Deliverable

6

Water Research Commission

Project Number: **C2022/2023-00746**

Project Title: **Dissemination and scaling of a decision support framework for CCA for smallholder farmers in South Africa**

Deliverable No.6: **Case studies: encouraging community ownership of water and natural resources access and management.**

Date: 28 February 2024

Submitted to:
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1. INTRODUCTION

This section provides a brief summary of the project vision, outcomes and operational details.

AIMS	
No	**Aim**
1.	Create and strengthen integrated institutional frameworks and mechanisms for scaling up proven multi-benefit approaches that promote collective action and coherent policies.
2.	Scaling up integrated approaches and practices in CbCCA.
3.	Monitoring and assessment of environmental benefits and agro-ecosystem resilience.
4.	Improvement of water resource management and governance, including community ownership and bottom-up approaches.

OUTCOME

Vertical and horizontal integration of this community- based climate change adaptation (CbCCA) model and process leads to improved water and environmental resources management, improved rural livelihoods and improved climate resilience for smallholder farmers in communal tenure areas of South Africa.

EXPECTED IMPACTS

1. Scaling out and scaling up of the CRA frameworks and implementation strategies lead to greater resilience and food security for smallholder farmers in their locality.
2. Incorporation of the smallholder decision support framework and CRA implementation into a range of programmatic and institutional processes
3. Improved awareness and implementation of appropriate agricultural and water management practices and CbCCA in a range of bioclimatic and institutional settings
4. Contribution of a robust CC resilience impact measurement tool for local, regional and national monitoring processes.
5. Concrete examples and models for ownership and management of local group-based water access and infrastructure.

5. Chronology of activities

1. Desktop review of CbCCA policy and implementation presently undertaken in South Africa
2. Set up CoPs:
    a. Village based learning groups: A minimum of 1-3 LGs per province will be brought on board.
    b. Innovation platforms: 3 LG clusters, one for each province consisting of a minimum of 9- 36 LGs will be identified to engage coherently in this research and dissemination process.
    c. Multistakeholder platforms: Engage existing multistakeholder platforms such as the uMzimvubu catchment partnership, SANBI- Living Catchments Programme, the Adaptation Network, etc.

3. Develop roles and implementation parameters for each CoP

    a. Village based learning groups: CCA learning and review cycles, farmer level experimentation, CRA practices refinement, local food systems development, water and resource conservation access and management and participation and sharing in and across villages.

    b. Innovation Platforms (IP): Clusters of LGs learn and share together with local and regional stakeholders for knowledge mediation and co-creation and engagement of Government Departments and officials (1-2 sessions annually for each IP)

    c. Multistakeholder platforms: Development of CbCCA frameworks, implementation processes (including for example linkages to IDPS and disaster risk reduction planning and implementation at DM and LM level), reporting frameworks for the NDC to the CCA strategy, consideration of models for measurement of resilience and impact (1- 2 sessions annually for each multi stakeholder platform)

4. Cyclical implementation for all three CoP levels (information provision and sharing, analysis, action, and review) within the following thematic focus areas: Climate resilient agriculture practices, smallholder microfinance options, local food systems and marketing and community owned water and resources access and conservation management plans and processes. Each of these thematic areas is to be led by one of the senior researchers and a small sub-team.

5. Monitoring and evaluation: Consisting of the following broad actions:

    a. Focus on 3-4 main quantitative indicators e.g. water productivity, production yields, soil organic carbon and soil health.

    b. Indicator development for resilience and impact and

    c. Exploration of further useful models to develop an overarching framework.

6. Production of synthesis reports, handbooks and process manuals emanating from steps 1-4 with the primary aim of dissemination of information.

7. And refinement of the CbCCA decision support platform, incorporating updated data sets and further information form this research and dissemination process.

