

COMMUNITY-OWNED WATER ACCESS: GUIDELINES AND CASE STUDIES

E Kruger and N Dlamini



Community-Owned Water Access: Guidelines and Case Studies

E Kruger¹ and N Dlamini²

¹ Mahlathini Development Foundation,

²StratAct

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by
Mahlathini Development Foundation
Email: info@mahlathini.org

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EXECUTIVE SUMMARY

This manual proposes a set of guidelines for community-managed rural water supply systems. The main goal of such a system is to provide a community with adequate, safe, reliable, consistent, equitable, and sustainable water in accordance with prevailing national legislation; thus, multiple sources of water for multiple use systems.

The purpose of these guidelines is to present a community-based approach that builds alliances between communities and development agencies and promotes joint actions and social accountability as a key strategy for providing water services to rural communities. A water service may include protected springs and wetlands, streams and rivers, borehole hand pumps, or fully mechanised piped water systems. Municipalities are obligated by the Water Services Act number 108 of 1997 to provide communities with reliable water services. The right to safe, reliable, affordable, and sustainable access is also enshrined in the Constitution of South Africa. However, municipalities are yet to integrate decentralised and community-based management as one of the strategies for delivering water services to rural communities.

Wherever practical, water services and infrastructure must provide water for multiple use and accommodate mixed levels of service within communities, allowing consumers to elect a level of service which suits their needs, is affordable to them (within the prevailing subsidy framework), addresses inequalities, utilises appropriate and upgradable technologies, and is governed effectively and responsibly to ensure sustainability. Despite this statement in the latest DWS review of water service provision, the legal and regulatory framework for such implementation has yet to be developed. District and local municipalities are the mandated water service authorities (WSAs) and water service providers (WSPs), with water services committees only possible if the community petitions the Minister to reinstate the mechanism.

There are many positives to communities getting involved in water management, but this 'involvement' brings with it several challenges. These challenges are not only of the community's making but are often entrenched in socio-political and governance systems. Presently, municipal WSAs are primarily concerned with communities taking more responsibility for operation, maintenance, and efficient use of infrastructure provided, with a secondary concern of cost recovery mechanisms for longer-term sustainability. Communities presently have a greater concern for having access to sufficient water for domestic and productive use, and as such have shown a remarkable willingness to be more involved in the co-management of water supply options. Self-supply options, both on an individual and group level, are already very common in many underserved rural communities in South Africa.

These guidelines consider a range of supported self-supply options for rural water supply and include considerations of the social and governance issues related to the different methodologies. Guidelines and recommendations are synthesised from a set of case studies from different supported self-supply options across South Africa, focusing on KwaZulu-Natal and Limpopo.

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Reference Group	Affiliation
Prof S. Mpandeli	Water Research Commission
Dr L. Nhamo	Water Research Commission
Dr S. Hlophe-Ginindza	Water Research Commission
Dr M. Mutema	Agricultural Research Council
Dr L. Muzangwa	Northwest University
Prof S Walker	Agricultural Research Council
Dr J.J. Anderson	Agricultural Research Council
Dr T. Dirwai	International Water Management Institute
Dr E. Kamba	KwaZulu-Natal Poultry Institute
Others	
Dr B. Letty	Institute of Natural Resources – INR
Mrs N. McCleod and Dr S. Mathela	Environmental and Rural Solutions
Dr D. du Toit	Association for Water and Rural Development
Ms A. Kotschy	Independent consultant
Mahlathini Development Foundation (MDF) staff and interns	Mazwi Dlamini, Hlengiwe Hlongwane, Ngobile Mbokazi, Lungelo Buthelezi, Siphumelelo Mbhele, Noxolo Sibiya.
MDF board members	Timothy Houghton and Desiree Manicom
Independent editor	Mr. T.G. Houghton
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ABBREVIATIONS AND ACRONYMS

AWARD	Association for Water and Rural Development
CBO	Community-based organisation
COGTA	Department of Cooperative Governance and Traditional Affairs
CBWM	Community-based water management
DM	District Municipality
DWS	Department of Water and Sanitation
GSLCRP	Giyani Local Scale Climate Resilience Project
HG DM	Harry Gwala District Municipality
IDP	Integrated Development Plan
MDF	Mahlathini Development Foundation
MDM	Mopani District Municipality
MUS	Multiple Use System
NEMA	National Environmental Management Act
NGO	Non-government Organisation
NWA	National Water Act
NWPR	National Water Policy Review
PPP	Public-Private Partnership
SDG	Sustainable Development Goal
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WSA	Water Service Authority
WSP	Water Service Provider

CHAPTER 1: PREAMBLE

Water is a basic human right and a vital resource for health, livelihoods, and development. However, millions of people in South Africa still lack access to safe and reliable water sources, especially in rural and peri-urban areas. According to the World Health Organization (WHO), only 56% of the rural population and 79% of the urban population had access to at least basic water services in 2017 (WHO, 2017).

According to the United Nations,

The water supply and sanitation facility for each person must be continuous and sufficient for personal and domestic uses. These uses ordinarily include drinking, personal sanitation, washing of clothes, food preparation, and personal and household hygiene. According to the World Health Organization (WHO), between 50 and 100 litres of water per person per day are needed to ensure that most basic needs are met, and few health concerns arise. (United Nations, 2010)

Access to potable water for all South African citizens is enshrined both in our constitution and in law. South Africa is also a signatory to the UN Sustainable Development Goals (SDG). Here, SDG 6 is the most immediately relevant, given the recognition that no life is possible without water and that it is woven into the fabric of many, if not all, the SDGs.

SDG 6: Clean water and sanitation: Ensure availability and sustainable management of water and sanitation for all. (<https://southafrica.un.org/en/sdgs/6>)

6.1 By 2030, achieve *universal and equitable access to safe and affordable drinking water* for all.

6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.

6.4 By 2030, *substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.*

6.5 By 2030, *implement integrated water resources management at all levels*, including through transboundary cooperation as appropriate.

6.6 By 2030, *protect and restore water-related ecosystems*, including mountains, forests, wetlands, rivers, aquifers, and lakes.

These actions are most likely to succeed if we:

- Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling, and reuse technologies.
- ***Support and strengthen the participation of local communities in improving water and sanitation management.***

South Africa is a water-scarce country (Muller, 2009) and water challenges are exacerbated by climate change, urbanisation, and rural densification. The need for alternative, climate-sensitive water management models is crucial due to the country's water scarcity.

Water availability is becoming less predictable in many places worldwide. In some regions, droughts are exacerbating water scarcity and thereby negatively impacting people's health and productivity and threatening sustainable development and biodiversity. Ensuring that everyone has access to sustainable water and sanitation services is a critical climate change mitigation strategy for the years ahead.

1.1 INTRODUCTION

This manual proposes a set of guidelines for community-managed rural water supply systems. The main goal of such a system is to provide a community with adequate, safe, reliable, consistent, equitable, and sustainable water in accordance with prevailing national legislation; thus, multiple sources of water for multiple use systems.

The purpose of these guidelines is to present a community-based approach that builds alliances between communities and development agencies and promotes joint actions and social accountability as a key strategy for providing water services to rural communities. A water service may include protected springs and wetlands, streams and rivers, borehole hand pumps, or fully mechanised piped water systems. Municipalities are obligated by the Water Services Act number 108 of 1997 to provide communities with reliable water services. The right to safe, reliable, affordable, and sustainable access is also enshrined in the Constitution of South Africa. However, municipalities are yet to integrate decentralised and community-based management as one of the strategies for delivering water services to rural communities.

1.2 PROBLEM STATEMENT

Wherever practical, water services and infrastructure must provide water for multiple use and accommodate mixed levels of service within communities, allowing consumers to elect a level of service which suits their needs, is affordable to them (within the prevailing subsidy framework), addresses inequalities, utilises appropriate and upgradable technologies, and is governed effectively and responsibly to ensure sustainability (DWS, 2017).

Despite this statement in the latest DWS review of water service provision, the legal and regulatory framework for such implementation has yet to be developed. District and local municipalities are the mandated water service authorities (WSAs) and water service providers (WSPs), with water services committees only possible if the community petitions the Minister to reinstate the mechanism.

The water service challenges in rural South Africa since 1994 stem in part from a lack of collaboration between municipalities and community-based organisations. Municipalities resist community-based management, hindering decentralised water systems (Buthlezi, 2006). This reluctance contributes to poor quality and inadequate, unaffordable and inequitable water access in rural areas. The first major problem is the reluctance of municipalities to view community organisations as partners in delivering water services, leading to a reproduction of poverty penalties, particularly affecting young girls and women who spend excessive time fetching water (Geere & Cortobius, 2017).

The second issue arises when stand-alone rural water schemes break down for extended periods, denying communities their constitutional right to safe and reliable water. Despite causes like theft and vandalism, municipalities are obligated to provide water services. In breakdown situations, communities resort to alternative sources like springs and rivers, which may be unsafe and unaffordable.

Historical apartheid geospatial planning in South Africa has left many rural areas without basic services, and current responses like voluntary migration impact water service planning, financing and maintenance. Some schemes may be under-designed for rural densification or overly designed for communities facing migration. Geospatial disparities in water infrastructure run counter to pro-poor and broad-based economic goals, exposing rural communities to health risks and loss of productive time. The implementation of community-owned and/or co-managed water access schemes and services still needs to be piloted and tested in different contexts to provide a realistic framework and process (thus prototypes) for institutionalisation and formal recognition of these processes.

Collaborative and co-management options for management of water access presently include a range of options that are supported informally at the institutional level, depending on the will and orientation of local officials. These include, for example:

- Liaison with ward councillors regarding implementation and management of state-provided infrastructure.
- Employment of local operators through the WSA who are managed at the local level by village-level water committees, often linked to the ward councillors and/or the traditional council, and a voluntary water committee.
- Ad hoc maintenance of infrastructure at the community level through these voluntary water committees, which include community contributions and local-level maintenance.
- Organisation of the local communities into management areas or sections to effect more participatory maintenance and management.
- Various levels of self-supply options *that include individuals and groups*.

There are many positives to communities getting involved in water management, but this 'involvement' brings with it several challenges. These challenges are not only of the community's making but are often entrenched in socio-political and governance systems (Nortje, Mbhele, Polasi, & Zulu, 2022). Presently, municipal WSAs are primarily concerned with communities taking more responsibility for operation, maintenance, and efficient use of infrastructure provided, with a secondary concern of cost recovery mechanisms for longer-term sustainability. Communities presently have a greater concern for having access to sufficient water for domestic and productive use, and as such have shown a remarkable willingness to be more involved in the co-management of water supply options. Self-supply options, both on an individual and group level, are already very common in many underserved rural communities in South Africa, and in Limpopo (Hofstetter, van Koppen, & Bolding, 2021), including Giyani.

1.3 LEGISLATIVE FRAMEWORK

The policy framework for water service provision in South Africa consists broadly of the Water Services Act 108 of 1997 (WSA), the National Water Act 36 of 1998 (NWA), and the National Environmental Management Act 107 of 1998 (NEMA), which make provision for the regulation and provision of water services by different state institutions in South Africa. The relevant pieces of legislation are summarised briefly below:

- The Constitution of the Republic of South Africa (1996), which recognises the right to sufficient water and the duty of the state to ensure that everyone has access to water services.
- The National Water Act (1998), which establishes the principles of integrated water resource management, participatory governance, equity, and sustainability, and provides for the establishment of catchment management agencies, water-user associations, and other institutions to facilitate community-owned water access (COWA).
- The Water Services Act (1997), which defines the roles and responsibilities of water services authorities, water services providers, water services intermediaries, and consumers, and sets the standards and norms for water services delivery.

- The Strategic Framework for Water Services (2003), which outlines the vision, goals, objectives, and strategies for improving water services in South Africa, and promotes COWA as a viable option for rural and peri-urban areas.
- The National Development Plan (2012), which identifies COWA as a key intervention to achieve universal access to water and sanitation by 2030 and calls for strengthening the capacity and accountability of COWA institutions.
- The National Water Resource Strategy (2013), which provides the strategic direction for the management of water resources in South Africa, and supports community-owned water access as a means of enhancing water security and resilience.
- The National Environmental Management Act, which provides principles intended to inform the management of natural resources, including principles of environmental justice, equitable access, and sustainable development. The key feature of the National Environmental Management Act is the obligation to obtain an environmental authorisation before proceeding with development that has a potential impact on the environment.

The biggest change came about in 2000 with the transfer of responsibility for water provision from DWS to the district and local municipalities. Since around 2020, the weaknesses in the current arrangements have become increasingly obvious, with a strong call for community participation, but very little appetite shown from the Water Service Authorities (Nortje, Mbhele, Polasi, & Zulu, 2022).

Insight The role of community-based organisations (CBOs) in the provision of water services was recognised when the Department of Water Affairs and Forestry (DWAF) was a direct provider of water services. One of the outcomes of the implementation of the Water Services Act was total alienation and/or destruction of institutional capacity in community-managed water schemes. Formalisation of water services providers disqualified community-based water committees from participation in the operations and maintenance of their water schemes. Voluntary service was replaced by the formal employment of water monitors and maintenance support staff.

The following two paragraphs summarise the current legislative opportunities for community-based water management schemes/systems, according to Nortje et al. (2022).

...There are several opportunities for CBWM in terms of self-supply of water. For households, Schedule 1 Water Use as provided for by the National Water Act (No. 36 of 1998) creates several opportunities for self-supply, however it is severely limited. Schedule 1 makes specific reference to the following in terms of water use that is significant for CBWMS:

- *Water use is specified for a single household use only – thus own use only.*
- *Serves to support the use of water for subsistence farmers, thus not for commercial farming.*
- *Makes provision for the water of animals that are kept for household use, thus not for commercial use such as feedlots, and has to be within the grazing capacity of the land.*
- *Stipulates 'lawful' use of the resource – thus, one has to lawfully have access to the resource for one to make use of the water.*

The Water Services Act (No. 108 of 1997) provides several opportunities for communities towards self-supply. However, in this case, we find that bureaucratic processes are particularly hindering and cumbersome, especially for communities if they seek to operate within the bounds of the law. Under this Act, communities have two opportunities in terms of self-supply: they can either become a Water Services Provider (WSP) or act as a Water Services Committee. These two options bring with them a host of obstacles, at the least. Currently, if a community wants to operate as a WSP, they have to register as a Community-Based Organisation (CBO), while if they want to act as a Water Services Committee, they need to petition the Minister to reinstate the mechanism.

For self-supply options, the following rules/obligations have been set out for water service authorities:

- The WSA shall advocate augmenting water use with alternative water sources, such as groundwater (springs, wells, boreholes), rainwater harvesting, and stormwater harvesting.
- The relevant regulations and protocols for groundwater and spring protection shall be applied.
- Water use shall be metered or monitored for reporting and planning purposes.
- Guidelines shall be provided to self-supply households regarding treatment and purification of alternative water sources for domestic and personal use.
- The WSA shall make available an advisory service to households wishing to self-supply.
- The WSA shall assist with access to good-quality products and services regarding self-supply.
- The municipal by-laws shall be revised to allow for self-supply.
- Maintenance of the infrastructure is the responsibility of the owner.
- Point-of-use water treatment systems and methods shall be advocated.
- Users shall be educated in effective water use and hygiene, with a focus on water quality requirements and water conservation. (Department of Water and Sanitation, 2017)

The new policy environment has created a discrepancy between the legal recognition of the efforts and capacities of community members and their actual role in water service delivery. Local politicians and government officials perceive community members as consumers whose role is to avoid vandalism and to save water, to make it easy for the municipality to implement projects, or to express their wishes in the consultations for the Integrated Development Plan 10 (IDP). These same community members, however, construct, improve, operate, and maintain water infrastructure and fill the gaps in public service delivery. These schemes vary in complexity, ranging from individual wells to collectively owned piped water schemes (Hofstetter, van Koppen, & Bolding, 2021).

CHAPTER 2: RURAL WATER SERVICE PROVISION EXPERIENCES IN SOUTH AFRICA

The purpose of this sub-section is to present broad approaches used to provide water services to rural communities. Management of water resources and water systems by communities goes back hundreds of years. Communities had ways and systems to govern and operate water resources. However, modernisation and changing circumstances always present new problems which require new solutions.

