Sustainable Management of Water Use and Water Resources: The Impact of Approaches to Restore Trust in the Government (EnTruGo)

Report to the
Water Research Commission

by

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WRC Report No. 3073/1/23

ISBN 978-0-6392-0398-0

May 2023

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This is the final report for WRC project no. C2019-2020-00086.

EXECUTIVE SUMMARY

BACKGROUND

This research forms part of a larger Joint Programming Initiative (Water)-funded research project that brought together researchers from the African Climate and Development Initiative (ACDI) of the University of Cape Town, the Strategic Communication Group of the Wageningen University (The Netherlands), the Stockholm Environmental Institute (Sweden) and the Bartensz Institute of the Arctic, University of Norway to explore the role of trust in water governance. More specifically, the project set out to enrich the theoretical understanding of public trust and how it relates to interpersonal trust that can be promoted through participatory innovations in different governance contexts. This report synthesizes the key findings from the research that was undertaken in South Africa which was funded by the Water Research Commission.

The possibilities for governments to design and implement sustainable water systems is largely dependent on whether government institutions are viewed as trusted and legitimate by affected stakeholders and the wider public. In recent decades, trust in government has declined, with public mistrust provoked by failures of governments to enact their duty towards citizens, lack of transparency and accountability of state institutions, and proliferation of knowledge controversies among competing stakeholders. In several countries, the current situation results in dissatisfaction towards the functioning of governments which, in turn, affects the government's ability to innovate and deliver on sustainability goals for water management. Legislatures and state agencies have launched various participatory innovations to strengthen service delivery and rebuild trust in government, including citizens' assemblies, e-governance, multi-stakeholder platforms, and direct democracy. However, it remains unknown if, and if so, how participatory innovations enhance trust in government institutions among stakeholders and the public and ultimately improve the effectiveness, sustainability, and legitimacy of water governance.

In order to address the apparent knowledge gap the research was guided by the following objectives:

i. To evaluate the status of trust in government institutions tasked with water management, including the key factors that shape public trust in government as guardian of water resources;
ii. To evaluate the impact of participatory innovative approaches on public trust in government and the wider implications of such trust dynamics for sustainable water governance; and
iii. To identify governance strategies to enhance trust in government as a guardian of water governance actions.

More generally, a trust relation can be described as a relationship where "a truster A trusts (judges the trustworthiness of) a trustee B with regard to some behavior X in context Y at time t". This conceptualization highlights that trust is not only a relational attitude of trustor (A) towards the actions of trustee (B), but it is also context-specific and dynamic. Important to note is that trust is a multidimensional concept, i.e. it can be operating at the individual, interpersonal (i.e. dyadic), inter-organizational and institutional levels. Interpersonal trust and public trust are of specific interest to this research as they are seen as important factors that affect water governance processes and outcomes. Interpersonal trust is often referred to as trust between two individuals and is based on expectations grounded in the personal experience between the two individuals. It can be conceptualized as individuals'

expectation about the thoughts, behavior, and decisions of other people within a specific trust context. Hence, interpersonal trust is quite dynamic and changes in accordance with individual and joint action by the trustors and trustees. Institutional trust, on the other hand, goes beyond a specific interpersonal relation and involves macro-level arrangements beyond the level of inter-personal interactions Consequently, trust in institutions, also referred to as systems trust or confidence, is often defined as the unconscious expectation that institutions will work as they always have and is based on long-standing experiences of the functioning of these institutions. Trust in government, which in the context of this research we refer to as public trust, can be seen as a form of institutional trust. More specifically we are interested in the trust that citizens place in government organizations responsible for water management.

METHODS

An important foundational component of our research was a systematic literature review through which we examined the way in which the literature on water governance has engaged with trust as a conceptual lens, analytical device and empirical phenomenon. Through the systematic literature review of *N*=200, mainly peer-reviewed journal articles, we were able to gain a better understanding of how trust in government has been studied and compared over time in previous research. It also set the groundwork for understanding and differentiating different types of trust and the factors that determine specific trust relations.

Building on the literature review, we then set out to empirically explore the interaction between public trust (also known as trust in government) and interpersonal trust in South Africa in three different contexts: i) the role of trust in the work of water managers operative at the local to national level; ii) residents' trust in water management organizations from selected underserviced neighbourhoods (seven in Cape Town and one in Gqeberha); and iii) the role of interpersonal trust in a government led participatory platform fostering integrative catchment management in the Upper Breede River Valley, Western Cape province.

For each of the three explorative empirical investigations we specified the type of trust that is of interest and the subjects and objects of trust (see table 1 below). We used semi structured interviews to qualitatively assess how water managers view the role of trust in their work as well as how interpersonal trust built through a government led participatory platform affects water governance processes and outcomes. For the investigation into public trust from selected underserviced neighborhoods in Cape Town and Gqeberha we opted for a quantitative assessment in form of a survey.

Table 1: Overview of types of trust empirical investigated in Chapter 4 to 6

Investigation	**Type of assessment**	**Subjects of trust (Trustor(s)**	**Objects of trust (Trustee(s))**	**Trust relation(s)**	**Type of trust**
The role of trust in the work of water managers (CH 4)	Qualitative: semi structured interviews	Various	Various	The role of trust in their work Indirectly: Between individual citizens and water managers; Between government organizations	Public trust/ Institutional trust
Public Trust in Underserviced Neighborhoods (CH 5)	Quantitative: survey	Residents of Underserviced Neighborhoods (individuals)	Water Management organizations (collective-level entities)	Between individual citizens governmental water management organization	Public trust/ Institutional trust
		Residents of Underserviced Neighborhoods (individuals)	Government (collective-level entities)	Between individual citizens and government	Public trust/ Institutional trust
CH6 Participatory innovations	Qualitative: semi structured interviews	UBCEG members (individuals but also (collective-level entities)	UBCEG (collective-level entities)	Institutional Trust	
		UBCEG members (individuals)	UBCEG members (individuals)	Interpersonal trust indirectly between different government organizations	Interpersonal and inter-organizational trust
		UBCEG members	Scientific data, rules, principles (abstract objects)	Institutional trust/ Procedural Trust	

RESULTS

Our findings from the systematic review reveal that the knowledge base on the role of trust in water governance is fragmented, poorly conceptualized, and contextually dispersed. We also observe that the role of trust is often understudied, especially in the context of the global South and with regard to ethnic minorities and indigenous people as the subjects of trust. We recommend that future research should build on solid empirical evidence, diversify its foci, go beyond an instrumental approach to trust and rely on clear and transparent conceptualizations that acknowledge the context-specific and dynamic nature of trust relationships. We hope that the results of this review will serve to better systemize future research and to further the understanding on the role(s) of trust in varying contexts and related to different water governance issues.

Our investigation into the role of trust in the work of water managers highlighted that various trust relations (public trust in their organizations, public trust in government, institutional trust towards the Department of Water and Sanitation (DWS), as well as intra-organizational trust) affect their ability to fulfil their mandates. Interestingly most of the interviewed managers emphasized that the perceived low level of trust (public and inter-organizational) in DWS is a larger obstacle than the perceived low levels of public trust in government (in general). A key finding from the engagement with the water managers is that the different trust relations affect each other in various, complex ways that require further systematic investigation. It furthermore appears that the quality of public engagement (or the lack thereof) has direct implications for public trust towards the water managers and their organizations.

Public trust in water management organisations is often considered an important precondition for the effective implementation of sustainable water management practices. Although it is well known that general public trust in government institutions is under pressure, few studies have explored whether this lack of trust (or sometimes distrust) also affects public trust in water managers. We used a survey to measure public trust in water management organisations in seven underserviced neighbourhoods in Cape Town and one in Gqeberha (N = 330) with the aim to assess how a selected group of potential determinants is related to general and task-specific trust in the specified water management organisations. We found that trust in water management organisations among representatives of the underserviced neighbourhoods is generally low. However, the residents in Cape Town and Gqeberha currently trust their local water services authority more than the national DWS. The findings also show that overall trust in the core political institutions in South Africa is generally low to very low, with substantial differences existing between neighborhoods. Reasons for this variation between neighborhoods, cannot be easily explained and require further investigation. Our regression models show that the racial composition of neighborhoods does not significantly matter to this regard. Although the 'coloured' neighborhoods of Lavender Hill and Hanover Park have very low average levels of political trust, the coloured neighborhood of Ocean View is among the highest scoring areas. Putting the between neighborhood differences aside, we do also not find strong individual-level determinants of generalized political trust itself. This may be partly explained by the fact that we were not able to control for the commonly strongly influential winner/loser effects (i.e. supporters of parties ending up in government/winning elections commonly report higher trust) in explaining such trust, as we did not ask about one's specific party preferences.

On the individual-level, our study shows general political trust is the strongest determinant of trust in both the DWS as well as the City of Cape Town and Gqeberha as water services authorities. Hence, the low levels of political trust in the South African government negatively affect public trust expectations towards water management organizations. Feeling well informed on water management in South Africa seems to be another important factor that influences how trusting the public is towards the water management organizations. This highlights the importance of open communication and information sharing. Public perceptions on water related risks appear not to be a determining factor for trust evaluations of water management organisations by the residents.

Our examination of the interpersonal trust relations of organizations involved in a government led participatory platform aimed at fostering integrative catchment management demonstrates that the building of interpersonal (and inter-organizational) trust relations among the organizations can lead to better decision-making processes and water governance outcomes. These included improved law enforcement, more effective and efficient alien plant clearing, reduced duplication of efforts and improved use of resources, more effective sharing of information, improved accountability and cooperation, and access to funding. Key factors that foster the building of interpersonal trust relations include: face-to-face contact which allows for personal rapport and direct lines of communication between participant organizations; context specific and transparent reporting structures and rules of engagement, adequate time for engagement, and proactive champions that have the capacities to institutionalise the participation processes into the larger governance system while at the same time providing a safe space for joint learning and innovations. The resulting inclusive organizational culture appears to be critical for bringing together disparate actors, for facilitating useful debates, effective information-sharing and collaboration.

RECOMMENDATIONS

This research set out to enrich the theoretical understanding of public trust and how it relates to interpersonal trust that can be promoted through participatory innovations. The insights gained from this inquiry provide a foundation for recommending strategies to enhance trust in government and, ultimately, increase the effectiveness, sustainability and legitimacy of water governance.

Recommendations for Practice and Policy:

- An important step for improving public trust in water management organizations is better communication with the public as well as a more targeted engagement with specific segments of the public in decision-making processes most relevant to them. This also entails presenting to the public an image of government as coordinated and having a cogent and shared understanding of government policy and practice.
- Effective public engagement requires adequate resources, especially for strengthening procedural equity, as well as enhancing and incentivizing skills among water managers that allows them to successfully facilitate engagement processes in various often complex and contested decision-making processes.
- The building of interpersonal (and inter-organizational) trust relations among organizations involved in participatory platforms is critical for ensuring that these platforms become effective

mechanisms for enhancing adaptive water governance processes and outcomes as well as for enhancing the capacities of the individual organizations to fulfil their water related mandates.

- Creating an inclusive organizational structure that fosters interpersonal trust relations among organizations involved in participatory platforms requires the development of clear rules of engagement, adequate time for face-to-face interactions, objective and transparent forms of data sharing and reporting as well as measurable successful outcomes of the collaborations created through the platforms.

Recommendations for Science:

- Future studies need to clearly acknowledge (and empirically uncover) the context-specific and dynamic nature of trust relationships.
- To better assess the effects of trust in various water governance contexts, future studies would benefit from engaging more specifically with the existing trust theory and utilize established trust frameworks.
- More attention is required towards studying the role of trust for specific water related sub-issues (e.g. flood and drought management, water distribution, etc.) in the global South where access to water is often already unequally distributed across different segments of the public and users.
- The lack of trust as well as distrust remain understudied and conflated. We encourage other researchers to develop frameworks and instruments through which the effects of distrust on water governance, but also on various types of trust relations, can be systematically studied.
- While Chapter 5 provides important initial insights on the effects of public trust in government institutions (here assessed in terms of general political trust) on the trust relations of the public towards water management organizations, the findings raise additional questions that require more systematic and context-specific, in-depth analyses to better understand the working of institutional trust in its various forms. A promising approach could be to look at the differential, yet interdepended impact of public trust in core government institutions across different administrative levels as well as public trust in democratic institutions that are not as strongly affiliated with political party preferences but more with the pillars of democracy (the judicial system, police, freedom of the press, etc.).
- To gain more insights into the interplay of interpersonal trust created through participatory platforms (government-led and citizen-led) and public trust we suggest an embedded longitudinal approach that studies governance processes and outcomes in a specific setting.

Acknowledgements

The study reported on here forms part of a larger project co-funded by the Water Research Commission under the Water Joint Programming Initiative. The larger project brought together researchers from the African Climate and Development Initiative (ACDI) of the University of Cape Town, the Strategic Communication Group of the Wageningen University (Netherlands), the Stockholm Environmental Institute (Sweden) and the Bartensz Institute of the Arctic, University of Norway to explore the role of trust in water governance. The research in South Africa was undertaken by the South African research team from the African Climate & Development Initiative at the University of Cape Town under the guidance and collaboration of the larger international EnTruGo project consortium.

The South African research team wishes to thank the following people for their contributions to the project:

The project manager John Dini (Water Research Commission), the coaches of Waves for Change for the great work and collaboration, the international collaborators of the EnTruGo project team as well as the interviewed individuals for their time and support of the research.

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Acronyms & Abbreviations

ACDI	African Climate and Development Institute
BGCMA	Breede-Gouritz Catchment Management Agency
CMA	Catchment Management Agency
CoCT	City of Cape Town
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	Department of Fisheries, Forestry and the Environment,
DoA	Department of Agriculture
DWS	Department of Water and Sanitation
EMG	Environmental Monitoring Group
EnTruGo	Enhancing Trust in Government
EU	European Union
NDP	National Development Plan
NGO	Non-governmental Organisation
NWRS	National Water Resources Strategy
SANBI	South African National Botanical Institute
SDG	Sustainable Development Goal
UBCEG	Upper Breede Collaborative Extension Group
UCT	University of Cape Town
WCWSS	Western Cape Water Supply System
WMA	Water Management Area
WRC	Water Research Commission
WSA	Water Services Authority
WUA	Water User Association

1. Introduction:

Due to the high importance of water for life, governments have recognized their duty to deliver on sustainability goals for water management, e.g. under international human rights law, EU's water policies and the United Nation's Sustainable Development Goals (e.g. SDG 6: ensure availability and sustainable management of water and sanitation for all). However, the possibilities for governments to design and implement sustainable water systems is largely dependent on whether state institutions are viewed as trusted and legitimate by affected stakeholders and the wider public. In recent decades, trust in government has declined in many countries, with public mistrust provoked by failures of governments to enact their duty towards citizens, lack of transparency and accountability of state institutions, and proliferation of knowledge controversies among competing stakeholders. In several countries, the current situation results in dissatisfaction towards the functioning of governments which in turn affects the government's ability to innovate and deliver on sustainability goals for water management.

Legislatures and state agencies have launched various participatory innovations to strengthen service delivery and rebuild trust in government, including citizens' assemblies, e-governance, multi-stakeholder platforms, and direct democracy. The implementation models for these innovations vary: from government-led efforts to initiatives led by private enterprises and non-governmental organizations (NGOs). A body of scholarship has demonstrated that approaches built on private or civil society leadership often result in better cooperation, broader agreement on knowledge claims and more trust between the parties involved (Reed, 2008). Yet, it is also well known that participatory innovations can equally counter policy objectives and further reduce trust in government, i.e. when public participation fails to take note of power imbalances and financial privileges between stakeholders and/or is implemented as a token gesture only to legitimize pre-made decisions (Kasperson, 2006). Overall, we contend, it remains unknown if, and if so how, participatory innovations enhance trust in government institutions among stakeholders and the public and ultimately improve the effectiveness, sustainability, and legitimacy of water governance.

1.1 Background

Water governance is best understood as a complex and dynamic arrangement of actors and institutions, in which governments play important roles (Huitema and Meijerink,2014) The strength and success of these arrangements largely depend on trust between the actors involved (interpersonal trust) and trust of citizens in the government (trust in government or public trust) (Tyler, 2006).

Interpersonal trust has been studied widely in the context of local and regional water governance. While these studies have conceptualized trust in different ways, broadly, there are two dominant traditions. First, the behavioral tradition focusing on the relation between trust and choices or actions in cooperative settings (Hardin, 1993). Second, the cognitive tradition, focusing on interpersonal characteristics associated with trust such as expectations, intentions, and uncertainties (Mayer et al., 1995). Although these conceptualizations have provided insights into the nature of trust, most studies take a static perspective, not considering the temporal dynamics that characterize interactions in water governance. Following Lewicki and others, we define interpersonal trust as the confidence one actor may have in its

expectations about another actor's thoughts, behavior and decisions, based on previous experiences (Lewicki et al., 2006).

Trust in the government, on the other hand, is widely studied at national level (see for instance NES, Eurobarometer, Transparency international) (Vigoda-Gadot, 2006). In these studies, the focus is on distinct governmental institutions and organizational structures (Tyler and Degoey, 1996). Trust in government is also referred to as **public trust, institutional trust** (Luhmann, 1979; 2001) or systemic trust and is considered essential for maintaining the stability of economic systems, related institutions and governments (Drakos et al., 2019). Several categories of factors that influence the formation of trust in government have been identified, including i) governmental responsiveness to and ability to manage societal developments (e.g. crime level, economic security); ii) procedural factors (e.g. ability to participate, perceived legitimacy and transparency of decision making); and iii) substantive aspects (e.g. the ability of the public to actually influence the government on matters that concern them, incl. the distribution of rights and privileges). In contrast to interpersonal trust, trust in government is regarded as more stable, enabling people to have confidence in proposed courses of actions and cope with the many uncertainties and risks associated managing with water resources. In turn, this enhances the stability of water governance but might reduce adaptability and transformability.

Past research on the use of participatory innovations (i.e. through public participation and stakeholder involvement) in the field of water governance and natural resource management have shown that such innovations can lead to growing interpersonal trust, for instance between specific stakeholder groups and government officials (Edelenbos and Van Meerkerk, 2015). However, to what extent these approaches also lead to increased trust in government remains unclear, especially as studies on trust in government are conducted on national level and do not shed light on the complexity of factors influencing trust development (Smith, 2009, Gillespie, 2017). Besides this substantive knowledge gap, methodological guidance is also lacking as to how to empirically study the two types of trust (public and interpersonal) in all their complexity (Luhmann, 1979). Consequently, we contend that there is a need to bridge different research methods that allow for studying the relationship between interpersonal trust, resulting from participatory innovations, and public trust in government. Following our theoretical notions on trust, such an approach should consider the dynamics over time that characterize both interpersonal trust and trust in government. This research sets out to develop novel understanding and effective strategies for enhancing trust in water governance, taking a perspective that combines water use and water resource management.

1.2 Project Aim and Objectives

This research forms part of a larger Joint Programming Initiative (Water) funded research project that brought together researchers from the African Climate and Development Initiative (ACDI) of the University of Cape Town, the Strategic Communication Group of the Wageningen University (Netherlands), the Stockholm Environmental Institute (Sweden) and the Bartensz Institute of the Arctic, University of Norway to explore the role of trust in water governance. The aim of EnTruGo was to gain a better understanding on how trust between people/stakeholders influences trust in governments and vice versa, and to what extent the different trust dimensions and their interactions matter for effective,

sustainable, and legitimate water governance. More specifically, the project set out to enrich the theoretical understanding of public trust and how it relates to interpersonal trust that can be promoted through participatory innovations in different governance contexts.

While the research was conducted in diverse governance environments, namely the Netherlands, Norway and Sweden and South Africa, all country studies where guided by the same set of research objectives:

i. To evaluate the status of trust in government institutions tasked with water management, including the key factors that shape public trust in government as guardian of water resources;
ii. To evaluate the impact of participatory innovative approaches on public trust in government and the wider implications of such trust dynamics for sustainable water governance; and
iii. To identify governance strategies to enhance trust in government as a guardian of water governance actions.

In South Africa, we explored the interaction between public trust (also known as trust in government) and interpersonal trust in three different contexts:

i. The role of trust in the work of water managers operative at the local to national level;
ii. Residents' trust in water management organizations from selected underserviced neighborhoods in Cape Town and Gqeberha; and
iii. The role of trust in a government led participatory platform fostering integrative catchment management in the Upper Breede River Valley, Western Cape, South Africa.

The insights gained from this inquiry provide a foundation for recommending strategies to enhance trust in government and, ultimately, increase the effectiveness, sustainability, and legitimacy of water governance.

1.3 Purpose and structure of this report

This Final Report constitutes Project Deliverable 5 prepared for the Water Research Commission. It synthesizes the key findings from the research that was undertaken in South Africa under the guidance and collaboration of the larger international EnTruGo consortium funded by Joint Programming Initiative (Water).

The report has been organized as follows. The next chapter provides a short overview of key terms that are useful to know when engaging with the concept of trust in the water governance context. These terms will be further discussed in the subsequent chapters. Chapter 3 presents the main insights from the systematic literature review of the role of trust in the water governance literature. Chapter 4 reports on the role of trust in the day-to-day work of selected water managers whose work is related to water management in the Western Cape Province. This is followed by an investigation of public trust towards key water management organizations in selected underserviced neighborhoods in Cape Town and Gqeberha in Chapter 5. Chapter 6 provides insight into the interpersonal trust relations created through a participatory network platform aimed at strengthening integrative catchment management in a specific locality and how these trust relations have affected water governance outcomes as well as public trust in

government. Finally, Chapter 7 presents the conclusions and recommendations emanating from the research to inform future policies and research.

2. Conceptual Underpinning and Operationalization of Trust – A Brief Overview

Before elaborating on interpersonal and public trust in the context of water governance it will be useful to provide a short overview on how trust has been conceptualized in the literature and introduce the key terms and framings that will be elaborated on in the subsequent chapters. The aim of the overview is not to provide a full picture on the status quo of trust theory but to help the reader to understand some of the key relations and terms that one needs to consider when exploring trust in various water governance contexts.

2.1 Defining Trust

Most applied studies that conceptualize trust share the idea that trust is a psychological state of a trustor (subject of trust) comprising positive expectations (or negative in case of distrust) that a trustee (object of trust) has certain competences and the goodwill to successfully perform an action on which the trustor runs the risk of facing negative consequences (Rousseau et al., 1998; Siegrist et al., 2000). A trust relation has been described as a relationship where trustor A trusts trustee B to perform Action C (Rousseau et al., 1998; Hardin, 2002). More recently, an extended formulation designates that "a truster A trusts (judges the trustworthiness of) a trustee B with regard to some behavior X in context Y at time t" (Bauer, 2019:2). Hence, trust is not only a relational attitude of trustor (A) towards the actions of trustee (B), but it is also context-specific and dynamic. In other words, trust relations might change as a result of contextual changes, and trust may change over time as new interactions and events may give reasons to alter the trust of A in B. Understanding trust as an attitudinal characteristic rather than a behavioral one also brings to the fore that institutional constraints could prevent an actor to act on their trust (Stern and Coleman, 2015; Rapp, 2020). Other terms that are associated with trust are vulnerability, risk taking and reliance. For example, Sohns et al. (2021:2) highlight: "Trust generally requires a person to become vulnerable to betrayal or opportunism of the person who or entity that holds their trust, and to rely on a person to be competent at what they have been trusted to willingly do".

Taking into account the dynamic and time-bound characteristic of water governance processes, we turn to the work of Lewicki and others for our conceptualization of trust, as they consider the development of trust over time (Lewicki et al., 2006). Following this perspective, we conceptualize trust as an individual's dynamic expectation about the thoughts, behavior, and decisions of other people based on past performance (Lewicki and Bunker, 1996; Idrissou et al., 2013; Van Oortmerssen et al., 2013) within a specific trust context that shapes or limits trust options (Lewicki et al., 2006). Past performances are not fixed but are subject to interpretations as well as new events giving rise to new experiences and interpretations that accumulate over time (De Vries et al., 2014). These experiences result in arguments for, or factors influencing, the development of more rational or relational forms of trust. Factors such as performance, ability and integrity are often more directed towards calculative forms of trust, while shared values, identity and vulnerability are often more linked to relational forms of trust. However, both forms can exist alongside each other, are not mutually exclusive and the distinction is analytic.

Trust is a multidimensional concept (Stern and Coleman, 2015), i.e. it can be operating at the individual, interpersonal (i.e. dyadic), inter-organizational and institutional levels (Hickey et al., 2023). It is therefore not surprising that different conceptualizations of trust have been developed to explain trust dynamics and outcomes in different context and scales (e.g. Rousseau et al., 1998; Stern and Coleman, 2015). For example, Stern and Coleman (2015) highlight four dimensions of trust that they view as important for collaborative governance in natural resource management. These are dispositional, affinitive, rational, and procedural trust. Important to note that the different dimensions of trust discussed below are all influenced by characteristics of the trustor, trustee, and context in which the trusted action occurs.

Dispositional trust relates to the characteristics of the trustor, i.e. his/her propensity to trust. It is shaped by innate personality characteristics, personal histories, and general hearsay (Stern and Baird, 2015; Hickey et al., 2023). Put simply it refers to an individual's baseline trust level that is developed prior to forming any other type of trust assessment (e.g. cognitive or affinitive) (Stern and Coleman, 2015). Affinitive and rational trust, on the other hand, relate to the assessment of the trustee. Procedural trust is based on beliefs that procedures and rules are fair, transparent, and legitimate. To differentiate between affinitive (or relational-based trust) and rational trust it is useful to think of the former as type of trust which is primarily based on the perceived shared values, integrity and benevolence of a trustee (Stern and Coleman, 2015). Affinitive trust presupposes some moral qualities in the trustee. It may also be based upon assumptions of shared values, feelings of social connectedness, or subconscious or emotional responses to charisma or perceived shared identity (Cvetkovich and Winter, 2003; Stern and Coleman, 2015). This form of trust is more based on 'soft values' and develops especially from repeated interactions over time between trustor and trustee (Rousseau et al., 1998). On the other hand, rational trust (also known as calculative or performance-based trust) is based on the predicted behavior of the trustee and the expected utility of trusting them (Stern and Coleman, 2015). From this perspective, actor A's trust in actor B is primarily based on cognitively processed calculations of the perceived utility of the expected outcome of placing one's trust in B (Hardin, 1999; Stern and Coleman, 2015). In such an evaluative perspective, the expectation that B will indeed arrange certain preferred outcomes is primarily based upon information regarding B's intentions and competences (Barber, 1983). Such expectations often stem from a systematic or reasoned assessment of the past performances of trustee B. To summarize the differences, rational trust focuses on the assessment of the ability of trustee to achieve the present action whereas affinitive trust focuses more on the intention of the organization (Hickey et al., 2023). Procedural trust refers to "trust in procedures or other systems that decrease vulnerability of the potential trustor, enabling action in the absence of other forms of trust" (Stern and Coleman, 2015:122). This type of trust develops when procedures are viewed as legitimate, transparent and/or binding and is critical for enabling confident predictions of the behaviors of others. Some authors also speak of 'system's based trust' when discussing this aspect of trust. Procedural trust and associated control systems may in certain contexts reduce the importance of interpersonal trust "by setting official rules, contracts, or other monitoring mechanisms" that help to influence behaviors in a foreseen way (Stern and Coleman, 2015:120). Figure 1 below is a useful framework developed by Stern and Coleman (2015) and further adapted by (Rapp, 2020) to illustrate the various components and factors that influence trust dynamics.