DELIVERABLES				
No.	**Deliverable Title**	**Description**	**Target Date**	**Amount**
1	Desk top review for CbCCA in South Africa	Desk top review of South African policy, implementation frameworks and stakeholder platforms for CCA.	01/Aug/2022	R100 000,00
2	Report: Monitoring framework, ratified by multiple stakeholders	Exploration of appropriate monitoring tools to suite the contextual needs for evidence-based planning and implementation.	02/Dec/2022	R100 000,00
3	Handbook on scenarios and options for successful smallholder financial	Summarize VSLA interventions in SA, Govt and Non-Govt and design best bet implementation process for smallholder microfinance options.	28/Feb/2022	R100 000,00

	services within the South Africa			
4	Development of CoPs and multi stakeholder platforms	Design development parameters, roles and implementation frameworks for CoPs at all levels, CRA learning groups, Innovation and multi stakeholder platforms; within the CbCCA framework.	04/Aug/2023	R133 000,00
5	Report: Local food systems and marketing strategies contextualized - Guidelines for implementation	Guidelines and case studies for building resilience in local food systems and local marketing strategies towards sustainable local food systems (local value chain)	08/Dec/2023	R133 000,00
6	Case studies: encouraging community ownership of water and natural resources access and management	Case studies (x3) towards providing an evidence base for encouraging community ownership of natural resource management through bottom-up approaches and institutional recognition of these processes.	28/Feb/2024	R134 000,00
7	Case studies: CbCCA implementation case studies in 3 different agroecological zones in SA	CbCCA implementation case studies in 3 different agroecological zones within South Africa	12/Aug/2024	R133 000,00
8	Refined CbCCA decision support framework with updated databases and CRA practices	Refined CbCCA DSS database and methodology with inclusion of further viable and appropriate CRA practices	13/Dec/2024	R133 000,00
9	Manual for implementation of successful multistakeholder platforms in CbCCA	Methodology and process manual for successful multi stakeholder platform development in CbCCA	28/Feb/2025	R134 000,00
10	Final Report	Final report: Summary of all findings, guidelines and case studies, learning and recommendations	18/Aug/2025 (Feb 2026)	R400 000,00

Deliverable 6 focusses on an analysis of the historical and present institutional and governance factors in rural water supply systems and arguments for promotion of community managed and owned water access systems with a number of case studies to outline learnings and potential examples as prototypes for implementation.

2. PROCESS PLANNING AND PROGRESS TO DATE

The intention is threefold, as describe below and shown in the diagram:

- Expand introduction and implementation of the CbCCA DSS framework within the areas of operation of MDF with a number of different communities. Work with existing communities as the basis of the case studies in specific thematic areas.
- Introduce and implement the CbCCA DSS framework with a range of other role-players expanding into new areas, including different agroecological zones and
- Work at multistakeholder level to introduce the methodology as an option for adaptation planning and action, both within civil society and also including Government stakeholders. This is the first step towards institutionalization of the process and will involve mainly working within existing multistakeholder platforms and networks as the starting point.

- Further exploration of the categories of stakeholders and the roles and relationships between stakeholders is important for the present research brief.