2.1 KWAZULU GOVERNMENT REGIONAL COUNCILS

Before the 1994 South African democratic project, the KwaZulu government used regional councils to provide services to rural communities. A regional council was essentially a local government structure. Traditional authorities constituted the majority of regional councils. *AmaKhosi* in these councils had the strongest voices in dictating how community projects were implemented, operated, and maintained. The significance of this era was the interest shown by international donors and non-government organisations (NGOs) in supporting community development initiatives, including water projects. During this time, water projects included mainly spring protection, small gravity-fed reticulations, and borehole hand pumps. Establishment of umbrella community-based development committees and project-specific committees was the order of the day. NGOs would collaborate with regional councils in promoting community participation in the delivery of projects. In some ways, community-based approaches enabled development agencies to draw from community knowledge and expertise in resolving some development challenges. Water committees would be established, trained, and capacitated to recruit community labour, participate in project management decision-making, help communities to elect water-management volunteers, and provide constant feedback to communities. Defaulters and delinquent community members were reported to the traditional councils and were dealt with accordingly.

However, this era raised many concerns and criticism, from finding the most committed and skilled volunteers in community organisations, to freeing community organisations from elitism, patriarchy, and a total disregard of the voices of the poor. Obviously, there is considerable interaction between community development and the nature of social stratification in any community, and elitism is a common feature of all societies (Keshava, 1975). During this era, community organisations would be constituted by people aligned to, and closest to, the traditional councils and the homeland government. Voices of some professionals and government officials would dominate community projects. Although some lessons can be drawn from the regional councils era, it must be noted that young adults and the youth of today are very different from their parents. Their parents were conditioned to bow to authority and were largely conformist. This means that development approaches that worked before the new democratic dispensation in South Africa are more likely to be challenged today.

Insight The issue is not to identify whether community power structures are elitist, but to identify which community decision-making platforms deliver the services and demonstrate interest in strengthening participation, and to identify platforms that are able to adapt to challenges and changes as they unfold. Elitist power structures may be permeable, and community groups can successfully identify patterns and navigate community power structures that are related to, and favour specific development outcomes (Drew, Francis, & Kenneth, 2001)

At the dawn of democracy, the Mvula Trust was established in 1993 to support DWAF in developing affordable and sustainable water services, especially for rural communities of South Africa (Group, 2003) (Buthelezi, 2006).

2.2 NON-GOVERNMENT ORGANISATIONS

The general approach by NGOs in the water service delivery space reflects a participatory and sustainable development perspective (Krantz, 2001). The key points in this approach can be summarised as follows.

1. **Participatory approach**
 - Emphasises involving the people who will be using or benefiting from the development initiative.
 - Recognises the importance of engaging the community in decision-making processes.
2. **Sustainable Development Theory**
 - Puts people at the centre of development.
 - Acknowledges that local communities understand their vulnerabilities and possess solutions for the challenges they face.
3. **Local organisations as development agents**
 - Views local organisations as essential in building and strengthening just and empowering participation.
 - Highlights the role of these organisations in the development process.
4. **Sustainable livelihoods approach**
 - Provides a framework to understand the complexities of poverty and vulnerability.
 - Offers principles guiding actions to address poverty and vulnerability.
5. **Community-based management**
 - Focuses on designing community water supply systems based on lived experiences and community development factors.
 - Recognises the dynamic interaction between the community and various development institutions.
 - Involves both community-based and external development institutions.
 - Decentralises decision-making to maximise community participation in planning, implementing, and operating water schemes.
6. **Tools and guidelines**
 - Collaboration between international and local NGOs, as well as research institutions.
 - Development of tools and guidelines for planning, implementation, operation, and maintenance of water schemes.
7. **Key features of community-based management**
 - Iterative nature, indicating an ongoing, flexible process.
 - Decentralisation of decision-making to the lowest level possible.
 - Maximising community participation in implementing and operating water schemes.
 - Draws from sustainable livelihood theory, incorporating social feasibility assessments, considerations of social equity, and specific indicators for sustainable water schemes.

In summary, the approach integrates the principles of participation, sustainable development, and community-based management to address water service delivery. The focus on collaboration, local empowerment, and sustainable practices is crucial for creating effective and lasting solutions in the water sector.

Insight Community life, lived experiences, shared benefits, social bonds, common values, and shared interests are common concepts that define collective action in many vulnerable communities, African societies, and their institutions. African ways of life do not isolate constructions of life; everything is connected. Effective and meaningful participation means that people must define their needs and make decisions that help them solve their development challenges. Effective participation should acknowledge that the malfunctioning of one or two constructions of life exposes households and communities to vulnerability; hence, access to water cannot be seen in isolation from many other community realities.

2.3 COLLABORATIVE GOVERNMENT-LED APPROACH

The Build, Operate, Train and Transfer (BOTT) approach was introduced in South Africa in 1997 by DWAF as a public-private partnership (PPP) aimed at expediting the construction and operation of water and sanitation projects, particularly in former homeland areas. BOTT contracts involved collaboration between the state, private sector institutions (programme implementing agents or PIAs), and regional councils, later transformed into district municipalities. While intended to improve efficiency, ensure equitable water provision, empower personnel, and recover costs, BOTT contracts faced criticism for being private-sector-driven, expensive, and overly centralised, weakening local government and non-profit organisations in the water sector.

The BOTT programme's significance lay in its principles of community participation, skills development, empowerment, and job creation. It aimed to establish community-based water institutions, train and mentor them during project construction, and transfer water-supply projects to these institutions for operation, maintenance, and tariff collection. However, the implementation of the Water Services Act of 1997 in 2001 shifted ownership and control to municipalities, leading to community-based water institutions being marginalised and ill-prepared for the transfer. Criticisms from civil society organisations and research institutions highlighted the challenges of over-centralisation and the private sector-driven nature of BOTT contracts. Additionally, community-based management, represented by NGOs like the Mvula Trust, faced rejection and criticism from water service authorities, creating historical resentment in the water sector (Buthelezi, 2006).

2.4 COMMUNITY-BASED MANAGEMENT MODELS AND APPROACHES

COWA is a form of decentralised water management that involves the participation and empowerment of local communities in the planning, implementation, operation, and maintenance of their own water systems, which can offer several benefits:

- Enhancing the sustainability and resilience of water systems by reducing dependency on external actors and resources.
- Improving the affordability and accessibility of water services by tailoring them to the specific needs and preferences of communities.
- Promoting social and environmental justice in water allocation by ensuring that the rights and interests of marginalised groups are respected and protected.
- Fostering the social cohesion and empowerment of communities by strengthening their collective identity, agency, and ownership of their water resources.

However, COWA also faces several challenges:

- Lack of adequate technical, financial, institutional, and human capacity to design, construct, operate, and maintain water systems.
- Lack of clear legal and regulatory frameworks to support and protect the rights and responsibilities of COWA actors.
- Lack of effective coordination and collaboration among different stakeholders, such as government agencies, NGOs, the private sector, and other communities.
- Lack of sufficient monitoring and evaluation mechanisms to ensure the quality, efficiency, and accountability of water services.

Several community-based management models can be considered for stand-alone rural water supply schemes. Lessons are drawn from historical publications and informal conversations regarding rural water schemes. In addition, recent developments and attempts at developing both self-supply and collaborative management options are considered. Small case studies are provided as examples.

This section considers two water service options. The first involves a community operating a small water supply system (self-supply) without the involvement and support of a water services authority, that is, a municipality. The second option involves a municipality taking responsibility for the

construction, operation, and maintenance of a water scheme in collaboration with a community-based institution. Our working definitions are summarised below.

2.4.1 Self-supply

Despite the rapid extension of public service delivery since the end of Apartheid, many rural citizens in South Africa still rely on their own initiatives and infrastructure to access water. They construct, improve, operate, and maintain infrastructure of different complexities, from individual wells to complex, collectively owned water schemes. While most of these schemes operate without legal recognition, they provide essential services to many households (Hofstetter, van Koppen, & Bolding, 2021). Lessons learned from studying such schemes as locally adapted prototypes have the potential to improve public approaches to service delivery.

These self-supply options show the willingness of community members to engage with service delivery and their ability to provide services in cases where the state has failed and where bulk supply options for water provision are constrained. They also provide pointers and learning for collaborative and community co-management of state-supplied infrastructure, something that is crucial for efficiency, equity, and long-term sustainability.

Self-supply is 100% user-funded, governed, and operated. A community-based and informal organisation is usually established to deal with governance and operational matters. Water infrastructure is provided on an incremental basis. Users decide on the most appropriate technology, financing arrangements, cost-recovery strategy, and type of services they want. Spring-water protection and small piped water schemes that use gravity to feed small reservoirs are preferred options.

Historically, a **blended self-supply approach** was mainly promoted by NGOs and international donors in the community water space, which allowed for funding support for the water schemes. For instance, a rural community would seek support from an outside development agency and usually an NGO. Such an NGO would engage community stakeholders, conduct an assessment, confirm water as a priority need, and prepare a funding application for submission to national and/or international donors. A community-based water institution would be established when funds had been secured in preparation for implementation. A community-based water institution would be trained and capacitated to assume some project management roles as well as operations and maintenance roles post-project completion. The water infrastructure would be managed by a community-based water institution. However, this approach was more appropriate for small rural communities. This approach is yet to be tried by municipalities.

2.4.2 Co-managed water supply options

Collaborative/co-management water management between communities and mandated government stakeholders presently has no legal, structural, or process underpinning, but does happen on an ad hoc basis depending on the personal interest, involvement, and commitment of both government officials and community members and their institutions. There is a growing movement towards developing guidelines, procedures, and case examples towards institutionalising these approaches.

CHAPTER 3: GUIDELINES

3.1 APPROACHES AND METHODOLOGIES

These guidelines promote an alternative institutional mechanism that is built on multi-stakeholder dialogue, action, and accountability at the village level. In this document, we have coined the concept of *village water dialogues (VWD)* to describe an alternative and decentralised mechanism for delivering water services to rural communities. It is an attempt to promote a management mechanism that would see rural communities collaborating with public organisations.

VWD is a non-confrontational advocacy approach that empowers communities to engage directly with the representatives of public organisations to improve the quality of water and related services. VWD is action- and solution-oriented, where all parties agree on ways to improve water services and social accountability indicators. It is based on the notion of active citizenship, where citizens and public organisations hold one another accountable in matters of public service. There are three main phases of VWD:

- The first phase is concerned with community education on citizens' rights and corresponding responsibilities, water sector stakeholders, and public service communication platforms. This phase is also concerned with strengthening the institutional capacity of communities to engage with public organisations. **The main outcome of this phase is an empowered water community representative institution that is capable of engaging in a constructive dialogue with public organisations on matters that are related to water services.**
- The second phase is the heart of VWD. A community representative structure engages with public organisations and finds a sustainable solution to resolve water problems in a community. There are two main outcomes of this phase. **The first outcome is a well-packaged water project and action plan. The second outcome is a social accountability plan, which defines and assigns roles and responsibilities of community members in making a water project successful and sustainable.** Cost recovery is a key component of a community accountability plan.
- The final phase is concerned with the implementation of a water project. During this phase, community members monitor all the processes involved in the implementation, operations, and maintenance of a water project. **The main outcome of this phase is a sustainability plan,** the main focus of which is a sustainability plan for the conservation and protection of water sources and includes the requirements that water supply systems should cause little or no harm to the ecosystem and should ensure that the needs of future generations are not compromised. Therefore, a water system is deemed sustainable when it does not over-exploit the water resource, and the system is protected to avoid water contamination. In addition, a community-managed water system is sustainable when it is able to recover operational costs and is properly operated and maintained to supply adequate uncontaminated water to the users.

The activities proposed in these phases are essentially aimed at re-integrating community-based management models into rural water services provision. This call to re-integrate community-based management is influenced by the fact that communities with limited or no access to safe and reliable water services are, in most cases, voiceless and unheard, and consequently revert to alternative water sources, which, in many cases, are polluted. This leads to municipalities transgressing their constitutional obligation to supply safe and reliable water to their citizens. These guidelines aim to promote decentralised water management and fit-for-purpose rural water systems. A VWD approach is employed to facilitate the reintegration of community-based management in rural water-supply programmes.

3.2 GOVERNANCE CONSIDERATIONS

3.2.1 Community level involvement

All members of a community are expected to make use of the provided infrastructure and water access responsibly. For this to be possible, all community members need to:

- be considered in terms of their needs,
- be informed about the technical aspects of the system's operation,
- understand the implications and limits of access and availability of water,
- know and agree to the management and operational confines of the system, and
- be willing to follow the rules set in place for quality, management, and use of water.

The above can only happen if every member of the community takes some individual responsibility and considers the impact of their actions on their neighbours and the community. In larger and more urban communities, individual behaviour is controlled primarily through payment for specific services and access, with associated regulations. In rural and informal communities, this system of control does not exist. This can lead to high levels of inequity, competition, abuse, and mismanagement of water supply systems.

The temptation is to attempt to enforce payment and regulation of services. The solution, however, lies more in the full participation of all community members in every phase of the process.

3.2.2 Guidelines for community-level engagement

- Community members need to be engaged in initial baseline, vulnerability, and feasibility assessments for proposed water supply schemes.
- Community members need to understand water access options, water sources and availability, and water use implications for their village.
- Community members need to be provided with information to be able to assess the proposed scenarios for the development of water access options.
- Community members need to be provided space for learning and analysis of concepts related to water management in their areas, including, for example, climate change impacts, rainfall and water infiltration, groundwater and groundwater management, water quality for drinking and multipurpose use, technical aspects of proposed systems, solar energy, water purification options, water use and conservation, etc., so that they are better able to make informed decisions.
- Community members need to develop an understanding of water provision as a service with the potential for different levels and sources of access for different purposes and different levels of access to this service, dependent on financial and other contributions.
- In complex programmes, scenarios for different water provision options are developed. These are refined in the planning and implementation phases, and yet further changes can occur during the contractual and commissioning phases. Expectations are raised in each phase, and community members often remember well what was promised at the beginning. This process requires careful explanation on an ongoing basis. NOTE: the temptation is for the service providers to not provide detail or make specific 'promises' to avoid the resultant conflict, but the better practice is to explain the changes and difficulties as the process unfolds, which despite being a lot more intensive, has the advantage of also increasing community level understanding of the issues and problems involved and this level of transparency builds trust and rapport between the role players, as well as a level of accountability in expenditure.
- Community members need to engage with and negotiate all parameters of the scheme to be able to take responsibility for further operation, management, and maintenance.

- Community members need to be involved in decision-making on a day-to-day level and in the selection/election of local water governance structures/committees. They need to be a part of the process of decision-making around beneficiation and equity.

3.2.2.1 Assumptions:

One can make some assumptions about how individuals in rural communities will behave, based on past experiences in engaging these communities in designing, planning, and implementing local water access options, rather than being the passive recipients of externally designed and implemented water supply systems. These experiences have shown that:

- Community members are willing and able to participate.
- Community members are willing to volunteer their time, labour, and money towards ensuring a functional water system.
- Community members are committed to ensuring that their water supply system is operational and looked after.
- Community members are willing and able to make rational and considered decisions around water use and management if provided with appropriate information on which to base such decisions.
- The actual level of involvement in the operation and maintenance of the system is a choice for community members. Some members participate by voluntarily following the rules, and others are more involved in the management of the system.
- Levels of water access need to be equitable and transparent.

3.2.3 Guidelines for local governance structures

At the community level, arrangements are more often than not already in place, although they would be considered informal. Often, these arrangements will not fulfil the requirements of the Water Service Authorities but provide for a level of stability and equity within the community.