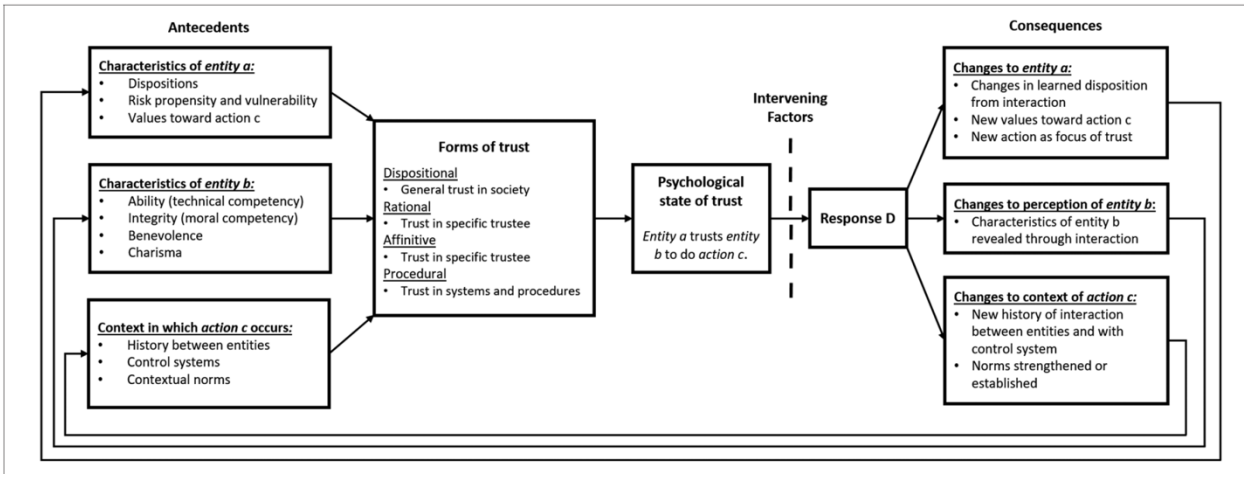

Figure 1 Components and factors that influence trust dynamics Source: Rapp (2020) adapted from Stern and Coleman (2015)

Another distinction that is often made in the literature is between interpersonal and institutional trust. Interpersonal trust is seen as trust between two individuals and is based on expectations grounded in the personal experience between the two individuals. It can be conceptualized as individuals' expectation about the thoughts, behavior, and decisions of other people within a specific trust context. These expectations are shaped by past experiences and their interpretation (De Vries et al., 2017). Important to note is that these expectations are not static but are revised in light of new information about the others, interactions and changing contexts (De Vries et al., 2019). Hence, interpersonal trust is quite dynamic and changes in accordance with individual and joint action by the trustors and trustees (Stern, 2018).

Institutional trust generalizes beyond a specific interpersonal relation (Zucker, 2013) and involves macro-level arrangements beyond the level of inter-personal interactions (Hickey et al., 2023). In other words, institutional trust is part of the context in which interpersonal trust development takes place. Institutional trust is partly based on procedural capacity, and therefore procedural trust, as well as more generalized dispositional forms of trust (Coleman and Stern, 2018; Davenport et al., 2007). De Vries et al. (2019:4) highlight that" institutional trust is often considered as a more stable type of trust that has a lower dynamic than interpersonal trust and is affected by institutional performance and design". Consequently, trust in institutions, also referred to as systems trust or confidence, is often defined as the unconscious expectation that institutions will work as they always have and is based on long-standing experiences of the functioning of these institutions (Luhmann, 1979; 2000). This does not mean that institutional trust does not develop but this development takes place at a much lower dynamic. Trust in government, which in the context of this study, we refer to as public trust can be seen as a form of institutional trust. More specifically we are interested in the trust that citizens place in government organizations. With specific focus on those responsible for water management, including in the water managers operating in these organizations. At the same time, we are also interested in understanding how citizens' trust in government in general affects their trust in water management organizations. Please see Chapter 5 for a more detailed elaboration on public trust.

De Vries et al., 2019 discuss the interrelationship between institutional and interpersonal trust. They argue that dispositional, affinitive, rational, and procedural trust play a role in the development of

interpersonal and institutional trust. Elaborating on this, Hickey et al. (2023) state that affinitive and rational trust are more linked to interpersonal trust whereas procedural trust is more associated institutional trust. It appears that institutional and interpersonal trust are interrelated and that "institutional trust forms the context of trust in interpersonal interactions, and trusted institutions are the guarantor of interpersonal trust relations" (De Vries et al., 2019: 4).

Finally, it is important to briefly discuss distrust. Distrust cannot be equated with the lack of trust and as Stern and Braid (2015:4) point out: "lack of trust refers to situations in which a potential trustor has inadequate information to make a judgment about whether to trust a potential trustee". In contrast, distrust involves an explicit negative expectation about the potential trustee (Lewicki et al., 1998). It refers to a situation in which "the trustor (entity a) believes that the trustee (entity b) will perform an action that will actually be harmful to the trustor. Distrust implies an active misgiving of entity b on the part of entity a" (Stern and Coleman, 2015:120). Stern and Braid further point out as in the case of trust, distrust can also be looked at through different dimensions: "Rational distrust may arise from prior performance failures. Affinitive distrust may arise from an interpersonal argument or betrayal" (2015:4).

2.2 Understanding Trust Relations

To theoretically ground empirical studies on trust, and to make them better comparable, means that assessments of trust relationships should provide a clear conceptualization in which they ideally acknowledge the issue-specific nature of trust (which acknowledges that A trusts B to perform a specific task, but may be less trusting regarding another task (Lewicki et al., 2006) while simultaneously taking into account that trustors may adapt their expectations over time (Bauer and Freitag, 2018)).

For understanding trust relations, it is important to specify and distinguish between:

Who is the subject and object of trust:

- **Subjects of trust (Trustor(s))** , i.e. individuals or groups of individuals that are trusting

Perspective 1: collective-level units such as organizations or political institutions are not themselves capable of trusting each other. It is only the collectively held trust orientation of the group members of such organizations or institutions that make it possible to speak about collective-level trust relationships such as inter-organizational trust (Zaheer et al., 1998)

Perspective 2: the subject of trust may also take the form of a group (Stern and Coleman, 2015) which highlights that collectively defined trust orientations of collective-level actors may become forces in themselves which are able to shape the individual-level trust orientations of ingroup members (Elias and Scotson, 1994).

- **Objects of trust (Trustee(s))**, i.e. who or what is trusted

1. trust in other **individuals**, dyadic form, such individual-level trust relations (**interpersonal trust**)
    i. proximate actors (neighbors, friends, family)
    ii. distant actors (politicians and office holders)
2. trust in **collective-level entities** such as social groups, private companies, and government organizations (**institutional trust**)

3. trust in **abstract objects** – such as formal rules, norms, principles, and (scientific) knowledge
4. trust in a process

In the water governance context, various individual actors (such as citizens, farmers, ecologists, water managers, or particular officeholders) as well as collective actors (such as governmental and non-governmental water management organizations) can be either subject or object of trust.

What type of trust relation is investigated:

- **Interpersonal trust:** trust between two individuals and is based on expectations grounded in personal experience
- **institutional trust:** trust based upon expectations that organizations/institutions will act according to the ideals of impartiality, fairness, and efficiency

What is the basis of the trust relation:

Scholars also distinguish between subtypes of trust based on characteristics of the subject of trust and the processes leading to trust (its antecedent).

- trust as stemming from relatively stable psychological attributes of individual trustors,
- trust as stemming from cognitively based calculative processes, and
- trust as based upon affinities and socially embedded properties of relationships between people

What are the directional claims of the role of trust? Is trust:

- an explanatory variable
- a mediator/ intermediate variable
- an outcome of water governance processes

The table below provides an overview of the trust relations and related subjects and objects of trust that were explored in the empirical chapters (Chapter 4, 5 and 6) of this report.

Table 2: Overview of Trust relations explored

Chapter	**Subjects of trust (Trustor(s)**	**Objects of trust (Trustee(s))**	**Trust relation(s)**	**Type of trust**
CH 4 Role of Trust for Water Managers	various	various	The role of trust in their work Indirectly: • Between individual citizens and water managers • Between government organizations	Public trust/ institutional trust

Chapter	Subjects of trust (Trustor(s)	Objects of trust (Trustee(s))	Trust relation(s)	Type of trust
CH5 Public Trust in Underserviced Neighborhoods	Residents of Underserviced Neighborhoods (individuals)	Water Management organizations (collective-level entities)	Between individual citizens governmental water management organization	Public trust/ institutional trust
	Residents of Underserviced Neighborhoods (individuals)	Government (collective-level entities)	Between individual citizens and government	Public trust/ institutional trust
CH6 Participatory innovations	UBCEG members (individuals but also (collective-level entities)	UBCEG (collective-level entities)	Institutional Trust	
	UBCEG members (individuals)	UBCEG members (individuals)	Interpersonal trust indirectly between different government organizations	Interpersonal and inter-organizational trust
	UBCEG members	Scientific data, rules, principles (abstract objects)	Institutional trust/ Procedural Trust	

3. The Role of Trust in The Water Governance Literature: Insights from the Systematic Literature Review

Trust is generally considered to play a key enabling role in water governance. Despite this notion, there have been no systematic assessments examining the way in which the literature on water governance engages with 'trust'. To fill this gap and to answer the question: How has trust in government been studied and compared over time in previous research, we undertook a systematic literature review of *N*=200, mainly peer-reviewed journal articles. The systematic review provides a comprehensive overview of the way in which this literature has engaged with trust as a conceptual lens, analytical device, and empirical phenomenon. This chapter summarizes key insights from the review. These insights are based on excerpts and summaries from our peer reviewed article titled *A systematic review on the role of trust in the water governance literature* (https://doi.org/10.1016/j.wroa.2022.100147) published in the Journal *Water Research X* in 2022. Important to note is that the systematic review and resulting manuscript was a collaborative effort of the international research team comprised of researchers from the Netherlands, South Africa, Sweden, and Norway.

3.1 Trust in the Context of Water Governance

Trust is deemed important in water governance because water governance requires collaboration and coordination between a wide range of public and private stakeholders. These stakeholders are often bound by different geographical and functional jurisdictions (Lubell and Lippert, 2011), they may have different (conflicting) interests concerning various aspects of water governance (such as water safety, quality, supply, and ecology) (Edelenbos and Van Meerkerk, 2015), and they often develop diverse perspectives on problems and their consequent solutions (Benson and Jordan, 2010). Unsustainable land use and increasing scarcity intensifies competition for water. Moreover, this competition is exacerbated by climate change as additional efforts are needed to provide protection against drought and the occurrence of other water-related hazards (Woodhouse and Muller, 2017). In such complex circumstances, the development of mutual trust between stakeholders is supposed to be necessary to facilitate shared understanding and concerted action (e.g. Ansell and Gash, 2007; Van Meerkerk and Edelenbos, 2014). It has been argued that trust between stakeholders is a means to deal with the complexity and uncertainty of interactions as the need to continuously monitor and enforce future actions will be less imminent under conditions of mutual trust (Lubell, 2007; Onencan et al., 2018). Therefore, it is assumed that trust facilitates long term collaboration (Stern and Baird, 2015) and fosters cooperation and compliance by both the wider public and stakeholders directly involved with public policies and environmental management practices (Lafuente et al., 2018; Stern, 2008).

The knowledge gap in understanding the role of trust in water governance

Despite the positive role that is associated with the concept of trust in water governance studies and practice, it remains unclear to what extent statements rely on shared conceptualizations of trust and are underpinned by solid empirical evidence. It appears that:

- The knowledge base on trust in water governance seems fragmented (Pahl-Wostl, 2015),

- It remains unclear what the possibilities are for valid systematic comparisons of empirical findings on the role of trust. For example, there is limited understanding of how studies on the role of trust in water governance are influenced by variations that may exist across different water governance sub-issues (e.g. flood protection, drought management, water quality, environmental protection), geographical contexts, and scales.
- Different conceptualizations of the concept of trust itself in water governance studies seem to hinder attempts to evaluate the knowledge base of articles and to systematically compare their findings (Davenport et al., 2007; Lijeblad et al., 2009; Pahl-Wostl, 2015; Stern and Coleman, 2015).

An informed judgment about the comparability of research findings requires a better understanding of the employed research approaches and methods.

We set out to address this gap by providing a systematic overview of how the water governance literature engages with 'trust' as a conceptual lens, an analytical device, and empirical phenomenon, and it reveals whether engagement with trust varies along the lines of some of the structural features of the water governance field (such as sub-issues, geography and scales).

3.2 Approach and Design

Although all articles that we review fit under the generic label of being studies on water governance we identified three boundaries that we thought we needed to be sensitive to in order to understand the variation of the role of trust in water governance:

- Sub-Issues: how are the studies on the role of trust in water governance practices distributed and how they differ among various sub-issues (such as flood protection, managing the consequences of drought, water-quality management, and environmental protection)
- Geography: in what geographic location has the role of trust in water governance practices been studied (where is there an over- and under-representation of specific issues, the impact of cultural differences, global north vs global south governance constellations, etc.)
- Scales: At what geographic scales were the studies situated (local, sub-national, national, regional)

The article selection procedure for our review is outlined in the flowchart in Figure 2. We first identified all articles of which the title, abstract or keywords suggest that both the concept of trust as well as the issue of water governance are captured. Using two scientific searching engines – Scopus and Web of Knowledge – we searched for articles in which the term *trust* (which also includes subsidiary terms such as 'distrust', 'trustful', and 'trustworthy') appears in combination with either one of the terms 'water governance', 'water management', or 'water policy'. More detailed information about the subsequent steps can be found in our journal article.

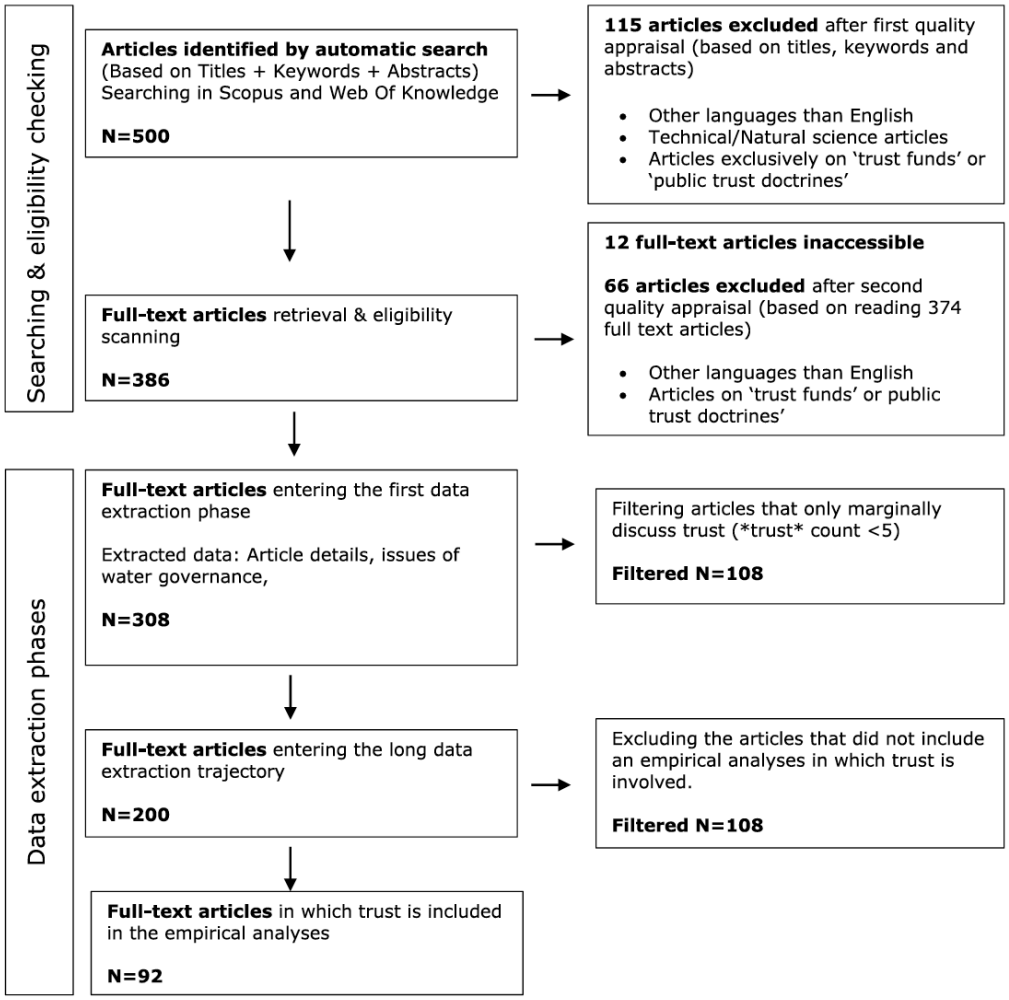

Figure 2. Procedure of systematic review

To analyze the 200 articles in our final sample, we developed a coding protocol with coding instructions. The sections in the protocol included questions on the type of journals publishing the articles, the dates of publication, whether the article is empirical or conceptual, and what sub-issue(s) of water governance is(are) addressed. We also focused on a set of question on the importance of trust in each article and its theoretical foundation. Subsequently we identified the subjects and objects of trust that were discussed, the geographic location and scale at which studies were performed and the conclusions regarding the role of trust in water governance in the studies (for the detailed coding protocol please click here).

3.3 Results

Trust in the water governance literature: an emerging but dispersed field

Figure 3 below shows that the number of annually published articles on trust in water governance is progressively increasing. A large majority of the 200 articles are empirical studies (82%). We classified the other articles as theoretical/review articles (13,5%), policy analyses (1,5%), case descriptions (1%), or 'other' (2%).

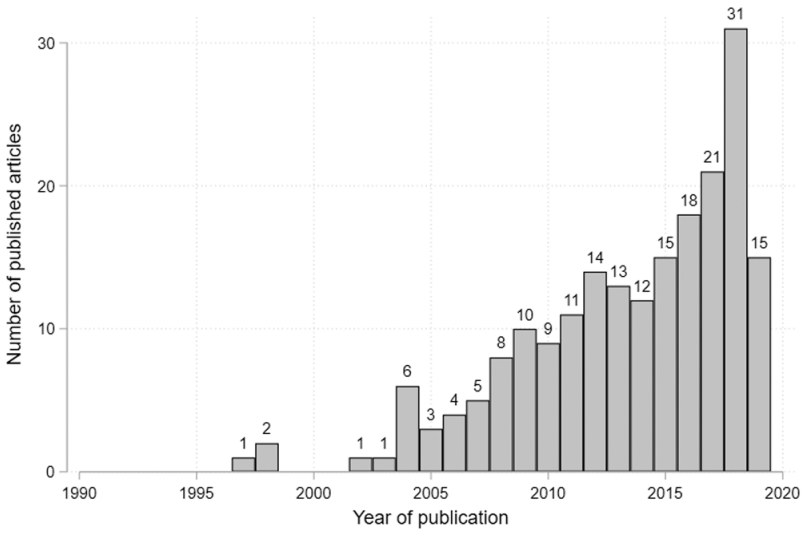

Figure 3. Annual publication of journal articles dealing with trust in water governance

The sub-issues which are most addressed (see Table 3) are 'water distribution' (addressed in 30% of all articles) and 'water quality' (29.5%). Other sub-issues such as 'environmental conservation' (15.5%), 'flood management' (12%), and 'drought management' (10.5%) appear less frequently in the literature. A large majority of 70% of the 200 articles only deal with a single water governance sub-issue. Around 21% percent of the articles deal with two sub-issues while 10% of the articles simultaneously address three or more sub-issues of water governance.

Table 3. Sub issues of water governance

Issues of water governance: (Multiple answers allowed)	(N = 200 articles) % (n)
Water distribution	30% (60)
Water quality	29.5% (59)
Environmental conservation	15.5% (31)
Flood management	12.0% (24)
Drought management	10.5% (21)
Other water issues	47.5% (95)
Number of issues addressed: (Single answer)	(N = 200 articles) (% (n)
- A single issue	70% (140)
- Two issues	21% (41)
- More than two	10% (19)
Total	100% (200)

Dominance of western geographies and studies at single scale

The examination of the spread across geographies and scales revealed two main patterns. Firstly, the dataset shows a clear dominance of studies that cover Western geographies, notably Europe (22% of all the studies) and North America (21,5%). In addition, most of the studies that cover Oceania (12%) are in fact from Australia or New-Zealand. In contrast, relatively few studies focus on African (8%) or Latin American (6,5%) countries. Recognizing the acuteness of water related issues in Africa and Latin America (Olagunju et al., 2019; Trimble et al., 2021), this indicates a considerable mismatch in scholarly attention. A more detailed investigation into what sub-issues of water governance are studied in which geographies revealed that trust in relation to flood management is typically studied in the European context. Yet flooding is not, or hardly ever investigated in relation to trust in studies that focus on Africa, Latin America, and Oceania. On the other hand, the issue of drought management and trust is hardly studied in the European context, which is surprising given the climatic trend of dryer and hotter summers in the continent which causes extensive problems for agriculture and water distribution (Grillakis, 2019). Studies on trust in relation to water quality issues most commonly appear in the North American context while the dominant focus in articles from Asia and Africa is on the issue of water distribution.

Secondly, most studies focus on a singular scale. The 77% of the studies investigated water governance issues within a single country and 46% of the studies examined issues from a single region or watershed within a country. Only a limited number of the articles adopted cases based on a region or watershed that crosses international borders (8.5%), or cross-country comparative approaches based on comparing local (5.5%) or regional (7.5%) case studies from different countries.

Limited conceptual clarity and an emphasis on the instrumental role of trust

A key finding from our review is that, overall, the available body of research on trust in water governance suffers from limited conceptual clarity. Only 11.5% (*n*=23) of the articles included an explicit definition of trust and, of these, only 16 articles offered a reference to clarify the proposed conceptualization. Two sources are cited more than once, namely Hardin (2002) and Rousseau et al. (1998). Although only cited twice, the definitions in nine articles in essence come down to Hardin's basic understanding of a trust relationship in which a subject of trust (A) trusts the object (B) concerning matters (X). Half of the articles with explicit definitions of trust (*n*=11) resonate with the view of Rousseau et al. (1998) that trust is a psychological state of a trustor based upon *positive* expectations of the intentions or behavior of the trustee. The other 12 articles that offer a definition of trust are neutral about what type of expectations trustors develop.

Only 16% (*n*=32) of the 200 assessed articles distinguish between different subtypes of trust. The subtype of trust that is most commonly mentioned is institutional trust, mostly to distinguish this type of trust from interpersonal trust. A few other articles apply a distinction between institutional trust and other more particular types of trust, such as trust in actual officeholders/administrations (sometimes labelled as political trust). A distinction between antecedent based subtypes of trust such as dispositional trust, calculative trust, and affinity based trust is only mentioned in a few articles yet these do not operationalize and test the subtypes.

Overall, our findings show that most articles deal with trust as a single umbrella concept that refers to various social relations and actors. Furthermore, the results show that the theoretical insights that trust relationships are often context-specific and change over time (Bauer and Freitag, 2018) are only very marginally incorporated in the literature on trust in water governance.

Trust relations: a focus on trust of the general public in government organizations

Status quo of subject of trust in water governance studies:

Trust that ordinary citizens hold is by far the most prevalent focus when it comes to the subjects of trust (appears in 49% of the articles). Individual farmers (26%), water managers (17%) and individual government employees (16%) are also in focus as subjects of trust. At the level of collectively held trust orientations, the entities that are most often discussed as trustors are (local and national level) government organizations (25%). Other collectively held trust orientations are less often studied. It is noteworthy how social groups that tend to find themselves marginalized in water governance, such as ethnic minorities and indigenous peoples (e.g. Hoogesteger, 2012; Wester et al., 2003), are not adequate represented as the subjects of trust in studies on the role of trust in water governance.

Status quo of objects of trust in water governance studies:

As objects of trust, the articles that we coded primarily focus on trust in governmental organizations such as trust in local and regional governments (57%), national-level (executive) water management agencies (34%), and national-level government (policymaker) (33%). Other group-level entities such as social groups (16%), private companies/firms (16%), and NGOs (20%) also commonly appear as the object of trust. Citizens (or individual-level actors) appear in 22% of the articles as the object of trust.

Trust relations that most commonly studied:

Most prevalent focus is on trust of individual citizens in government agencies (55%). Mutual trust relations between non-state affiliated actors at the group level (socially defined groups, private companies, and NGO's) and government organizations (28%), trust of individual citizens in non-state affiliated actors at the group level (22%), and trust of individuals in other individuals (20%) are also commonly addressed. Trust relations that are not so commonly studied are trust between different non-state affiliated group-level actors (15%), trust of government organizations in other government organizations (12%), and finally trust between nation states (6%). A sizeable set of articles (41%) has a focus on a single unidirectional trust relation that only addresses the trust of a particular trustor in a single type of trustee.

Within the thematic sub-issues of water governance, the most notable findings regarding the *subjects* of trust are that individual citizens are highly prevalent in the sub-issue of water quality management (64%) while they are comparatively understudied in the subfield of drought management (14%). Farmers as the subject of trust are relatively important in the fields of drought management (29%) and water distribution (35%), while water managers often appear in most sub-issues except for drought management (10%) and water quality management (7%). Indigenous populations and other non-indigenous minority groups seldom play a role as subjects of trust. And when they do, they mainly play a role in the issue of nature conservation (in 13% of the articles on this issue).

Trust empirically studied: emphasis on trust as explanatory variable

Among the 92 articles that include an empirical assessment of the role of trust in water governance, the majority comprise of case study approaches (58%). Written surveys (55%) and oral interviews (51%) are the most adopted data collection methods. There was an almost even spread across quantitative (34%) and qualitative (27%) analyses, with a large part also combining qualitative and quantitative methods (38%).

In terms of measuring the concept of trust, most of the studies posed questions that directly ask about a subject's level of trust (70%). For 12% of the articles that included an empirical assessment of trust, there was no account of how trust was actually measured. Overall, this shows that trust in some of the articles is not unequivocally operationalized, which should be considered when assessing whether the findings on trust are valid.

A large majority of the empirical findings on trust are centered on directional claims (92%), namely that trust explains, or is explained by, several other variables with which trust is associated. Our review of the directionality of the empirically assessed trust claims points at an emphasis on trust as an explanatory variable (52%), i.e. as a variable that (positively) affects other water governance-related outcomes. These include participation and cooperation with projects and policies, behavioral adaptations (such as drinking desalinated water) adoption of environmentally friendly water related techniques, improved communication or social learning. About one-fifth of the studies focus on trust as an outcome (18.5%). Identified variables that positively and/or negatively affect trust include the structural and social complexities of water governance issues, levels of stakeholder involvement and collaborative efforts, information procession and message framing, and attitudes to risk. Fourteen articles (15%) investigate trust as both an outcome and an explanatory variable in their empirical analyses. Another nine (10%) of the articles deal with trust as a mediator/moderator/intermediate variable, e.g. trust playing a mediating role in the relation between risk assessments and behavioral intentions.

We find that quite a large number of 69 (75%) of the 92 articles demonstrate their main claim on the role of trust both with references to the existing literature as well as by means of their empirical analyses on trust. This level of substantiation in those 92 articles stands in strong contrast with the substantiation of the claims on trust in the 108 articles (from the entire set of 200 articles) that did not empirically investigate trust. In this latter group, claims on trust are only supported by means of references to existing literature, or not substantiated at all.

3.4 Conclusion and Recommendations

The concept of trust and its importance in the context of water governance has expanded considerably since the early 1990s, with 80% of all articles on the subject having appeared since 2010. Trust is a multi-dimensional concept that scholars have explored from very different angles, using different approaches. The papers included in this literature review show that trust is a key issue in many water governance practices, yet understanding its exact role and functioning, and developing integrated knowledge on how to understand trust in water governance requires more research.