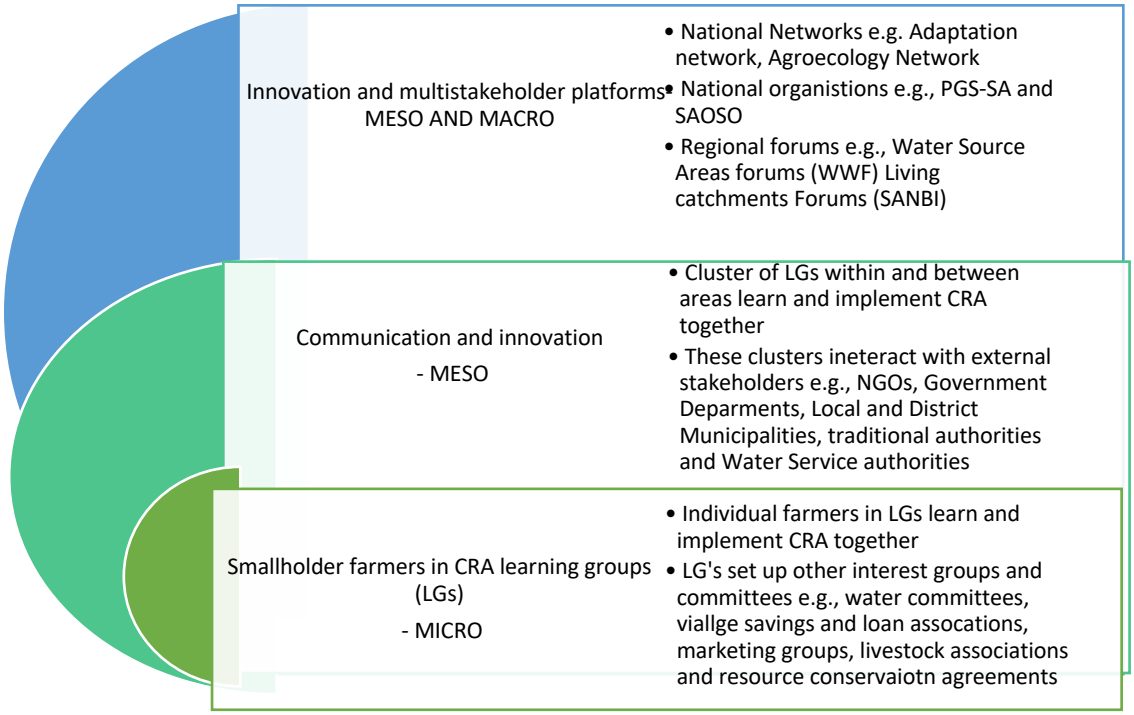

Figure 1: Conceptualization of stakeholder platforms at multiple levels to support CbCCA

Smallholder farmers in climate resilient agriculture learning groups

This process has been initiated by continuing and strengthening specific CRA learning groups, which have been supported by MDF in the past and who have done well in implementation and building of social agency. These groups will provide the focus for further exploration of food systems, water stewardship and governance and engagement with local and district municipalities.

CRA learning group summary:

Province	Area	Villages	No of participants
KZN	Bergville	Ezibomvini, Stulwane, Vimbukahlo, Eqeleni, Emadakaneni	130
	Midlands	Ozwathini, Gobizembe, Mayizekanye, Ndlaveleni	110
	SKZN	Mahhehle,Mariathal, Centocow, Plainhill, Ngongonini	90
Limpopo	Sekororo-Lestitele	Sedawa, Turkey, Mulati, Santeng, Worcester, Sophaya	75
EC	Matatiele	Ned, Nchodu, Nkau, Rashule, Mzongwana	90
	5	25	495

Table 1: Micro-level CoP engagement: February 2023 to February 2024

Note: Collaborative strategies in bold undertaken during this reporting period

Description	Date	Activity
Establishing learning groups at village level	2022/11/25, 12/09 2022/11/15, 11/29, 2023/02/07 2023/02/09	Limpopo: Sophaya SKZN: Mahhehle -CCA workshop x 2 days, Bergville: Eqeleni