Water committees are voluntary structures and, as such, have two major weaknesses:

- Members do have a certain level of authority within the community, but are not able to effectively police any rules. They cannot control or officially/legally enforce any of the rules agreed to by the community. As such, informal arrangements are developed. Often it relies on community members contributing in time and in small regular payments to an agreed activity, such as water infrastructure maintenance or borehole pumping costs, for example. The committee keeps records of those community members who pay and those who do not. Generally, those community members who resist the rulings or do not pay are considered not to be part of the process, and their opinions, complaints, or difficulties are then not taken into account.
- Members of committees can take advantage of their authority to improve their own benefit, often justified as a form of compensation for their efforts. (On a positive note, this process, if managed transparently, can actually assist in providing for longer-term sustainability of committees, as it provides some benefit to the committee members who often have to deal with many problems, conflicts, and complaints on an ongoing basis.

At the village level, this is a manageable beneficiation system and can allow for a stable and ongoing operational system, without too much conflict. There is, however, a chance that vulnerable households and individuals are excluded from a service that should benefit all community members. Households with very high levels of poverty are more often than not also households where members engage in socially high-risk and unacceptable behaviours, which ostracise them from the rest of the community. Other prejudices may also surface, especially around unmarried women with children and 'foreigners'. It is proposed that this process be externally facilitated, as it is unlikely that communities themselves will design fully equitable systems.

Traditional councils can fulfil a valuable function of oversight, providing coherence and conflict management support at the community level. This has not traditionally been one of their functions, but can fit well into the suite of functions, services, and support they provide to their communities. Such ideas, however, will need to be negotiated and institutionalised.

3.2.4 Local water committees

Care needs to be taken to ensure that these committees are well represented and should include representation from:

- The traditional ward councils.
- The local ward councils (local municipality).
- Local representatives of the Water Service Authority and providers.
- Members form local development structures and interest groups, including, for example, the livestock association, development committees, farmers associations and groups, cooperatives, churches, schools, and creches.
- Local household members, both with access to individual water supply options (like boreholes and springs) and without.

These committees need well-developed constitutions with roles and responsibilities outlined therein. They also need to have arrangements in place for operations and maintenance of the water service in their village, as well as the security of the infrastructure.

Security concerns for infrastructure are a reality and something that water committees will invariably need to deal with. Local security arrangements are important and are already more commonplace, both for infrastructure and for livestock. In some villages in Giyani, including Mayephu, 24-hour patrols have already been put in place to monitor and control theft. It is foreseeable that these patrols can also undertake monitoring of the water infrastructure within the same broad system. In other villages, households closest to the infrastructure are tasked with 'keeping an eye out' and are assisted by the water committees, or guards are appointed and provided with a stipend collected from community contributions.

3.3 INSTITUTIONAL ARRANGEMENTS FOR OPERATION AND MAINTENANCE (O&M)

O&M is sometimes thought to be a simple technical issue that is easy to resolve. Yet as the persistent breakdowns in water supply systems in many villages illustrate, adequate O&M relies on a surprisingly complex set of organisational functions and competencies. Suitable human resources, access to the right tools, an inventory of spare parts, reliable transport, mechanisms for reporting breakdowns, accountability frameworks, and assured, regular funding are all vital (SADC-GMI, 2020).

O&M includes regular tasks such as replacement of worn parts, refuelling, servicing, cleaning and monitoring, as well as dealing with irregular breakages, outages, and malfunctions. Long-term, successful O&M needs suitably skilled and motivated personnel and depends in turn on a set of institutional and organisational systems that are viable financially and politically (SADC-GMI, 2020).

There are many factors that determine the quality of O&M. The main ones are the quality of staff, access to dedicated O&M funds, and the quality of records and analysis of information.

Technical and operational procedures for ongoing management of the water supply systems are being and should be designed and outlined by the institutional role players in water service provision. The question here is how communities engage in this activity.

It is assumed by both local beneficiaries and waste service providers that communities can undertake day-to-day O&M tasks. Community members are the first to state that they can and already do undertake simple and low-cost maintenance activities to their water schemes by themselves. These include actions such as replacing leaking taps, fixing leakages in pipes, and replacing or adding valves. Communities also willingly manage water distribution aspects, such as switching pumps on and off and opening and closing valves to supply different sections of their villages with water.

They falter, however, where faults are more technical in nature, such as when pumps do not function well, or break, or when there are faults in the electrical or fuel-supply systems. Replacement of filters and other spare parts is also problematic, mostly due to a lack of access to these. Good working relationships with the technical and institutional partners are critical for these aspects.

The basic principle, as outlined already, is that everyone needs to be engaged, even if only at the level of closing running taps or reporting leakages or issues to the water committees and scheme operators, as well as in following prescribed procedures for access. These activities all fall within corrective maintenance actions and are demand-driven, rather than preventative. For the latter, a high level of proactive planning and collaboration between stakeholders is required.

3.3.1 A note on cost recovery options

Sustainable infrastructure projects must generate a sound revenue stream based on adequate cost recovery and be supported, where necessary, by well-targeted subsidies (to address affordability). Users' willingness to pay for O&M and the development of suitable tariffs are central to the ongoing sustainability of a water supply system.

Tariffs usually contain two charges: a charge that depends on the volume of water used and one that does not, for example, connection fees, ad hoc maintenance fees, and the like.

From discussions with local water committees in Giyani, members are confident that monthly fees from users are an option. The value of such fees should, in their opinion, not be higher than R20 per user per month, given that most households in these villages are extremely poor and unemployment levels are very high. This is clearly not a full cost-recovery option, but it can assist greatly in overall sustainability.

Regular monthly payments by all households in a village are, however, logistically problematic, especially for larger villages. Generally, ongoing financial contributions for groups larger than 20 to 30 members become unwieldy, with high levels of effort spent on policing, and the resultant conflicts often lead to failure of the process. Below are some suggestions on how this can be managed:

- Monthly contributions by households are recorded by the water committee, and those who do not pay are regarded as non-participants and not supported when they have water-access difficulties. This is an existing system in some of the villages and is accepted and manageable, but has the distinct drawback of excluding vulnerable households.
- Divide the village into sections with smaller numbers of households and manage monthly contributions and access per section. With this approach, each section can be provided with a target value of monthly, weekly, or daily financial contributions to allow for access. The decentralisation of this system is a strength, but defaulting can still cause major difficulties. Cross-subsidisation for poorer households is, however, an option.
- Use of local savings mechanisms to allow for regular payments. The large majority of rural households belong to a range of informal savings groups, such as stokvels and funeral groups. Local savings and loan associations are an extension of this practice, which allows for improved

cash flow and accumulation of funds for specific uses. The strength of these groups is that they are voluntary and generally well-established in rural communities. The drawback is still that vulnerable households are excluded and that these groups require some level of external facilitation and policing to remain well managed in the longer term.

Thus, the main question becomes one of how equity and the right to water can be ensured for vulnerable households. The logical option is that those households with the ability and resources to secure larger volumes of water for themselves cross-subsidise those who cannot. This approach would entail tariffs set at the village level related to the volume of water accessed.

3.4 RECOMMENDATIONS FOR WATER SERVICE PROVIDERS AND AUTHORITIES

Several participatory instruments and guidelines have been championed and developed by the Department of Water and Sanitation (DWS; previously DWAF), the Water Research Commission, local water NGOs, and international water development agencies. The purpose of this section is not to reinvent the wheel, but to point out the most important components of community-based management approaches to water services:

- Focus on creating an enabling environment for communities to engage with municipalities on non-confrontational terms.
- Align municipal and water services policies with community-based management approaches.
- Simplify the roles and responsibilities of community-based water institutions.
- Provide incentives and design financing mechanisms by municipalities to promote community-based management.
- Develop community educational materials on water and sanitation, resource management, water protection and conservation, demand management, and water quality management, etc.
- Develop non-punitive policies that support community-managed water service provision.

The full engagement and participation of local communities is also impacted by how the water service stakeholders and institutions interact with them. Below are some broad recommendations for management of these relationships:

- Local-level governance systems must be respected but also interrogated in terms of acceptable levels of provision for equitable access to water in the community.
- Governance committees and the community as a whole must be engaged in making access arrangements more equitable.
- Community engagement must be broader than just the committees and operators at all stages of the discussion: feasibility, design, implementation, operation, and maintenance.
- Committees should be well represented – traditional authorities, local government councillors, and active water users in the areas, such as crop and livestock farmers, and individuals who can represent more vulnerable groups in the village.
- Institutional engagement in punitive measures for those who have informal or illegal connections is unlikely to have a positive outcome.
- Hoarding of water and water provision options by those households that can afford it and have power within the community should be dissuaded. Here, a 'user pays' arrangement can potentially be negotiated. At the very least, they should not have more access to communal water than everyone else in the community.
- Payment for water use in excess of an agreed amount can be used towards setting up a community-level fund for maintenance and operations.
- Ongoing monitoring of water levels, specifically for borehole schemes, with a coherent system of reporting, is important. In this respect, the provision of dip meters will be required. Scheme operators need to have someone to report to who can make decisions regarding use, over-use, and remedial actions that can be taken.

CHAPTER 4: CASE STUDIES

4.1 CO-MANAGEMENT OF WATER SUPPLY SERVICES

4.1.1 Preamble

In light of the Water Services Act, which obligates municipalities to provide safe, quality, reliable, and affordable water (and sanitation services), there were no other avenues for water services provision mechanisms outside the ambit of municipalities. The recent update of the National Water Act has now legalised public-private partnerships and self-supply options. The exact mechanisms for such co-management options still need to be developed and put in place.

The approach taken in these guidelines is thematic: community participation and community-based management. Community participation is different from community-based management, and in fact, community participation is a forerunner for community-based management. In putting together these guidelines for the provision of reliable water services for rural communities, we need to build on what is already there and already happening. On the morning of the 26th of January 2024, uKhozi FM allowed listeners around the province of KwaZulu-Natal to share their experiences regarding access to water services. Callers complained about non-functional piped water schemes and dry borehole hand pumps. Some said they were competing with livestock for dirty water in rivers, streams, and springs. Such experiences demonstrate a tension between the expectations of communities and municipalities. Communities expect municipalities to make water schemes work and to provide water services to unserved communities. Municipalities expect communities to be patient while they fix water provision problems.

Failure of local government platforms to engage with communities has transformed communication between municipalities and communities into a battlefield around broken service delivery promises. However, tensions between communities and municipalities can be managed better. The focus should be on building sustainable alliances between communities and public organisations (municipalities and NGOs) charged with water service obligations to work together in finding lasting solutions.

In an ideal world, communities initiate water development dialogues (engagements) and call for outside support only when they require specialised expertise and capital investments. However, the reality is that platforms of engagement do not provide alternatives outside the local government system. It would appear that communities have given up on municipalities. This experience presents a new opportunity. Non-state organisations such as NGOs, are better positioned to facilitate VWD between municipalities and water-distressed communities. Many lessons can be drawn from the pre-1994 era, and just before responsibility for rural water schemes was transferred to municipalities.

4.1.2 Analysis of effectiveness

Mogane-Ramahotshwa (Mogane Ramhotshwa, 1995) Conducted action research between 1989 and 1993 in three community-managed rural schemes: Relela in Bolobede in the former Lebowa, and KwaHlophe and KwaNyuswa in Ndwedwe in the former KwaZulu. Other examples are the Nhlungwane rural water scheme in uMsinga in KwaZulu-Natal (Mvula Trust, 2002; The Water Wheel, 2004), and the Mnywaneni rural water scheme in Donnybrook in KwaZulu-Natal (Mvula Trust, 2002). The success of these community-managed rural water schemes provides a base for re-integrating community-based management approaches into rural water services.

Mogane-Ramahotshwa (1995) also highlights the challenges associated with community-based water supply projects, drawing the conclusion that participation and negotiations in such projects can be time-consuming and frustrating for water-starved communities. However, successful outcomes have been observed by other implementers in self-initiated projects where communities, with strong support from development agencies, mobilise financial contributions and take ownership of construction, operations, and maintenance.

The Mvula Trust and Built Environment Support Group (BESG) provide examples of the successful mobilisation of community contributions, particularly in the context of water and household sanitation projects. The core idea in these projects revolves around community-managed water supply services, where communities have control over the management of their own water resources. This includes governance, operations, maintenance, and the establishment of water funds for future upgrades.

The self-supply mechanism encompasses fully user-funded water schemes or blended approaches involving collaboration between state organs and community institutions. The emphasis is on the long-standing practice of community-managed water supply that predated the system of integrated water resource management. This approach involves the active participation of water users in decision-making, policy formulation, cost-recovery, maintenance, and creating funds for future improvements. External development agencies play a crucial role in this model, partnering with community institutions to provide support in institutional strengthening, capacity building, financial resource mobilisation, rule enforcement, and water education programmes. Collaboration among stakeholders is crucial, recognising that communities are essential players in the sustainable management of water services. The key insight here is that a sustainable rural water system is achieved when communities, through their representative structures, mobilise household contributions and maintain a sufficient water fund for operational needs, maintenance, and future infrastructure investments. The lesson is that external development agencies should avoid taking total control of projects, as this risks weakening community participation and ownership. Instead, these agencies should promote shared decision-making with community institutions to foster successful and sustainable water supply initiatives.

4.2 MNYWANENI COMMUNITY WATER SUPPLY CASE STUDY

An example of the co-management of water supply services that began prior to 2000.



4.2.1 Description

The Mnywaneni Community Water Supply was implemented 22 years ago under the auspices of the Mvula Trust. This NGO was established in 1993 in response to the collapse of homeland government administrations and was established to provide safe and adequate water.



Figure 1: Pictures showing communal standpipes set up by Mvula Trust and a private yard connection subsequently undertaken by some of the households themselves (illegal connections)

The Mnywaneni Community Water Supply project was commissioned when the community had approximately 80 households. Today, there are about 150 households. This project is located north-east of Donnybrook in KwaZulu-Natal. The Water Services Authority is the Harry Gwala District Municipality, which is headquartered in Ixopo. Since 2001, the project has been functioning without interruption. It sources water from a spring located above the village. Water is gravity-fed to a 10 kL ferrocement reservoir, which feeds communal standpipes. Before the scheme was transferred to Harry Gwala District Municipality, the Mnywaneni Water Committee took full responsibility for the operations and maintenance of the scheme.

The Mvula Trust used a participatory development approach. The main features of this model include the following.

- Mvula Trust conducts a needs assessment process in the community and establishes a temporary and voluntary community-level committee to facilitate communication during the proposal and project development phase.
- When the feasibility study is approved, Mvula Trust asks the community to commit to making financial contributions towards the construction costs of the project. This community contribution is reflected in the funding proposal.
- On approval of project funding, Mvula Trust facilitates stakeholder engagement as well as training and capacity building sessions to prepare the local water organisation for participating meaningfully in the project. The local water organisation takes some project management roles and specifically manages project funds, establishes a labour desk for local labour procurement, and pays service providers (material suppliers, consulting engineers, contractors, and social consultants). Project funds are disbursed in tranches to the bank account operated by the water committee. Books/transactions are audited by Mvula Trust before another tranche is disbursed into the water committee's account.
- The project design is discussed with the community in terms of water source, reticulation network, number, and location of standpipes. Standpipe wardens are elected by the community, and usually, wardens are women who live closest to communal standpipes. Standpipe wardens offer their

services for free. Each warden keeps the key for the standpipe, and every day at a specified time, the warden opens the standpipe for the people to come and collect water.

- Para-technicians (caretakers) are recruited and trained during the construction phase of the project. They are given in-depth training on operations and maintenance; for example, the exact location of valves, operating a diesel generator and pump, managing water levels in reservoirs, detecting water leaks, etc.
- Wardens are trained to keep the register and payment records for households that use a communal standpipe. The total money (service fee) collected is declared by each standpipe warden at a monthly water committee meeting. The treasurer deposits the total collection at the bank. A feedback community meeting is then held to: 1) present a monthly report, 2) seek community resolutions for adjustments that are proposed by the water committee, and 3) announce delinquent households and seek remedial action from the community. A flat rate is charged and is paid by the households every month.

4.2.2 Current Status

With the emergence of local government and the responsibility for water provision services shifting to municipalities, the role of local water organisations (water committees) diminished. Harry Gwala District Municipality (HGDM) appointed one warden/caretaker to replace all standpipe wardens. Payment for water services was replaced by free basic water. The ward committee, chaired by the ward councillor, took over some roles of the water committee.