We found that a vast majority (89%) of studies in our sample use the term 'trust' without adopting any explicit statements that define trust. Moreover, among the small group of articles that do in fact define trust, there is considerable diversity in conceptualizing trust. Only a dozen studies clearly acknowledge the relational nature of trust, while context-specific and/or dynamic elements of trust are not mentioned at all in any of the definitional statements on trust.

More studies need to define and conceptualize trust. To provide more complete assessments of trust relationships, we also recommend studies to keep up with the broader literature on trust and the broader water governance literature by means of clearly acknowledging (and empirically uncovering) the context-specific and dynamic nature of trust relationships. Furthermore, more careful attention could be given to the concept of trust in the framing of research goals and questions. Given that most studies continue to assess trust as an umbrella term, we advise future studies to rely upon more extensively developed trust frameworks so that the effects of trust can be empirically assessed and understood with regard to some of its component parts and sub types (interpersonal, institutional, distrust, trustworthiness, etc.)

We found a considerable diversity regarding the trustors (subjects) and trustees (objects) that are discussed by the entire set of studies. The more traditional actors within water governance processes receive most of the scholarly attention. Governments (at the local, regional, and national scale) and specific water management organizations are the most common objects of trust in the studies in our sample. Trust in water-related knowledge is also one of the central objects of trust which speaks to the importance of such knowledge in relation to legitimizing actions and enhancing credibility of specific actors. The general public (individual citizens) most often appears as the subject of trust. Much less attention is paid to how trust levels differ between groups within society, while the experiences and trust development of marginalized groups in societies, including ethnic minorities and indigenous peoples, hardly gain attention.

Based on our findings we argue that that the role of trust in water governance practices is understudied in the global South and requires much more attention. Specifically future studies should provide more insights on the role of trust (in its various forms) in specific water related sub-issues. For example, flood management and environmental conservation are hardly ever studied in combination with trust despite their common occurrence and relevance in these contexts. Furthermore, the relation between trust in governments and trust between actors involved in collaborative networks requires more attention, as participatory and collaborative processes are often initiated to enhance trust in government.

Many of the claims on trust in water governance are not empirically assessed, and in cases in which they are, a poor conceptualization of trust, in combination with methodological problems to assess trust, undermines the validity of discussions on trust. Furthermore, among the articles that did empirically assess the role of trust in water governance, some of them in fact suggest that the positive effects of trust may be overrated as cooperation can, under certain conditions, occur without trust (Satein and Weber, 2018) and higher trust does not always increase actors' willingness to contribute to environmental common goods.

4. The Role of Trust for Water Managers

This chapter summarises key insights from our research on how general public trust in government influences the work of water managers and the role of trust in their day-to-day work. More specifically, the aim of the interviews with selected water managers was to understand the influence of changing public trust in water governance on their work and on their interactions with citizens and other actors. Interviews were conducted with 12 water managers from the principal water management organizations as stipulated by the National Water Act (1998): the Department of Water and Sanitation (DWS), catchment management agencies (CMAs), local municipalities and water user associations (WUAs).

To understand the dynamics and influence of public trust over time and at different scales on the work of water managers, experts were selected who had long-term engagement in water governance and thus considerable experience working in the field and the ability to comment on changes in public trust over time, changes in the tasks and nature of water management, and the influence of public trust for the duration of their work in water management. The team sought to interview water managers who worked both at national and regional level in the DWS to understand whether public trust relationships showed variation at different scales of institutional engagement. Local level water management is implied in the work of municipal managers and water user associations, and regional level in the catchment management agencies. All interviews were conducted online using Microsoft Teams and were recorded and transcribed for analysis.

4.1 Conceptual Background

We described in Chapter 1 water governance as a complex and dynamic arrangement of actors and institutions, in which governments play important roles (Huitema and Meijerink, 2014) and highlighted that the strength and success of these arrangements, to large extent, depend on trust between the actors involved (interpersonal trust) and a general trust of citizens in the government (public trust) (Tyler, 2006). As mentioned earlier, trust in government is regarded as more stable, enabling people to have confidence in proposed courses of actions and cope with the many uncertainties and risks associated with water resources. However public trust is subject to change in many democracies.

To further understand the influence of the changing trust relations on the work of water managers, a perspective on trust that takes into account changes over time is necessary. Such a perspective should look at the role of trust in the day-to-day interactions that water managers have, as well as the influence of the broader trust context (general public trust in government) on their work. For being able to investigate the role of trust for water managers we focused on two dimensions. The first dimension is the role of trust in the day-to-day interactions that water managers have in projects with citizens and other actors. In these contexts, trust can be seen as an expectation about future developments based on the present-day understanding of the past and current situations (Eshuis, 2006; Luhmann, 1979). This perspective results in, amongst other things, experiences of uncertainties, vulnerability, and risks (Das and Teng, 1998). Such experiences influence trust-related expectations where trust increases or declines. The second dimension of trust is the context (Mayer, Davis and Schoorman., 1995; Kadefors, 2004). Trust develops in relation to a specific social context. Here we were particularly interested in general public

trust in governments as social context. This context – or changes in this context – may lead to experiences of risk, uncertainty, or vulnerability, which influence trust related expectations and trust dynamics, or the ability of water managers to deal with more interpersonal trust dynamics.

These theoretical notions, for operationalization purposes, can be translated in the following key factors that should be considered when studying trust relationships:

- The dynamic role of context that influences trust – specifically general public trust in government but also other factors such as societal development or media and water managers' experiences of risk, uncertainty, etc.
- The nature of collaboration with citizens and other actors now and in the past.
- The influence of changing public trust in government on the work of water managers now and in the past and vice versa (e.g. did trust in government change the ways of collaborating with citizens and other actors, and the other way around).

The project research team under the guidance of the project leader (Wageningen University) developed an interview protocol to operationalize the key points highlighted above and to allow for cross-country comparison. This allowed the team to conduct the interviews in a consistent manner and produce comparable results for the four participating countries (South Africa, Sweden, Norway, Netherlands). Enough flexibility was provided to adapt the interviews to the country-specific context.

The key themes of the protocol are outlined below. (The interview guide can be found in Appendix 1):

- Tasks of water managers (e.g. change in character of tasks over time, causes of changes, type of projects);
- Cooperation with citizens (the value of citizen and stakeholder engagement and participation, change in the nature of collaboration, factors that influenced change in citizen engagement and collaboration); and
- Public trust (e.g. the influence of public trust in water management, influence of decline in public trust in water managers work, influence of public trust in water manager's room to maneuver, situations where citizens have expressed distrust in expert's work, expert's valuation of public trust in their work).

4.2 Overview of South Africa's Water Management Organizations

Various organizations were created to manage the two arms of water governance operational in the South African legal context – water resource management and water services provision. Figure 4 shows key organizations responsible for water management in South Africa and the relationships between these organizations. This study focuses primarily on those most relevant for the study area, i.e. the Western Cape Province, namely the Department of Water and Sanitation (DWS), catchment management agencies (CMAs), local municipalities and water user associations (WUAs), together with a few other important organizations in South Africa's water management system.

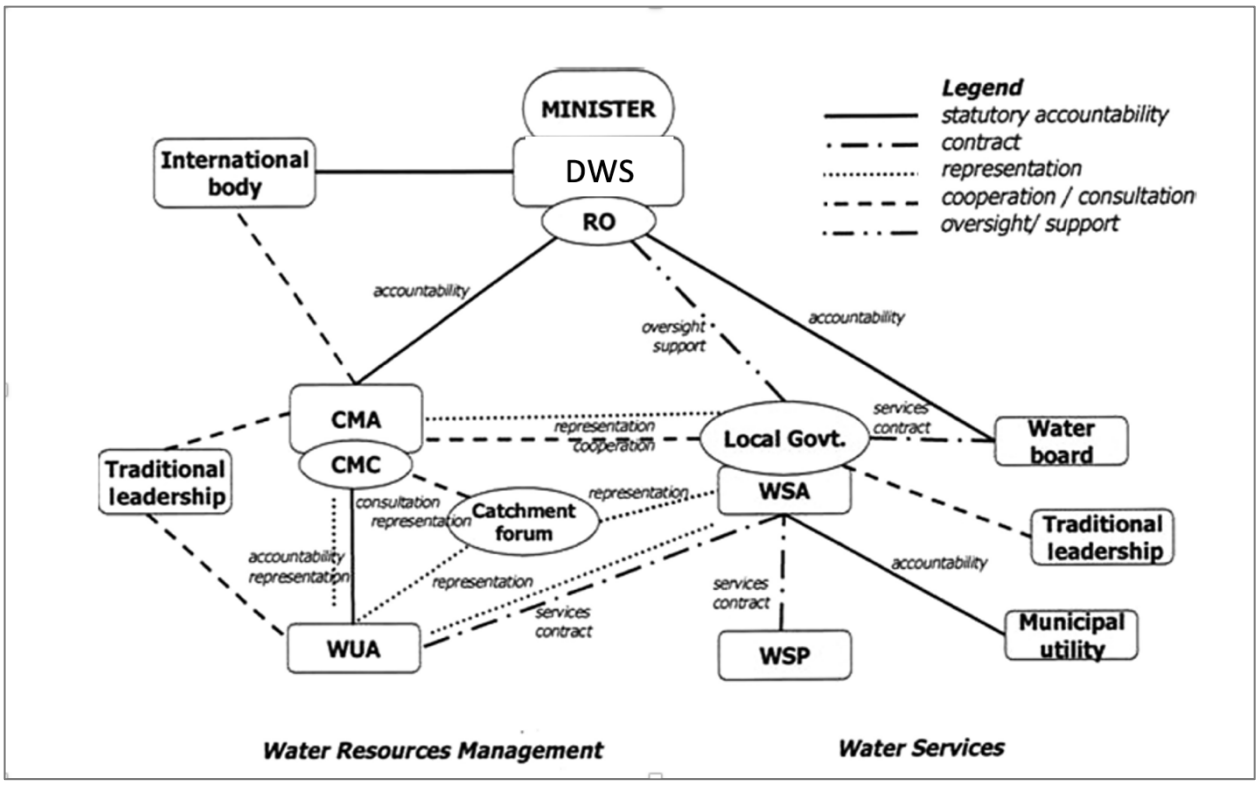

Figure 4: South Africa's water management system and key water management organizations, Source: Mazibuko and Pegram (2006)

The Department of Water and Sanitation (DWS), under the Minister of Water and Sanitation, is tasked with water governance in South Africa. The department's responsibilities include the management, protection and use of the country's water resources through the formulation of national policies, strategies, and frameworks; setting norms and standards for water services; monitoring and compliance of water services authorities; and managing the national water infrastructure. Under the National Water Act's (1998) water resources management mandates, the department issues water licenses for different types of water uses such as storage, abstraction, disposal, and other water-related activities (Herrfahrdt-Pahle, 2010). The department oversees all other water management organizations and, together with these subsidiary organizations, delivers on its political mandate to provide for national water demands, and ensure bulk supply of raw water to water boards, and municipalities (OECD, 2021). The DWS has 9 regional offices implementing the water policy, as well as controlling and monitoring services. The Western Cape DWS Regional Office has jurisdiction over water resources in the Western Cape Province (OECD, 2021).

Catchment management agencies (CMA) are statutory bodies established by the Minister of Water and Sanitation under the National Water Act, with jurisdiction in defined water management areas. They manage water resources and co-ordinate the water-related activities of water users and other water management organizations in the specified water management areas (DWA, 2007). CMAs must ensure that there is harmony between their own water-related plans and programs and other actors operating in the catchments which they manage – including communities, all water users (industry or individual

irrigators), other water management organizations, water services institutions, and as provincial and local government authorities and any other interested parties or stakeholders (DWA, 2007).

Water user associations (WUAs) are statutory bodies established by the Minister of Water and Sanitation under the National Water Act. They are defined as co-operative associations of individual water users who wish to undertake water-related activities for their mutual benefit in a specific locality. In other words, the objective of a water user association is for local water users within a specific area to pool resources (money, human resources, and expertise) to effectively address local water-related needs and priorities. WUAs are supposed to be financially independent and derive their income from water use charges from members (DWA, 2004). They may perform additional management duties if these are assigned or delegated, by DWS. WUAs were supposed to replace white-dominated irrigation boards after the end of apartheid, but this transformation has been slow and partial.

Local government, usually in the form of **municipalities**, is responsible for bringing drinking water and sanitation services to the populace in terms of the Constitution. The Water Services Act (1997) places the responsibility on those municipalities designated as **Water Service Authorities** (WSA) to provide access to water services within their area of jurisdiction.

Decentralization and participation in South African water governance

Decentralization is a key feature of South African water policy for water resources management and water service provision. In terms of the former, decentralization is made possible through the devolution of roles and responsibilities in water resources management through the CMAs and WUAs to the local level, and similarly for water services to municipalities at the local level. CMAs are required to have appropriate community, racial and gender representation (DWA, 2004), and public participation is required as central to their functioning, in order to facilitate decentralization. Nonetheless, the Minister of the DWS retains final authority in appointing CMA governing board members and as indicated in NWRS1, all water management organizations are subject to the Minister's authority.

The Municipal Systems Act (No.32 of 2000) sets out the principles, mechanisms and processes for municipalities to achieve social and economic upliftment of local communities and ensure the Constitutional mandate to deliver universal and affordable access to essential services. A core element of the Municipal Systems Act is to ensure community participation in municipal decision-making, which may include water-related issues. A municipality is required to establish mechanisms and programs for community consultation and information dissemination with respect to a service delivery agreement.

The literature on South African water governance indicates that public participation remains a limping afterthought in practice, as Goldin (2003; 2008 and 2010) shows. Hove et al. (2019) describe how the South African government lacks the capacity to engage in a meaningful way with communities, and to use community-generated evidence to inform resource allocation. This, they contend, leads to a lack of understanding between communities of water users and water authorities that, coupled with ongoing water shortages, constitutes an "overwhelming impediment driving people into poverty, illness and social unrest" (Hove et al., 2019: 1). Catchment management agencies that were supposed to ensure the devolution of power and decision-making have hardly materialized, and participation is shown in many studies to be lacking or merely window-dressing. Furthermore, new mandates under the National

Development Plan, reflected in the NWRS2 (2013), call for the consolidation of and reduction in numbers of catchment management areas and water boards, compound the problem. The NWRS2 (2013) hints at weaknesses in the establishment of water management institutions, the regulation of water resources and water quality, and their decentralization. Several WRC reports (WRC Report No. 2310/1/17; WRC Report No. 2530/1/18) also highlight the poor realization of public participation in water governance, and the lack of progress in terms of the policy aims of decentralization and redress of historical inequitable water distribution has been highlighted repeatedly (e.g. Ncube, 2018; Förster et al., 2017; Williams, 2018; Aleu et al., 2022).

The context in which South Africa's water managers operate

South Africa is a dry country with low rainfall and faces water security and supply issues, growing environmental degradation and resource pollution (DWA, 2013). Insufficient infrastructure maintenance and investment, recurrent droughts driven by climate change, inequitable access to water and sanitation, and deteriorating water quality add to these challenges. Over 3 million people remain without access to basic water supply services, and more than 14 million people cannot access safe sanitation. Water is not equitably distributed, with only 5% of agricultural water accessed by black farmers (DWS, 2018).

Prolonged droughts and flood risks are increasingly likely due to climate change, and rainfall is becoming less predictable, while at the same time water demand is rapidly increasing (Western Cape Government, 2018a). While most viable freshwater resources are fully utilized, water wastage is extensive (DWA, 2013). Weak management in the water sector compounds water-related challenges in South Africa and adds to the threat to ecosystems posed by poor water quality resulting from mining activities, urban development, industry and agriculture and inadequately treated wastewater (DWA, 2013). Water management challenges within South Africa include water allocation reform, a dearth in technical and management skills in water organizations, poor integration of monitoring and information management, and a backlog of infrastructure maintenance (DWA, 2013). The establishment of water management organizations intended to improve inclusion, such as regional CMAs and local WUAs, have been fraught with delays (Meissner et al., 2016; Van Koppen and Schreiner, 2014). Of the 19 originally envisioned CMAs in the NRWS1, only two are in operation (Sadiki and Ncube, 2020).

A lack of skills and capacity amongst DWS government employees compounds the problem of weak governance (Pahl-Wostl, 2019; Förster et al., 2017). Funding required for maintaining existing water infrastructure is considerable, not to mention the upgrading or provision of additional infrastructure implied in the National Development Plan (NDP). Cost recovery and sufficient budget to realize the water management goals of DWS remain lacking, and the goals of the NWRS2 to ensure that citizens can access their rights to water in this respect seem unlikely (Pahl-Wostl, 2019). The lowest tier of government-led water service provision – municipalities – are shown to be sorely inept, with as many as 33% of the municipalities considered dysfunctional and inadequately staffed (DWS, 2018), boding a dismal future for the citizenry's access to adequate services as guaranteed in the Constitution. Additionally, government officials are increasingly unaccountable for acting on their mandates to deliver water. Together with poor accountability amongst government officials, and politically motivated water management – rather than being locally-defined – indicates a "failure of the bureaucratic structures" (Pahl-Wostl, 2019: 14).

These contextual constraints are important to highlight as this provides an understanding of the conditions under which water managers try to perform their tasks. It also indicates that due to the poor governance outcomes public trust in those responsible for managing South Africa water resources may be low.

4.3 Results

We first provide information on the roles and tasks of the interviewed water managers in their institutions. Information about the changes in the tasks and in the engagement with the public was also elicited in the interviews. Afterwards we describe how citizen collaboration in water management and decision-making was valued and experienced by water managers. This section provides an indication of the role of public trust in the water managers' abilities to deliver on their water management responsibilities. It includes exploring the importance of different types of trust relationships, factors that influenced public trust, perceived public trust in their institutions and themselves, and the effects of declining public trust in government.

Water managers' tasks and their changes over time: engagements with the public

The DWS managers are tasked with overseeing institutions established under the National Water Act for water resources management, ensuring their compliance with relevant legislations, and submission of reports and documents in line with their mandates. The officials engage at various levels of institution-building and management, water resources management, monitoring and compliance, environmental management, and planning in relation to water. The manager operating at the national level interacts regularly with a range of stakeholders and publics, as well as state organizations and officials. Some tasks for one of the DWS managers (DWS2) at the regional level overlap with those described by the CMA managers – largely to do with water resource management and planning, water quality; use monitoring and compliance, licensing, registration, and authorization; and engaging with stakeholders in the specific water management area. The other regional manager (DWS3) has prioritized public participation in most of their work as they felt this was the duty of a public servant. Transformation and capacity-building in the sector are amongst the duties of all three managers, which also includes providing support to municipalities. Their capacity building tasks bring them into contact with the public and stakeholders that included provincial government, various industries, NGOs, municipalities and previously disadvantaged water users. The three officials explained their water management tasks have changed in in terms of increasing demands for internal management of the institution (DWS1), a greater social orientation in their work (DWS2), and growing emphasis on issues around ecological infrastructure, climate change and resilience (DWS3).

Two of the three interviewed CMA officials have similar mandates and responsibilities. These comprise managing water resources in their respective catchments and engaging with relevant stakeholders to that end. This work includes among other tasks registration, licensing, water use authorization – all tasks which themselves required differing levels of public engagement. According to one official (CMA5) public engagement in the catchment area intensified with the development of catchment management strategy. This process required stakeholder identification and consultation, efforts to realize transformation in the

water sector, and securing access to water for previously disadvantaged water users. Water-use planning, and water and environmental compliance and monitoring are also important tasks. The role of the third CMA official is primary focused on public and stakeholder engagement. This included ensuring regular communication about water issues with the public stakeholders and supporting their access to water. Public engagement is important to the work of all three CMA officials, in addition to institutional and technical oversight responsibilities. Reflecting on how their tasks had changed they pointed to an increase of computerization of their work, the increasing importance of data, and growing public engagement. One official emphasized also increasing internal capacity development (CMA4).

The WUA officials occupy different roles in their organizations (CEO, secretary, and chairman). Their engagement focuses on the members of their specific WUA. The main duties of WUA officials extend to the licensing, registration and monitoring of members water use, and the collection of water-use fees. One of the officials is responsible for financial management and administrative tasks, coupled with more technical duties such as water system planning, development and maintenance, and negotiations around water resource management with the WUA members. These three officials described changes in their tasks in terms of a growing emphasis on water use planning and efficiency using data, finding the means to make more water accessible to farmers, and to help them utilize water more effectively.

The work of the municipal officials generally revolves around water supply and distribution to the residents within their municipalities. Key duties include water treatment and distribution, water planning, managing water infrastructure planning, development and maintenance, water augmentation, and administration and financial management. Their work is largely technical and managerial. Changes in the tasks included stricter certification, compliance and auditing in their work, greater monitoring of water quality coupled with growing activities related to water-use efficiency. They also highlighted a growing dependence on new computerized technologies that allowed for faster responses to water quality and inefficiency issues and noted an increasing outsourcing for services.

Citizen collaboration and public participation in water management decision-making

Water managers broadly felt that public participation in water management matters because it is supposed to inform water policies intended to benefit the public. Participation was considered important for keeping the public informed about water-related decisions, to create awareness on water issues and the reasoning behind particular water-related interventions. Public participation is a mandate for certain functions (e.g. environmental authorizations (MUN8), water pricing (DWS1), and the development of catchment management strategies (CMA4) and was therefore indispensable to the work of some of the interviewed managers. One CMA official felt that water resource management at the local level could not happen without public involvement, especially with regards to landowners and local communities that use the water resources or impact them through their activities. Yet, one DWS official cautioned against consulting with the public without accompanying service delivery and pointed out that the usefulness of public consultation depended on the dynamics of each area and the water issue at stake.

Most of the managers found that citizen inputs were valuable to their work. “It doesn't matter how many people you employ, you can’t cover the entire footprint, so stakeholders become your eyes and ears when you are not there, so if they understand your vision then they own it with you, start living it and then they

become advocates of issues that you're trying to get across, and that is important" (CMA6). Monitoring and reporting unlawful water use were stated as examples where citizens were able to assist the functions of the water management organization. Equally important for some of the managers (CMA5, CMA6 and DWS1) was that public participation enhances public buy-in and understanding for water-related projects and issues, as well as the costs associated with water service provision. For the municipal technical managers, however, the value of participation depended on the nature of the work. They felt that technical and bureaucratic work required less citizen input. However, for matters such as reporting problems and receiving public feedback on the quality of service was seen as valuable because it encouraged municipalities to maintain the level of their service provision.

Furthermore, all managers stressed the importance of and need for increased citizen engagement in times of extreme events. The recent drought experienced in the Western Cape led to a shift in focus to greater water use efficiency, water demand management, conscientization amongst both water management officials and the public – all of which generated more interactions between the public and officials to solve the problems related to water security.

Several challenges were pointed out by the water managers in relation to increased public participation. These largely had to do with differing or inaccurate perceptions amongst the public of the roles of the water management organizations, the use of public participation platforms for personal gain and self-interest by participating members of the public, government lacking the budget to accommodate for citizen participation, managing high expectations from the public along with limited budget and managing different perceptions on an issue which required negotiation to find a 'middle road'. Furthermore, several officials (DWS3, DWS1) cautioned that even when public participation may take place, the inputs provided by the public may not always be followed through or considered. They felt that this type of tick box exercise could contribute to an erosion of public trust. Others (MUN12 and MUN11) highlighted that conducting public participation processes often required negotiating a 'middle ground' in the context of differing perceptions, and at times led to time consuming and drawn-out public participation processes, adding to the managers workloads. Engaging with a range of stakeholders that have different interests, capacities and perspectives also has proved challenging. For example, CMA5 highlighted that it was not always easy to elicit and include the voices of the marginalized and those who did not have title to their land. DWS3 and the CMA officials have placed considerable efforts on capacity-development amongst emerging farmers, in terms of building knowledge around accessing water, assistance with water-use authorizations, and in some cases, providing infrastructure. The municipal officials stated that the voices of the less powerful and the marginalized were included through Integrated Development Planning processes and structures such as ward committees, but beyond that there was little obvious effort to include marginalized people in water management or decision-making.

The role of trust for the work of water managers

Trust within their own organizations and public trust were identified as some of the most important trust relations with regards to the managers' abilities to deliver on their water management responsibilities. More specifically, trust within their own organizations was seen as essential for carrying out their work. Several officials reflected that internal co-ordination and trust in each other's capabilities made it possible

for them to better realize their roles and responsibilities and for projects to be executed, and thereby accomplish their institutions' mandates.

Unequivocally all water managers agreed that public trust and cooperation were vital to their ability to provide a reasonable public service and meet their institutional mandates. For managers from DWS, CMAs and WUAs, public trust was perceived as essential for officials to plan their water management strategies and to gain support and collaboration for specific interventions. For CMA5, public trust was critical because they relied on revenue collection from stakeholders to carry out their work. The public having a good understanding of the work and function of the CMA, and seeing the results of that and how funds are disbursed, were identified as important factors for enhancing public trust in the organization. For the representatives of the WUAs, trust relations with farmers (as users) and DWS (as regulator) was seen as most important. Public trust was also considered important in municipalities, particularly in the sense of political trust and politicians who mediated that. Important to note is that for some of the water managers, public trust in their work and their organizations had to be constantly rebuilt due to actions (or inaction) of national DWS which has eroded public trust in the water sector.

Most of the interviewed managers rated public trust in their organizations fairly high, between 7 and 9 out of 10. Representatives from DWS, however, scored public trust in their organization fairly low (5 to 6 score). Interestingly all managers scored public trust in their personal performance quite high, between 7 and 9, regardless of the level of perceived trust in their own organization.

Trust (or the lack thereof) between their organizations and national DWS was highlighted by some water managers as a factor having significant impact on their work and other trust relations. For example, one municipal official explained that the fact that DWS could not be relied upon was the reason why internal trust in their organization took on greater importance. The WUA officials also reported that their lack of trust in national DWS meant becoming more self-reliant, and to try their best to deliver the services required of them. At the same time the lack of trust of the DWS towards WUAs has resulted in increased auditing and compliance monitoring of WUAs. One of the CMA officials highlighted that inadequate trust relations between the CMA and DWS hindered solution-oriented discussion and responses on arising water resource management issues.

Decline in public trust in government overall was perceived by the water managers to affect public willingness to participate in public participation processes or to cooperate in some of the institution's undertakings, and consequently public buy-in into projects. In some cases, decline in trust in government was seen as a consequence of poor understanding by the public of the roles of different water management organizations, which resulted in the public extending their mistrust as a whole of the government to the various organizations. Nearly all of the water managers consulted felt that declining public trust in government affected their work as water managers, and the room they had to maneuver. Some even reported a lack of trust in central government themselves and vice versa. However, several managers said that despite their work being made harder by a general decline in trust in government, they nonetheless forged ahead and carried out their duties as best they could.

4.4 Discussion and Conclusion

In order to better understand the role and level of citizen participation and trust in the work of water managers we first needed to get a better understanding of their tasks, including changes over time in these tasks, and how their day-to-day work included interactions with citizens and other actors. Public engagement differed in relation to their level of operation as well as type of tasks (more technical or policy oriented, vs. tasks that require consultation and/ or cooperation). For example, the DWS official operating at the national scale did engage with various stakeholders (including the public) for particular purposes but in a rather sporadic manner. The regional DWS managers had more regular engagement with stakeholders and citizens in a particular water management area. For the CMA officials public engagement was one of the key priorities because many of their tasks cannot be completed without the input and buy in of the residents in their catchment management area. WUA officials, responsible for localized water management, on the other hand, had fewer direct engagements with the public, besides with their water-using members. Similarly, the interviewed municipal officials did not necessarily prioritize public engagement for accomplishing their duties as these were to a large extent very technical tasks. The discussions with the water managers brought to the fore that while most of them engage in various tasks some needed to be prioritized over others. For example, one of the DWS officials pointed out that they had to shift more of their efforts to the internal management of their organization at the expense of other tasks such as stakeholder engagement. Interestingly one of the other DWS managers took it up on themselves to prioritize stakeholder engagement and was able to justify this by pointing at the legislation. Hence, this shows that water managers have a certain level of agency to decide what gets prioritized in their work.