	2023/01/18 2023/03/27 2023/06/15, 07/07	EC: Ned, Nkau Limpopo: Madeira KZN Midlands: Ndlaveleni, Montobello, Noodsberg, Inkuleleko primary school
Training and mentoring for climate resilient agriculture	2022/12/02 2022/10/26 2022/10/08-14 2022/11/23,24,29 2022/02/10 2022/02/27, 03/28 2022/03/08, 03/17, 03/28 2022/03/15 2023/03/07,08 2023/03/29,30 2023/03/24,27,30 2023/04/, 2023/05, 2023/06 2023/04/21,25, 05/26, 06/08 2023/04/19,20 2023/06/22 2023/08/07,08,10 2023/09/19 2023/10/16-19 2023/11/13-17	Midlands: Ozwathini contouring workshop SKZN: Mahhehle – tower gardens EC-Matatiele: Drip irrigation workshops in 5 villages SKZN: CA demonstration workshops in 3 villages SKZN: Plainhill Drip irrigation training Limpopo: Sofaya trench beds SKZN: Mahhehle tower gardens, poultry production, trench beds SKZN: Mariathal gardens and experimentation Bgvl: Madakaneni, Mahlathini – gardening training EC: Ned, Nchodu poultry production EC: Nec, Nchodu, Mzongwana- Pest and disease control Limpopo and KZN: trench bed training with assembling of tunnels for 45 households across 8 villages, including distribution of seedlings, mixed cropping and mulching learning inputs and drip irrigation Limpopo: Willows, Sedawa, Mametja Sophaya. Bergville-Matwetha, Emadakaneni – Natural Pest and Disease control Bergville, SKZN: Poultry production: eMadakaeneni, Mjwetha, Mariathal, Mahhehle, Centocow EC: Ned, Nkau, Rashule, Nchodu- Soil and water conservation Matatiele: Multipurpose chicken production and cage construction (Ned(13), Rashule(22), Nchodu(23) Matatiele: Nchodu -Value Adding training (32) Limpopo: Boschvelder feeding and management training x 5 villages (50 participants) Limpopo (30): CA demonstrations and farmer level experimentation: intercropping cover crops
Cyclical implementation through mentoring for capacity development for LG at local level	 2022/08/16,17,18,19,30 2022/10/16 2022/11/21-24 2023/01/24-30 **ONGOING** **2023/10/03-06** **2023/11/05-12/15** **2023/11/30-2024/02/28**	CCA review and planning workshops -Bergville: CA review and planning (5) -Midlands: CA review and planning (3) -Limpopo: CCA review and planning (4) **CCA prioritization of practices** -Matatiele: 5 villages (Ned, Nchodu, Rahsule, Nkau, Mzongwana -**All areas: garden monitoring, poultry support, tunnel and drip kit installations, VSLAs monthly meetings, CA production and monitoring** KZN-Bergville Boschvelder chicken delivery and maintenance mentoring for 45 participants **KZN: Bergville_CA farmer experimentation planting for 124 participants, incl cover crops awa collaboration with Forge Agri to Fodder Beet trials and Zylem SA for new Maize variety trials** **Midlands: Seedling nursery project initiation for youth group in Gobizembe (11 members)**
Income diversification and economic empowerment of local farmers (LG at local level)	 2022/10/02,11/03, 12/04, 2023/02/02,03/02, 03/03, 04/03, 05/02, 06/02, 07/04, 08/05, 09/03, 10/05, 2023/09/29 2022/10/08, 11/07, 12/02, 2023/01/27, 02/07, 07/04, 08/05, 09/05 2022/11/05,06,07 2023/01/27 2023/01/26 2022/12/13 2023/02/14 2023/02/14 Jan-December 2023	***Market days: monthly farmers markets*** -Midlands: Bamshela (Ozwathini) -SKZN: Creighton (Centocow) **-Ubuhlebezwe LED Ixopo flea market** - Bergville: Bergville town ***Market exploration workshops*** -Midlands: Mayizekanye, Gobizembe -EC_Ned-Nchodu market day in Matatiele -SKZN: Mariathal PGS follow-up w/s Limpopo SKZN: Mahhehle ***VSLA introduction*** -SKZN: Mahhehle VSLA meetings and share outs -Bergville: 9 -SKZN: Ngongonini (2), Centocow (4) -Midlands: Ozwathini (6)