The water scheme is still operational. The chairlady of the former water committee believes that the scheme would not be operational if it were not a gravity-feed scheme. She mentioned that the promised upgrades by the HGDM have not been forthcoming. She also believes that because their community is small, this has made it possible to resolve many challenges households face.

The community has three main springs located just above the households. Only two springs are used, and the other spring simply flows through the wetland to the main road.



Figure 2: Water from one of the community springs is ponding and forming a wetland on the side of the road

The HGDM improved an additional spring that gravity feeds to a 2 200 L plastic Jo-Jo tank. This tank only supplies a few nearby households and a few further households that can afford link in their own pipes for household-level taps. This is a common difference between work undertaken by Mvula Trust and work subsequently undertaken by the DMs. The DM has undertaken no consultation. Small

systems are put in with little to no consideration of households' distance to the scheme or to the amount of water provided, or even if it would be sufficient for the households there.

In another community, Erith Trust (KwaThathani) in the HGDM, the community water supply scheme that was commissioned in 2004 and upgraded in 2006 to supply about 850 households, has not been functioning for more than two years. It sources water from a borehole that was drilled next to the river. Electric pumps fed a large reservoir, with break-pressure tanks and pipelines leading to communal standpipes. Some of the failures of this scheme include some elements of vandalism (theft of ESKOM's transformer), illegal private connections, the effect of load shedding, high water demand from a single source, and an obviously under-designed scheme.

When one compares the two schemes, it may be concluded that Mnywaneni is still operational because it is a gravity scheme that supplies a small community of about 150 households. It has three powerful springs. On the other hand, kwaThathani Community Water Scheme feeds about 850 households from a single production borehole. Water demand is very high, and access to water has been unregulated for years since the water committee was disbanded. The community of KwaThathani has been getting water from alternative sources, which include a few springs, a river, and water tankers from HGDM. A sub-village has protected a spring and installed pipes that supply the few households that paid for spring improvement.

4.3 CASE STUDY 2: CO-MANAGEMENT OF WATER SUPPLY SERVICES: PRESENT PROTOTYPE DEVELOPMENT

4.3.1 GIYANI LOCAL-SCALE CLIMATE RESILIENCE PROJECT (GLSCRIP)

The GLSCRIP is a multistakeholder research and innovation process, funded by the Government of Flanders and spearheaded by the Water Research Commission with a focus on the Multiple Use Systems Model, the water-energy food nexus and introduction of appropriate technology and innovations into the water use systems of both community water supply systems and agricultural production projects in the Giyani area of the Mopani District Municipality(MDM), to demonstrate practical water-linked climate change adaptations at local level.

Programme partners include the Water Research Commission, the University of the Western Cape, MDM, DWS, and the local Water Service Authority, the Department of Agriculture, Local Office of the Premier, COGTA, Traditional Authorities, and NGO partners Tsogang, and AWARD, among others.

Implementation and innovation options were designed and implemented in nine sites: five community water supply options and four agricultural cooperative support options. Innovations introduced included solar systems for boreholes and reticulation, reverse osmosis for water purification, and drip irrigation and hydroponic systems for agriculture. Local-scale water treatment options were also explored.

MDF joined the team to integrate into this process the CCA framework that had been developed and to provide further thinking and options for local water governance systems within the water-energy-food nexus aspects of the programme. It was agreed with the primary implementers that the focus would be on Mayephu village (communal water supply) and on the Dzuvadzi youth organic agricultural cooperative (in Loloka village), to explore both adaptation options and local water management and governance.

At Mayephu village, the intervention consisted of two community-level workshops – one on climate change impacts and adaptive strategies, and one in the form of a community VWD. In addition,

homestead visits were undertaken to explore water access, water use, and livelihood options, and an analysis of the Mayephu water access management system was undertaken.

A set of guidelines was produced, alongside a few more in-depth documents to provide a prototype example of communities and stakeholders collaborating to develop a co-management system.

These guidelines highlight several process considerations, using the Mayephu community in Giyani as a case study.

The guidelines include:

- Descriptive definitions.
- Collaborative and co-management options.
- Policy alignment, norms, and standards.
- Multiple-use systems.
- Facilitation and dialogues.
- Governance.
- Equitable access and cost recovery.

4.3.1.1 Collaborative and co-management options

Collaborative and co-management options for management of water access presently include a range of options that are supported informally at the institutional level, depending on the will and orientation of local officials. These include, for example:

- Liaison with ward councillors regarding implementation and management of state-provided infrastructure.
- Employment of local operators through the WSA who are managed at the local level by village-level water committees, often linked to the ward councillors and/or the traditional council, and a voluntary water committee.
- Ad hoc maintenance of infrastructure at the community level through these voluntary water committees that include community contributions and local-level maintenance.
- Organisation of the local communities into management areas or sections to effect more participatory maintenance and management.
- Various levels of self-supply options that include individuals and groups.

There are many positives to communities getting involved in water management, but this 'involvement' brings with it several challenges. These challenges are not only of the community's making but are often entrenched in socio-political and governance systems (Nortje, Mbhele, Polasi, & Zulu, 2022). Presently, municipal WSAs are primarily concerned with communities taking more responsibility for the operation, maintenance, and efficient use of infrastructure provided, with a secondary concern of cost recovery mechanisms for longer-term sustainability. Communities are concerned about access to sufficient water for domestic and productive use, and as such, have shown a remarkable willingness to be more involved in the co-management of water supply options. Self-supply options, both on an individual and group level, are already very common in many underserved rural communities in South Africa, and in Limpopo (Hofstetter, van Koppen, & Bolding, 2021), including Giyani.

Insight Despite the desperate need and strategic intent for community participation, collaboration, and co-management around water access and service provision in underserved rural areas of South Africa, legal and institutional frameworks do not yet allow formalisation of these options.

The following are important principles that must be considered and implemented if communities are to play a role in their own water management.

- Communities need to be given a voice in making decisions regarding their own water.

- Mobilisation of communities should happen from the very start of the endeavour and not only in the use phase.
- Communities and authorities both need to recognise that communities should have co- or complete ownership of the scheme and the responsibility that goes along with it.
- Different stakeholder input and support is required through the different phases of the intervention and through its life cycle.
- Co- or complete ownership requires the community's commitment to take responsibility for the operations and management of the scheme and its infrastructure.
- Researchers and implementers of such schemes need to learn from the past and build on it to create greater odds for success.
- For communities to be able to operate within the boundaries of the law to ensure accountability and transparency, a review of key governance processes, structures, policy, and legislation is needed in South Africa.

4.3.1.2 The Mayephu facilitation and engagement process

A civil-society-based facilitation team (AWARD, MDF, and Tsogang) undertook a range of focus group discussions, community meetings, village walks, and semi-structured interviews to gain a working understanding of the water system, multiple-use options, and livelihoods in Mayephu village. Care was taken to include a range of respondents in these processes, such as the traditional councillors, system operators, village water committee members, farmers, cooperative members, and community members.

Community-level meetings and dialogues were focused first on climate change, both impact and adaptive strategies focused on water (sources, availability, access, and use), and then on governance and equity within the present and proposed systems. Sessions also included information sharing, short learning inputs, and analysis of the water system components, both from the institutional and community perspectives.

The NGOs have played an information and perception brokering role by reporting community perspectives and processes at a range of multistakeholder forums that included project teams, institutional, and academic role players. The NGOs also relayed information from these forums back to communities.

4.3.1.3 Policy alignment, norms, and standards

National norms and standards for domestic water and sanitation services were reviewed and updated by DWS in 2017 (DWS, 2017). Municipalities have been dealing with a diverse range of water service provision systems, both urban and rural, leading to confusion and the need to update norms and standards.

Around the same time, the National Water Policy Review (NWPR) resulted in the prioritisation of access to basic water supply in the form of a yard tap to all households in the country, with consideration of water supply for both domestic and productive use. It is the responsibility of a WSA to ensure that "adequate and appropriate investments are made to ensure the progressive realisation of the right of all people in its area of jurisdiction to receive at least a basic level of water and sanitation services".

The norms and standards for levels of water services draw on the principles of universal access, human dignity, user participation, service standards, redress, and value for money. The principles of sustainability, affordability, effectiveness, efficiency, and appropriateness are also important in supplying water to a community. The model is outlined in Figure 3.

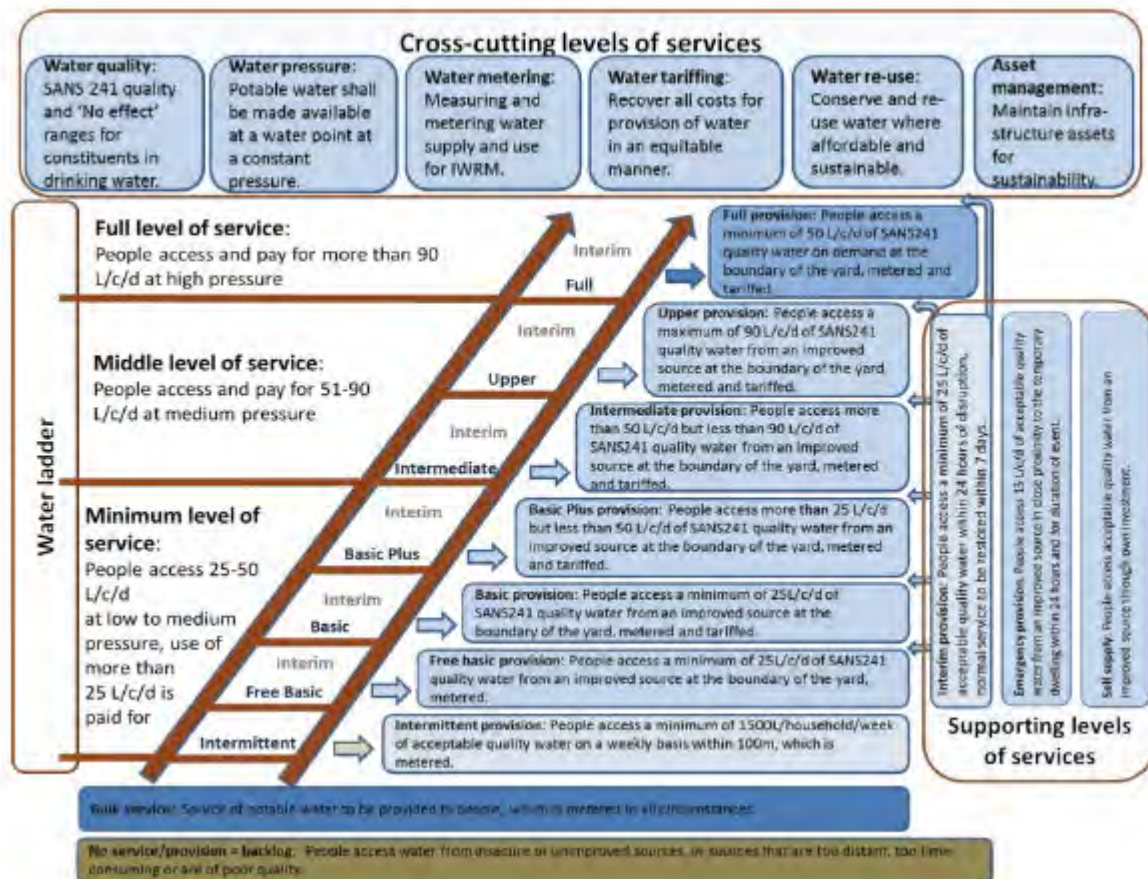


Figure 3: Water service level options as defined by the DWS, 2017

There are a few significant points in this model. First, there is now recognition of self-supply – a self-funded, self-managed option with oversight from the WSA. Actual involvement from the WSA is not provided for. This unfortunately means that implementation of community-owned water access models and processes is not guaranteed any follow-up and support from municipalities.

Despite continued mention of participation, no systems are yet in place to outline how this should be managed at local and district municipal levels. It is envisaged more as a mechanism to allow for care of and payment for provided infrastructure, rather than a process of collaborative and joint management. Second, a category of intermittent provision has now been added to the bottom of the service level and supply ladder – suggesting an amount of 1 500 L per household per week. This allocation allows for domestic use of around 25 L per capita per day and should be metered, but is not tariffed.

All other allocations in this water ladder, including basic (25 L per capita per day) to basic plus (25–50 L per capita per day) water is required to be measured and/or metered, meaning that there needs to be some system that records how much water is provided to each household. **Also significant here is the specification of water being made available at the boundary of the yard.** For Mayephu, this has the implication that the yard connections are not in fact 'illegal' but should be considered an improvement in line with the present legislation, as long as some system of metering is included. There is an expectation that this water will be tariffed. Water will not be tariffed for citizens who are considered 'indigent' – which is defined as earning less than R1 600 per household per month. These citizens need to be registered on the municipal indigency listings to be eligible for non-tariffed water.

Third, there is an expectation of payment for services for the Basic Plus water service allocation. It is expected that WSAs will set reasonable tariffs that will allow them to recover costs.

Importantly, improving the water mix is considered crucial in terms of management of scarce water resources and involves the increased use of a variety of water sources in addition to the current reliance on surface water. These include groundwater, water harvesting, water recycling, and the re-use of treated acid-mine water. For villages such as Mayephu, water harvesting and recycling need to be given a lot more attention.

4.3.2 Multiple-use systems

4.3.2.1 Definition of a Small-scale Multiple Use System

In the literature, productive use of water or water for beneficial use is defined as the use of water to promote economic growth and improve livelihoods, such as watering food gardens and livestock. The relationship between multiple livelihood strategies, multiple water uses, multiple water sources, and multiple benefits is summarised in Figure 4.

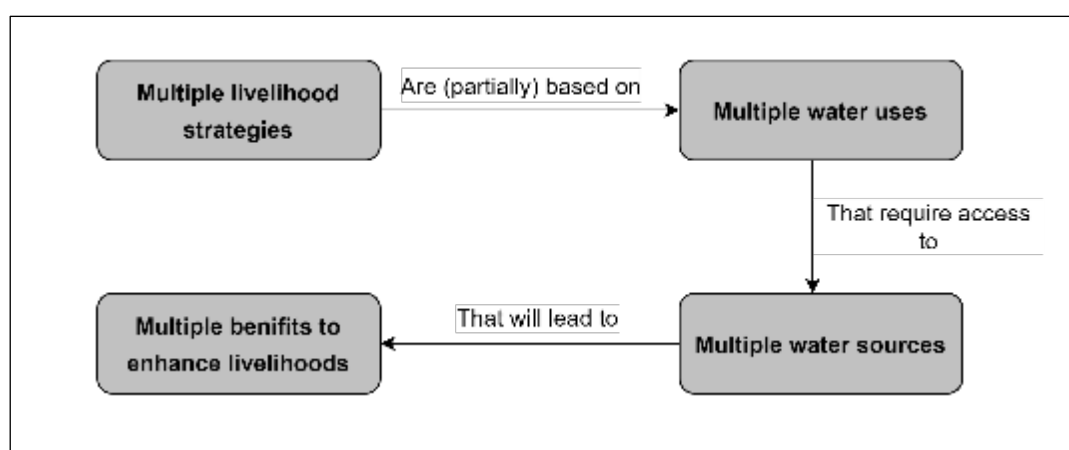


Figure 4: The MUS chain linking key components

Beneficial water use, on the other hand, does not necessarily result in economic growth, but it does add value to people's standard of living, such as the use of water for traditional/cultural and/or ritual functions. Water for both productive and beneficial uses is considered equally important. Multiple use is therefore the use of water for both productive and beneficial use, resulting in economic growth, improved livelihoods, and improved quality of life.