Public participation in water management was particularly valued by most water managers in terms of monitoring and reporting of water related issues. To them public participation also increases buy-in into specific interventions and long-term planning. Overall, it appears that the engagement with the public focuses on creating awareness about the role and functions of the water management organizations (DWS, and CMA), educational programs on specific issues and consultation (e.g. policies, tariff structures, etc.). Participatory platforms (e.g. wetland [DWS3] and catchment forums [CMA5]) are additional avenues to engage the public but these mechanisms are utilized to a limited extent. Outreach and support to emerging/previous disadvantaged farmers (DWS1,2 and CMA5) has increased but remains inadequate. The CMA officials reflected that the engagement with citizens had become more comprehensive over the previous ten years. Through more targeted engagement they developed a clearer understanding who their stakeholders are. The municipal officials said that their engagement with citizens had changed in terms of making water quality results available to the public. While public engagement has increased over time for most water managers, they highlighted that this engagement must be well resourced allow different segments of the public to meaningfully participate. Insufficient communication prior and post the engagement processes as well as not considering public inputs in the final decision making were also highlighted as significant stumbling blocks.

Our investigation into the role of public trust on the work of water managers revealed that the interviewed managers perceive trust as an important factor that affects their work. Yet public trust in their organization is not the only trust relation that matters in their day-to-day work. Several managers pointed

out that intra-organizational trust was also important. Feeling supported by their departments and organizations as well as having confidence that their organizations have the capacities and political will to fulfil their organizational mandates are important enabling factors for those water managers to perform their specific water related tasks. Low public trust in government has impact on the work of water managers as this seems to negatively affect the trust that the public has in water management organizations. Interestingly the interviewed managers highlighted the perceived low level of trust (public and inter-organizational) in DWS was more of an obstacle to their work then the perceived low levels of public trust in government. A key finding is that the different trust relations affect each other in various ways. For example, limited trust in DWS seems to have reinforced trust and reliance of water managers in their own organizations. At the same time many managers point out that the absence of a trusting relationship with DWS has significant implications for their ability to fulfil their water related duties.

5. Public Trust of Residents from Underserviced Neighborhoods

This chapter reports on the findings from our Public Trust survey through which we investigated to what extent the residents of underserviced neighborhoods currently trust local[1] and national-level water managers. We also explored how a set of potential determinants relates to such trust. Data was generated from 330 community members from 7 selected underserved neighborhoods in Cape Town as well as one in Gqeberha. While we were mainly interested in trust relations that individual citizens have in the water management organizations that are most relevant to them: i.e. the City of Cape Town/ Gqeberha (local water services authority) and the national-level Department of Water and Sanitation (DWS), we also set out to examine how the trust of citizens in water management organizations is affected by the trust of citizens in government in general.

We chose to explore public trust relations in Cape Town as the city has a long history of a racially and spatially segregated water services landscape with an underdeveloped water-related infrastructure in many of the city's townships and informal settlements (Dugard, 2021; Turok et al., 2021). According to South Africa's 2011 Census, 20,5% of Cape Town's households live in informal dwellings – with 7% in informal backyard structures and 13,5% in informal settlements. Due to the in migration of job seekers, this percentage is predicated to have increased steadily over the past years. Approximately a third of the population cannot afford to pay for water and are eligible for free basic water services (Ziervogel, 2019, Dugard, 2021) Furthermore formal houses consume 55.6 percent of Cape Town's water supply, whereas informal settlements consume only 4.7 percent (Ziervogel, 2019). Although these inequalities are officially targeted by the Human Rights to Water (HRW) approach adopted after the 1994 transition to democracy, growing water demand due to urban growth (in-migration and new developments) in combination with declining water supply possibilities have increased the competition for water services and created tensions that make it more difficult for water managers to meet up with the HRW objectives. Important to note is that while at first glance one can easily conclude that the issue seems one of rising water scarcity this is not the case, it rather remains one of equitable distribution and whose needs get prioritized (Dugard, 2021). We argue in this chapter that without closer attention towards existing trust levels of members of the public from underserviced neighborhoods towards water management organizations, including understanding determining factors, attempts to improve trust and water governance outcomes will not be very effective. Kwa-Dwesi in Gqeberha was added to the sample sites for comparative reasons, i.e. to probe if the data from underserviced areas in other towns show discrepancies to the data generated in the neighborhoods in Cape Town. However, most of the investigation and discussion below focus for the most parts on the communities in Cape Town.

[1] The City of Cape Town acts as the Water Services Authority (WSA) responsible for the provision of water services in its area of jurisdiction (OECD, 2021). The Water and Sanitation Department of the City of Cape Town acts as the water service provider for Cape Town, and Drakenstein and Stellenbosch municipalities. As a water management organisation its tasks include providing water (including bulk water) and sanitation services, as well as managing water catchment areas and water storage (OECD, 2021)

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5.1 Theoretical Background

Public trust in government

Public trust in government involves the generalized trust attitudes of citizens towards the function of governments and related governance systems. Public trust has gained attention since the 1950s when the term was coined as political trust in political science. It focuses on a linear causal reasoning that if public trust in government increases, support for government policies and actions increases (Peyton, 2020; Macdonald, 2019). As already highlighted in chapter 2 we view public trust in government as a specific form of institutional trust**.** Public trust in government is seen as a precondition for government and related institutions to be able to function (Luhmann, 1979), based on an evaluation of government performance (Levi and Stocker, 2000; Miller and Listhaug, 1999). It has been shown that public trust in government is important for increasing compliance with laws and regulations (Ayres and Braithwaite, 1992) and for enhancing the legitimacy and the effectiveness of democratic governance (Hetherington, 1999).

Despite the long tradition of studies on public trust in government, there is little agreement on its definition. Public trust is often assessed by the extent to which citizens have confidence in public institutions to operate in the best interests of society and its constituents (Cleary and Stokes, 2006), or as Devos et al. (2002: 484) state, public trust entails "having confidence that the institution is reliable, observes rules and regulations, works well and serves the general interest". Public trust is mostly studied directly through questions such as 'how much trust do you have in certain institutions?', or indirectly through related concepts such as perceived accountability, transparency, and responsiveness (Beshi and Kaur, 2020), or by focusing on specific aspects of institutions (procedural trust) (Coleman and Stern, 2015). For this study we follow the mainstream understanding of public trust in government as generalized individual trust in government functioning based on past performance. For this study, most of our investigation into the effects of political trust on the trust relations that city residents have towards their water management organizations we focused on national-level government institutions, i.e. the current South African government, parliament, the current ruling party and political parties in general.

We conceptualize trust in water managers as a psychological state of the individual resident/citizen (subject of trust) comprising positive expectations (or negative in case of distrust) that water managers (object of trust) have the competences and the goodwill to succeed in managing water related issues on which the trustor runs the risk of facing negative consequences (Rousseau et al., 1998; Siegrist et al., 2000). Trust is thus only a relevant attitude in cases in which a trustor accepts some form of vulnerability (i.e. refrains from taking action him/herself) to the trustee's future behavior, despite running the risk that the trustee will not (be able to) live up to those expectations (Rousseau et al., 1998; Stern and Coleman, 2015). More formally, such a trust relationship can be designated as "a truster A trusts (judges the trustworthiness of) a trustee B with regard to some behavior X in context Y at time t" (Bauer, 2019: 2). This makes each specific evaluation of a trust relationship at its basic level context-specific (which acknowledges that A trusts B to perform a specific task but may be less trusting regarding another task (Lewicki et al., 2006)) while simultaneously taking into account the dynamic nature of trust as trustors may adapt their expectations over time (Bauer and Freitag, 2018).

Although the residents of the underserviced neighborhoods, whose trust we study, may incidentally have personal experiences with individual water managers (leading to interpersonal trust), most of the evaluations whether one can trust water management organizations (as more abstract collective-level entities) will commonly be developed in the absence of direct experience with the individuals operating within those organizations (Baek and Jung, 2015; Siegrist et al., 2000). This makes trust in water management organizations more abstract than interpersonal trust, while it is more specific than dispositional tendencies of individuals to find other individuals or institutions worthy of trust (Winter and Cvetkovich, 2010). While we are mainly interested in trust relations between individual citizens and water management organizations, we also set out to examine how the trust of citizens in water management organizations is affected by the trust of citizens in government in general. Hence, as part of this study we are trying to understand how the two dimensions of institutional trust affect each other.

5.2 Research Approach and Context

Water management and services in the underserviced neighborhoods of Cape Town

Historically, water related infrastructure has been underdeveloped in townships and informal settlements in Cape Town as supply and distribution systems were shaped by colonial and apartheid planning to predominantly serve white populations (Dugard, 2013). As a result, the mainly black and coloured populations of these areas have for long been suffering from lower-quality water services and highly unequal and undemocratic possibilities for participatory engagement in water management practices, as such possibilities were mainly based on race and income (Rodina, 2019; Tremblay and Harris, 2022). This situation changed "on paper" with South Africa's 1994 transition towards democracy. Since then, the existing inequalities have been officially targeted by the Human Rights to Water (HRW) approach. Access to enough water to meet basic needs is official public policy (Dugard, 2021). In practice this means indigent consumers are entitled to a free basic water allocation of 6 kilolitres/household/month for basic needs which must be accessible within 200 m from home (Harris et al., 2012; Rodina, 2016). In addition, the Water Services Act (1997) mandates to promote community participation and consultation to include the views of all important stakeholders in the development of new water services plans (Beck et al., 2016). But despite those progressive plans, implementation challenges of these nationwide policies and mandates have remained, especially at the local level (Mehta, 2006; Yates and Harris, 2018).

At first sight, the City of Cape Town seems relatively successful in extending basic access to water services. The Census data from 2011 estimated that 96.6% of households in Cape Town had access to piped water within 200 m from home, while 87% of households had access to piped water inside their dwelling or yard (CCT, 2012). However, those numbers look different when we do not only consider generalized service coverage data alone and focus more in depth on the particularities in the many townships in the city (Rodina, 2016). The average number of households who have access to piped water inside their dwellings lies well below 70% in townships such as Phillipi East, Khayelitsha and Imizamo Yethu (near Hout Bay) (CCT, 2012). Particularly people who live in informal shacks in these areas are still dependent upon communal taps on the sides of the streets, which is associated with substantial safety concerns both related to crime and health risks (Nleya and Thompson, 2009; Rodina, 2016). In the city's informal settlements around 230 000 households continue to rely on public water points and shared toilet facilities

(OECD, 2021). For those households in impoverished areas who do have private access to water other substantial concerns exist. As impoverished households often house more members than the assumed 8, and as the nationwide average per capita consumption of water is more than 200 L per day (DWS, 2018), the free basic water allocation of 6 kilolitres to resource poor households may often be insufficient, especially as such households may be particularly hard hit by disease burden and poverty (Harris et al., 2012; Dugard, 2021). What happens after the minimal allocation of water has been reached is subject to concern. Sometimes households may be cut off despite continuing need (especially a problem when there are leakages) (Harris et al., 2012). In addition, 'smart' water meters have been increasingly installed in the formal residential areas within townships. These regulatory measures together with poor service delivery and inadequate infrastructure upgrading have in some areas created a situation of frequent/ regular chronic water shortage.

Description of selected under serviced neighborhoods

We focus on residents living in eight underserviced neighborhoods. Seven of those neighborhoods are located in the City of Cape Town Metropolitan Municipality in the Western Cape province of South Africa. Philippi, Hanover Park, Khayelitsha, and Lavender Hill are located on the Cape Flats, a vast flat, sandy zone between the mountains and the Atlantic and Indian Oceans which frame the greater city of Cape Town. The Cape Flats area is prone to flooding in the wet winter months with the many wetlands located there (Lucas, 2021: 15). Masiphumelele, Imizamo Yethu (Hout Bay), and Ocean View are located outside of the Cape Flats close to areas established as "white" suburbs during apartheid. While Masiphumelele is located very close to a wetland, like the Cape Flats suburbs, Imizamo Yethu (Hout Bay) and Ocean View are located on mountain sides. In addition to the Cape Town neighborhoods, we also investigate the underserviced neighbourhood of Kwa-Dwesi in Gqeberha (formerly known as Porth-Elizabeth), Eastern Cape to compare our findings from Cape Town with a case from another South African city. Figure 5 below provides a map with the geographic locations of the 8 neighborhoods.

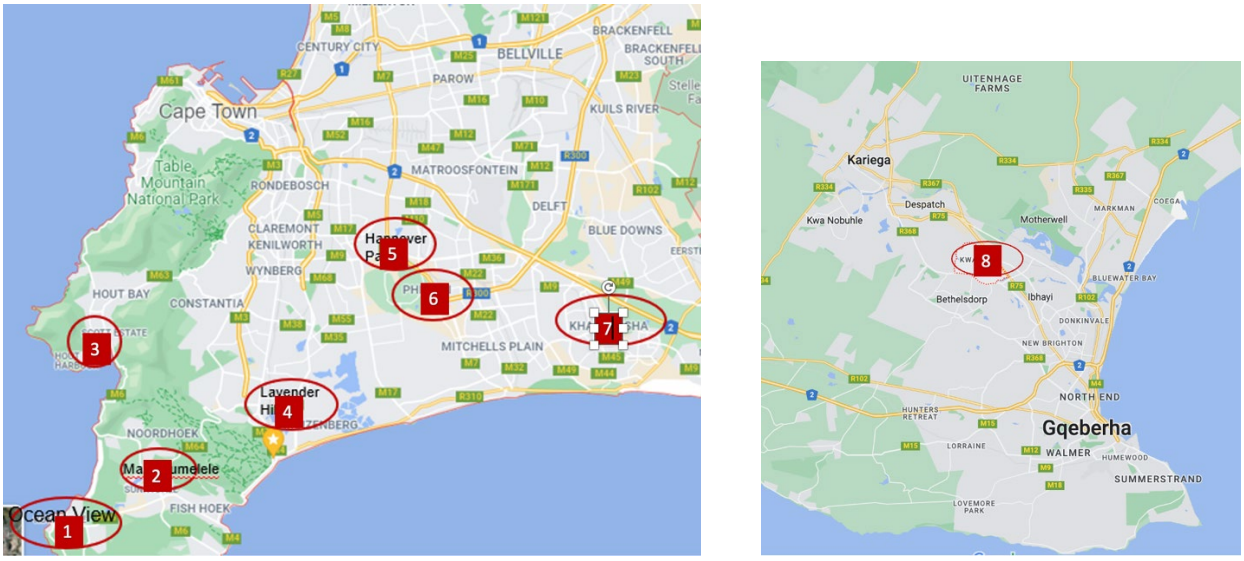

Figure 5: Overview of selected neighborhoods in Cape Town (left Map) and Gqeberha (right map), 1. Ocean View, 2. Masiphumelele, 3. Imizamo Yethu , 4. Lavender Hill, 5. Hanover Park, 6. Philippi, 7.Khayelitsha, 8. Kwa-Dwesi

All eight neighborhoods were established in the wake of apartheid policies of forced removals and separate development through the Group Areas Act. The nationalist South African government of that time created race categories on often spurious grounds of physical characteristics and ascribed ethnicity. People ascribed to the race categories 'black', 'coloured', and 'Indian' were forcibly removed from locations ceded to those categorized as 'white' and made to live in newly established townships and locations on the margins of the cities. "South Africans classified as white lived in relatively prosperous neighborhoods with good municipal infrastructure, with lucrative pockets of commercial activity … South Africans classified as coloured or Indian were removed to less-serviced neighborhoods, where poverty, drugs and gangs were rife. 'Townships' for the African population were provided with minimal infrastructure" (Seekings, 2011: 534). Despite the abolition of segregationist legislation prior to and at the advent of democracy in 1994, this institutionalized inequity continues to characterize most of South Africa's cities.

Potential determinants of public trust in water management organizations servicing residents of underserviced neighborhoods

To find out which factors drive trust in water management organizations, we explore the relationships between such trust and a set of potential determinants.

Individuals' trust in the water management capacities of certain institutions may well be affected by one's broader overall evaluations of the trustworthiness of the core political institutions in a political system; i.e. the national government, parliament, and political parties. In the context of western democracies, generalized trust in the core political institutions is commonly considered to be a precondition for trust in less politicized institutions such as judges, civil servants, the police, and other executive agencies (Newton & Zmerli, 2011; Zmerli & Newton, 2017). Extant research on natural resource management agencies supports this perspective as people tend to report (limited) trust in natural resource management agencies as a result of their (limited) trust in national-level government institutions (e.g. Davenport et al.,

2007; Hamm et al., 2013). In one of the few studies directly investigating trust in water managers, Voogd et al. (2021) report generalized political trust to be the strongest individual-level determinant of trust in water managers in the Netherlands. However, their research at the same time shows that trust in the latter organizations remains at a substantially higher level than generalized political trust. These findings add to the idea that although related, both types of trust are also meaningfully different and partially based on different sources (Fisher et al., 2010). The basis for generalized political trust (i.e. in the core political institutions) is often considered to be dominated by partisanship while one of the core reasons to trust executive governance agencies more at the periphery of the political system may be their evenhandedness and/or impartiality (Rothstein & Stolle, 2008).

In the context of disadvantaged citizens in South Africa, there are no reasons to assume that political (dis)trust in the central political institutions will not substantially spill-over into more specific (dis)trust in water managers. But the underlying mechanisms of such a relation may be somewhat different than in the context of western democracies. First, as water governance issues are among the core political issues for residents from underserviced neighborhoods in the South African context, it may as a political issue be stronger related to performance based evaluations of the authorities in general compared to Western countries in which water politics in not often one of the most salient political issues as access to clean and safe water is often taken for granted (Voogd et al., 2021). Second, there is little evidence to suggest that citizens in the South African context distinguish between political institutions (such as the ruling party, various national government departments and parliament) and the actors that preside within these institutions (Gouws & Schulz-Herzenberg, 2016). As a result, generalized trust in core political institutions at the national level may be strongly driven by trust in the ruling ANC government while the basis for trust in water management agencies is probably also dominated by considerations of partisanship, instead of considerations of impartiality. Hence, levels of generalized political trust and trust in water managers presumably coincide strongly and can be expected to be dependent upon one's national and local political preferences.

A second attitude that supposedly influences citizens' trust in water managers is whether people perceive that they are at risk of facing negative consequences from water related threats which may include among others flooding, droughts, service interruptions, and poor water quality. Such 'risk perceptions' can be conceptualized as individuals' subjective judgements of a threat's probability, including expectations about how well public authorities are able to buffer the potential threat's damage to oneself or society (Choon et al., 2019; Grothmann & Reusswig, 2006; O'Connor et al., 1999). The higher such risk perceptions, the more vulnerable people might feel themselves to the actions of (water) managers, who should ultimately protect them against those threats. Hence, perceptions of risk seem to raise the bar for citizens to develop trust in the government agencies who manage those risks as citizens may perceive that successfully managing those risks is more difficult when the stakes are higher (Stern & Coleman, 2015). In the context of western democracies, higher environmental risk perceptions have been found to be related to lower trust in risk managing agencies (Ross et al., 2014; Siegrist et al., 2005; Terpstra, 2011). While (issue-specific) trust in water managers has been shown to be negatively affected by specific perceptions that people are at risk of facing negative consequences from water related threats (Voogd et al., 2021). Although residents of underserviced neighborhoods in the global South will on many occasions be subjected to more serious water related threats with higher damage potential than their Western

counterparts, it is currently not known whether they indeed perceive of those threats as more serious, and whether this substantially alters how risk perceptions are related to trust. It may for example be the case that because of people's own risk 'choices' (i.e. seeking a livelihood in informal areas prone to several risks) they feel themselves more responsible for the disadvantages that they may suffer, in such ways that this might diminish the expectations that they have of others for assistance (Ziervogel et al., 2017).

Open communication practices and information sharing are commonly mentioned as another important factor increasing public trust in government actors, as such practices may play an important role in establishing that the sender of such messages is honest and transparent (Mukhtarov et al., 2018; Peters et al., 1997). Failure to provide adequate information may lead to rumors and speculation, undermining trust (Ziervogel et al., 2019). About the South African low-trust context it is said that rebuilding trust requires empowering people with (water specific) information and knowledge about specific development plans (McEwan, 2003; Ziervogel et al., 2019). However, it is not solely the provision of information that is important, but especially whether that information is received and positively evaluated by recipients (Peters et al., 1997). Therefore, we investigate whether feeling oneself well-informed on water management issues is positively related to trust in water managers.

(Political) efficacy is a multidimensional concept referring to citizens' capacities to influence societal/political actors and institutions (Boulianne, 2019). Internal (political) efficacy refers to perceptions about one's ability to understand (political) public affairs and exert influence over public actions; for example through political engagement, such as contacting public officials (e.g. Morrell, 2003; Thaker et al., 2018). External (political) efficacy refers to perceptions that one will be heard, and that (government) institutions will be responsive to one's demands (e.g. Hart & Feldman, 2016; Thaker et al., 2018). Although both internal and external efficacy are found to be important determinants of political participation and sustainable behaviors (Hart & Feldman, 2016), only a positive relation between external political efficacy and trust in political actors is well established in the literature (Geurkink et al., 2020). It is not understood yet whether perceptions of internal political efficacy will also turn to more positive evaluations of political actors and trust or whether such perceptions in turn enforce 'informed skepticism' (Bäck & Kestilä, 2009). Especially in the context of Global South countries, including South Africa, little empirical research has been done on such relations (Mahlangu & Schulz-Herzenberg, 2022). Although we do know that perceptions of internal political efficacy are rather low in these contexts (Mahlangu & Schulz-Herzenberg, 2022:164), which is particularly the case when it comes to water governance practices in which the recurring themes and discourse are said to be alienating for those who do not master the sector's language (Goldin, 2010), it is not known whether the group of people who claim to understand public matters better in such contexts are more likely to trust political actors or whether such trust just raises one's ability to recognize malfunctioning of the involved actors and institutions (Hu et al., 2015; Mahlangu & Schulz-Herzenberg, 2022); with the latter being detrimental for trust development. Given the unsettled nature of this debate and its potential importance for trust development in underserviced areas we added an exploration of this relationship to our analyses.

Citizens commonly need a basic level of trust in political actors to embark on various (institutionalized) forms of political participation (Hooghe & Marien, 2013). Conversely, citizen involvement and participation in decision making processes are also believed to reinforce such trust as citizens become

more educated, aware and active when being involved in governance processes (Brown, 2011). Following these lines, in the South African context it is oft argued that the formerly disadvantaged must be central targets for participation as key to social development (McEwan, 2003). When specifically focusing on its water strategy, the City of Cape Town now explicitly mentions that it aims at promoting and facilitating the building of trust by means of engaging citizens, better assessing their needs, and by being responsive to citizen-led water initiatives (City of Cape Town, 2019). But despite these promises, the vast majority of residents of underserviced neighborhoods report that they have not been involved in water related projects. Participation in specified local (water) governance activities is alarmingly low (Harris, 2020; McEwan, 2003). And although general trust in government has been shown to be positively associated to community engagement in underserviced neighborhoods (Harris et al., 2018), it is not clear whether such a relation also holds in the more specific water governance context.

5.3 Method

To be able to gain a better understanding of the trust, or lack thereof, that residents have towards the water management organizations responsible for water service delivery and water management in their neighborhoods we structured the survey according to specific topics. The intention was to not only measure the levels of trust towards these organizations but also to gain a better understanding of the factors that we assume are critical determinants of the trust relations (see section 5.2). The survey instrument can be found in Appendix 3.

An advantage of asking respondents about trust in a series of specific tasks assigned to the two water management organisations is that it helps the respondents who may not be aware of the exact roles and responsibilities of DWS in relation to CoCT to better differentiate. The vast majority of people receiving water services often do not know where one organisation's responsibility stops and the other's starts. Our approach was intended to mitigate this knowledge gap.

In addition to asking questions about the trust of the residents towards the specified water management organizations overall as well as their capacities to handle different tasks we also asked them to elaborate on:

- their specific risk perceptions toward water issues,
- how well informed they feel about water management and whether they trust the information provided by the water management organizations;
- to provide their opinion on the desirability of citizen participation in water management including their ability to influence decision-making in water management as well as whether and when citizens should have more say in water management;
- their personal involvement in water related issues;
- general political trust (South African government, parliament, political parties in general, the ruling party, provincial government, ward council); and
- socio-economic information (relating to source of drinking water, source for main income, type of dwelling, etc.)

Survey research data was collected by means of a collaboration between the South African research team and a local NGO called *Waves for Change*. The organization provides life skills for children from underprivileged homes, together with surf training. More specifically, we worked with nine young adults[2] from the eight neighborhoods that have been trained as life-skill coaches by Waves for Change. We engaged in this collaboration as these coaches provided us with entry points to the communities. Living in the communities they had in-depth knowledge about their communities, and they had pre-existing skills in conducting surveys. After a training workshop with the coaches in October 2021 to familiarize them with the study and the survey, these coaches used a snowball sampling approach to recruit a more or less random intersection of respondents from their particular communities. Face-to-face surveys were then conducted in the preferred language of the respondent (English, Afrikaans, Xhosa) from November 2021 to January 2022. The answers to all questions were immediately registered to the cellular telephones of the coaches using our predesigned Survey form in Google forms. All respondents received a food voucher of R100 as a token of thanks for their time and cooperation. This resulted in a total number of 330 completed surveys with a minimum number of 29 surveys (Hout Bay, Kwa-Dwesi), and a maximum number of 92 surveys (Khayelitsha) being conducted in each of the eight separate underserviced neighborhoods. Table 4 below shows the breakdown of female and male survey participants from the eight neighborhoods.

Table 4: Overview of number and gender of survey participants

City	**City of Cape Town**							**Gqeberha**	
Neigh-bourhood	***Masiphumele***	***Philippi***	***Hanover Park***	***Khaye-litsha***	***Lavender Hill***	***Hout Bay***	***Ocean View***	***Kwa-Dwesi***	**Total**
Female	65% (22)	32% (10)	44% (14)	65% (59)	70% (21)	38% (11)	68% (21)	45% (13)	56% (171)
Male	35% (12)	68% (21)	56% (18)	33% (30)	30% (9)	62% (18)	32% (10)	52% (15)	43% (133)
Other				2% (2)				3% (1)	1% (3)

Overall, our sampling design is a stratified cluster design with non-random sampling of the respondents within each cluster. This clearly affects the type of statements that we can make based on these data, although we think that the groups of respondents in each of the neighborhood clusters are not too far-off from being valid intersections of the populations of these neighborhoods.

5.4 Results

Trust in Water management organizations

To measure trust in the Department of Water and Sanitation (DWS) and the City of Cape Town (CoCT) as water managers, we asked respondents to indicate on a (Likert-type) scale from 0 (no trust at all) to 10 (complete trust) how much trust they generally have in the DWS and the CoCT as water managers.

[2] We included one experienced enumerator that was not a Wave for Change coach who has been involved in similar research project (with a focus on energy). His engagement allowed us to include Philippi as a research site.

Subsequently, we asked respondents to indicate on a scale from 0 to 10 how much trust they have that the DWS and the CoCT properly perform a series of specific tasks assigned to them at their own geographic scales (tasks listed in Figure 6).