	2023/03/15,16 July-Sept 2023	Limpopo: (7) Youth tala table value adding training. -Livelihoods survey- all areas
Implementation and capacity development for innovation (3) and multi-stakeholder platforms (3)	2022/11/18 2022/11/10 2022/12/01 2023/02/23 2023/02/28 2023/03/08,09 2023/03/89,29, May-July 2023 2023/03/30, 06/02 2023/04/26 2023/05/09 2023/07/10-15 2023/08/18 2023/08/29 2023/08/30 2023/09/04 2023/09/08 2023/09/13 2023/09/22-24 2023/08/23, and 09/27 **2023/07-12**	-SKZN: Centocow P&D control cross visit and learning workshop -uThukela water source forum: Visioning and action planning – Bergville -Adaptation Network AGM -Regenerative Agric farmers' day in Bergville incl Asset research, uThukela Water Source Forum, uThukela Development Agency -Adaptation Network: CCA financing dialogue -SANBI_gender mainstreaming dialogue -WRC-ESS: Bglv Ezibomvini, Stulwane – resource management mapping and planning Bergillve:Stulwnae weekly community resource management workdays -Okahlamba LED forum -Farmers X visit between Bulwer (supported by the INR0 and Bergville around CRA, fodder and restoration -PGS-SA: market training input: Online training Session 5 -Giyani Local Scale Climate resilience Project: Introduction of CCA model and local water governance options. -World Vision: CCA workshops for women cooperatives and LED project (60 participants) -Giyani Climate resilience project: Input into WRC reference group meeting -KZN DARD_ Okahlamba Agricultural Show: display and talk ACDI: Dialogue on community adaptation and resilience (Stellenbosch) Food systems article for newsletter WWF-Business Network meeting (SAPPI Durban)- presentation Joint Bergville learning group local marketing review session Gcumisa_multistakeholder innovation meeting – with the INR, ~60 participants (value adding, stokvels and local marketing Food systems dialogue: online event Uthukela water source forum: Core team meeting and Multistakeholder field visit around community resource conservation in Stulwane (Bgvl) -**LIMA -Social Employment Fund: Training for work teams and employed youth in nutrition, value adding, climate change adaptation and agroecological gardening practices including soil and water conservation in 7 areas: Zululand, SKZN, Lichtenburg, Sekororo, Musina and Blouberg (140 participants trained).**
Indicator development for evidence-based indicators, M&E and handbook development	2023/01/30- 02/03 2023/02/02 2023/01/18 2023/01/18 2023/02/20 March-May 2023 June 2023 **2023/10/16-20, 11/13-16**	Limpopo: Focus Group discussions for VSLA and microfinance for the rural poor x 3 (Turkey, Worcester, Santeng) Garden monitoring: -SKZN: Plainhill -EC: 5 villages CA monitoring -EC:5 villages -KZN: Bergville -30, Midlands 15, SKZN 15 -All areas: Poultry production list -All areas: Livelihoods survey for farmgate sales and asset accumulation **-M&E resilience indicator development team meeting and process with k Kotschy**
Implementation of sustainable water management	2023/01/03-02/03 2023/03/07 2023/03/25, 06/15 2023/04/25, 06/01,02, 06/14. 2023/07/26-28, **09/14,10/09-14, 11/06-10, 12/05-15, 2024/01/21-02/02**	KZN: Bergville: Stulwane – Conflict man and upgrading spring protection. EC: Nkau: Water walk and meetings for spring protection and reticulation. KZN: Bgvl Stulwane_ Engineer visits (Alain Marechal) for scenario development and follow up planning meetings with community. Set up committee, work parties and start on quotes and budget outline KZN: Bgvl Vimbukhalo: Governance of communal borehole water supply **KZN: Bgvl Stulwane_ Engineer visits (Alain Marechal) for scenario development and follow up planning meetings with community. Set up committee, work parties and start on quotes and budget outline. Work on scheme initiated. Final implementation of scheme.**
Organisational & capacity development	2022/11/17 2022/12/05 2023/02/13 2023/02/09, 02/16 2023/03/06	-MDF AGM and organisational capacity development workshop -Mentoring and planning with new finance officer to implement SODI financial reporting system - Internal short learning event for rainfall and runoff results, as well as soil fertility and Organic carbon - Mentoring in CCA workshop implementation. Temakholo from Midlands assisted Bergville team -Team session on gender mainstreaming