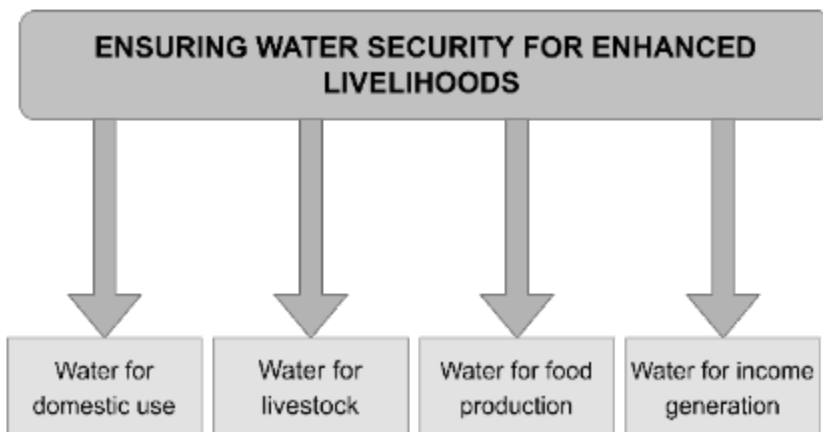


Figure 5 :The key components of a MUS

Based on Figure 5, a multiple-use system could include a backyard food garden, a car wash, water for religious events (e.g., baptism), or a small irrigation scheme. Hence, it is imperative to distinguish between the magnitude and scale of multiple-use systems. Further, it is important to distinguish between water consumption for commercial practice and water consumption for small-scale household practices.

Since there is no national definition for small-scale economic growth, for this report, small-scale multiple-use systems are defined as the use of water by the poor to reduce poverty, stimulate economic growth (sale of produce and provision of services), and to support a sustainable livelihood. It is in no way implied that small-scale multiple use excludes the householder from engaging in commercial activities. Rather, householders are strongly encouraged to use water for economic advancement. Water consumption for large-scale commercial use, such as commercial livestock farming, water for industrial use, etc., must comply with Chapter 4 of the National Water Act (Act 36 of 1998) and is not the main focus of the GLSCR.

4.3.3 Benefits of a Small-scale Multiple Water Use System Versus a Single Water Use System

The benefits of a small-scale multiple water use system over a single water use system are numerous and are well documented through various case study analyses. A single water use system only caters to domestic use, but a small-scale multiple water use system caters to the actual water needs of the community at a subsistence level. Some of the direct benefits of a small-scale multiple water use system are presented in Figure 6.

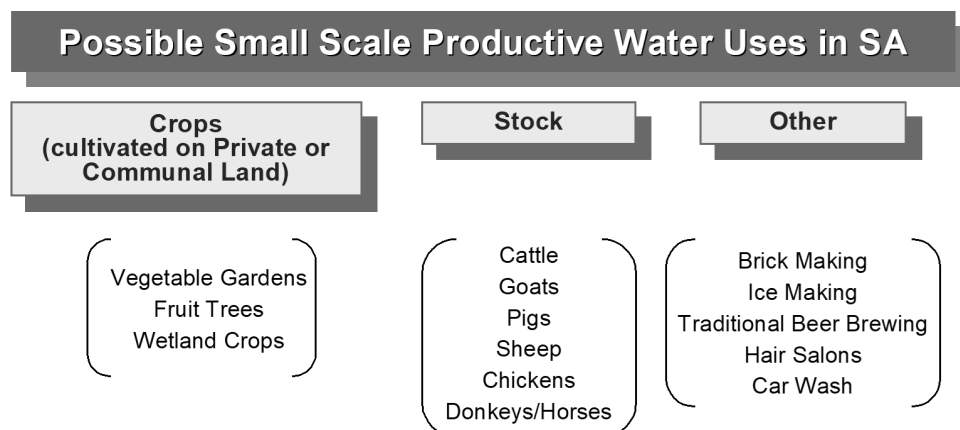


Figure 6: An indication of the scope of what can be included in water for small-scale productive use

4.3.3.1 The MUS water ladder and the domestic+ approach

The work of Renwick et al. (2007) and van Koppen et al. (2009) documents an approach that considers the scale of water requirements from water for basic domestic needs through to water for commercial needs. They call the approach Domestic Plus and depict the increasing levels of services as the MUS water ladder (see Figure 7).

The provision of basic water services is only the first step up the ladder of service provision as set out by the national government in the Reconstruction and Development Plan in 1994. While this is the most important and immediate priority, WSAs are expected to provide intermediate and higher levels of services (for example, water on site) wherever it is practical and provided it is financially viable and sustainable to do so.

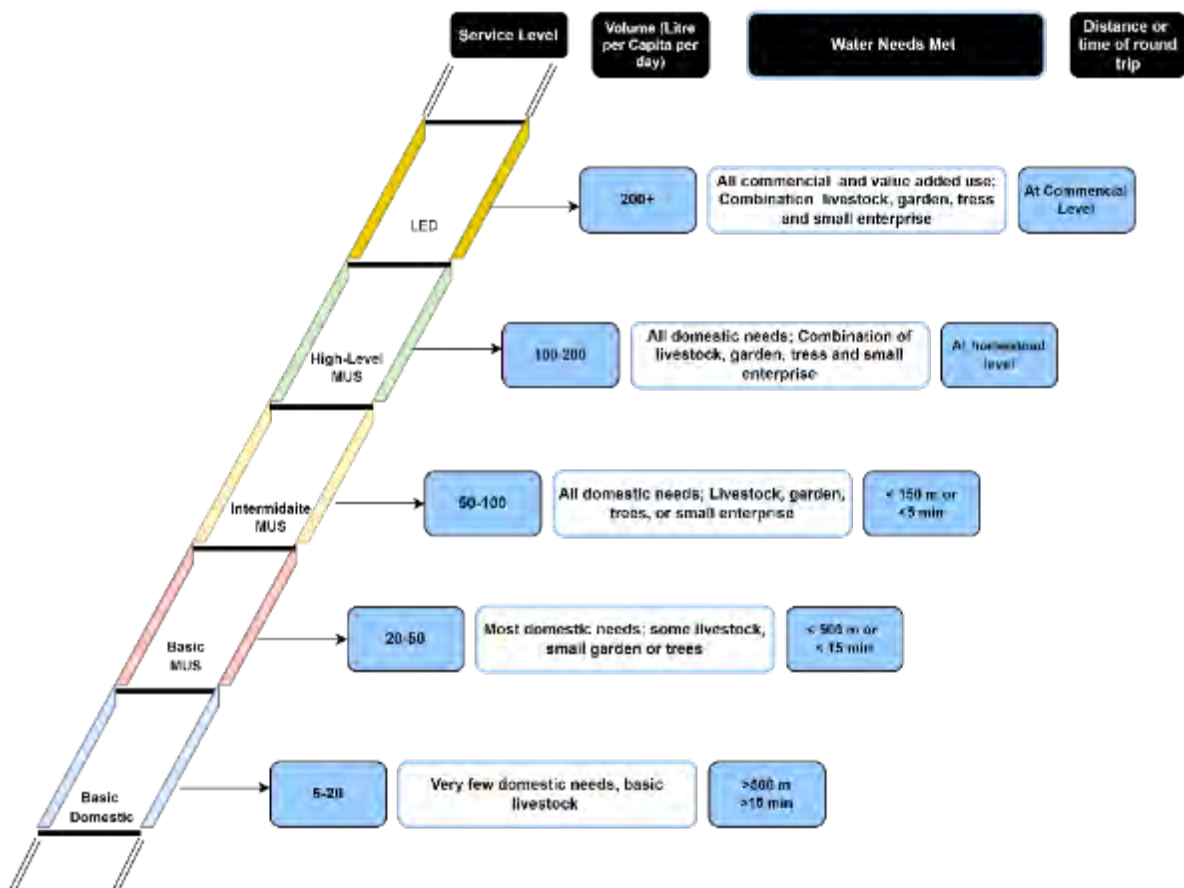


Figure 7: The Domestic Paus and MUS water ladder. Higher levels of service provide for more income options (stepping up the ladder) (Source: Renwick et al., 2007; van Koppen et al., 2009)

4.3.3.2 Multiple-use systems in Mayephu

In Mayephu, as in other villages in Giyani and rural communities in general, Municipal Infrastructure support focuses on basic water needs and aims to provide 25 L per capita per day. Community members use water for multiple uses, depending on their ability to access larger quantities of water (Van Koppen, Moriarty, & Butterworth, 2010). This generally occurs through using, via household storage and arrangements, larger proportions of the supplied water than the allocated 25 L, and through undertaking a range of self-supply options, including individual boreholes.

4.3.4 Background

Mayephu Village, situated in Dzumeri, Giyani, falls within Ward 27 of the Mopani District Municipality. This rural community has 365 households, with a total population of 1 940 people. The village's water supply has undergone significant changes over the years, influenced by climate change, infrastructural inefficiencies, and load shedding.

Until around 2007, water for Mayephu Village was sourced from the Letavi River through a bulk supply scheme. However, water shortages and supply unreliability emerged as challenges. In response, the community transitioned to a system that relied on three community-level boreholes, installed in 2007, 2016, and 2022, respectively. These boreholes pump water to a village reservoir, which is then

distributed through approximately 108 communal standpipes (Jovanovic, A., & Maswanganye, S., November 2022).

In addition to these communal water sources, around 120 households in Mayephu have private boreholes. Some of these boreholes predate the introduction of the bulk water scheme in the area.

4.3.4.1 Present Infrastructure

The GLSCRIP is intervening in the main water provision system in Mayephu that presently consists of two linked boreholes with water pumped to the 700 kL reservoir. Water is reticulated from there via mainlines to standpipes throughout the village. To improve the functioning of the system, solar energy has been set up as a backup to the present electrical pumping process, and a reverse osmosis plant is being planned to purify a much smaller proportion of the water for drinking purposes.



Figure 8: A view of the 700 kL village header tank in Mayephu and one of the boreholes supplying this tank fitted with electricity from both a power line and solar panels, for dual supply

This, however, is not the only water infrastructure in the village. There are two other boreholes with reservoirs that aren't presently being used but could still be functional. One of these reservoirs is leaking, and the other borehole is not working due to cable theft. Given the present insufficiency of water being supplied by the one functional system, the community raised the question of refurbishing these two smaller systems, specifically because the present system does not supply water equally across the whole village, and the more elevated section of the village does not get water if the present reservoir is not full.

For farming and livestock, individual farmers or cooperatives are expected to install their own water supply systems, and mostly have drilled their own boreholes. There is one small dam for livestock watering, where Tsogang has assisted by removing silt to improve the availability of water.

4.3.4.2 Water Use in Mayephu

The water supply system operates by filling the 700 kL village reservoir once a week. At present, due mainly to reduced capacity of the two main boreholes due to over-pumping, climate change, loadshedding, and other inefficiencies, pumping is done continuously for six days – Saturday to Thursday. The community is allowed to access water once a week on Fridays.

Water allocation and operation are managed by a 15-member water committee, including a pump operator employed through the Mopani District Municipality. The committee represents various stakeholders, including traditional and ward councils, cooperatives, and the livestock association. Households in Mayephu have adapted to this system by acquiring 25 L containers, 210 L drums, and 2,2 kL JoJo tanks to store water for the week. These containers are filled from standpipes or informal tap connections in their yards. It is estimated that there are close to 300 of these 'informal' taps in the village.

4.3.4.3 The water provision system

Within the community, people aren't aware of the pressure on the boreholes and focus on more pumping and more equitable distribution. They did, however, mention that a Municipal TLB caused a leak in the main pipe supplying the reservoir almost a year ago and that this has still not been fixed.

Water is accessed in different ways:

- Fetching from communal standpipes, using wheelbarrows and 20 L containers. This is extremely labour-intensive and also competitive, as queues are long and in one day, people need to fetch all the water they need for a week. (20% of households; **<25 L per capita per day**)
- Illegal yard connections for households with enough resources. From these taps, containers are filled, usually large basins, 210 L drums, 20 L containers, and buckets. This practice has been condoned by the water committee and local structures. Issues here are that these pipes often leak and that this practice (~80% of households) reduces water availability to the communal taps. Often, those collecting from communal taps need to wait for these households to get water first before water is available in the communal taps. (**25–50 L per capita per day**)
- Household Jo-Jo tanks, filled from the illegal yard connections or directly from communal taps. It is estimated that around 5–10% of the households in the village do this. In theory, it is not allowed, but in practice, the households that do this are the more powerful households in the village and are part of the Traditional Authority. They cannot be challenged directly and claim that everyone in the village is free to do this. (**>90 L per capita per day**)
- Individual boreholes at the household level in addition to household JoJo tanks and yard connections. (**>200 L per capita per day**)

The outcome is skewed access to water, with the poorer and more vulnerable households struggling to access even enough for basic human needs. There is not enough water supplied through the system to accommodate all the illegal connections presently in place.



Figure 9: Water access options in Mayephu village: communal standpipes, yard connections with some storage, private boreholes with more substantial storage

4.3.4.4 Water Use Practices

In reality, only households in Group 4, with their private boreholes, have managed to maintain reasonably sized household gardens (200–400 m²). Households in Group 3, with JoJo tanks filled from the communal system, often have smaller gardens (20–100 m²). Households in Groups 1 and 2 are less active with productive activities.

Irrigation practices in the gardens mainly involve hosepipes and buckets for adaptations of short furrow irrigation or drip irrigation. Householders are well aware of water salinity issues and have adjusted their crop varieties, watering routines, and soil management practices accordingly.



Figure 10: Examples of water use activities include diversified homestead food gardens, fruit production, and small livestock husbandry

4.3.5 Conclusion

Mayephu village practices an intermittent water provision supply option, effected and managed at a community level, to accommodate both decreased supply and provision of a stable, reasonably equitable distribution system in the community. Despite the challenges posed by climate change and water scarcity, community members are aware of water demand for productive activities and adapt their practices accordingly. The village's water use practices demonstrate a clear progression from no productive activities to household gardens, small livestock, and fruit trees, depending on the level of supply each household can organise.

Dryland field cropping, once common, has become unviable under current climatic conditions, pushing villagers towards more water-efficient gardening methods. While challenges persist, including equitable water access and addressing salinity issues, the community's resilience and adaptive practices are evident in their agricultural endeavours.

Although roof-rainwater harvesting is practiced by almost all households, this is not a focus, as storage options are very limited. Foreseeably, a greater focus and more support in this area could substantially improve the management of limited water resources in the village. Mayephu village's experience highlights the importance of sustainable water management and the integral role of water in supporting household livelihoods and local food production.

4.3.6 Community level engagement

4.3.6.1 Community water dialogues

During a community-level water dialogue, past and present institutional arrangements were explored. A community dialogue is a process of joint problem identification and analysis leading to modification and redirection of community and stakeholders' actions towards a preferred future for all. It is an iterative, participatory communication process for sharing information between groups of people aimed at reaching a common understanding and workable solutions. It emphasises listening and understanding and allows participants to express their own views and interests (Health Development Fund, 2017).

This workshop included members of the traditional council, the water committee, and around 50 community members. The process of exploration was reasonably informal – a list of prepared questions was discussed, allowing for further questions from both the facilitation team and the community, as they arose.



Figure 11: One of the community meetings/dialogues in Mayephu

4.3.6.2 Institutional arrangements

Below is a summary of some of the points raised and discussed during the community-level dialogue. The six-member water committee is a voluntary grouping that has been in place for a long time and consists of members of the traditional council and royal house, as well as elected members from the community. The committee calls meetings and responds to community needs and suggestions. They fix leakages and manage illegal connections, report back to the community, and assist in taking the payments required (although not recently). They also work with the pump operator as required.

In the past, payments to the municipality were managed by the traditional council. Everyone would be called to a meeting, and each household had a book that was stamped upon payment. Several households are allocated a communal standpipe, and these households contribute towards fixing the taps and pipes in their area/sections. The pump operator is the only person who has working knowledge of both the electrical and solar systems and who knows how much water is being pumped.

The traditional council liaises with the Giyani Local Municipality if there are water issues, and these concerns are relayed to the Mopani District Municipality, which is the WSA for the area. The Royal House is only involved if there is a crisis as their primary responsibility is dealing with community issues and conflicts.

The traditional council supports the water committee, but as there have not been major water issues in Mayephu, unlike other villages, this has not really been necessary.