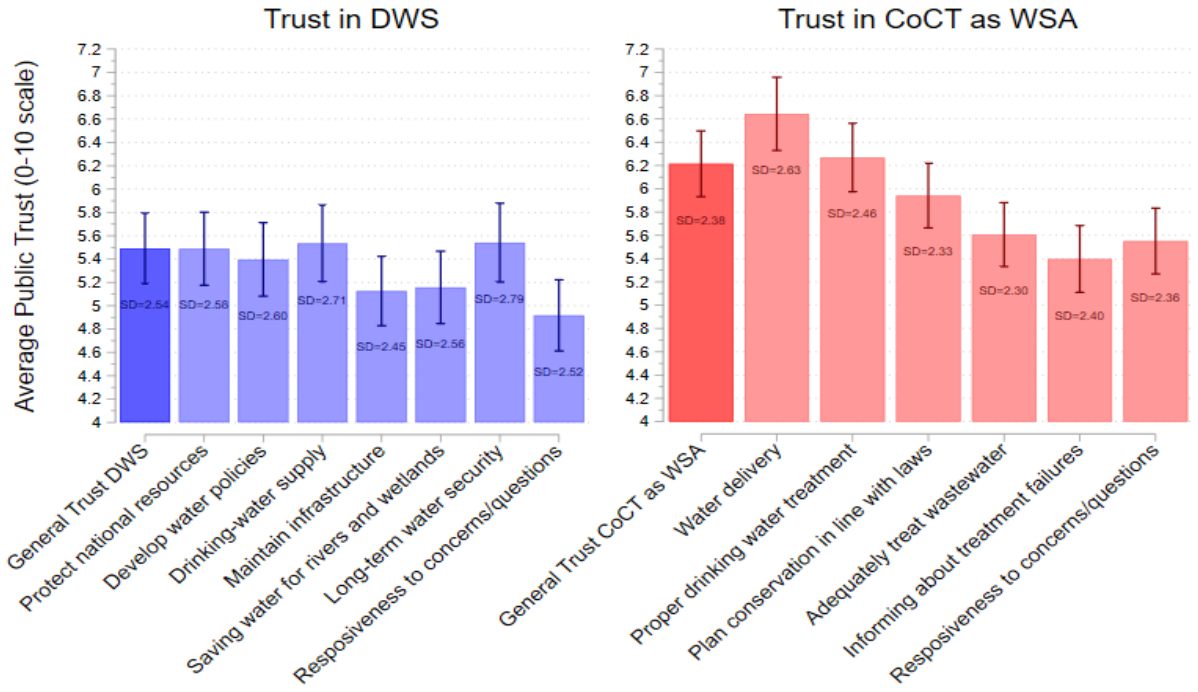

Figure 6: Trust in the water management capacities of the DWS and the City of Cape Town

Comparing the two graphs in Figure 6, it appears that the residents of the selected underserviced neighborhoods tend to have significantly more trust in the water management capacities of the CoCT in general. This type of trust scores an average of 6.2 (Figure 6, right). In comparison the trust scores towards the water management capacities of the DWS in general are on an average level of 5.5 on a 0-10 scale (Figure 6, left). The task-specific types of trust towards DWS are almost all at a comparably high level. Only trust in the responsiveness of the DWS to concerns and questions tends to score significantly lower with an average score around 4.8. Furthermore, individual-level variation around the reported mean scores is substantial as indicated by the rather large standard deviations. The task-specific scores for the CoCT as a water services authority show that respondents trust the city the most when it comes to their water delivery (mean=6.6) and drinking water treatment (mean=6.2) performances. Respondents report significantly lower levels of trust in the capacities of the CoCT to adequately treat wastewater, to inform about treatment failures, and to respond to concerns and questions (means between 5.4 and 5.6). While task-specific differences in the average trust levels in the DWS hardly exist, such differences are more pronounced when it comes to trust in the CoCT as a water manager.

Figure 7 and Figure 8 below further investigate the trust levels in the DWS and CoCT/ Gqeberha, but now separated for each of the seven Cape Town neighborhoods and Kwa-Dwesi in Gqeberha from which we sampled our respondents. It turns out that there are strong differences in the trust levels between

neighborhoods with especially Hanover Park, Khayelitsha and Lavender Hill scoring the lowest (issue-specific) trust levels in the DWS and the CoCT as water managers.

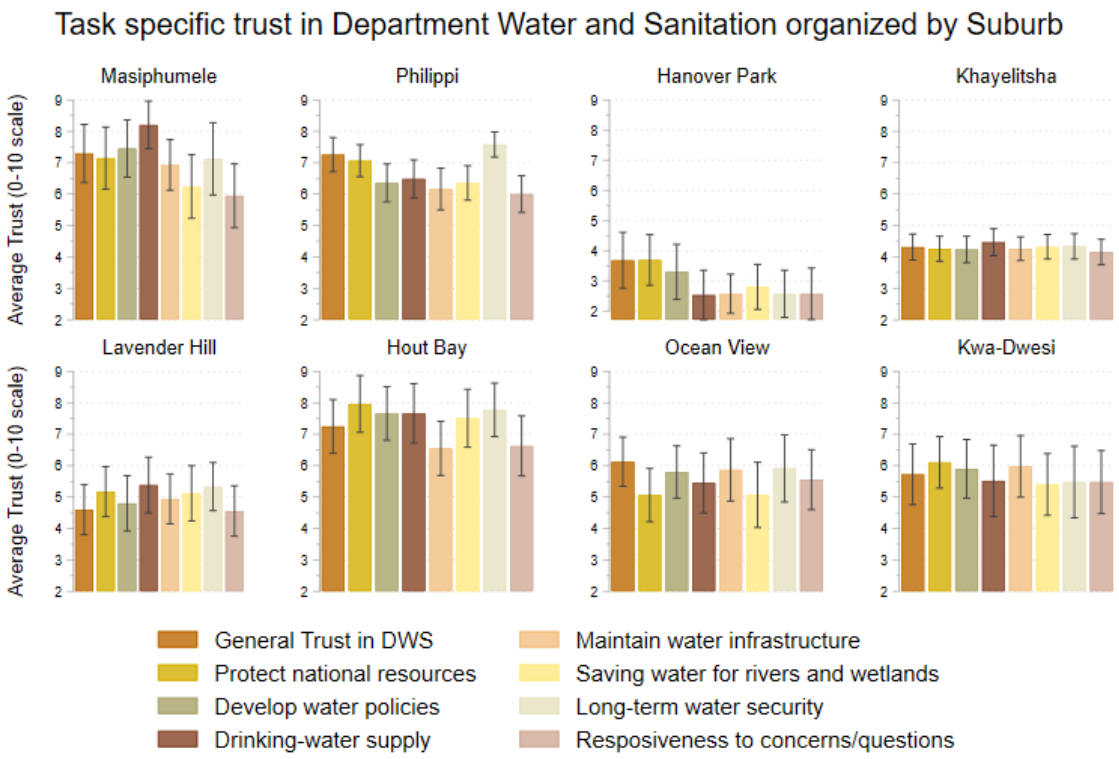

Figure 7: Task-specific trust in DWS according to suburb

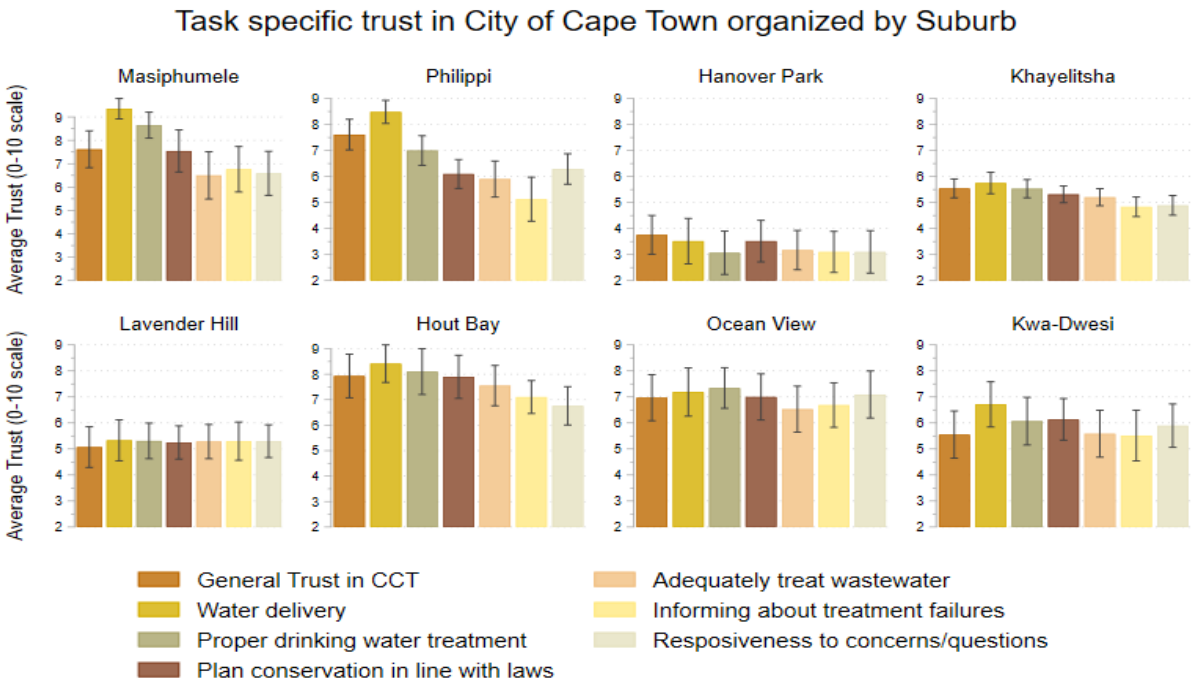

Figure 8: Task-specific trust in the water service authorities (City of Cape Town and Gqeberha in the case of Kwa-Dwesi, bottom right graph)

Personal risk perception on water-related issues

Personal risk perceptions were assessed by asking respondents to indicate on a scale from 0 to 10 (0 = not concerned at all to 10 = very concerned) how concerned they are that specific water-related issues will negatively influence their lives. Figure 9 displays the specific issues that we addressed. The sample-wide scores reveal that residents of the underserviced neighborhoods are generally rather concerned that each of the mentioned hazards may negatively affect their lives but do on average not distinguish a lot between how concerned they are regarding different issues (average scores between 6.4 and 6.8).

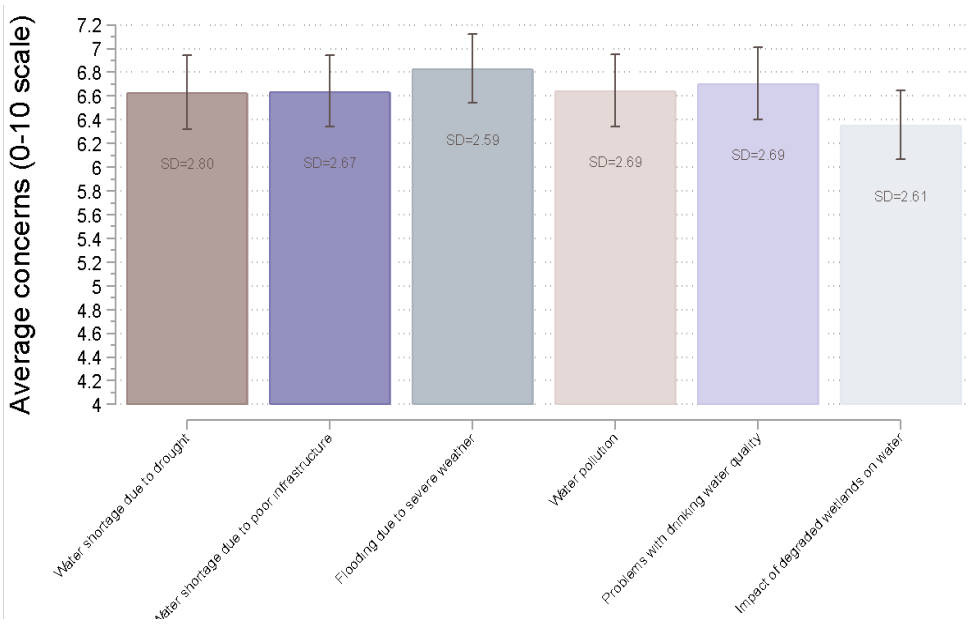

Figure 9: Personal risk perceptions

When comparing the water related risk perceptions of residents of underserviced areas between neighborhoods (Figure 10 below), we observe some interesting patterns. The residents of Philippi tend to be not so concerned with water related threats. This is interesting in itself, although our local partners indicated that water availability and other water threats are really not considered to be such an issue in this area. In all of the other neighborhoods residents are on average much more worried about water related threats, although they do not distinguish so often between different types of risks. The only notable exception is that residents of Masiphumelele are significantly most concerned about the risk of flooding, which can very well be explained and understood given its location very near to a wetland area that often floods into the township.

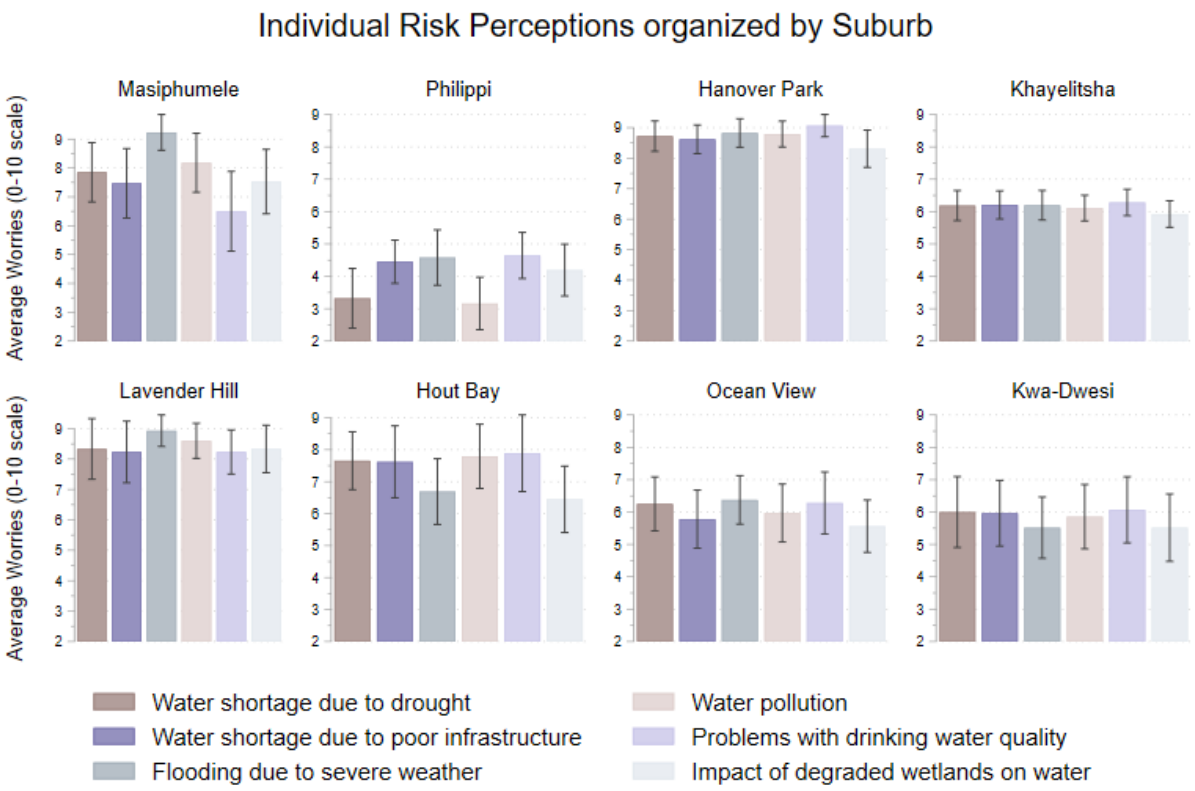

Figure 10: Personal risk perceptions per suburb

Information about water management

We used a self-assessment question to ask respondents to indicate on a scale from 0 to 10 (0 = not informed at all to 10 = very well informed) how well informed they feel themselves about water-management in South Africa. Our respondents feel themselves at best averagely informed on water-management issues (mean=5.0). However, as Figure 11 shows a rather large variations exist between people in this regard (SD=2.5). The average scores in each neighborhood also substantially vary with residents of Philippi, Hanover Park and Khayelitsha feeling on average much less informed than residents of for example Masiphumelele and Ocean View.

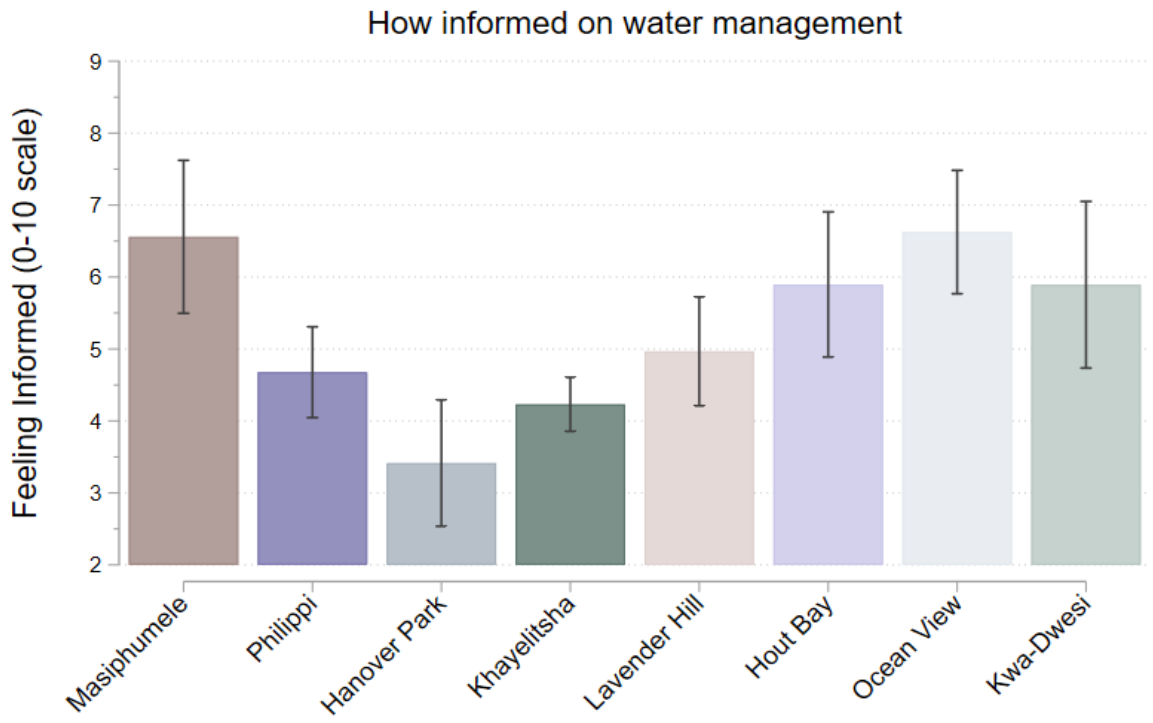

Figure 11: How well-informed residents feel about water management

We also wanted to know how much the residents trust the water related information that was provided by the CoCT as well as the DWS. Average trust in such information also considerably varies between the different neighborhoods as can be seen in Figures 12 and 13.

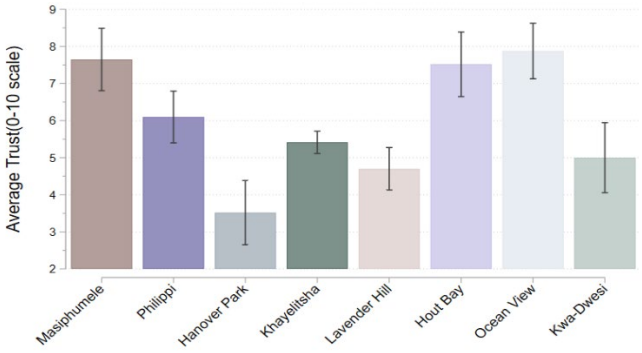

Figure 12:Trust in information provided by City of Cape Town

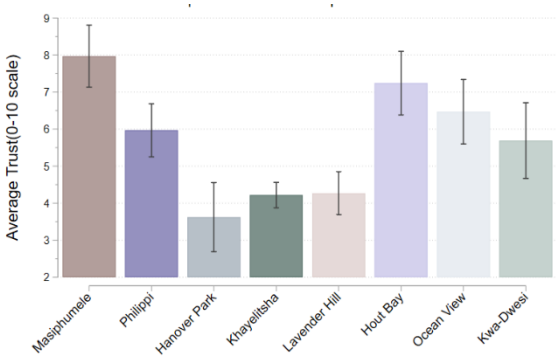

Figure 13: Trust in information provided by DWS

Desirability of citizen participation in water management

To get a better understanding of whether citizens want to be more involved in water management decision making we asked respondents to indicate their opinions on a (Likert-type) scale from 0 (only government should make decisions) to 10 (citizens should have more of a say). Overall respondents from

the eight neighborhoods were of the opinion that citizens should have a greater say. (See Figure 14). We subsequently asked if they thought that more citizen participation in water management would increase trust in the DWS and their WSA (CoCT/ Gqeberha). Out of the 307 residents that responded to the question more than half stated yes (59.93%), 36 (11.73%) felt it would not increase trust and 87 (28.34%) did not know.

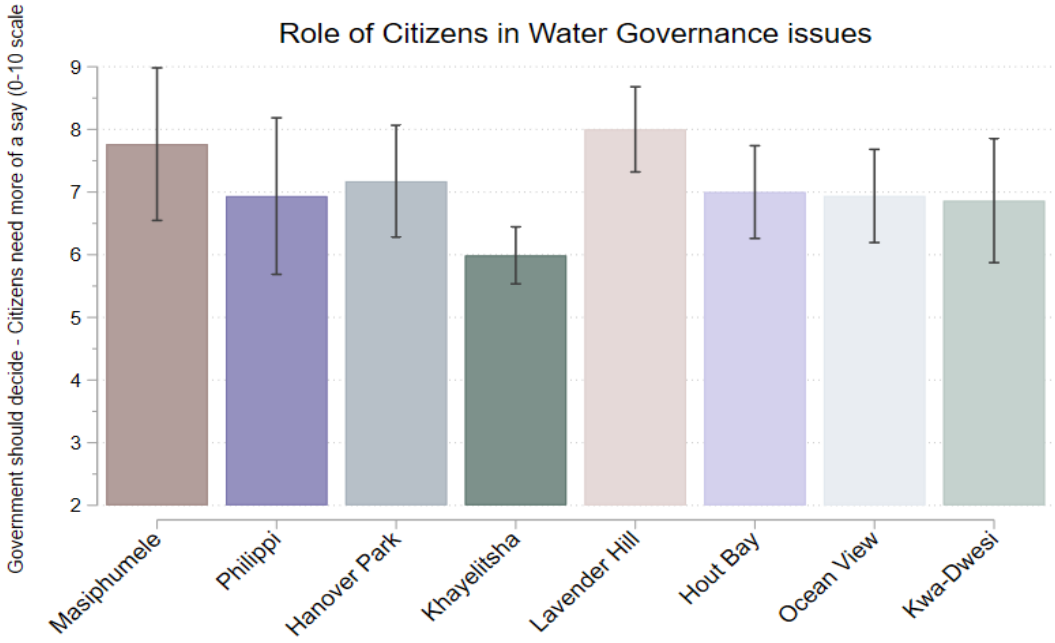

Figure 14: Opinion on the role of citizen in water management decision

We further asked if residents felt that they had the ability to actually influence decision making processes on water management. The results displayed in Figure 15 indicate that the average respondent is somewhere in the middle (mean=5.1) between 'I have no influence' and 'I have strong influence'. Again, substantial variance exists between the neighborhoods with respondents from Philippi, Hout Bay and Ocean View on average being much more positive about their supposed influence on decision making in water governance practices than the respondents from the other neighborhoods.

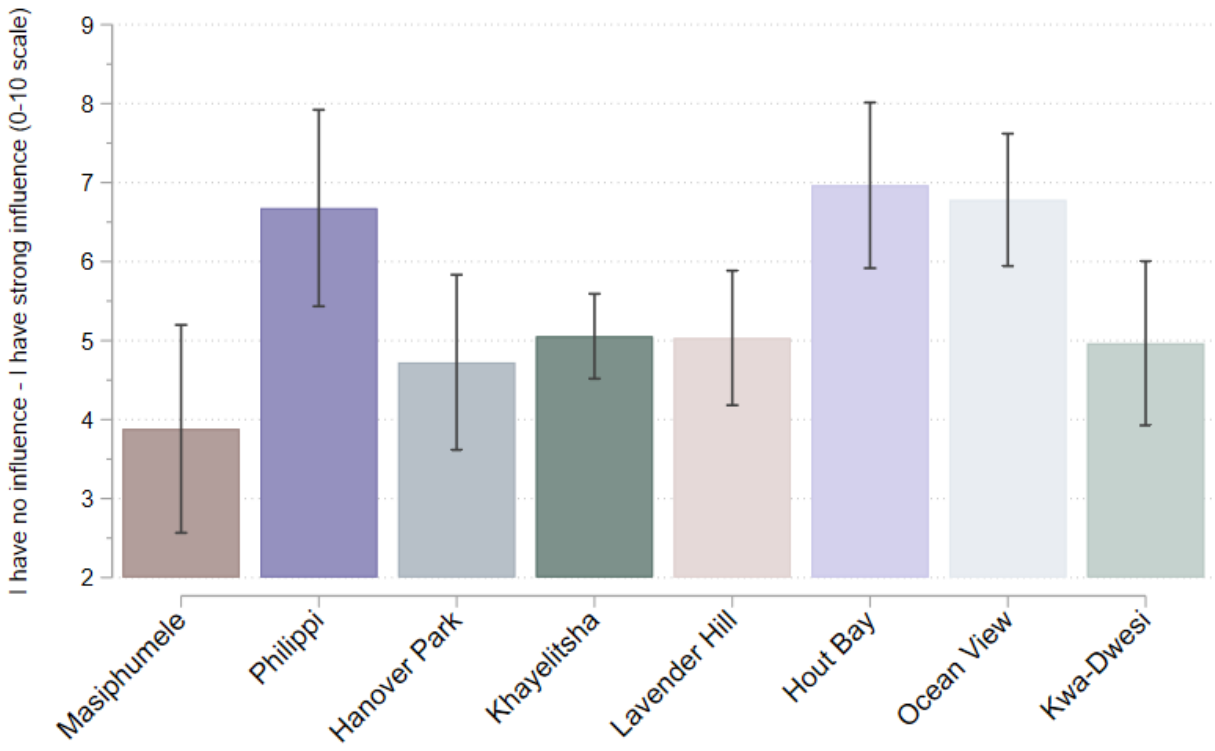

Figure 15: Perceived ability to influence decision making processes

Personal involvement in water related issues

We asked respondents whether they have ever been actively involved in lobbying or addressing water related issues. 28.8% of the respondents answered yes to this question while 71.2% answers no. The majority of the residents from underserviced areas have thus not been actively involved in any water related issues.

General political trust

We used four commonly adopted items to capture political trust (Van der Meer and Ouattara, 2019). Those items ask on a 0-10 scale (0 = no trust at all to 10 = complete trust) how much trust the respondents have in the following national-level institutions: the current South African government (mean = 3.8); parliament (mean = 3.7); political parties in general (mean = 3.6); and the current ruling party (mean = 3.7).The averages (based on sample as a whole) of the different items are hardly different from each other. Factor analysis shows that all four items scale on one underlying dimension. Subsequently, a scale variable indicating generalized political trust is constructed (Cronbach's α = .92). The average level of political trust among the residents of the underserviced neighborhoods scores a 3.8, with an estimated population standard deviation of 2.3. Hence, generalized trust in the core political institutions in South Africa is very low and stands out as even substantially lower (almost a 2-point difference) than average trust in the water managers. Nevertheless, Figure 16 shows that in some neighborhoods generalized political trust is substantially higher (Masiphumelele, Hout Bay, Ocean View) than in other neighborhoods (Hanover Park, Lavender Hill).