	2023/03/13 2023/04/17 2023/05/26 2023/06/12 2023/07/04	- UKZN- Ecological mapping and use of resource planning – Bgvl team -VSLAs review and discussion re group based rules, BLF updates - Nutrient analysis for livestock fodder options: facilitated by Brigid Letty from the INR -Small business development support planning and Livelihoods survey -MDF AGM and organisational capacity development workshop

Communication and innovation

This aspect relates to platforms for sharing and learning with clusters of learning groups (LGs). No activities were undertaken here between December 2023 and February 2024.

Multistakeholder platforms

To date the research team has participated in a range multistakeholder platforms, networks and communities of practices (CoPs) towards developing a framework for awareness raising, dissemination and incorporation of the CbCCA-DSS methodology into local and regional planning processes and developing methodological coherence for a number of the themes to be explored in this brief.

In this present period of December 2023- February 2024 only aa few activities have been undertaken.

The table below outlines actions and meetings to date.

Table 2: Planning and multi stakeholder interactions for the CCA-DSSII research process: February 2024

Organisation	Activity - Description	Dates
Asset Research-Maize Trust, SODI	Regenerative Agriculture farmers' open day in Bergville Annual Maize Trust CA forum workshop, Bethlehem – MDF presentation	23rd Feb 2023 10th October 2023
ESS research - WRC	UKZN research in ecosystem services mapping supported by MDF: water walks, focus group discussions, planning, eco-champs, spring protection work in Stulwane, thematic and mapping workshops in Ezibomvini and Stulwane, local level planning and implementation. Cross visit Ezibomvini to Stulwane to see resource management work Finalisation and handover of maps, updated community resource management plans for Ezibomvini and Stulwane Final report preparation and ref group meeting	23rd September 2022 14th October 2022 13,29,30 March 2023 1-30th May 2023 29th September 2023 18th October 2023 22nd November 2023
WWF Water source forum	uThukela catchment partnership: Stakeholder meetings, online and in person at OLM board room Bergville (new name: Northern Drakensberg Collaborative). Development of vision, membership profile, constitution and core team and full collaborative meetings Core team meeting for visioning and constitution development Multistakeholder field day for community level resource conservation in Stulwane, Bergville	29th September 2022 10th November 2022 11th April 2023 23rd May 2023 23rd August 2023 28th September 2023
SANBI- Living Catchment Programme	Social facilitation capacity building workshop – Western Cape; M Malinga Olifants' water indaba: M Malinga, N Mbokazi, H Hlongwane, B Maimela and E Kruger Video on local initiatives in catchment management	3rd-5th October 2022 30th Oct-2nd Nov 2022 24th March 2023
SANBI	Climate change adaptation and gender mainstreaming dialogue – presentation and participation SANBI newsletter- runoff impacts of restoration and CA	8th-9th March 2023 4th June 2023
Adaptation Network	Policy input and AGM Ongoing input and involvement in the Capacity development working group: to implement the new Civil Society Organisation Skills Enhancement and Excellence Development (CSO SEED) project, funded by the Flanders government. Some of these activities include youth-led participatory videos on adaptation initiatives and some thematic field visits and exchanges between AN CSO member projects.	13th October 2022 1st December 2022 7th , 8th Feb 2023 15th March 2023