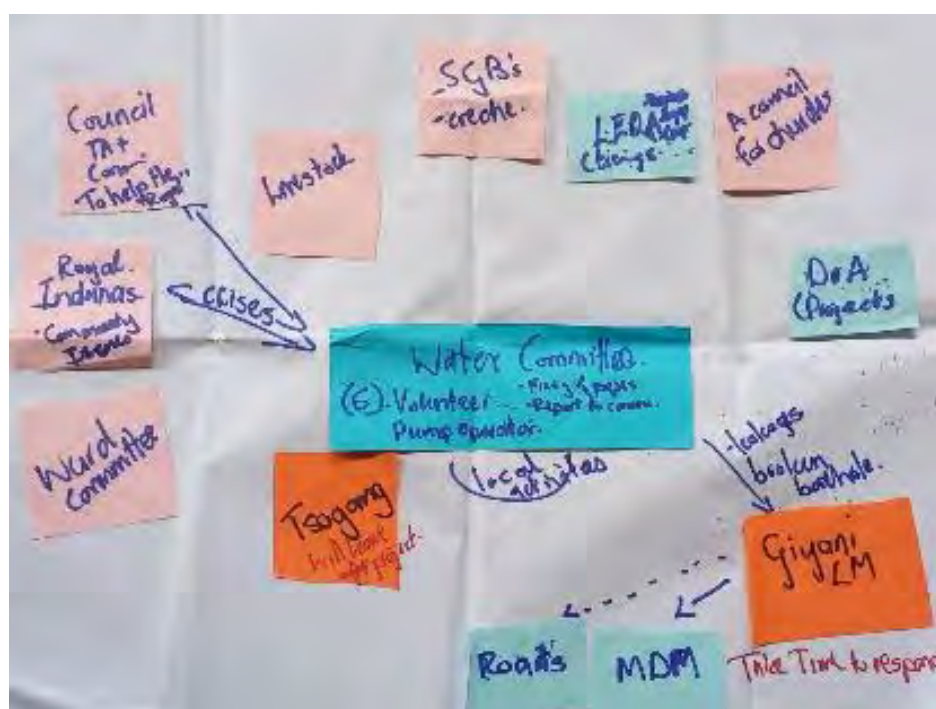


Figure 12: Venn diagram of relationships in the community around the water committee

The strong working relationships between the Royal house, traditional council, and the broader community in Mayephu have led to a stable, reasonably non-conflictual water access management system tailored to both the needs of the community and the constraints of the water infrastructure. Some of the biases inherent in this approach, however, are also visible here and include a lack of accountability and technical expertise, and the exclusion of disadvantaged community members (Hofstetter, van Koppen, & Bolding, 2021).

4.3.6.3 Payment for services

These discussions were held with the intention of exploring options for payments by community members for O&M of their system.

Although the community is aware that in towns people pay for water access, they would struggle to pay in these villages as people are unemployed and survive primarily off social grants, which are not sufficient for all their needs, as these grants also have to provide for their farming activities. Participants did, however, say that they could collect and contribute on an ad hoc basis for maintenance of the system, with items such as taps, pipes, valves, and broken pumps.

In the past, they paid R5 per month per household to the municipality for diesel for the borehole pumps. At that time, not all the households were paying, but those who did not weren't allowed water allocations for funerals. Despite the financial contributions, the Municipality did not maintain the system well as there were leaks and breakages that went unattended for long periods of time.

They were not open to discussing options such as using stokvels and savings groups as vehicles for payment for water services, believing that the system set up through the water committee and traditional council should be adequate for payments.

The group felt that it is the community's responsibility to maintain the infrastructure through day-to-day management and general maintenance. They admitted, however, that people in the community don't really take responsibility for this. They felt that those with illegal yard connections should, at the very least, ensure that their pipes do not leak, as this wastes a lot of water.

A community discussion around the reverse osmosis followed. Participants felt that although it could be good to have good quality drinking water, they have already been using this water and have not suffered any ill effects. The fact that this will be a separate system and that only small quantities can be provided was of concern, as they could not see a way that such a system could be equitable. Plans are to erect the Jo-Jo tank close to the main tank, so the same people who are already benefitting from more water will also benefit from having good-quality water.

4.3.6.4 Suggestions

In principle, the group agreed that those using more water needed to contribute financially.

The meeting suggested that those who have yard connections could be expected to pay, but not those households who need to fetch their water with wheelbarrows from the communal standpipes.

In general, the community needs to meet to outline the issues of which households have access to which standpipes and to even out the allocations so that everyone has access, before discussing contributions from the whole community. The latter is possible only if it is a small monthly contribution. An inventory will also need to be made of everyone who has Jo-Jo tanks connected to the water provision system and all those who have yard taps, to initiate the process of payment for improved access.

The solar system for the boreholes needs to be guarded, and a roster for this security will need to be set up – similar to the livestock security system already in place in the village.

Issues for consideration

- Refurbishment of two other smaller water provision systems in the village.
- Provision of taps for those areas of the village lacking communal standpipes.
- Introduction of valves to provide water to certain sections of the village consecutively.
- A water-level gauge for the main header tank to estimate weekly water availability.
- Dip meters for the boreholes to assess water levels and borehole recharge.
- Water quantity and equitable distribution – the 700 kL header tank can provide around 50 L per person per day to each of the ~1 940 people in the village. However, it is not known how much water is actually pumped every week, and distribution in the village is very skewed, with some only accessing 20 L per person per day and others accessing up to 100 L per person per day. A few households cannot access water directly and need to get water from neighbours. The community needs to design a management system that considers these issues and that provides more equitable distribution.
- Community members suggested that this dialogue has been extremely useful for them and that such discussions should happen more often. They appreciate the hands-on approach and feel that this is becoming more and more important because the government is failing them, and they need a better understanding to be able to take on some of these issues themselves.

CHAPTER 5: CASE EXAMPLES – COMMUNITY OWNED WATER SCHEMES

5.1.1 Preamble

A community-managed water supply service is an approach that gives communities full or limited control over the management of their water resources, whether it is for drinking, livestock, irrigation, or other uses. These guidelines focus on self-supply water services provision mechanisms. Within a self-supply mechanism, there could be a water scheme that is 100% funded, governed, and operated by the users. There could be a blended self-supply approach as well, where a state organ or an NGO and a community institution work together to provide water services to a community.

In both instances, community-managed water supply would essentially involve governance, operations, and maintenance (O&M) of a water system (or a water scheme). This approach has been in use since long before the birth of integrated water resource management. In this context, community-managed water supply services would pivot on the participation of water users with regard to policy making, operations, cost-recovery, maintenance, and building a water fund for future upgrades and/or major repairs to the scheme. A community water institution would need to partner with an external development agency to carry out the water provision mandate. In addition to the provision of water infrastructure, an external development agency would also carry out the following activities:

- Institutional strengthening that culminates in the establishment of a community-based water institution and meaningful participation of water users in decision-making platforms and processes.
- Training, capacity building, and supervision of community-based water institutions to govern and supervise the operation of water infrastructure.
- Mobilisation of financial resources, including setting up a cost-recovery system.
- Training, capacity building, and supervision of volunteers and/or staff to enforce rules such as cost-recovery and water sharing strategy.
- Provision of water education programmes, which may include water safety, health, and hygiene/sanitation.
- Guidelines for implementation of the VWD approach.

The following are three main phases of the VWD approach drawn from the experiences of rural community water supply schemes implemented by NGOs. This proposed approach suggests that municipalities need to consider partnering with NGOs and community institutions to ease the planning, financing, and delivery of sustainable water services to rural communities.

5.1.1.1 Phase 1: Community organisation, organisational development and community education

Advocacy and community participation are central components of development work. To achieve community participation, both communities and development organisations need to establish firm partnerships and have a good understanding of how government policies and services impact different kinds of rural development. The focus of this phase is on enabling and preparing a community institution for engagement. This phase is concerned with:

- Dissecting the status quo and what a community currently does to survive water starvation.
- Educating communities about policies, plans, and budgets that relate to water service provision.
- Identifying community stakeholders and stakeholders outside a community and confirming their roles and responsibilities regarding water service provision.
- Helping communities to organise themselves into community representative structures to facilitate and ease engagements with municipalities and other state institutions.

During this phase, support organisations must study and understand both the integrated development plan and the water services delivery plan of a WSA (municipality). Support organisations should select the most appropriate participatory tools and adapt them to community water supply goals. These tools may include social or village maps, Venn diagrams, rivers of life, and others.

Social maps

Social village maps provide a comprehensive picture of a community, community stakeholders, social networks, social relations, community problems, and community assets and resources. Social maps are generally used as a platform to encourage participation and to gain deeper insights from the experiences of communities (or project participants). Social maps would help to identify water sources, discuss the history and strength of each water source, discuss changes that have occurred over time, and help to probe potential solutions from communities.

Venn diagrams

Venn diagrams are specifically designed to analyse power relationships within and outside a community. They are used to probe who has power, who participates, who has links to whom, etc. In the context of a community water supply, Venn diagrams can be used to indicate powerful individuals and groups in a community that can influence decision-making, and outside organisations that can promote or frustrate a development project.

Rivers of Life

The strength of rivers of life (RoL) is its ability to facilitate a dialogue that makes it possible for participants to dissect their real-life journeys and learn while they unearth their lived experiences. The main stages of RoL may include stressors, frustrations, failures, sad times, successes, and good times. Community members tend to learn from one another while they unearth their life journeys both as individuals and as a collective. Thus, the significance of this tool is that it can empower communities to learn from their lived experiences and identify opportunities for change.

The main outcome of this phase should at least include the following:

- Trained and capacitated a community representative water institution or committee.
- List of stakeholders, their roles, and responsibilities.
- Water sources in a community.
- Clear vision of a community in terms of water service provision.

5.1.1.2 Phase 2: Village water dialogues and packaging of a water supply project proposal and action plans

This phase focuses on deepening a community's understanding of water scarcity and the consequences of vulnerability. It considers how government policies and services, and their absence, negatively affect a community and what a community needs to do to mitigate vulnerability. The outcomes of the first phase are used to formulate water project proposals and action plans. A water project proposal and action plan are used as a basis for stimulating a dialogue with public organisations, and particularly a municipality. This phase considers the following questions:

- What do public organisations currently do concerning water service provision?
What does a community do to provide itself with water?
- What more can public organisations do?
- To what extent can communities work together with public organisations to advance water provision?
- How best can public organisations manage water provision together with communities?

The outcome of this phase is a simple water-supply project proposal and action plan that clearly defines the roles and responsibilities of each party as well as the financial resources required to construct a

water system/project. In addition to the action plan, a support organisation should help the community to develop a community project scorecard and performance-monitoring checklist. These must be combined to develop a community accountability plan. Basically, a community accountability plan outlines the roles and responsibilities of a community during and after the execution of a development project.

Training and capacity building of a community representative structure on: rules of participation, mobilisation of community contribution and establishment of a water fund, employment of local labour and emerging/small contractors, development of cost-recovery policies, etc., precedes the construction of a water system. Skilled and experienced field personnel, as well as budgets to fund social engagement, training, and capacity building, supervision, or mentoring of community water institutions, etc., must be made available by a supporting organisation.

5.1.1.3 Phase 3: Implementation of action plan and community accountability plan

This final phase is concerned with the implementation of a water project. During this phase, community members monitor all the processes involved in the implementation, operations, and maintenance of a water project. Both community accountability and sustainability plans are developed during the implementation.

While the *community accountability plan* focuses on the roles and responsibilities of a community in terms of cost-recovery, water sharing, water infrastructure maintenance, monitoring contamination, etc., the main focus of a *sustainability plan* is the protection and conservation of water sources. For instance, communities must be empowered to monitor the output of their water source in order to decide the most appropriate times for households to fetch water.

Management of operations of a water system occurs in two parts.

- The first part is concerned with the effective daily operations of all components of water infrastructure, such as electrical equipment, pumps, machinery, and the reticulation system (holding tanks/reservoirs, distribution pipes, and taps) by various skilled technical volunteers and/or staff on the ground.
- The second part is concerned with the skills and competencies of volunteers and/or staff to plan and execute all management functions required by a community-managed water-supply system. This includes resource mobilisation, financial accountability, and general administration.

Maintenance of a water system mainly deals with the activities that keep the system in proper working order daily by qualified volunteers and/or staff. Maintenance should focus on preventive maintenance, servicing, responses to breakdowns, and cost recovery (which includes user satisfaction and willingness to pay for a water service). The main outcome of this phase is a simple and resourced partnership agreement between a community and the municipality in terms of the community's role in water service provision.

In closing, a partnership agreement should form part of the state's initiatives to reintegrate community-based management models into rural water services provision. There is an urgent need to face and solve the lack of sustainable management of rural water schemes, but there should be clear frameworks and defined roles and responsibilities amongst stakeholders.

5.1.2 Case study 1: Community-owned water access:

5.1.2.1 MAMETJA-SEKORORO (Limpopo): Boreholes

MDF assisted four groups in two villages in Mametja-Sekororo in Limpopo with self-supply water provision options for multipurpose use in 2019, with funding assistance from the US Embassy.

These schemes were developed with community members organised into Climate Resilient Agriculture learning groups, from where water committees were constituted. Water walks and assessments of present water access, water sources, and the like were undertaken, including an assessment of active and dry boreholes in these villages, and followed by a community-level process for pinpointing the preferred sites for their new boreholes. Use of springs and or streams for this activity was discounted due to the deficit in surface water and over-abstraction of these sources by the wider communities. This was followed by a professional groundwater survey and a process of scenario development with the assistance of an engineer to outline options.

Negotiations with the water committees and groups followed as not all participants could be assisted, and new participants also came on board. Financial contributions for each participant were outlined. Upon drilling, the groups needed to be further consolidated, as only two of the four boreholes drilled provided enough water for use.

The small table below outlines this process.

Village name	No. of participants who were initially involved	No. of participants who completed the project (direct beneficiaries)	Female/male participants	Overall indirect beneficiaries (5 members/household x 3 households)
Sedawa 1	23	16	10 ♀, 6 ♂	240
Sedawa 2	22	5	3 ♀, 2 ♂	75
Turkey 1	20	15	8 ♀, 7 ♂	225
Turkey 2	20	14	8 ♀, 6 ♂	210
TOTAL	85 (55 ♀, 30 ♂)	50	29 ♀, 21 ♂	750

Explanation of numbers in the table above:

- Initial participant lists consisted of those learning group members who were prepared and able to contribute financially as agreed through the water committee meetings: R400 per participant for Sedawa (increased later to R800 each) and R500 per participant for Turkey.
- Four boreholes were drilled, one in each village, but only two of these (Sedawa 1 and Turkey 2) yielded water. As a consequence,
 - Sedawa 2: Most participants withdrew, and their contributions were returned to them. Five participants continued, for whom a 5 kL JoJo tank was installed under the Sedawa 2 scheme, from which they can collect water manually.
 - Turkey 1: 15 participants continued, and 2,2 kL JoJo tanks were provided for them for rainwater harvesting as an alternative to borehole water.
- Sedawa 1 and Turkey 2 participants decreased as a few of the prospective participants were too far away and or situated above the borehole and could not be provided with piped water through this process. In addition, a few participants wanted the water piped to their fields rather than their homesteads. As fields are all much further away and would require large volumes of water, the water committees asked these participants to withdraw from the process.
- Each household had an average of five household members (numbers were gleaned from baseline studies conducted in the villages under the RESILMO programme).
- Households also shared their water with neighbours, friends, and family in adjacent homesteads. An assumption was made that each participant shared with three other households, based on informal discussions with participants during a water access audit undertaken during the COVID-19 lockdown period in the area.

In both schemes, the electrical box for the pump was installed in one of the members' homes and header tanks as well were placed inside a suitable homestead, to reduce the threat of theft and vandalism. Cognisance was taken of the potential conflicts that could arise from having group-based resources inside individual homesteads.

This process is described to provide an example of the need for ongoing engagement and negotiation, linked to information provision and learning, to allow participants to understand the nature of the localised patchwork approach to water provision and to allow them to understand the level of engagement required from them. In this process, the facilitation was undertaken carefully to ensure equity in beneficitation and support for the poorer community members. As an example, those households with their own private boreholes were excluded from the schemes after an extensive negotiation process.