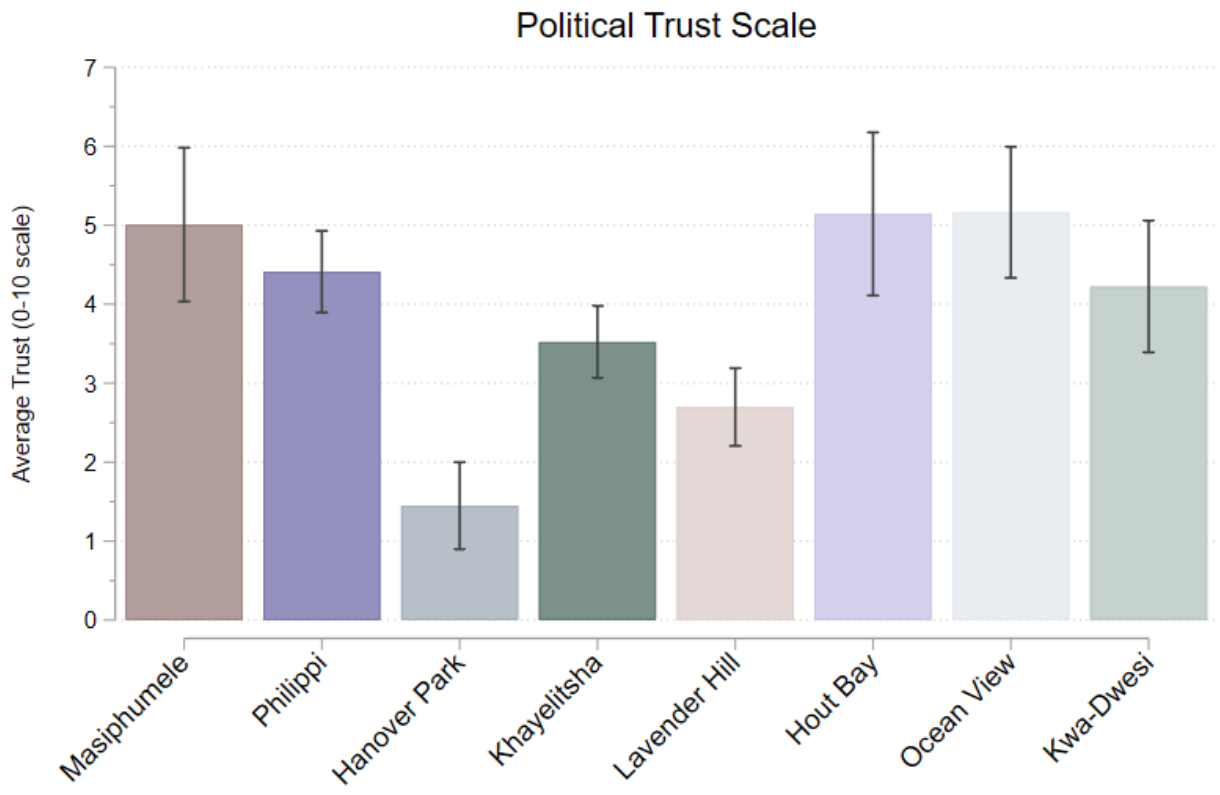

Figure 16: Level of Political Trust

Socio-demographic background of respondents

The last part of our survey contained a set of socio-demographic background characteristics. Gender is measured using a nominal item (female=56%, male=43%, other and prefer not to say=1%). Age is an interval-ration variable with values ranging from 18 to 77 years old, and a mean value of 36 years. Education is an ordinal variable measured by asking respondents to report the highest level of education that they completed. Income is an ordinal variable asking about the main income source of the household: Salary or wages (52%), Profit/self-employed (19%), Government grant (21%), Pension (2%), None/unemployed (5%). Tenure is a nominal item (I own my home=60%, I rent my home= 27%, I live with family/parents=9%, Other=4%). Race indicates that 69% of the respondents are black, 29% identify as coloured, and 2% as other. Finally, 'first language' shows that 18% of the respondents speak as their first language Afrikaans, 14% English, and 63% Xhosa.

Regression analyses

To find out which factors drive trust in water management organizations, we performed a series of linear regression models. Most of these models include dummy variables that account for explaining the between neighborhood level variance in trust in those organizations (fixed effects models). The main findings of these analyses are:

- Generalized political trust (i.e. trust in the central national-level political institutions) is the strongest determinant of trust in both the DWS as well as the CoCT as water management

organization. Individuals who tend to be (dis)trusting towards the core political institutions are also more likely to be (dis)trusting towards the water management capacities of those two organizations.

- Generalized political trust itself varies substantially between neighborhoods, but we cannot explain why this is the case based on the variables in our models. The racial composition of neighborhoods does not significantly matter to this regard. Although the 'coloured' neighborhoods of Lavender Hill and Hanover Park have very low average levels of political trust, the coloured neighborhood of Ocean View is among the highest scoring areas. Putting the between neighborhood differences aside, we do also not find strong individual-level determinants of generalized political trust itself (tested in a separate model taking such support as the dependent variable). This may be partly explained by the fact that we were not able to control for the commonly strongly influential winner/loser effects (i.e. supporters of parties ending up in government/winning elections commonly report higher trust) in explaining such trust, as we did not ask about one's specific party preferences.

  Feeling oneself better informed on water management in South Africa is the second most important determinant of trust in the DWS and CoCT as WSA. People who tend to be better informed are more likely to develop higher trust.
- More surprisingly, to what extent residents are worried about water related threats is not significantly associated with trust in the water management organizations. This stands in contrast to earlier findings in the context of some Western countries (i.e. the Netherlands)
- Differences in material conditions between respondents from the underserviced neighborhoods have some effects on trust in the water managers: most clearly, respondents who report access problems to water are substantially more distrusting, especially in relation to trust in the CoCT as WSA. Variations in other material conditions do not play a major role in explaining trust.
- Socio-demographic variables do not seem to play a major role in explaining trust in the water management organizations among the residents of underserviced neighborhoods. Although trust in the 'coloured' neighborhoods of Lavender Hill and Hanover Park seems to be the lowest, the effects of racial differences on trust in fact disappear once the effects of generalized political trust are entered in the model.

5.5 Discussion and Conclusion

Our investigation into the extent to which the residents of selected underserviced neighborhoods in Cape Town and Gqeberha currently trust local and national-level water managers reveals that the residents trust their local water services authority more than the national DWS. This observation could be made not only for the neighbourhoods in Cape Town but also the selected neighbourhood in Gqeberha. For both water management organizations (DWS and WSAs), residents give the lowest trust scores for tasks related to communication and transparency rather than technical or policy-oriented activities. The findings also show that overall political trust in the South African government is low across all neighborhoods.

Differences between the different neighborhoods exists in terms of trust towards the specified water management organizations, how well residents feel informed, and the extent to which they trust the

information provided by the water management organizations. For example, residents from Hannover Park and Lavender Hill are overall less trusting than other neighborhoods such as Masipumelele or Hout Bay. These differences are not easily explained by the survey findings alone and require further investigation, e.g. through complementary qualitative assessments in the form of community workshops or focus groups.

While many residents are of the opinion that citizens should be more involved in water management decision making processes, most of them have not been personally involved in addressing or lobbying for water related issues that are of concern to them. This lack of involvement despite ongoing water related issues (such as leakages, or water cuts) may be rooted in the fact that many of the residents have to deal with a multitude of stressors (e.g. crime, financial insecurities) that require most of their attention and resources. Or it could also be an indication that the residents either don't know which channels are available to them to increase their participation or they simply believe a stronger involvement will not necessarily lead to more influence in decision making processes that concern them as more powerful actors are able to continue to advance their interests and priorities.

We also set out to gain more clarity on the relationship between the trust of residents towards the water management organizations and a set of potential determinants (described in section 5.2). It appears that general political trust is the strongest determinant of trust in both the DWS as well as the CoCT and Gqeberha as water services authorities. Hence, the low levels of political trust in the South African government negatively affect public trust expectations towards water management organizations. Feeling well informed on water management in South Africa seems to be another important factor that influences how trusting the public is towards the water managers. This highlights the importance of open communication and information sharing. Cities like CoCT have attempted to improve communication with their residents through apps and other social media platforms. Yet, these are often not known to or inaccessible for residents from underserviced areas. Interestingly it appears that while the residents of underserviced neighborhoods are concerned about various water related threats, these risk perceptions do not play an important role in shaping trust relations towards water management organisations. One explanation which requires further investigation could be that the residents who have been discriminated against for many decades continue to have low expectations towards the water management organisations and other government institutions to protect them and have therefore made it their own responsibility to deal with the risks.

6. Effects of Participatory Innovations on Trust In Government: Insights From the Upper Breede Collaborative Extension Group

Institutional trust and interpersonal trust have gained significant attention in the water governance literature. While some studies have shown that participatory processes can foster trust between actors involved (Reed, 2008), others report more critical concerns about the limits of participation and how participatory approaches help to restore and strengthen general trust in government (Cleaver, 1999; Kaspersson, 2006; Van Buuren et al., 2019). This indicates that the relation between the two forms of trust is complex and not clear-cut. Yet many policies and practices are designed based on the assumption that participatory approaches focusing on interpersonal trust, can help to restore trust in government (institutional trust).

In order to better evaluate the potential impact of participatory and collaborative forms of water governance on public trust, it is necessary to better understand the interrelation between public and interpersonal trust and the factors that influence this interrelation. This chapter explores the interplay between public trust and interpersonal trust in water governance by building on existing theoretical insights about trust and its different dimensions and by drawing on empirical insights from a selected participatory landscape-based water governance platform, the Upper Breede Collaborative Extension Group (UBCEG). This participatory innovation is composed of governmental and non-governmental organizations who jointly deal with water and catchment related issues in the Upper Breede Valley of the Western Cape Province. To elicit perspectives on public trust towards UBCEG the research team complemented the interviews with UBCEG members with a small sample of interviews with selected water users from the region where UBCEG is operating.

The following sub-questions were explored in the case study:

- Why and how do governments promote or organize participation in water governance?
- What impact do these processes have on interpersonal trust among stakeholders in water resource management?
- How, if at all, does changing interpersonal trust resulting from participatory approaches affect public trust in government institutions?

6.1 Theoretical Background: Interpersonal and Institutional Trust in Water Governance

Water governance is best understood as a complex and dynamic arrangement of actors and institutions, in which governments play important roles. These actors have steering ambitions, but also face steering problems in collectively working towards a common objective (Van Assche and Verschraegen, 2008; Phal-Wost, 2019; Van Buuren et al., 2019). Consequently, water governance processes are characterized by a multitude of interactions over time between different actors. One hypothesis is that the strength and success of these arrangements, to a large extent, depend on trust between the actors involved (interpersonal trust) and a general trust of citizens in the government (public trust) (Tyler, 1990).

Interpersonal and institutional trust have been in already introduced in the previous chapters (chapter 1, 2 and 5). As a reminder, interpersonal trust refers to trust between individual actors. In water governance, these can be representatives of specific organizations as well as individual citizens representing their own voice and interests. Interpersonal trust between actors is often mentioned in studies as a prerequisite for dealing with environmental problems, as an outcome of a process, and as 'lubricant' that makes cooperation and collaborative governance approaches possible (De Vries et al., 2019). Interpersonal trust is rather dynamic as it is both influencing as well as influenced by the interactions between the actors (de Vries et al., 2019). Moreover, trust is issue-specific and can be expressed towards a certain issue or behavior of a person, while other aspects are less trusted. The trustors' evolving expectations have both a rational and relational basis. The rational basis stems from processed calculations that the trustee will act in line with the interests of the trustor. The relational basis stems from assumptions of shared values, feelings of social connectedness, or subconscious or emotional responses to charisma or perceived shared identity. Rational and relational expectations may exist next to each other or in relation to each other, and together shape the character of trust.

Public trust goes beyond interpersonal relations and is concerned with trust attitudes of publics towards the function of governments and related governance systems. As a sub form of institutional trust, it often relates to the unconscious expectation that institutions will work as they always did and is based on long-standing experiences of the functioning of these institutions. Hence, it is a more stable form of trust than interpersonal trust. However, once eroded it is also much more difficult to build again (de Vries et al., 2019).

Participation: linking public and interpersonal trust?

Over the last decades, many governments and development agencies have sought to improve water governance via the incorporation of participatory processes and collaborative policy measures (Von Korff et al., 2012, Aleu et al., 2022). The intended degree of participation varies along a spectrum from simple information sharing to deeper forms of partnership (Van Buuren et al., 2019). The list of participatory institutional arrangements is long, but examples include river basin councils, watershed partnerships, and catchment management organizations (e.g. Grassini, 2019).

The rationale varies but tends to be about instrumental benefits of participation – such as increased policy effectiveness, legitimacy of decisions, and hence 'better' implementation (Papadopoulos, 2016). Arguably, governments and privileged actors, such as large water companies, international investment banks and development agencies, may at times have vested interests in water reforms that promote participation. Yet, the formal intention tends to be that participation allows for water policies and actions that more accurately represent people's needs and create trust both in governments and among stakeholders, ultimately contributing to more equitable and sustainable water governance (Hassenforder et al., 2019).

Furthermore, challenges related to the complex bio-physical nature of water resources and the rise of various forms of water crises have demonstrated that the traditional centralized, top-down modus operandi is ill-equipped to achieve effective water governance (Rogers and Hall, 2003, Huntjens et al., 2011). The limited capacity of governments (e.g. inadequate resources, knowledge and authority) to deal

adaptively with the inherent complexity and uncertainty linked to water resource management, and to effectively address water issues has therefore been another driving force towards participatory and collaborative modes of water governance (Cosens et al., 2014). This is based on the premise that the sharing of power and responsibilities with non-state actors will enhance problem-solving capacities, strengthen collective action and improve service delivery (Van Buuren et al., 2019).

Attention in various fields and contexts have led to a wide range of typologies, mostly involved with the degree of engagement (level to which citizen/stakeholders are involved), and the role of stakeholders. See for instance Arnstein's ladder (1996) or the wheel of participation developed by Reed et al. (2018). In addition to degree of involvement, attention is also paid to the characteristic of participatory processes. Literature pays attention to different key-issues, characteristics and principles. Participation is often characterized as a process of communication and cooperation over time between stakeholders representing the interest of wider groups in the public realm, where power is shared to at least a certain extent (Newig and Kvarda, 2016). Moreover, it is often emphasized that participatory processes are embedded in larger governance processes and related to parallel participatory processes. Governments play a key role in this. From an analytical perspective Edelenbos and Van Meerkerk (2015) make a distinction between participation as government-led forms of interactive governance and other forms in which citizens are in the lead (civic initiatives, etc.).

Participation brings attention to the trust-relations between the involved actors. These are influenced by their broader relations, interferences, power-relations, the context in which participation is used, the form of participation, and the developments over time. Participatory processes are part of a broader set of governance and policy processes. They can be part of the development of a specific plan, a specific policy, or more general the inclusion of stakeholders in governance. This broader governance context influences perspectives, aims, and the role and impact of participation, and often implies that actors will not only meet within the designated participatory arena, but also in other settings. They are likely to have met before and likely to meet again in the future. Hence, their relationship outside the participatory processes will likely influence their actions in the participatory and governance domain. This impacts their cooperation and influences their relationships. Furthermore, participatory processes and the evolution of governance and policy systems is influenced by developments in the wider societal context, such as political changes or economic developments. It is important to take into account this multi-layered set of contexts if one is interested in exploring how interpersonal trust, in the participatory setting, is influenced by public trust and conversely impacts public trust.

Taking into account the dynamic and time-bound characteristic of water governance processes, we turn to the work of Lewicki and others for our conceptualization of trust, as they consider the development of trust over time (Lewicki et al., 2006). Following this perspective, we conceptualize trust as an individual's dynamic expectation about the thoughts, behavior, and decisions of other people based on past performance (Lewicki and Bunker, 1996; Idrissou et al., 2013; Van Oortmerssen et al., 2013) within a specific trust context that shapes or limits trust options (Lewicki et al., 2006). Past performances are not fixed but are subject to interpretations as well as new events giving rise to new experiences and interpretations that accumulate over time (De Vries et al., 2014). These experiences result in arguments for, or factors influencing, the development of more rational or relational forms of trust. In the literature,

these factors are multiple, such as: uncertainty, ability, integrity, openness, vulnerability, power, risks, etc. Factors such as performance, ability and integrity are often more directed towards calculative forms of trust, while shared values, identity and vulnerability are often more linked to relational forms of trust. However, both forms can exist alongside each other, are not mutually exclusive and the distinction is analytic.

To take into account the dynamics that characterize water governance and to study the role of trust in these contexts a dynamic perspective is needed in which both interpersonal and institutional trust are considered. Specifically, such an approach to trust should focus on:

1) identifying performances and related interactions over time;

2) relevant contextual changes;

3) how these performances and interactions result in factors influencing trust; and

4) how these factors influence different forms of trust.

The South African team was further guided by the larger project team to not ask questions directly about trust but rather to elicit contextual information which would shed light on trust relationships that functioned in the contexts of the water governance case studies in question. Therefore, to speak directly about the characteristics of trust has been largely through inference excepting in the few cases when questions were posed directly on the subject of trust. For the South African case study, questions came to center on the nature of relationships developed within the UBCEG platform, as well as activities and projects that were developed through the engagement with the platform.

6.2 Case Study Approach and Context

A first step for identifying appropriate participatory interventions as a case study was to develop a set of selection criteria to ensure that potential cases were indeed suitable for answering the research questions outlined above. Cases had to:

- be relevant to the water governance context of each country
- allow for trust to be studied over time (i.e. a case with existing longevity)
- include specific water governance projects/issues in which participative/interactive approaches play a key role
- have a local or regional geographic level, and
- involve negotiations between various actors.

Amongst potential case studies considered were the Western Cape Water Caucus[3] on issues of water service delivery in underserviced areas in Cape Town; the Upper Breede Collaborative Extension Group

[3] The Western Cape Water Caucus is a provincial branch of the South African Water Caucus which is a network *of NGOs and CBOs* focusing on social and environmental justice. (For more info visit: https://www.emg.org.za/network-sawc)

(UBCEG) which represented an integrative catchment initiative operating in the Upper Breede River Valley; the Greater Cape Town Water Fund[4]; and a catchment initiative in Hout Bay involving the City of Cape Town and Hout Bay residents. All of them represented participatory stakeholder processes – some initiated by government and others by non-state actors.

Following consultations with stakeholders from the identified initiatives it became apparent that not every potential case was conducive to study trust relations at the time of the research. For example, the relationship between the Water Caucus and the City of Cape Town was too sensitive to involve both actors in the study. Furthermore, the research team was unable to secure permission from the City of Cape Town to conduct research under its ambit. Hence, we were unable to investigate the Hout Bay catchment initiative. Lastly, after further investigation, it became clear that the Greater Cape Town Water Fund did not fit the case study criteria.

UBCEG, on the other hand, proved to be a valuable case for studying trust relationships, as the platform involved participatory approaches in a specific water governance context where actors sought innovative ways of strategic decision-making with government as facilitator and co-operating partner. Due to its 17 years of existence the platform is conducive to study trust dynamics over time, and for researchers to gain an understanding how the developments and changes within the participatory platform have shaped trust relations, and vice versa. Furthermore, the chairman and secretariat showed interest in the research and were in favor for researchers to carry out the proposed research activities. UBCEG members were also amenable to participating in the research.

Amongst the UBCEG members, interviewees were selected based on their depth and time of involvement in UBCEG, and willingness and availability to participate in the research. It was important to elicit perspectives and priorities from the different participating organizations to understand the kinds of issues that were addressed through UBCEG, how interpersonal trust developed between the members, and the ramifications this had for public trust in these organizations in the context of water management. Additionally, to provide insights into changes in the platform over time – and therefore in the changes in trust relationships over time – it was important that interviewees had been involved in UBCEG for a substantial time and represented a range of participating organizations.

Eight individuals from the following organizations were interviewed: the provincial Department of Agriculture of the Western Cape (LandCare) (1), Living Lands (1), Department of Environmental Affairs and Development Planning (2), Breede-Gouritz CMA (1), WWF (1), CapeNature (1), and the Cape Winelands Biosphere Reserve (1). Due to the COVID restrictions at the time of the study, all interviews with UBCEG members were conducted online on Microsoft Teams using a semi-structured interview guide (Appendix 4). The interviews were recorded with the informed consent of the interviewees. Additionally, one of the researchers attended two UBCEG quarterly meetings – one virtual (28 May 2021), and one in-person (18 February 2022).

[4] For more information visit: https://waterfundstoolbox.org/regions/africa/cape-town-water-fund

To gain more insights into impacts on public trust, additional interviews were conducted with a small sample of selected members of the public who reside in areas[5] under UBCEG jurisdiction. To a large extent, a snowball approach was taken to identify research participants who could provide insights on public trust in UBCEG but also government. In total 3 commercial farmers, 2 emerging farmers, 1 alien clearing team manager, a municipal ward councilor and a catchment management coordinator placed by an NGO participating in UBCEG were interviewed in this process. Depending on the availability of the interviewees, interviews were conducted in person, via telephone or online. All interviews were recorded and transcribed, and once via hand-written notes for the telephonic interview.

The recorded interviews were transcribed and coded manually according to themes relevant to the research goals. The interviews with UBCEG members were analyzed in terms of the interviewees' understandings of the role and function of UBCEG; changes in the platform over time; factors which influenced the development of trust between participants in UBCEG; specific events or happenings which influenced trust between participants; and the influence of the participatory platform on water governance in the area. Interviews with members of the public were analyzed in terms of their awareness of UBCEG, engagements and trust in water management organizations, and factors which influenced the development of trust in water management organizations.

The context of the Upper Breede Collaborative Extension Group (UBCEG)

The Upper Breede River Valley spans approximately 90km from Rawsonville to Tulbagh (CAPE, 2009) and is located in the Cape Winelands District municipality, Western Cape Province of South Africa (see Figure 17). This mountainous area is rich in biodiversity and is farmed intensively with grapes and olives, amongst other crops (Rumble, 2013). The economy of this region is heavily dependent on agriculture and tourism (BGCMA, 2019). Challenges in the valley and larger catchment relate to the fact that surface and ground water resources are fully utilized, yet agricultural and urban demands are rising (BGCMA, 2019). The overallocation of existing water resources has led to competition between urban and agricultural water use. River health in the catchment deteriorates near towns and as the rivers near the ocean due to factors such as invasive alien vegetation, pollution due to inadequate municipal infrastructure maintenance and upgrading, agricultural encroachment, and anthropogenic modification of river channels (DEA&DP, 2017). Insufficient law enforcement has led to illegal developments and further degradation of existing ecological

[5] The two locations where members of the public were consulted were not far from each other, though geographically were quite distinct. Both of their economies are dominated by the lucrative – and water intensive – export fruit trade. The first of these locations ("Location 1") is mountainous with well-established water management arrangements in place including access to various dams and mountain drainage lines, and an active water user association. The second ("Location 2") is situated on a wide river floodplain where farmers rely on diminishing surface water and boreholes. No water user association exists and there appears a highly unregulated water resource management that had been described by one academic as the "wild west" in terms of water use.

infrastructure. Additionally, within the region larger pockets of poverty and inequitable access to municipal services continues to exist.

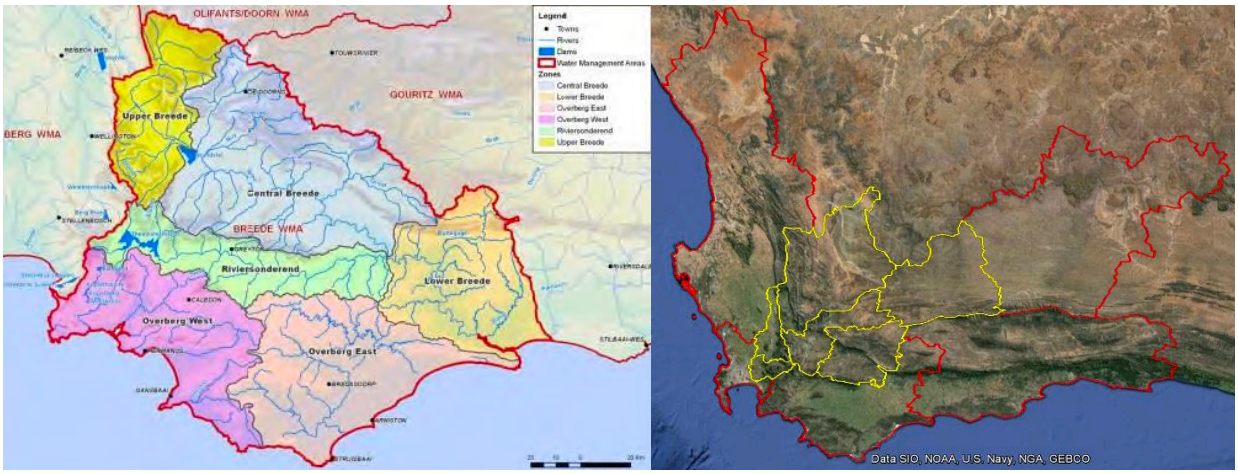

Figure 17: Location of the Upper Breede Valley and the area in which UBCEG operates

For many years different government departments failed to coordinate their actions and efforts towards better water and land use management in the region leading to a regular breakdown of communication between landowners, communities, and government. To address these challenges and the lack of coordination UBCEG was established in 2006 as voluntary platform for coordinated landscape management by CapeNature, the provincial nature conservation agency and the provincial Department of Agriculture's Landcare program. The two government entities initiated the platform after recognizing the impending conflict between agricultural development and biodiversity conservation priorities, and the need for strategic area-wide planning for development and sustainable resource conservation use (Rumble, 2013). Since its establishment various organizations participate in UBCEG on a regular basis to co-ordinate their activities most efficiently in terms of land-use planning and conservation measures, and to avoid duplication of tasks. UBCEG participants (see Figure 16) include representatives from the Breede-Gouritz Catchment Management Agency (BGCMA); various water user associations in the Breede River Valley, government departments such as the national Department of Water and Sanitation, the provincial Department of Agriculture (DoA), the provincial Department of Environmental Affairs and Development Planning (DEA&DP), the national Department of Environment, Fisheries and Forestry (former DEA now DFFE), CapeNature, the South African National Biodiversity Institute (SANBI), as well as district and local municipalities. Non-government organizations participating in UBCEG included the World Wildlife Foundation (WWF), Breedekloof Wine and Tourism (BWT) representing 32 wine cellars, several WUAs and Irrigation boards, the Rooiberg Conservancy and the Cape Winelands Biosphere Reserve (CW Biosphere Res). Over the years UBCEG developed into a valuable network platform important for effective integrative catchment management.