	Meetings with AN to discuss capacity building and outline CCA training for Socio technical Interface NGO in Hammanskraal AN newsletter: Food systems article by Tema Mathebula An-AGM	11th May 2023 15th June 2023 20th September 2023 16th November 2023
PGS-SA	Quarterly meeting: Discuss mapping of PGS organisations, finalisation of certificate and use of seals and logos. Finalisation of smallholder farm assessment form PGS-Certification working group Online market development training: Input into session 5	17th Nov 2022 13th Feb 2023 9th May 2023
Okhahlamba LM	Agriculture and Land summit: MDF presentation and marketing stall: All Bergville staff, farmers representatives and eco champs Okahlamba LED forum meetings OLM – support with transport for farmers' markets and tractors for field preparation Okhahlamba Agricultural show	30th November 2022 30th March 2023,7th June 2023 Ongoing 29th August 2023
Afromontane research Centre	Maloti-Drakensberg Climate Change Workshop Wageningen/UFS: Land futures course - Bgvl	12-14 December 2022 7-10th March 2023
Water Research Commission/ AWARD	Giyani Local Scale Climate Resilience Project: Support for CCA and VSLAs Water governance and infrastructure management community dialogue in Mayephu, Giyani – for development of guidelines and proof of concept WRC-Inaugural ref grp meeting for: Enterprise development and innovation for rural water schemes- GLSCRP	8-10th May 2023 10th-14th July 2023 30th-31st October 2023 3rd and 29th November 2023
Umzimvubu Catchment Partnership and ERS– *Nicky McCleod, Sissie Mathela*	Webinar to review CRA and spring protection implementation and plan for future projects Planning for combined spring protection in Nkau and next deliverable	8th Nov 2022 15th June 2023
AWARD – Derick du Toit	Meeting in Hoedspruit to discuss AWARD's contribution Youth induction programme– Tala Table network Planning for CRA learning group expansion, Mametja-Sekororo PGS continuation. Group marketing review and farm level assessments	2nd November 2022 30th January 2023 22nd March 2023 8th May 2023, 29th September 2023
Karen Kotshcy	Learning in M&E interest group meeting. Discussions re methodology for UCP and Tsitsa project multi stakeholder engagement evaluation Discussions and MoU development for M&E framework and indicator development and submission of report for WRC deliverable 4. **Development of Climate resilient indicators for CbCCA**	11th November 2022 15th May 2023 24th May 2023 **16-20th October, 13th-16th November 2023** **8th February 2024**

3. COMMUNITY OWNED WATER ACCESS GUIDELINES AND CASE STUDIES

By Nqe Dlamini and Erna Kruger

3.1 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, 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 are enshrined both in our constitution and in law.

South Africa is also a signatory to the UN-Sustainable development goals. 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 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:

> 6.A 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 and
> 6.B ***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, urbanization, 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. In some regions, droughts are exacerbating water scarcity and thereby negatively impacting people's health and productivity and threatening sustainable development and biodiversity worldwide. Ensuring that everyone has access to sustainable water and sanitation services is a critical climate change mitigation strategy for the years ahead.

3.2 INTRODUCTION

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

The purpose of these guidelines is to present a community-based approach which 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.

3.3 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."

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 petition's 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 organizations. Municipalities resist community-based management, hindering decentralized water systems (Buthelezi, 2006).This reluctance contributes to poor quality, inadequate, unaffordable, and inequitable water access in rural areas. The first major problem is the reluctance of municipalities to view community organizations 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 lack safety and affordability.

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 institutionalization 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 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 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 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 and
- Various levels of self-supply options, *which include individuals and groups.*

There are many positives to communities getting involved in water management, but this 'involvement' brings with it a number of 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 in having access to sufficient water for domestic and productive use and as such have shown a greater and remarkable willingness to be more involved in co-management of water supply options. Self-supply options, both on an individual and group level are already very common in many underserviced rural communities, South Africa and Limpopo (Hofstetter, van Koppen, & Bolding, 2021), including Giyani.

3.4 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 recognizes 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 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 to enhance water security and resilience and
- 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 which 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. From 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 organisation (CBOs) in the provision of water services was recognised when the Department of Water Affairs and Forestry 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 formal employment of water monitors and maintenance support staff.