The approach taken was to tackle issues as they came up and to also follow an approach of stepwise incremental rulemaking for the groups, rather than to try to thrash out all potential outcomes and rules beforehand. This was done as most community members did not initially fully grasp the complexity and scale of what they were undertaking, thinking this was going to be easy. Allocation of water, pumping schedules, monthly payments, maintenance, operational issues, and the like had to be renegotiated several times before a suitable process was finalised.

These two schemes were visited three years after initiation to ascertain how they were functioning.

5.1.2.2 Sedawa self-supply option

Eventually, 19 participants were included, instead of the 16 originally agreed upon. The additional three participants were expected to provide some of their own piping and labour for their installations, as their households were much further away from the main pipelines, hence their initial exclusion.

Below is a bullet point summary of the functioning of the scheme:

- The scheme has been divided into three subsections with 6–7 participants who receive water two days per week. A total of 2 500 L is allocated to each household per week, translating to around 72 L of water per person per day.
- Pumping is undertaken once a day to fill the 2x5 kL header tanks. This precaution, set in place to protect the borehole from overuse, has been well respected.
- Generally, the scheme is running well, and all households are still involved and receiving water.
- The agreement that each household provide their own storage options has not worked that well because some households have not organised this well and generally just leave their pipes running on their allotted day.
- Magdalena Malepe, who controls the pumping six days per week, is still doing this work, despite a lot of internal conflict and difficulties with the monthly payments. One of the committee members keeps a record of individual payments. Some months, payments have been complete, but other months, when household cash flow is restricted (such as January and February), very few payments have been made.
- There is an agreement that members report leakages or other issues and then work together with the committee to fix these. There have been cases where households have reported the issues but then have not followed through by assisting to fix them, notably with the three participants who came into the process later, who have failed to understand their individual commitments. In other cases, this process has worked well.
- As agreed, if conflicts arise that the group cannot sort out internally, the matter is taken to the traditional council, with mixed results. In some cases, they have assisted, while in others, they have claimed that it is not their mandate.

Insight Participants mentioned that access to this water has changed their lives substantially, as they are now able to undertake productive and income-generation activities that were not available to them before, including, for example, small poultry businesses, intensive vegetable production for sale, improved yields and food availability in their homes, as well as water for their livestock.

They really appreciate having water access at their homes, and that they no longer need to spend long hours fetching water.

They also mentioned that they are slowly learning to manage issues by themselves, but find that external facilitation here is sometimes very helpful and necessary.

Suggestions made by the group for improvements:

- Meetings should include the full committee and group to ensure that small caucuses with individual agendas do not develop.
- A person should be appointed in the group to 'police' the pipes – check them on an ongoing basis for leaks.
- A maintenance committee should be formalised, so that members know who to talk to when issues arise.
- Meetings should be held with the traditional council to urge them to assist in cases of conflict and to provide the water committee with some authority.

5.1.2.3 Turkey 2 self-supply options

Turkey 2 (roughly 800 households) is an example of a patchwork of self-supply options only, as no bulk water supply options have been implemented there for the last 35 years.

Several different options are in use in the village:

- Mvula Trust scheme (whole village), late 1990s. Now services around 30% of the village only.
- Private water suppliers, who manage pipes on the mountain for water access to households. Households pay for this service, usually around R30 per month, after an initial investment of around R1 500 per household.
- A range of informal group-based options with reticulation, ranging from between five to 26 participants, both from pipe connections on the mountain and from boreholes. Some of these schemes do not last long either due to their source drying out or the drying and collapsing of the boreholes drilled.
- The MDF supported group-based scheme with 14 participants.
- Individual supply, either with pipes from springs on the mountain or household-level boreholes.
- Use of unprotected springs for fetching water.
- Buying water from 'water sellers' – they come with tractors and water tankers and will fill a 2,2 kL Jo-Jo tank for R350.
- Buying water from neighbours – generally R5 for 25L.

In summary, there are many small, informal initiatives. Access to water sources in the mountains and for springs is on a first-come, first-served basis, and there is no coordination of efforts at a village level. All options require a significant investment from participants, which means that the poorer people in the village have been left out. They are allowed to collect from neighbours, and the informal schemes for free, but amounts are limited generally to a 25 L bucket per person per day. There is also a shop in the village where community members are allowed to collect water for free. Generally, people who have to buy water are also the poorest in the community, and water access for them is extremely expensive and limited. For the MDF scheme, the issue of equity was important, and poorer people were prioritised. Almost all the options are intermittent supply – specific days of the week rather than continuous. Supply is, however, more than the 25 L per person per day outlined for basic water supply and averages between 50 and 100 L. This is more in line with international standards for basic water supply as outlined by UNICEF.

There is little to no focus on water quality within any of the water provision options (Mvula and MDF did water quality tests upon scheme initiation, but have not continued with this practice). All water suppliers are informal and unregistered, and the source of water delivered is often unknown. People are aware that they are drinking unpurified water.



Figure 13: Left to right. A cement rainwater harvesting tank, installed by Mvula Trust, is no longer operational and replaced by a 2,2 kL Jo-Jo tank in a household in Turkey 2. And the old Mvula Trust tap is no longer operational. A small pipe from an individual borehole and collection containers for a group-based scheme.

Description

In the early 1990s, Mvula Trust and DWA implemented a water supply scheme for Turkey villages 1–4, from water sources in the Blyde Mountain foothills behind the villages, through a series of high-level dams to communal standpipes as a gravity-fed system. Individual households also had the option of accessing household standpipes. In addition, cement rainwater harvesting structures were built in a large number of households.

The arrangement was a 70/30 split in financial contribution from Mvula Trust and the community, and there was full involvement for the whole implementation process.

The water committee for this scheme is still active in Turkey 2, although over time, some of the lines have become dysfunctional, and now only around 30% of the village is supplied through this scheme. Reasons given were an increase in the number of households in the village, drought, and climate change, which have reduced the amount of water available, and a large number of illegal connections made in the higher portions of the village, which have meant that those lower down no longer have access. The community has been unable to effectively police the latter, as they have no authority to enforce the removal of these connections.

The MDF-supported self-supply scheme was in essence, developed along similar lines but with a focus on equity and multipurpose uses. As a borehole scheme, pumping is required, which requires ongoing monthly contributions from members. This has been going very well in this village, with little to no conflict. There are community-level water monitors who ensure that valves are opened and closed and who check pipes for leaks. They also ensure no illegal connections are made in their system. Group members are cognisant of fluctuations in water levels in their borehole and have agreed to a reduced supply during winter to avoid over-pumping of their borehole. There have been no conflicts arising from having both the electricity supply and header tanks in individual households.



Figure 14: The water committee meeting in Turkey 2 (Feb 2024), showing the large proportion of women involved in the local water supply options

A discussion was held with the learning group around developing better collaboration within the community around water access options, as well as with the Mopani District Municipality, which is the WSA for the area. Their impression was that the initiation of free water linked to very poor service delivery has had a very negative effect on the community, thus recognising in full the need for collaboration and payment. They did, however, stipulate that payment should be to a localised committee which can manage the maintenance and operation on a day-to-day basis, rather than a generic payment to the municipality. They mentioned that they can easily manage general O&M, but that problems come in when expensive items break that cannot be replaced, such as borehole pumps, electric boxes, and the like. They felt that the traditional council is well placed to assist with management and conflict resolution, but that interventions would be required to assist them to recognise and undertake this role in their communities.

5.1.3 Case study 2: Community-owned water access

5.1.3.1 STULWANE-BERGIVILLE (KwaZulu-Natal) Community-owned water access schemes: Springs and streams.

This is a descriptive case-study of a recent and still ongoing community-based water access initiative, aimed at highlighting the depth of community involvement and the ongoing and iterative nature of such schemes.

The project area referred to as Stulwane (or Costone) is located near Emmaus in the Okhahlamba (Drakensberg) region of KwaZulu-Natal and consists of 99 households. The community here has no access to a reticulated municipal water supply. In 2021, various water sources within the Stulwane/Costone area were considered for development as part of a small community-owned water access scheme, supported by MDF and WWF-South Africa with corporate funding from Pepsico. The project was also supported with technical expertise by an agricultural engineer, experienced in developing low-cost, gravity-fed systems. The water sources included several springs and a borehole. Due to the area's topography, spread of households, and location and strength of the various water sources identified, more than one water source was deemed likely to be required to cover the project area. In 2022, the project developed one of the springs to supply water to a section of the community

(~25 households). In 2023, consideration was given to developing an additional water source to extend coverage to some of the remaining village sections.

The water sources considered in this phase of the project were:

- A community borehole with a handpump (near the cattle dipping tank).
- A spring-fed tank and communal tap (next to the road below the dipping tank).
- Two additional springs (near spring 4) identified by the community.
- Springs situated in small perennial mountain streams (at higher elevations).

Figure 15 shows the sources as well as the already completed spring protection process (in green).

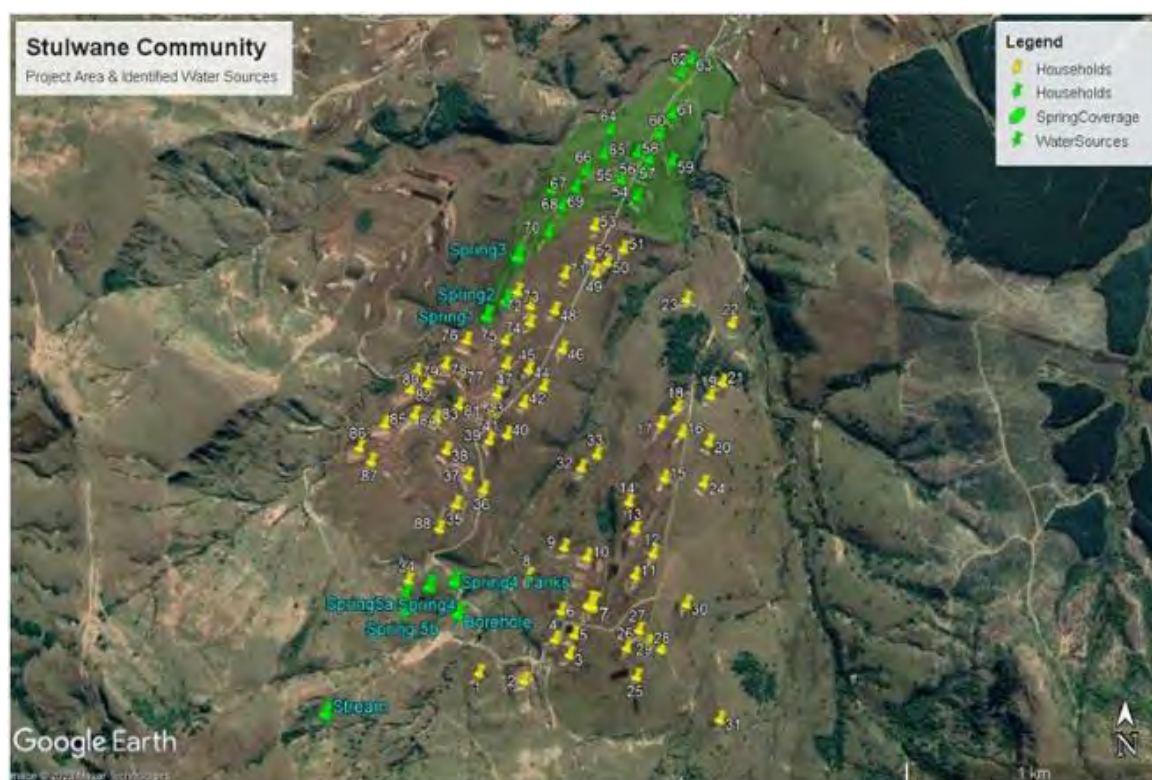


Figure 15: Local water sources and present local water access (April 2023)

Between April and August 2023, further discussions were held with the water committee, learning group members, and the community.

Both the dipping tank borehole and small spring protection close to the road below the dipping tank were excluded as potentials, due to low water availability and low potential for providing water access to several households. The in-stream springs at higher elevations were investigated. The community confirmed that these streams were perennial. A point high enough to be away from livestock contamination was viewed. Water could be abstracted from a small concrete weir built in the identified streams and piped by gravity to a main storage tank partway down the hill. Water from this tank (or tanks) would then be split to each village section (Stulwane A and Stulwane B).

Another storage tank would be required above each village section to reduce the pressure in the line and provide additional water storage. Due to the higher elevation of the stream abstraction points, the water supply could reach all parts of the village sections. Water quality tests were recommended for this source as well.

Some potential challenges with these sources were:

- Reliability of supply towards the end of the dry season.
- Evidence of high flow (moving rocks) during downpours. This would mean that maintenance to the off-take may be required during the annual rainy season.
- From Google Earth, there is evidence of some livestock activity on top of the mountain and in the drainage (catchment) area of the stream. This indicates the possibility of the water becoming contaminated.



Figure 16: Possible alternative source to supply Costone/Stulwane village

A meeting was held with 60 community members in June 2023 to discuss the scenarios proposed by the engineer as well as community-level engagement, contributions, and organisation.



Figure 17: Community meeting to discuss water supply scenarios in June 2023

Agreements were made about separate sources to be used for villages A and B, and the split of the participating 69 households between the two sub-schemes. Households agreed to provide labour for implementation, as well as R500 per household for the infrastructure.

Implementation was planned and separated into three phases. This was to organise and strictly keep track of the progress of this programme, including the buying of the materials. The first phase involved working from the sources up to the first pressure tank in both sections. Phase two was simply about

channelling water from the source to the first pressure tank, then to the header tank. The last phase involves reticulation, supplying water from the header tank to the standpipes to be positioned along the main community road and other points closer to households.

Despite the present involvement of uThukela Water in the area, community members were adamant that they did not trust that those schemes would come to fruition. They had had too many bad experiences in the past. In addition, the community had not been consulted at all regarding the placement of schemes and taps. They were determined that working with MDF was a much better option as it gave the community control over the use and management of the schemes. They expressed gratitude for being involved and a strong commitment to managing the schemes once set up. They specifically mentioned that the water access has made the lives of women, and specifically young women in the households tasked with water collection, a lot easier. Fetching water is now easier and takes much less time. Access is now also close enough to allow for limited irrigation of small household gardens.

Financial contributions for maintenance and one-off requirements to set up the scheme were also willingly agreed to.



Figure 18: Interns and eco champs are finalising the list and map positions of participating households

The first two phases were completed by December 2023, with finalisation of the collection of community contributions by the end of January 2024.



Figure 19: Left to right: Construction of the weir and v-box in the stream for both sections A and B. The finalised weir, with shade cloth and rocks in the inlet chamber and the brake pressure tank (92,5 kL) with pipes connected from the source and towards the header tank – also for both sections A and B

The map in Figure 20 indicates the final versions of the jointly derived plan towards the end of August 2023. Note the two abstraction points for Stulwane A and B, and the six and nine taps, respectively, proposed.