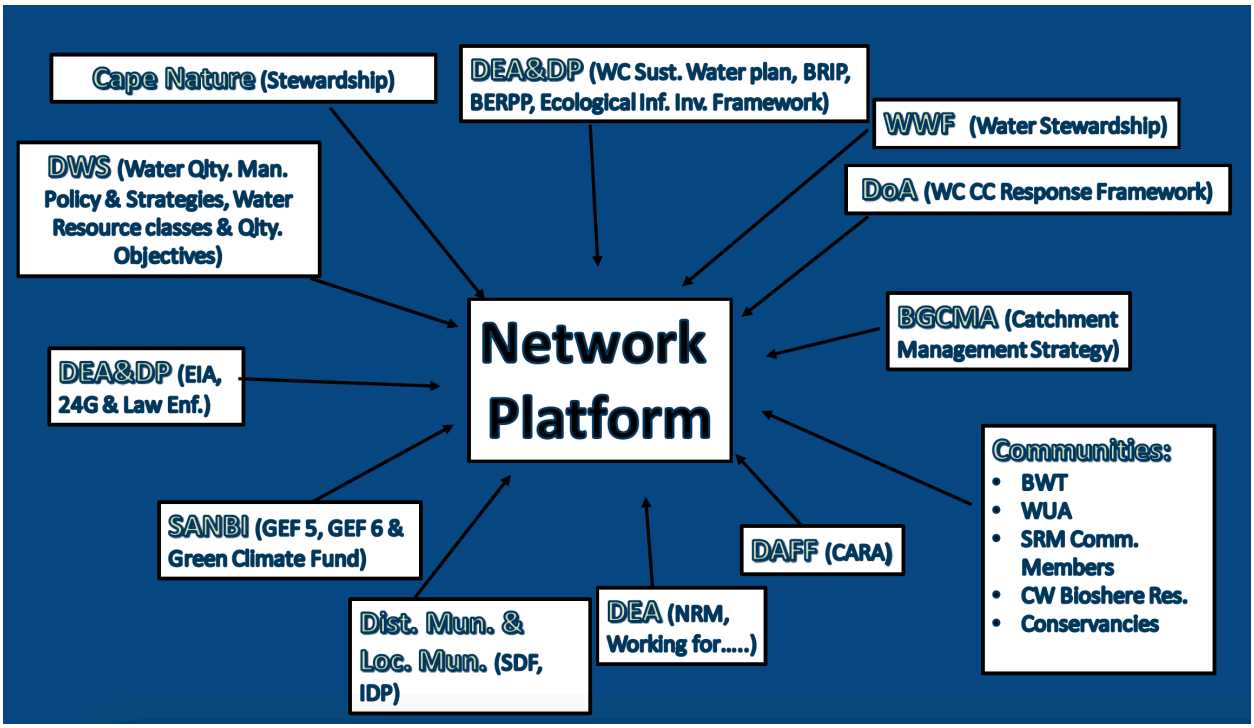

Figure 18: Visualization of UBCEG as a network platform. (Source DoAWC, 2021)

Water governance context in which UBCEG is situated

The water governance system in the Upper Breede Valley where UBCEG operated falls under the directives of a range of national, provincial and local organizations tasked with implementing South Africa's National Water Act (1998) and Water Services Act (1997). Together these policies aim to ensure the delivery of water and that the country's water resources are protected, used, developed, conserved, and managed to meet the needs of the nation while redressing past race and gender inequities. The National Environmental Management Act (1998) is integrally tied to the management of water, setting out to protect water resources, particularly when an intended activity or development triggers an environmental impact assessment (Gcanga et al., 2018). The Conservation of Agricultural Resources Act (CARA) is similarly integrally linked to water resource use.

National DWS, the provincial Environmental Affairs and Development Planning (DEA&DP), CapeNature and the Department of Agriculture of the Western Cape (DoA) are all active, each with their own specific yet often overlapping mandates. DWS is tasked primarily with fulfilling the National Water Act legislation outlined in Chapter 4, while municipalities are responsible for fulfilling the Water Services Act. DEA&DP and CapeNature are largely concerned with the National Environmental Management Act, while the provincial DoA speaks more directly to the CARA. Since there are many overlapping water related issues, these departments need to consider the legislation governing the others to ensure that they operate in accordance with the laws that pertain to water and environmental management. Other key actors in the water governance system include the City of Cape Town as a downstream water user and Water Services Authority, local water user associations and irrigation boards, national and local environmental NGOs and one catchment management agency responsible for the Breede-Gouritz water management area. The

Breede-Gouritz Catchment Management Agency (BGCMA) is tasked by DWS with facilitating water management and governance decentralization to the local level and plays a coordinating and regulatory role around water (BGCMA, 2017) in the region. It coordinates water use activities amongst water users – municipalities, WUAs, irrigators and other water users – including the registration and water use verification processes for supporting improved water use authorization processes and better understanding of water resource availability (BGCMA, 2017, 2022). Important to note is that DWS is amongst the many national government departments overburdened and held back by high staff turnover, and weak institutional capacity (Chiluwe *et al*., 2022). As a consequence, DWS itself does not display a very strong presence in the Breede River Valley catchment – described as "lean on the ground" (Chiluwe *et al*., 2022). DWS engagement in UBCEG is similarly scarce.

Water user associations constitute the most local-level rung of water governance under the South African National Water Act (1998), falling under the authority of BGCMA and representing local water users including municipal councillors, commercial and emerging farmers, and residents – depending on the local context. Water user associations are active in some – but not all – lower tributaries of the greater Breede River Valley catchment area – with significant repercussions for water users and management alike.

Municipalities are charged under the Water Services Act (1997) with local level water service delivery for domestic and industrial use, as well as for sewage services. They coordinate with the BGCMA for water supply, and in some cases access water through water user associations – depending on the local level water supply systems which differ from place to place. Some of these municipalities are responsible for very large jurisdictions and a range of responsibilities besides local water supply, such as sewage and waste management.

The **Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)** is charged with achieving environmental sustainability in the Breede River catchment and is particularly focused on protecting the ecological integrity of the Breede River (Seeliger *et al*., 2018). For DEA&DP, water-related challenges include the invasion of invasive alien plant species which take up scarce water resources, the frequency of fires in alien vegetation which contribute to soil erosion and river sedimentation, water quality affected by waste-water treatment works discharges, agricultural runoffs and stormwater flows from informal housing developments (Seeliger *et al*., 2018).

CapeNature is the chief custodian of the Western Cape's natural environment and has water-related mandates and activities too. In the Breede River Valley area it takes particular interest in protecting freshwater ecosystems in the Western Cape, alien invasive clearing and the rehabilitation of freshwater ecosystems. Like DEA&DP and the BGCMA, CapeNature adheres to a collaborative planning approach to nature conservation which is to include partnerships with role players and stakeholders in the public and private sectors, and amongst communities where the organization operates (CapeNature, 2022).

6.3 Results

UBCEG's purpose and evolution over time

UBCEG was initiated in 2006 through a partnership between CapeNature and the provincial DoA to address emergent conflicts between agricultural development and ecological integrity in the Upper

Breede River Valley and to facilitate greater cooperation between government departments responsible for implementing water and landscape related policies in the region (NGO4). Key themes that are of importance to UBCEG include: land use planning, area wide planning, alien clearing, restorations stewardship, flood management and drought relief (GovRep1). UBCEG serves primarily as an information-sharing and networking platform which provides the opportunity for participants representing different organizations to strengthen collaborative integrated catchment management. All actions are guided by UBCEG's objectives which are: to build capacity and support each other where initiatives and responsibilities overlap, improve communication, collaborative planning, share knowledge and expertise, improve coordination, improve service delivery and community buy-in and co-ownership of the initiatives (GovRep1). Furthermore, UBCEG has also adopted eight guiding principles[6] to building effective partnerships and strengthening relationships among its members and with the communities.[7] The principles include, among others, a focus on relationships and trust, with trust being identified as requiring time and patience (GovRep1).

Since its inception, UBCEG grew from 10 individual participants to over 73 in 2021. Having started out with just CapeNature and provincial DoA, the platform began to expand its membership to other government departments and non-governmental actors. For example, non-governmental actors in the area, such as local conservancies, the Cape Winelands Biosphere Reserve, the WWF and the Breedekloof Wine and Tourism, became interested in the work of UBCEG and started to attend meetings. Municipalities gradually also began to show interest as did a local fire protection agency. Key incentives for these organizations to join was that they began to see value that the platform provided regarding the coordination of activities, communication and the sharing of resources. This was coupled with the realization that through the engagement in UBCEG each organization had a greater potential to meet its own departmental goals and mandates (GovRep1).

While UBCEG has no formal membership structure, and participation is voluntary, interactions are structured and institutionalized within the context of quarterly physical meetings[8] guided by a set agenda

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[6] They include: 1. Acknowledge that we are interdependent; to realize that I need the best thinking of others to join with my own. 2. Be proactive in your thinking, driven by values not the restriction in the work environment and circumstances; be resourceful and grasp the initiative. 3. Begin with the end in mind; visualize the end product, focus on values and principles you want to establish rather than maintenance of rules and regulations 4. Put first things first , based on your priorities, driven by your 5. Acknowledge that trust is the highest form of human motivation, it takes time and patience. 6. Focus on relationships, there is no "quick fix" to have effective relationships; there must be maturity, the strength of character to maintain them. Build on the emotional bank account of others through courtesy, kindness, honesty and keeping of commitments. 7. Clarify expectations; face the differences and work together to arrive at a mutually agreeable set of expectations. 8. Seek first to understand, listen with the intent to understand.

[7] These principles have been inspired by the book "The 7 Habits of Highly Effective People"

[8] During the COVID pandemic these meetings were held online and hybrid.

and format structured around key themes (see above) and "action points" carried over from previous meetings. Members are requested to make a commitment to attend all meetings and to provide in advance of each meeting spatial data (GIS files) which shows progress made on specific activities and action points. The spatial data is collated into two overlaid maps – one displaying area wide planning for agricultural activities and the other fine scale mapping for conservation activities so topics such as alien clearing, river maintenance or fire protection can be holistically assessed. The intention behind the sharing of the spatial data is to share with the network members what activities are happening where so that everyone can plan effectively, reduce duplication, identify challenges and gaps, and seek out ways to ensure that these addressed. In this way participants can discuss progress or any challenges they encountered and learn about new developments in the landscape (GovRep1). The meetings also provide participants the opportunity to explain specific points about their legislative mandates or activities in the catchment which in turn facilitates understanding between the representatives of the different government and non-government organizations. NGO1 explained that new forms of collaboration have emerged out of this type of engagement, making it possible for different role-players to step in and fulfil functions that the other government departments are perhaps unable to achieve by themselves. Outside these formal engagement participants also can engage in more informal settings such as during lunch and tea breaks, as well as during outreach activities with farmers (e.g. nursery days and awareness days).

Important to note is that no formal decision-making occurs at the UBCEG meetings. This is rather taken up at the organizational level, where formal agreements and memorandums of understanding are undertaken between the particular organizations or between organizations and relevant communities (NGO4). Community involvement and input is sought out between the quarterly meetings when the representatives of the organizations interact with their communities to identify natural resources management needs or water issues. These issues and needs are then tabled at the next quarterly meeting where it will be discussed who can assist the specific community and how the required activities could be funded. These type of feedback and interactions often lead to joint projects (including MoUs) between relevant UBCEG members and the affected community. UBCEG has a set of criteria which assists the members to jointly assess what actions and interventions should be prioritized in terms financing, time and the pooling of resources. Among these are: high ecological infrastructure value, high biodiversity value, high economic value (agriculture, forestry, tourism), high level of community buy-in, sufficient human resources that will ensure continuity, in others word maintaining the gain, potential to have a high social impact through job creation and skills development, etc.

Initially UBCEG was specifically focused on preventing specific development and land uses, in particular illegal developments such as the transformation of conservation areas into agricultural land use, river modification, etc. Soon there was the realization that there was also a need to improve the coordination of existing projects related to alien clearing, fires restoration, etc., as well as to talk more proactively about land use applications and to look jointly at EIAs. In other words, the network rather than just focusing on a singular issue or issues separately took a more integrated catchment management approach discussing interdependent issues in an integrated way. This has allowed for strategic planning at the local to catchment scale and helps to assist the landowners with informed decision making about future planning as well as to find solution to competing interests. While initially driven by provincial DoA and CapeNature a core group has emerged within UBCEG which includes also the BGCMA, DEA&DP. More specifically, it

appears that when network members have projects in the catchment, they also tend to become part of this core group and invest more time and effort into the functioning of UBCEG.

Another more recent development has been the appointment of a secretariat through a tender process and clear terms of reference. The secretariat is financed via UBCEG. The appointment has reduced the burden on existing organizations as it is now the job of the secretariat to provide minutes, follow up on action points with specific organizations, and to ensure spatial data is provided in preparation for each meeting. Previously these were tasks undertaken by provincial DoA and CapeNature, placing quite a high cost (time and effort) on these two organizations. The new structure is also intended to ensure better sustainability should one of the key champions fall away. Despites its growth in membership and scope UBECG has continued to focus on its core objectives, and continues to remain primarily a network platform for the different government departments to build capacity amongst each other and support each other's work for better service delivery and integrative landscape management (GovRep1).

The value of participating in UBECG and the platform's impact on water governance

The greatest value that UBCEG provides to the interviewed members has been the information sharing, the networking opportunities and personal connections which together support the organizations' own water governance and environmental management work in the Upper Breede River Valley and the larger catchment. GovRep4 illustrated the point: "*A lot of connections have been established through just the regular attendance and then also some of the guest speakers we've had presenting at UBCEG. Valuable connections emerged, that wouldn't have been made if it wasn't for the actual UBCEG engagement … now I know who to contact because of UBCEG. So, there's lots of valuable things that have come out, but I think mainly the networking and the knowledge sharing platform that it offers and opportunities that it gives by being part of the group*". This was echoed by NGO 3: "*I think the excellence of UBCEG is that it is a great platform for information sharing and the kick off behind is that is the better utilization of resources by reducing competitiveness and also duplication.*"

The quarterly in-person meetings, in particular, were identified as critical for improving water governance in the region. For example, GovRep2, reflected: "*I can say that the physical getting together of people in a diversity of environmental pursuits in the catchment has absolutely and unequivocally led to better water management within that same catchment because of that very engagement … I can actually with 100% surety say that yes, it is definitely a better functioning water governance body partnership, whatever you want to call it, because of UBCEG*". Making personal connections with individuals working in specific organizations has made it easier to get information as well as coordinate actions due to the established direct contact in the departments (GovRep4, NGO2, GovRep5, and NGO4). GovRep 4 explained: "*if I have an application or need some information about certain water licensing in the area, I now have a direct link to [X] at the BGCMA because I got to know [X] through UBCEG and some of the municipal staff as well*". GovRep2 elaborated, *"before UBCEG it was kind of difficult to get someone form CapeNature to attend complaints and investigations. After several engagements with UBCEG, that became almost de facto. If I'm going out to a particular area, I call up a particular area office and a representative would come on most sites."*

Having the opportunity to work with a range governmental and non-governmental actors means that actors are better able to coordinate their work and strategic decision making. GovRep3 explained: "*Working together and assessing the permit requirements and understanding each other's issues in the landscape is hugely beneficial to each other's mutual enforcement and mutual understanding. If, for example, we've highlighted several pollution incidents in a meeting like this where the person who writes the water use licenses is sitting, [X] will be so much more aware of some … downstream issues, when [x] is assessing the permit application. And so, even though that was not a particular discussion or engagement, just the general awareness is better, and it enables hopefully better decision making".*

Interviewees provided several examples which demonstrate how UBCEG has facilitated collaboration between government as well as non-government organizations in realizing collaborative water governance as well as improved engagement with local communities. Two of these are described below. The partnerships also proved to other members of the platform how collaboration around shared responsibilities and goals, could lead to effective problem solving and even increase the solution space by working with non-government actors that at times can step in to fill water governance/finance gaps.

GovRep5 reflected on the development of a partnership after CapeNature and DEA&DP alerted the provincial DoA and the BGCMA to a case of wetland degradation in the Upper Breede River Valley. In response to the issue the BGCMA entered into a memorandum of agreement with CapeNature and the provincial DoA who then funded the project and acted as an intermediary between the BGCMA and the landowners, while the BGCMA official gained authorization to spend funding on alien clearing for the project as well. GovRep5 explained that this was the first memorandum of agreement that involved three government organizations facilitated through UBCEG. "*It was a MoA between three partners, and we were advised against it. People were saying it's never going to work, this is not how it's going to work, and we tried it and actually started working, and we've grown from there*".

Another example of collaboration facilitated through UBCEG was a joint undertaking between WWF, DEA&DP, BGCMA, the provincial DoA and farmers to address the spread of alien invasive plants in the valley. NGO 2 explained that following consultations between these actors, the organizations realized that farmers were willing to undertake alien clearing activities but lacked time and money to do so. Together the organizations decided that a dedicated person to co-ordinate alien clearing activities in the area was needed. While WWF sourced the finances and finalized the contract, representatives from the DEA&DP, provincial DoA, and the BGCMA interviewed potential candidates. This partnership culminated in the placement of an alien clearing coordinator in one of the areas in the Upper Breede valley where both the WWF and UBCEG operated and ensured the effective implementation of alien clearing activities.

Trust relations amongst UBCEG members and change over time

Several UBCEG members (GovRep1, GovRep2, GovRep5, NGO2, NGO3) pointed out that a "silo" mentality existed prior to their involvement in UBCEG where government departments acted with little coordination, sometimes even competitively or in opposition to each other. NGO 4 explained: "*sometimes they work against each other if they [departments] don't know each other's work".* Lack of cooperation or trust, then, is not necessarily intentional but it is the result of poor mutual understanding and at times simply differing departmental mandates. Although prior connections between individuals working in

different departments existed, these too could, according to GovRep2, entrench the silo dynamic that was described by the UBCEG members. Hence, in the beginning trust needed to be built among the organizations.

The interviewees also highlighted those tensions related to environmental and agricultural priorities between actors from the water, agricultural and conservation sector have always affected relationships. The provincial DoA largely represents the interests of agriculture, while CapeNature and DEAD&P represent the laws governing ecological integrity. GovRep3 explained*: "there was always the divide between environmental affairs and water affairs with the farmer, because we were always seen as the authority with the stick"*. GovRep1 reinforced this saying: *"[You] cannot expect … the agriculture department to just agree with all the conservation tree hugging green stuff … and we cannot expect them to agree with us on developments that we have needs for … and to increase our footprint".*

This perceived inherent tension forms a fundamental basis for UBCEG's functioning. While the platform set out to attend to the conflicts and issues arising from agricultural development, it was accepted from the beginning that not all departments would agree on all issues and that tensions needed to be acknowledged and carefully navigated. "*There is an internal interplay of understanding the needs of owners to develop land in an economically profitable way, while also protecting ecological infrastructure and sustainability of the catchment … Those tensions play out in UBCEG [and] makes the work for UBCEG sometimes difficult. [You] need space to discuss where landowners are not doing their best, but you also want that trust relationship to build on the projects that different members are engaging in"*, explained NGO4. This highlights that achieving positive water governance outcomes necessitates buy-in from affected communities and participating government departments by finding ways to work together and to handle the inevitable tensions that arise and not alienate the different role players.

According to the interviewees (GovRep2, GovRep5, NGO4) an organizational culture and operational structure had been crafted that encouraged relationship building, allowed constructive interactions, and the acknowledgment of differing departmental priorities. To a large extent, this culture of respect and tolerance was encouraged by particular champions from several organizations, and one of these recognized champions explained that it is "*very important they seek to listen and understand and with intent*"(GovRep1). GovRep5 elaborated in more detail on the kind of culture that had been engendered within UBCEG: "*I think that the gist or the soul of UBCEG is what's driving it, everybody there has a definite way of thinking about the environment and the moment that they find there is this safe space to be the tree hugger, or to be the policeman, then they actually slot in, no matter the personality behind it. So, the relationships we take care not to step on toes, but it's something that you do as a human, it's within your humanity not to just tolerate people and I think that respect, mutual respect that yes, you have your legislation, and this is my legislation, and this is where they overlap".*

Trust relations within UBCEG evolved over time and relationships were built through strategic meetings and efforts to address interdependent issues in the landscape jointly. NGO3 indicated that: *"the institutions that are there have been involved for a long time, so it's got that long-term relationship and within a long-term relationship, obviously trust builds up over time".* Time and proximity were evidently both important factors to the nurturing of trusting relationships that brought about more effective water governance outcomes. It also took time for participants to understand how UBCEG functions, gain an

understanding of other members' work and mandates, and to find their place in the platform. In this respect, NGO3 stated: "*at first I was quite peripheral as well, I was trying to find my footing, I thought it was great to have a platform like that and it took a few years, at least 2 years, to come to a meaningful point where we were able to negotiate a placement of an alien clearing coordinator*". Similarly, GovRep5 explained, "*it took me all of four or five sessions to realize this is a good thing and this is how I would like to contribute to the environmental on a bigger scale. As soon as I saw … the difference between UBCEG and the other platforms is that most of the others are just reporting back or just a one-way conversation where you are invited to a meeting, but you're actually just there to receive information, whereas UBCEG is about sharing information as well*".

It appeared that through the relationships built and the reporting structure of the meetings, a culture of accountability and honesty developed. Trust was strengthened through interpersonal contact in the formal quarterly meetings and through informal engagements during lunch and tea breaks. "*We get together face-to-face and we eat together, there is space for an informal atmosphere between more formal report backs. That's really what builds trust and makes it different to other government meetings"* said NGO4. The collaborative projects initiated through UBCEG and joint community outreach (i.e. through nursery and awareness days) which provided an additional space for interpersonal engagements, and the success of these joint efforts led not only to more trust in each other and the departments but also in UBCEG's capacity to foster cooperative water governance (GovRep1, GovRep2, GovRep5, NGO 4).

To a large degree the sense of shared purpose – as well as trust in the platform and its processes – was made possible through UBCEG's use of evidence-based reporting tools such as 'action points' and spatial mapping of activities in the landscape. These tools were considered objective means to deliver accurate information and ensure accountability. GovRep2 furthermore emphasized: "*when actions are supposed to happen, they are followed up on in the next meeting and who wants to say publicly 'well I didn't do anything'. So it helps you to maintain a bit of pressure to get things done*". GovRep5 added that the reporting approach allowed sense for: "*who's getting what done and are we really spending the money where it's supposed to be spent and UBCEG allows for us to sit back and say, these are farms where X's money is going, these are the farms where NRM's funds are being spent and how they link to each other. So, the platform as a strategic tool in that way also helps*".

The interviewees were also asked to reflect on times or situations when trust relations have been tested or even eroded. Some respondents (GovRep2, NGO2) could not recall specific situations where trust was eroded. However, they raised concerns that the rapid growth of members in the platform as well the increase in geographic scope could potentially diminish the depth of relationships and quality of debate within UBCEG – and therefore affect the quality of relationships and trust, as well as the utility of the platform. Other respondents reported some instances of tension in the meetings between individuals – often stemming from the tensions intrinsic to their specific departmental/ sectoral priorities. However, these did not apparently lead to a loss of trust within UBCEG or between the particular organizations. GovRep2 illustrated: *"we had a bit of a tiff in one of the meetings with [an NGO] … I don't think it really changed the relationship. They had a difference of opinion of how we should be operating but I think we were defensive because it's the way that we've been mandated to operate … we can't change that … I wouldn't say that it changed the relationship, we still interacted positively*". It appears that the

organizational culture that encourages debate and discussion allows that such tensions can be openly aired and resolved – leading, instead, to a greater sense of interpersonal trust, interinstitutional trust and trust in the processes involved.

Perceptions of public trust in UBCEG and related water management organizations

The following section takes a closer look at the experiences and perceptions that the interviewed UBCEG members have on public trust in their water related governance work in relation to UBCEG. This is complemented by perspectives from a small sample of selected members of the public (i.e. water users) from two locations in the Upper Breede Valley. These 'public representatives' were asked to reflect on public trust in water governance institutions – the nature of that trust as well as the factors which influenced it.

The interviewed UBCEG members found it challenging to reflect on public trust towards UBCEG. Primary because UBCEG does not directly engage with the public but rather with specific organizations' representatives. Yet among the interviewed members there was a general agreement that the platform did help to build public trust towards their organizations due to the improved communication and better water governance outcomes. More specifically, growing trust within the platform allowed for greater interdepartmental understanding and collaboration which in turn allowed government departments to speak with one voice, to be accurately informed about each other's policies and programs and provide informed strategic and technical advice to the public (GovRep4, GovRep1). According to the interviewees this has led to greater trust by the public in the specific government departments because they perceived them as knowledgeable, coordinated and organized. As explained GovRep4*: "It just gives you that extra bit of credibility when you are engaging with landowners knowing that you are also connected to the work that they are already busy with…. they then start realizing that we are trying to help".*

UBECG members furthermore referred to various processes and factors that have been critical to strengthen relations with the communities. Key amongst these are face-to-face contact with members of the public, tangible support and sustained commitment to communities in the form of government-led land and water management projects and participatory methodologies such as river management maintenance plans (RMMPs) which allowed for farmers' needs to be expressed and taken into account (GovRep1, GovRep4). Additionally, awareness generating activities have provided members of the public with accurate information about the government agencies and their programs and have led to better public understanding of water governance processes and procedures (GovRep1, GovRep4). Government representatives needed to show that they were responsive, sincere, and committed, as well as knowledgeable, organized and coordinated to gain the trust and cooperation of the communities.

Time was identified as an important factor in building these kinds of relationships that engendered better trust and cooperation, in a way that government officials could demonstrate their institution's utility to the farmers operations. In this case, interpersonal contact led to greater interpersonal trust between the landowners and government representatives, which the UBCEG members believed to translate into greater trust in government institutions. This interpersonal trust worked in both directions. It was important, also for the government officials to trust and support the farmers to meet their own legal and legislative obligations around activities such as alien clearing and land management. Conversely, it was

highlighted by the interviewees that public trust in the organizations was eroded through "quick in and out" activities (GovRep1). In other words, those interactions with little longevity, impact or follow-up had negative impact. NGO3 raised the importance of not making promises that could not be kept – reinforcing that trust in the performance of water management organizations was an important aspect of garnering public trust and cooperation, in addition to providing accurate information and ensuring accurate understanding of water issues amongst members of the public.

The interviewed water users were not aware of UBCEC and its specific role in the landscape. This is not surprising as the 'public face' of the platform is not UBCEG but the individual member organizations. The water users therefore reported only on their interactions and trust perceptions for the specific water management organizations that operate in their landscape, namely DWS, the BGCMA, their local municipalities and WUAs. Most of the interviewed water users reported little engagement with and limited trust towards DWS. Factors which contributed to this lack of trust include unclear and insufficient communication, lack of direct contact, a sense of lack of support or understanding of farmers' water needs and realities. This was coupled with a sense that the DWS was only active in terms of issuing water bills and water law enforcement but did little else. In other words, there was little evidence of interpersonal contact or relationship between the farmers and DWS, and a dearth of either interpersonal or institutional trust. Another key factor that was pointed out as a hindrance for the development of trust towards DWS was the perceived constant changes in the executive in DWS and related legislative uncertainty. These changes implied reinterpretations of water related policies which affected farmers' planning and engagement with the water sector. They also slowed down aspects of local water governance such as the establishment/functioning of WUAs, which were widely acknowledged as helpful by the users, if not essential, to water management and governance at local scale. DWS was perceived as not having the budget to carry out the country's water policies and retained final authority over the actions and decisions made within local level water management organizations such as the CMAs. Poor trust in – or perhaps suspicion of – DWS was also associated with weak monitoring and regulation, the use of unlicensed water sources by farmers, and the absence of a water user association.

The water users (mostly the commercial and emerging farmers in question) described more direct engagements with CMA officials and expressed confidence in the personal capacity of these officials. Farmers are able to contact these officials directly and can see that they were doing everything they can to ensure they delivered on their responsibilities. This kind of interpersonal trust did not extend to trust in the CMA as a whole, however. This sentiment was based on the perception that the CMA was overdependent on DWS and that therefore the functioning and future of the CMA could be easily jeopardized. CMA officials were also viewed as too office-bound, overworked, overburdened by bureaucracy, and underequipped to properly monitor water use and carry out extension work due to the perceived support by DWS.

