to-door visits;</p> <p>Speeding up of issuing of title deeds.</p>
<p>12. The Makana Local Municipality as both water services authority and water service provider.</p>	
<p>Ageing infrastructure;</p> <p>Non-payment of rates;</p> <p>Lack of supervision of Municipal employees;</p> <p>Lack of urgency in responding to complaints about water leaks;</p> <p>Unattended leaks in private property;</p> <p>Lack of finances to improve infrastructure.</p>	<p>Improve revenue enhancement strategies;</p> <p>Improve rate collection;</p> <p>Stricter supervision of municipal employees;</p> <p>Involvement of Municipalities in blue and green drop programmes should be compulsory;</p> <p>Should be stronger oversight role of the DWS, as custodian of water resources;</p> <p>Divide the roles of WSA and WSP;</p> <p>Boost monitoring and enforcement, as it pertains to WSA and WSP.</p>

Building Objectives Hierarchy:

<p>Governance</p> <p>Local Municipality</p> <p>Forum</p> <p>Community & Civil Society (NGO)</p> <p>Organised Agriculture</p> <p>CMA</p> <p>How and Who e.g. University etc</p> <p>APP for local government</p>	
<p>Funding</p> <p>Access</p> <p>Management</p>	
<p>Optimise Water (flow/water table) availability in Upper Catchment</p> <p>Biodiversity</p> <p>GM</p> <p>Clear Alien Vegetation</p> <p>Enforcement of Legislation and Compliance</p>	<p>Objective</p> <p>Clean water in upper catchment:</p> <p>Biodiversity</p> <p>Health</p> <p>Good Management</p> <p>Infrastructure maintenance & develop (im & d) -</p> <p>WWTW</p> <p>Water use practice – agriculture / industry</p> <p>Enforce Legislation</p>
<p>Sustainable and equitable water and sanitation supply and delivery</p> <p>Farmers</p> <p>Households</p> <p>Business and Industry</p> <p>GM</p> <p>GIM & D – WTW</p>	

Bylaws (enforcement)

Efficient use of water delivery

Good Management

Infrastructure Maintenance

Good Communication, Education & Social learning

Bylaws and enforcement

Demand Management

Reuse