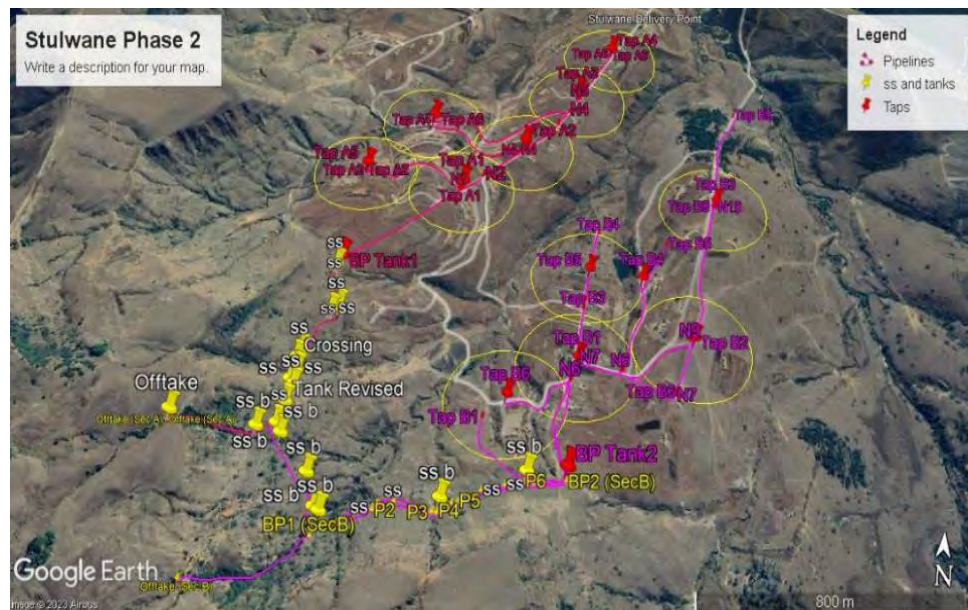


Figure 20: The layout of the self-supply schemes, as designed jointly with the community

In January 2024, an assessment of the condition of the sources revealed extensive flooding and some damage to both sources. The system design was not strong enough to accommodate such flows, despite attempts to plan for high water-flow options. Repairs were undertaken, including the strengthening of V-box lids and piping. Pipes outside of the flood-level streambeds needed to be secured and water filtered prior to it reaching the header tanks. In addition, water samples were taken during this time for analysis of a worst-case scenario and would be taken again at a later stage when the streams subsided. Not surprisingly, these samples indicated high levels of turbidity and *E. coli* and would need to be treated prior to use.

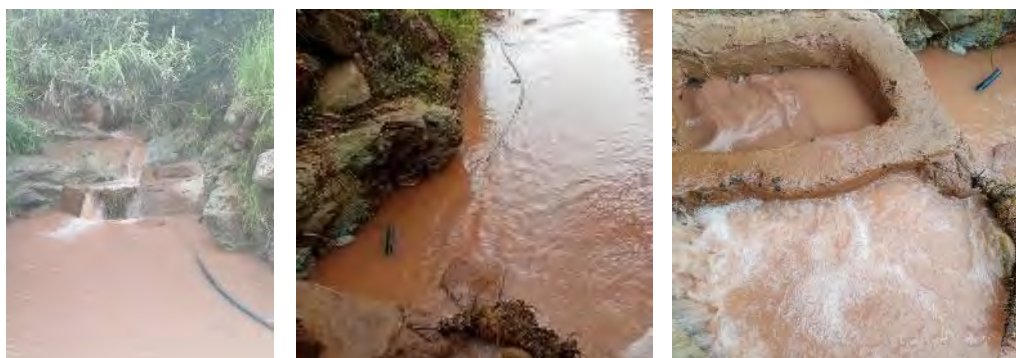


Figure 21: Views of the flooded source for Village A (Danger's side): The lid for the v-box has washed away, and pipes are no longer anchored at the side of the stream

In addition, the uThukela water project started moving forward, with work teams digging ditches and laying pipes from the borehole (below the wattle patch in Village A (Danger's side) along the same path

as the community-owned scheme to 4x500 L header tanks, placed alongside the community-owned tank.

A meeting was held to discuss issues, options, and collaboration, and care was taken to include the traditional authority *induna*, the ward councillor, and the operational manager for ILZ Consulting, installing the Uthukela water scheme. The meeting was intended to discuss collaboration and to confirm that the Uthukela scheme and the self-supply scheme were both important and were not competing with each other.



Figure 22: Left to right: Mr. Mgadi talking to the Uthukela layout; his map showing the one set of standpipes planned for Costone; and village members comparing the community-owned layout and tap placements with the Uthukela scheme taps.

The Uthukela Water scheme intended to supply one borehole with a diesel pump, to pump water to four header tanks (20 kL storage) and then to reticulate by gravity to provide one set of taps per village for three villages. Despite attempts to engage with uThukela, this scheme was implemented without any changes, and as of November 2025 has not provided any water to the communities. As everyone suspected, the provision of diesel by the municipality has not materialised.

Comparison of the two schemes

Municipal scheme: The ward councillor provided some background, stating that the original plan was to provide bulk-supply reservoirs for both the Amaswazi district (on the other side, going towards Loskop) and the Amangwane district (Emmaus area). Due to the topography and water sources, the Amaswazi reservoir will go ahead, but a strong source could not be found on the Emmaus side. Mr Dladla emphasised that he had to fight hard to persuade uThukela Water to provide this more localised option, instead of not working on this side at all. The issue is that the borehole to be used is not very strong and was, in fact, initially earmarked as a handpump only. The second issue is that the consultants previously proposed a solar pump, but the costs for such a large installation turned out to be prohibitive. The third issue is the assumption that ‘the community’, three whole villages, would be willing and able to take over payments for diesel for the pump. The consultants were unclear about just how much water could be provided.

Community members were clear that they should have been consulted and that the provision of only two taps for the whole village was an unworkable solution. They also felt that it did not make sense to try to provide water for three villages from such a weak source and that it would be logistically and socially impossible for these three villages to work together and pay towards a system providing so little water. It was, however, also evident that the community's input into the design and operation aspects of the uThukela scheme would not be taken into consideration.

This is an unprecedented situation for the WSA and its providers, where there is some recognition of needing to involve the community, but without existing frameworks or procedures in place. Communication has been possible due to the willingness of both the consultants and the ward councillor to positively engage with the community.

Community-owned scheme: This water system provides multiple-use water (not purified at source) to 66 households via stream abstractions in the upper catchment and a gravity-fed system to 12 taps, to ensure access within 100–200 m of each home. Each household will have access to between 50 L and 70 L of water per day. Water samples have been taken, and community members are clear that for this system, purification at the homesteads will be required if water is to be used for drinking. It is an intermittent supply system as header tanks need to fill up overnight before valves are opened to supply the taps. Community members will fetch water every morning, but do not have access during the afternoon and evening while the tanks fill up.

The two subsections (villages A and B) have both elected a water committee to manage this process, and in addition, households have been allocated a tap close by. Each 'tap group' is to manage its tap's access, use, and maintenance. Costone also has a village-level water committee, which oversees water access for the entire village. There is now a patchwork of small-access options, including a uThukela borehole with 10 KL header tanks and one tap (set up in 2021), the self-supply scheme from a spring reticulated to 27 households (set up in 2021), and an older spring-protection process with one tap, which is too far from households for regular use (set up in 2017). In addition to the present self-supply option and the reticulated borehole in planning, most households in this village will have access to at least basic access (25 L per person per day). Between three and five households will still be quite far from the present sources.

Strengths of this process

- Community involvement from inception through to completion.
- All 75 households in the scheme have been involved in the meetings.
- Understanding at the community level of the intention for multiple sources and multipurpose water provision.
- All households involved provided both labour and financial contributions to the scheme.
- Sub-committees were set up for each section to allow for around 20–30 households working closely together.
- The sub-committees are represented on the village-level water committee.
- Involvement and inclusion of the traditional council ward councillor.
- Ongoing facilitation and problem-solving support from the NGO partner in the process.
- Linking of water access to broader water-resources management issues in the village and catchment.
- Incremental inclusion of neighbouring villages in the discussion.
- Community-level agreements for water access and water use (quantity per day and per household) have been agreed to and are policed by the water committees.

Weaknesses

- Despite numerous attempts, peripheral involvement only of the municipal councillor and no involvement from the uThukela WSA.
- The implementation of a borehole reticulation system by uThukela WSA in parallel to this community initiative, without clear linkages and/or management agreements between the two, has exacerbated the lack of trust between the community and the municipality – strengthening the community's belief that the municipal intervention is an election ploy.
- Planning for implementation and water supply, as well as handover by the WSA, has been unsatisfactory, with an emphasis on quickly supplying something, rather than a considered approach to the supply of reliable basic water services.
- Despite recognition of different summer and winter flow volumes in the streams, planning and implementation by the NGO and the community did not fully take into account the severity of flooding, resulting in damage to v-boxes and piping.
- Community members themselves tend to rely on verbal communication, which results in agreements and decisions often morphing into what individuals want them to be, rather than what was actually decided. Discipline in holding to group decisions is generally a bit low.
- Community members, despite agreeing to the communal standpipes, will be tempted to splice their own household taps into the system. Given that it is a gravity-fed, low-pressure system, such actions could leave several existing taps dry.

5.2 RECOMMENDATIONS

Important principles that need to be considered and implemented if communities are to play a role in their own water management are:

- Communities need to be given a voice in making decisions regarding their own water.
- Mobilisation of communities should happen from the very start of the endeavour and not only in the use phase.
- Both the community and the authorities need to recognise that communities have co- or complete ownership of the scheme and the responsibility that goes along with it.
- Different stakeholder input and support are required through the different phases of the intervention and through its life cycle.
- Co- or complete ownership requires commitment on the community's side to assume their portion of responsibility for the operations and management of the scheme and its infrastructure.
- Researchers and implementers of such schemes need to learn from the past and build on it to create greater odds for success.
- For communities to be able to operate within the boundaries of the law to ensure accountability and transparency, a review of key governance processes, structures, policy, and legislation is needed *in South Africa*.

To address challenges and enhance the potential of community-owned and managed water access in South Africa, the following strategies and recommendations are proposed:

- Strengthen the capacity building and training of community COWA actors on technical, financial, institutional, and human aspects of water management.
- Develop and implement clear legal and regulatory frameworks that recognise and support the role and rights of COWA actors in water governance.
- Establish and facilitate platforms for dialogue, cooperation, and learning among different stakeholders involved.
- Implement and improve monitoring and evaluation systems to assess the performance, impact, and sustainability of initiatives.
- Incorporate concepts of multiple sources as well as multiple uses and deal with resultant legalities around water quality issues. Not all water access needs to be drinking quality, and more water is needed than just for drinking.

The most important components of a community-based management approach to water services are the following:

- Focus on creating an enabling environment for communities to engage with municipalities on non-confrontational terms.
- Align municipal and water services policies with community-based management approaches.
- Incorporate the concepts of multiple-use systems from multiple sources in water infrastructure development policies and strategies.
- Simplify the roles and responsibilities of community-based water institutions.
- Provide incentives and design municipal financing mechanisms to promote community-based management.
- Develop community educational materials on water and sanitation, resource management, water protection and conservation, demand management, water quality management, etc.
- Develop non-punitive policies that support community-managed water service provision.

5.3 GOVERNANCE CONSIDERATIONS

Below is a summarised list of governance issues that need to be considered for community involvement in management and ownership.

1. **Leadership and decision-making:** Effective leadership and inclusive decision-making processes are crucial for community-owned water schemes. Governance challenges may arise if the leadership lacks transparency, accountability, and inclusiveness. It is important to establish democratic structures that allow community members to actively participate in decision-making processes and hold leaders accountable. Regular community meetings, transparent communication channels, and mechanisms for feedback and grievance redressal can help address these challenges.
2. **Institutional capacity:** Many community-owned water schemes face challenges due to limited institutional capacity to manage and maintain the infrastructure effectively. This can include issues related to financial management, technical expertise, and administrative skills. Capacity-building programmes, training workshops, and support from external agencies can help address these challenges. Strengthening the skills of community members and promoting knowledge sharing within the community can enhance the institutional capacity of the water schemes.
3. **Financial sustainability:** Adequate and sustainable financing is essential for the long-term operation and maintenance of community water schemes. Governance challenges can include inadequate revenue collection, mismanagement of funds, and a lack of financial planning. Implementing transparent and accountable financial management systems, exploring alternative financing models, and promoting cost recovery mechanisms can contribute to the financial sustainability of the schemes. Additionally, fostering partnerships with local authorities and exploring funding opportunities from government programmes and donor agencies can provide additional financial support.
4. **Equity and social inclusion:** Ensuring equitable access to water for all community members is a critical governance issue. Discrimination, exclusion, or favouritism based on factors such as gender, ethnicity, or social status can undermine the effectiveness and fairness of the water schemes. It is essential to promote inclusivity and address any social disparities in water access and decision-making processes. This can be achieved through gender-sensitive approaches, ensuring representation of marginalised groups in leadership positions and conducting awareness campaigns on water rights and equality.

5. **Regulatory compliance:** Compliance with relevant regulations and legal requirements is vital for community water schemes. Governance challenges may arise if there is a lack of awareness or non-compliance with water governance frameworks, permits, and environmental regulations. It is important to develop a clear understanding of the legal framework and ensure compliance at all levels. This can be facilitated through capacity-building initiatives, training workshops on regulatory compliance, and establishing partnerships with regulatory authorities for guidance and support.
6. **Maintenance and operation:** Proper operation and maintenance of water infrastructure are critical to ensuring the continuous availability of safe and reliable water. Governance challenges can include inadequate maintenance practices, a lack of skilled personnel, and limited access to spare parts and equipment. Establishing maintenance protocols, training programmes for community members, and ensuring regular monitoring can help address these challenges. Additionally, fostering partnerships with local service providers, engaging with technical experts, and exploring innovative maintenance approaches can contribute to the effective operation of the water schemes.
7. **External support and collaboration:** Collaboration with external stakeholders, such as government agencies, NGOs, and development partners, can provide valuable support to community water schemes. However, governance challenges may arise if there is a lack of coordination, unclear roles and responsibilities, or unequal power dynamics. Building effective partnerships, establishing formalised agreements, and ensuring clear communication channels can help overcome these challenges. Regular engagement with external stakeholders, sharing knowledge and resources, and leveraging their expertise can contribute to the sustainability and success of community-owned water access schemes.
8. **Conflict resolution:** Disputes and conflicts within the community can arise regarding water access, management decisions, or resource allocation. It is important to establish effective conflict resolution mechanisms that promote dialogue, mediation, and consensus-building. This helps prevent conflicts from escalating and ensures the smooth functioning of the water scheme.
9. **Community engagement and participation:** Governance challenges can emerge if community members are not actively engaged in the decision-making processes or if their voices are marginalised. Meaningful community participation, including awareness campaigns, public consultations, and regular community meetings, is crucial for inclusive and accountable governance of water schemes.
10. **Gender equity:** Women often play a significant role in water collection and management within communities. However, they may face gender-based discrimination or exclusion from decision-making processes and leadership roles. Promoting gender equity and ensuring women's meaningful participation in water governance is essential for fair and sustainable outcomes.
11. **Water quality and health standards:** Ensuring compliance with water quality standards and health regulations is essential for safeguarding public health. Governance challenges can arise if there is inadequate monitoring, limited knowledge of water treatment processes, or insufficient resources to maintain water quality. Strengthening the capacity of community members and providing technical support can address these challenges.
12. **Climate change resilience:** Climate change impacts, such as droughts or floods, can pose significant challenges to community-owned water schemes. Governance issues may include a lack of preparedness, inadequate infrastructure resilience, or limited access to climate information. Integrating climate change considerations into water scheme governance and implementing adaptation measures is essential for long-term sustainability.
13. **Data management and information systems:** Effective data management and information systems are crucial for informed decision-making and monitoring of water schemes. Governance challenges can include limited access to reliable data, inadequate records

management, or a lack of information-sharing mechanisms. Developing robust data collection systems and promoting transparency in data management can help address these issues.

14. **Legal and regulatory framework:** Governance challenges can arise if there is a lack of clarity or inconsistencies within the legal and regulatory framework governing community water schemes. This can lead to confusion, disputes or difficulties in obtaining necessary permits or approvals. Advocating for supportive policies and strengthening the legal framework can provide a conducive environment for community water scheme governance.
15. **Long-term planning and sustainability:** Community-owned water schemes need to plan for the long term, considering factors such as population growth, infrastructure maintenance, and changing water demand. Governance challenges can include a lack of strategic planning, limited access to technical expertise, or insufficient financial resources for infrastructure upgrades. Developing comprehensive and participatory long-term plans can ensure the sustainability of water schemes.

Addressing these governance issues requires a multi-faceted approach involving community engagement, capacity building, policy support, and collaborative efforts between stakeholders. It is essential to empower communities, promote transparency and accountability, and ensure the sustainability and effectiveness of community-owned water access schemes in South Africa. By addressing these challenges, communities can enhance their resilience, improve water security, and promote equitable and sustainable water management practices.

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