Overall municipalities were also not viewed as capable or to be trusted to carry out their legislative responsibilities, such as ensuring the provision of quality water or attending to the provision of sufficient water infrastructure. They were seen as understaffed and overstretched, and officials lacking management expertise and reluctant to make decisions for fear of political retribution. Interviewees reported that they had little direct engagement with these officials. WUAs appeared to be the institutions

in which water users had the most faith. In localities were WUAs are operative there was a sense of strong management and clear systems of accounting through the development of a digitized water monitoring system (which reduced doubts about water consumption and competition between water users). The effective sharing of information has led to shared understanding of the water governance system, good representation from range of water users, and a sense that water users' needs were communicated to DWS and the CMA by the WUA.

While UBCEG has facilitated interpersonal and inter-organizational trust among the members of the network platform and helped to improve interactions between government officials and the public (i.e. through direct contact, adequate sharing of information and knowledge and an understanding of local water use circumstances), this did not necessarily lead to public trust in water management organizations. Trust in water government organizations as a whole appeared to be facilitated by observable successful outcomes of government legislation – in other words, measurable actions and activities. In the eyes of UBCEG members, the participatory processes that UBCEG afforded them did lead to better interpersonal relationships and opportunities for improving capacity to deliver on their water governance mandates. According to them this should translate into more public trust in the water management organizations and water related government departments. However, the cursory interviews conducted with a small sample of water users indicates that even when there existed strong interpersonal relationships and strong relational trust in government representatives, there was no linear relationship between those relational and interpersonal forms of trust, and institutional trust. This had to be coupled with tangible proof that the institutions themselves were capable and effective in carrying out their policies, which in most cases, these members of the public did not feel existed.

6.4 Discussion and Conclusion

Why and how do governments promote or organize participation in water governance?

Participation in water governance can take various forms, from direct citizen-led engagement with government agencies to mediated government-led engagements through representative stakeholders in government forums. UBCEG is a participatory platform that is a government-led innovation predominantly aimed at government departments and key organizations involved in water and landscape management in a specific region. The purpose of the platform is to foster collaborative integrative catchment management by improving the capacities of the involved organizations through information sharing, networking and joint partnerships among each other and other key actors operative in the landscape.

Our case study illustrates that intergovernmental cooperation features as an important aspect of participatory water governance – where government departments communicate and where relevant collaborate with one another to achieve mutual goals. In the case of UBCEG, which was initiated by CapeNature and the provincial DoA, the principal objective was to coordinate their functions and planning in order to address unplanned and illegal agricultural and urban developments which were affecting the region's water resources and interdependent ecological systems. Amongst the reasons for establishing UBCEG was the recognition that government departments tend to work in isolation of one another,

sometimes even in competition, with weak interdepartmental communication, leading to duplication of activities, governance gaps and a reinforcement of the silo mentality.

UBCEG developed into an institutionalized, although voluntary, structure with clear modes of reporting on a quarterly basis. Having proactive champions who developed these reporting structures and an inclusive organizational culture proved to be important elements for the success of this platform in terms of bringing together disparate actors and facilitating useful debates and effective information-sharing among them. In the case of UBCEG, government priorities such as co-operative governance and the principles of integrated water resources management were leveraged to legitimize the platform's aims and undertakings.

What impact have these processes on interpersonal trust among stakeholders in water resource management?

Interpersonal trust was engendered through objective forms of data sharing and a culture of inclusivity that created a space where participants felt safe to share their points of view and find common ground even in a context where the objectives of participating government departments were sometimes at odds. Time to develop these relationships through active participation in the platform, and to develop an understanding of the different organizations' mandates and approaches – as well as dynamics in the landscape – was similarly an important factor in crafting an effective participatory initiative. Coupled with this was the opportunity to get to know representatives from different government and non-government agencies (both formally and informally), thereby opening a direct line of communication and opportunities for further collaboration. This kind of knowledge sharing led to a better understanding of each other's mandates and constraints and to finding ways to work in synergy rather than in competition. Furthermore, disparate sectoral priorities could be navigated through an open and evidence-based dialogue and a growing shared sense of joint purpose and interpersonal engagements that created the basis for participants to work together to achieve common ends.

The research findings indicate that the building of trust relations (interpersonal and inter-organizational) within UBCEG led to better water governance outcomes. These included improved environmental law enforcement, more effective and efficient alien clearing, reduced duplication of efforts and improved use of resources, more effective sharing of information, improved accountability and cooperation, and access to funding.

Based on the insights gained from the assessment of UBCEG, a number of factors appeared to contribute to more trusting relationships and the improvement of water governance and management: the face-to-face contact which allowed for personal rapport and direct lines of communication between participant organizations; allowing a wide variety of organizations (representing different water-related interests) the possibility to contribute, to be heard and feel valued; a sense of mutual support and respect garnered through identifying ways to support each other practically and financially; a clear structure with rules of engagement that has fostered transparency, accountability and honesty; and measurable successful outcomes of those collaborations facilitated through engagement in the participatory platform.

How, if at all, does changing interpersonal trust resulting from participatory approaches affect public trust in government institutions?

A number of UBCEG respondents did not feel that it was possible to estimate the level of public trust for the work conducted under the umbrella of UBCEG since the platform did not present itself to the public. Similarly, the interviewed water users (as representatives of the public) had limited knowledge about UBCEG and its role in the landscape. Hence, the water users could only report back on their trust perceptions towards specific water management organizations. It was therefore difficult to draw specific conclusions around how the interpersonal (and to a lesser extent inter-organizational) trust that was built within UBCEG impacted the way that members of the public viewed water management organizations involved. Nonetheless, important insights could be drawn.

From the perspective of interviewed UBCEG members, factors which enhanced public trust in their respective organizations (rather than the participatory platform itself) included having a cogent and shared understanding of government policy and practice that could be presented to the public; accurate information about water legislation; an image of government as coordinated and aware of the cross-section of organizations' activities and directives as these relate to water governance; and face-to-face contact with members of the public which facilitated relationship building and a sense of consistency and accountability. Factors which diminished trust in government agencies included long-winded and inconclusive legal processes (particularly in relation to environmental and water law enforcement) and members of the public feeling victimized by environmental laws (usually from those who transgress the laws).

Interviews with members of the public were indicative rather than extensive. However, the perspectives did overlap with those of the UBECG members. Factors that enhance public trust in water management organizations from their perspective included having direct contact with officials representing water governance agencies, observable successful outcomes of government-led water management activities, clear and sufficient communication, sharing of accurate information about water laws and activities; evidence that water management organizations are capable of carry out their water-related duties; and a sense that the needs and practical details of water use by water users are understood and taken into consideration by water management organizations. Factors which appeared to diminish public trust in government organizations were poor communication of government directives; poor understanding of water users' realities; constantly changing national government priorities associated with high turnover of executive staff; institutional impotence to effectively carry out mandates set out in water legislation and policy; long-winded and confusing bureaucratic processes; and inaccurate billing coupled with a lack of tangible support.

Reflecting on our initial ambition to evaluate the potential impact of participatory and collaborative forms of water governance on public trust, we conclude that it was not possible to draw clear conclusions about how interpersonal trust created in UBECG is influenced by public trust and vis versa. The interplay between interpersonal and public trust seems to be complex and not easily detectable. This discrepancy could have several reasons: Firstly, the type of participatory platform that UBCEG represents, i.e. it is a government led initiative aimed at primarily government organizations and is not very visible to the public. An investigation into a different type of a participatory platform (e.g. specifically targeted at engaging the

public) may have resulted in more insights. Another obstacle might have been methodological limitations. Limited resources and time available to conduct the study did not allow for a systematic in-depth investigation into the perspectives of water users / residents in the Upper Breede Valley.

7. Conclusion and Recommendations

This research set out to enrich the theoretical understanding of public trust and how it relates to interpersonal trust promoted among various actors through participatory innovations in different water governance contexts. The inquiry into trust was motivated by the recognition that various trust relations seem to affect water governance processes and outcomes. However, until now the concept of trust has not been adequately operationalized in the majority of water governance studies. Consequently, many of the claims on trust in water governance continue to be not sufficiently substantiated.

Trust is a multi-dimensional concept that scholars have explored from very different angles, using different approaches. Our literature review shows that trust is a key issue in many water governance practices, yet understanding its exact role and functioning, and developing integrated knowledge on how to understand trust in water governance requires more research. We found that most studies in our sample (N=200) failed to adequately define and conceptualize trust. The review also highlights that a poor conceptualization of trust, in combination with methodological problems to assess trust, undermines the validity of discussions on trust.

We therefore recommend that future studies need to keep up with the broader literature on trust and the broader water governance literature by means of clearly acknowledging (and empirically uncovering) the context-specific and dynamic nature of trust relationships. We also advise future studies to rely upon more extensively developed trust frameworks so that the effects of trust can be empirically assessed and understood with regard to some of its component parts and sub types (interpersonal trust, institutional trust, distrust, trustworthiness, etc.). The review also highlighted that more attention is required on the role of trust for water governance practices in the global South where access to water and related decision making is often already unequally distributed across different segments of the public and users. Specifically, future studies in the global South should provide more insights on the role of trust (in its various sub types) in relation to specific water related sub-issues (e.g. flood and drought management, water distribution, etc.).

Our empirical investigation into the role of public trust in the work of water managers revealed that the interviewed managers perceive trust as an important factor that affects their work. Yet, public trust in their specific water management organization is not the only trust relation that matters for the day-to-day work of water managers. Several managers pointed out that intra-organizational trust was also important for being able to fulfil their water related tasks. The interviewed managers agreed that low levels of public trust in government negatively affects the trust that the public accords to water management organizations. However, most of the interviewed managers highlighted that the perceived low level of trust (public and inter-organizational) in DWS was a greater obstacle than the perceived low levels of public trust in government in general. A key finding from the engagement with the water managers is that different types of trust relations affect each other in various, complex ways. For example, limited trust in DWS seems to have reinforced trust and reliance of some water managers in their own organizations. At the same time, many managers point out that the absence of a trusting relationship between their organization and DWS has significant implications for their ability to fulfil their water related duties.

A discussion on the role of public trust on the work of water managers requires us to reflect on how water managers and their organizations engage with the public. While public engagement has increased over time for most water managers, the engagement continues to focus primarily on creating awareness about the role and functions of the water management organizations, educational programs on specific issues and consultation (e.g. policies, tariff structures, etc.). Participatory platforms aimed at the public (e.g. wetland and catchment forums) are mechanisms that appear to be underutilized. Outreach and support to emerging/previously disadvantaged farmers has increased but remains inadequate. The water managers pointed out that while targeted public engagement is important for building public trust, this engagement must be well resourced in order to allow for different segments of the public to meaningful participate in such processes. Insufficient communication prior and post the engagement processes as well as not considering public inputs in the final decision making were also highlighted as significant stumbling blocks for building public trust. In line with our findings, a recent WRC study (C2020/2021-00276) focusing on 'Practical Approaches for Enabling Collaborative and Adaptive Water Management for Catchment Management Agencies' highlights that CMAs and water management institutions at the catchment level have adequate technical expertise but require more skills in stakeholder engagement. They conclude that without ongoing budget these critical skills can't be sustainably built and maintained, thereby jeopardising the integrity of ongoing partnerships (Gcanga et al., 2022).

To evaluate the status of public trust in government institutions tasked with water management, we purposefully focused our inquiry on selected underserviced neighborhoods in Cape Town and Gqeberha. Historically, these neighborhoods have been marginalized in terms of service delivery when compared to their more affluent counterparts. We found that the residents of selected underserviced neighborhoods currently trust their local water services authority more than the national DWS. For both water management organizations (DWS and WSAs), residents give the lowest trust scores for tasks related to communication and transparency rather than technical or policy-oriented activities. The findings also show that overall political trust in the South African government is low across all neighborhoods. It appears that general political trust is the strongest determinant of trust in both, the DWS as well as the CoCT and Gqeberha as water services authorities. Hence, the low levels of political trust in the South African government negatively affect public trust expectations towards water management organizations. Our findings raise additional questions that require more systematic and context specific, in-depth analyses to better understand the working of institutional trust in its various forms. A promising approach could be to look at the differential, yet interdepended impact of public trust in core government institutions across different administrative levels as well as public trust in democratic institutions that are not as strongly affiliated with political party preferences but more with the pillars of democracy (the judicial system, police, freedom of the press, etc.). How trusting the residents are towards the water management organizations seems also be influenced by how well informed the residents feel about water management in South Africa. This highlights the importance of open communication and information sharing.

Both the findings from the engagement with the water managers as well as from the administered public trust survey indicate that an important step for improving public trust is better communication as well as more targeted engagement with specific segments of the public in decision making processes most relevant to them. Effective public engagement requires adequate resources especially for strengthening

procedural equity, as well as enhancing and incentivizing a skill set among water managers that allows them to successfully facilitate engagement processes in various often complex and contested decision-making processes.

We gained important insights into interpersonal trust by examining the trust relations in a government led participatory platform fostering integrative catchment management in the Upper Breede River Valley, Western Cape, South Africa. Through this case study we also intended to explore how these interpersonal trust relations have affected water governance outcomes as well as public trust in government. Our case study demonstrated that the building of interpersonal (and inter-organizational) trust relations among the involved organizations can lead to better decision-making processes and water governance outcomes. These included improved law enforcement, more effective and efficient alien plant clearing, reduced duplication of efforts and improved use of resources, more effective sharing of information, improved accountability and cooperation, and access to funding.

The insights from our case study provide important lessons for other participatory platforms that aspire to become effective mechanisms for enhancing adaptive water governance processes and outcomes: Having proactive champions who developed context-specific reporting structures and an inclusive organizational culture appears to be critical for bringing together disparate actors and facilitating useful debates and effective information-sharing among them. Other factors that contribute to more trusting relationships and the improvement of water governance include: the face-to-face contact which allows for personal rapport and direct lines of communication between participant organizations; providing to a wide variety of organizations (representing different water-related interests) the possibility to contribute, to be heard and feel valued; a sense of mutual support and respect garnered through identifying ways to support each other practically and financially; a clear structure with rules of engagement and objective forms of data sharing that foster transparency, accountability and honesty; and measurable successful outcomes of those collaborations facilitated through the participatory platform. UBCEG provides a successful example of a government led participatory platform that fosters adaptive water governance at the landscape level and relationship building among key landscape actors that operate in this space. Important to note is that UBCEG is not a parallel governance structure but intentionally set out to strengthen existing institutional processes and structures.

Reflecting on our initial ambition to evaluate the potential impact of participatory and collaborative forms of water governance on public trust, we conclude that it was not possible to draw clear conclusions from the UBCEG case study. This may have to do with our choice of participatory innovation or relate to specific methodological limitations (i.e. inadequate time and resources) which did not allow for a more embedded approach. We therefore encourage future studies to develop and employ resource instruments that allow for a systematic assessment of the influence of interpersonal trust created in UBCEG or other participatory innovations (government or citizen led) on public trust of residents in the specific region. Indeed, we argue for a comparative longitudinal study that examines the interplay of these two types of trust through the examination of several government and citizen led participatory innovations through an embedded approach.

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Appendix 1: Interview Guide water managers

Brief Description of Research

We are undertaking a collaborative research project that focuses on public trust in water governance. The aim of the project is to explore how public trust in water governance processes can be enhanced in order to more effectively address urgent societal water needs. The research is being conducted in four countries, namely Sweden, Norway, the Netherlands and South Africa. In South Africa, we (Liz Kruger and Nadine Methner) from the African Climate & Development Initiative at UCT, are leading the research.

An important component of the research is to interview water managers from various government organisations that are tasked with water management. The aim of these interviews is to gain insight into experiences of water managers, like you, on the role of general public trust in water governance, and interpersonal trust between actors in water governance processes over time. More specifically, the aim of this interview is to gain insights on the influence of changing public trust on the work of water managers, their interaction with citizens and other actors, and the role of trust in these interactions.

In this interview, we would like to understand how you as a water managers experience issues around public trust. We hope to understand how trust from the public in water governance, and in government more broadly, influences your capacity as a water manager to fulfil your responsibilities. We also hope to gain a sense of the types of participatory and collaborative initiatives that you are engaged with, and what the quality of these engagements.

Brief explanation of terms:

WATER RESEARCH COMMISSION

ACDI

ENTRUGO- Key terms explained

Water governance = a complex and dynamic arrangement of actors and institutions, in which governments play important roles (Huitema & Meijerink, 2014).

The strength and success of these arrangements depend on:

- trust between the actors involved (**interpersonal trust**), and
- a general trust of citizens in the government (**trust in government**)

In this part of the project we are particularly interested in how general public trust in government influences the work of water managers and what the experiences of water managers about the role of trust in their day to day work in interaction with citizens.

interpersonal trust = the confidence one actor may have in its expectations about another actor's thoughts, behaviour and decisions, based on previous experiences

trust in government = is regarded as more stable, enabling people to have confidence in proposed courses of actions and cope with the many uncertainties and risks associated with water resources.

A. Introductory Questions

Nature of South Africa's water governance system

In order to understand trust in water governance and its impact on water management we first need to understand the nature of the South African Water governance system:

- How would you describe the water governance system in SA
    - Is it Centralized or Decentralized?
- How would you describe public involvement in water resource management: who participates, how and why? Changes in the recent years?
- How has the water governance system changed in the last 10 years?
    - Has the system moved more towards decentralisation or centralisation; more or less stakeholder involvement in water management tasks; more or less citizen participation in decision making ? Reasons

Could you briefly introduce yourself and your organization

- What is the role of your organisation in South Africa's water governance system?
- How many years have you been working for your organisation?
- What is your current position?
- What specific tasks do you perform in your current position?
- What other experience did you develop in the field of water management before you came to work in this position?
- What projects are you involved in (or have been) in the field of water management where you have had to collaborate/interact with citizens or other stakeholders? Please describe.

B. Tasks of Water Managers

- How have the tasks of water management changed for you over the last years? (e.g. type of water related risks, more tasks, complexity, different character, other skills needed)?
    - Can you give an example? And why?
- Has the character of water management projects in general changed over time? If so, how?
    - Have your tasks in the projects you are involved in changed over time? If so, in what ways? What specific factors caused this change (e.g. water related risks)?

C. Cooperation with Citizens and stakeholders

- Can you indicate on a scale of 0 to 10 what you think of the following statement: Citizen and stakeholder participation in water management is helpful to my work as a water manager. (0 = Totally disagree – 10 = Totally agree).
    - Please explain your answer briefly
- Can you indicate on a scale of 0 to 10 to what extent you agree that public participation, should matter when making decisions on water management issues? (0 = " Public participation should not matter" – 10 = "Public participation should matter".
    - Please explain your answer briefly
- In which ways do you think the input from citizens be valuable to the work that you do?
- What challenges do you expect to see with increased citizen or stakeholder participation in your work?
- Which groups in society do you generally engage with in your work and why? Can you say something about different groups involved, types of contributions or water related issues addressed?
- Do you see any differences between groups in terms of contributions, involvement? And within groups?
- How does your organisation involve citizens in water management decision making processes?
- What measures are in place to involve less powerful groups especially those that have been previously disadvantaged?
- In your view: How has the engagement of your organisation with citizens in water management over the past 10 years changed?
- What factors have influenced the way that your organisation engages with citizens, e.g. national government dynamics or changes in society? Can you give an example?

D. Public Trust

- Which of the following trust relationships are most important to conduct your tasks/work as a water manager effectively:

    a. Trust between your organisation/the regional office and the national office of DWS
    b. Trust within the regional office
    c. Public trust
    d. Trust in other government organisations involved in water management
    e. Trust in other organisations involved in collaborative water management projects

    - Please explain your response

- Which of the following factors in your view influence public trust in your organisation:

    a. Your organisation’s responsiveness and ability to manage water resources (including service delivery)

b. Facilitation of citizen participation
c. Legitimacy and transparency of decision making
d. Ability of the public to actually influence decision making processes on water management

- Amongst the above factors which do you feel your organisation performs most adequately.
- Can you indicate on a scale of 0 to 10 what degree of trust you think the public has in your organisation to perform water management tasks?
- Can you indicate on a scale of 0 to 10 what degree of trust you think the public has in your personal performance as a water manager?
- Is public trust important in the work that you do as a water manager, and if so, in what ways?
- To what extent are you aware what the general public opinion is on the issues you are working on?
- To what extent does public trust influence your work? In which ways?
- Have there ever been situations in which citizens have directly expressed their distrust towards your work, and how has this affected your work?
- Trust in government is argued to be in decline. Does this decline in trust in government more broadly affect your work as a water manager? In which ways?
- In your view, does the decline in trust affect the room water managers have to maneuver, to deal with issues or the ground projects?
- Amongst the "different" groups that represent the public are their some that are more or less trusting than others? Which are these groups and why?

E. Closure

- Are there any remaining topics or concerns things which you would like to mention or discuss further?

Appendix 2: List of interviewed water managers

Organization (Level)	Code
DWS (National)	Official 1 DWS (DWS1)
DWS (Regional)	Official 2 DWS (DWS2)
	Official 3 DWS (DWS3)
CMA 1 (Regional)	Official 4 CMA (CMA4)
	Official 5 CMA (CMA5)
CMA 2 (Regional)	Official 6 CMA (CMA6)
South African Association of Water User Associations (National)	Official 7 WUA (WUA7)
Water User Association 1 (Local)	Official 8 WUA (WUA8)
Water User Association 2 (Local)	Official 9 WUA (WUA9)
Municipality 1 (Local)	Official 10 Mun (Mun10)
Municipality 2 (Local)	Official 11 Mun (Mun11)
Municipality 3 (Local)	Official 12 Mun (Mun12)

Appendix 3: Public Trust Survey instrument

The PDF version of the interview can be found here:

https://drive.google.com/file/d/1UEjAiSXwKXaj4xJGEqGWIOhE6S7so2C6/view?usp=share_link

Appendix 4: Interview guide UBCEG members

Name:

Organisation:

Contact details:

Consent form:

Date:

Brief overview of the project:

EnTruGo is a collaborative research project that focuses on public trust in water governance. The aim of the project is to explore how public trust in water governance processes can be enhanced in order to more effectively address urgent societal water needs. Two types of trust are of principal concern to us – the trust that citizens have in government water agencies to carry out their mandates and manage water (public trust), and trust between actors involved in water governance in carrying out their tasks (interpersonal trust).

The research is being conducted in four countries, namely Sweden, Norway, the Netherlands and South Africa. In South Africa, we (Liz Kruger and Nadine Methner) from the African Climate & Development Initiative at UCT, are leading the research under the umbrella name of EnTruGo.

An important component to understand the role of trust in the South African water governance context is to explore how participatory processes and initiatives facilitate the building of trust between different actors involved in water management activities. We have selected UBCEG as a case study for understanding the role of trust in water governance because UBCEG is an example of the kind of government-led initiative that brings together a range of different kinds of stakeholders – public, private and NGOs – who deal with land-use issues that very often overlap with water governance and management issues. UBCEG provides a platform for collaboration between different actors for dealing with, amongst other things, water governance issues such as alien clearing, erosion control, water quality and so forth – all areas of interest to our broader research on trust in water governance.

In this interview, we would like to understand more about interpersonal trust between actors: how participation in UBCEG facilitates the building of trust between UBCEG members, and how this in turn impacts members' and their organisation's capacity to carry out water management tasks. We are interested, in particular, in how trust has been built through these relationships, and some of the formative events or processes that have allowed this.

For the Interviewer: Principal Themes to Cover

- why, how and by who participatory processes are promoted in this specific case

- the current trust situation from different stakeholders' perspectives.

- building on different stakeholder perspectives: how trust developed into the current trust situation. Paying specific attention to:

- Interactions and events influencing trust
- Interpersonal trust and its character
- Trust in government and its character
- Factors underlying/ explaining trust dynamics
- The impact of participatory processes on trust dynamics (interpersonal-in government)

INTERVIEW GUIDE

Individual's background

- Please describe the work that you do with your organisation?
- How long have you been working in your organisation?
- What kinds of water management related work does your organisation do/water governance issues deal with?

Background to Participation in UBCEG

- What is UBCEG's role and function in this area?
- How long has your organisation been involved with UBCEG?
- Why does your organisation participate in UBCEG?
- What were your expectations when you joined UBCEG?
- Did you have any reservations about joining UBCEG? What were these?
- Were any of your expectations or reservations confirmed? Or were you surprised by any experiences that you had through UBCEG that you weren't expecting?

Experience of Participating in UBCEG

- What are the most pressing water management issues in the region? How has UBCEG helped to address some of these water management issues
- How has your participation in UBCEG affected your work/ that of your organisation?
- What kinds of relationships have you built through your involvement in UBCEG?
- Can you describe the nature of these relationships you have developed at UBCEG?
- How do these kinds of relationships support the water management related work that your organisation partakes in?
- Are there any particular events or situations that you can recall which allowed you to build relationships with other UBCEG members, and were these helpful to you?
- How have these kinds of relationships supported your own organisation's work in water management/governance?
- Have there been any events where relationships deteriorated, and can you describe these?
- How has your participation in UBCEG affected your interactions with other organisations participating in UBCEG?
- How has your participation in UBCEG affected your interaction with local communities/land owners?

Involvement in water management related projects

- What water-related projects have you been involved in that are facilitated by UBCEG?
- Who else is involved in these projects (e.g. other UBCEG members, local communities, land owners)
- To what extent did you feel that the various actors involved in these water management projects were willing to collaborate with you?
- To what extent do you feel that the different agencies involved shared your own values, and those of your organisation?
- How much scope was there for working together on these projects?
- What risks were there for you and your organisation participating in these kinds of projects?
- How has your engagement with UBCEG influenced the way that you see government and the government agencies responsible for water management?

UBCEG Group dynamics:

- Has the nature of UBCEG changed over the years?
- How have relationships of between other members have changed over time?
- How have changes in UBCEG affected the relationship/interaction among UBCEG members?
- Discuss in terms of change of activities or approaches
- Discuss in terms of change in membership? (e.g. is UBCEG quite a static group or is the membership changing quite a lot?)
- Would you say organisations that participate in UBCEG differ a lot in their views, interests or values? Or is it a quite homogenous group?
- Do certain organisation dominate the discussion/ decision-making processes more than others?
- Is there a difference how government organisations and non-government organisation engage with the issues that UBCEG brings up?

32. Is UBCEG a platform that allows for diverse views?

33. Is UBCEG a platform that incorporates the views and interests of local communities especially less powerful actors? And in what ways?

Public Engagement and or perception

- Do you feel that there is public support for the kinds of water-related issues that your organisation, together with UBCEG, are dealing with? In what ways, and how are you aware of what the public thinks of these water-related issues?
- Are there any kinds of conflicts of interest between your and UBCEG's water-related management strategies and the ordinary public in the areas where you work
- What are the key factors or situations that have influenced public perceptions about the work of UBCEG?
- What are the key factors or situations that have influenced governments perception about the work of UBCEG

Final Reflections:

- Has UBCEG helped in improving water governance? If yes how?

Appendix 5: List of Pseudonyms for Case Study Interviews

The following list does not include the names or organisational details of interviewees consulted for this research, and instead provides details of the abbreviations used in the text.

UBCEG Members

Government Representative 1	: GovRep1
Government Representative 2	: GovRep2
Government Representative 3	: GovRep3
Government Representative 4	: GovRep4
Government Representative 5	: GovRep5
NGO Representative 1	: NGO1
NGO Representative 2	: NGO 2
NGO Representative 3	: NGO 3
NGO Representative 4	: NGO 4