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

"*…there are a number of opportunities for CBWMs 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 a number of 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 grazing capacity of the land.*
- *Stipulates 'lawful' use of the resource – thus one has to lawfully have access to the resource in order for you to make use of the water.*

The Water Services Act (No. 108 of 1997) provides a number of 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, in 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 Plan10 (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).

3.5 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.

a. KwaZulu Government Regional Councils

Prior to the 1994 South African democratic project, the KwaZulu Government used Regional Councils to provide services to rural communities. A Regional Council was essential a local government structure. Traditional authorities constituted the majority of Regional Councils. AmaKhosi in these Regional 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-governmental organisations 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. Non-governmental organisations would collaborate with Regional Councils in promoting community participation in the delivery of projects. In some ways, community-based app roaches 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 of community organisations of elitism, patriarchy and total disregard of the voices of the poor. Obviously, there is considerable interaction between the 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 today are far different from their parents. Their parents were somehow conditioned to bow to the authority. In fact, their parents were largely conformist to the authority. This means that development approaches that worked before the new democratic dispensation in South Africa are likely to be challenged.

Insight The issue is not to identify whether community power structures are elitist, but which community decision-making platforms deliver the services, demonstrate interest to strengthen participation, and 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 the Department of Water Affairs and Forestry to develop affordable and sustainable water services especially for rural communities of South Africa (Group, 2003) (Buthelezi, 2006)

b. Non-Government Organisations

The general approach by non-governmental organizations (NGOs) in the water service delivery space reflects a participatory and sustainable development perspective (Krantz, 2001). The key oitns in this approach can be summarized as follows.

1. **Participatory Approach:**
    - Emphasizes involving the people who will be using or benefiting from the development initiative.
    - Recognizes 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 Organizations as Development Agents:**
    - Views local organizations as essential in building and strengthening just and empowering participation.
    - Highlights the role of these organizations 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.
    - Recognizes the dynamic interaction between the community and various development institutions.
    - Involves both community-based and external development institutions.
    - Decentralizes decision-making to maximize 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.
    - Decentralization of decision-making to the lowest level possible.
    - Maximizing 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 interest 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 take decisions that help them solve their development challenges. Effective participation should acknowledge that malfunctioning of one or two constructions of life exposes households and communities to vulnerability hence access to water cannot be seen isolation of many other community realities.*

c. Collaborative government-led approach

The "Build, Operate, Train and Transfer" (BOTT) approach was introduced in South Africa in 1997 by the Department of Water Affairs and Forestry 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 centralized, weakening local government and non-profit organizations in the water sector.

The BOTT program'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 Service Act of 1997 in 2001 shifted ownership and control to municipalities, leading to community-based water institutions being marginalized and ill-prepared for the transfer. Criticisms from civil society organizations and research institutions highlighted the challenges of over-centralization and the private sector-driven nature of BOTT contracts. Additionally, community-based management, represented by non-governmental organizations like the Mvula Trust, faced rejection and criticism from water service authorities, creating historical resentment in the water sector (Buthelezi, 2006).

3.6 COMMUNITY BASED MANAGEMENT MODELS AND APPROACHES

Community owned water access (COWA) is a form of decentralized 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, such as:

- 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 the communities
- Promoting the social and environmental justice of water allocation by ensuring that the rights and interests of marginalized groups are respected and protected and
- 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, such as:

- 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, private sector, and other communities and
- Lack of sufficient monitoring and evaluation mechanisms to ensure the quality, efficiency, and accountability of water services.

There are several community-based management models that 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 options of water services. The first option 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 the role of construction, operation and maintenance of a water scheme in collaboration with a community-based institution. Our working definitions are summarised below.

a. 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 collaborate 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 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 non-governmental organisations 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 a non-governmental organisation. A non-governmental organisation 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 have been secured in preparation for implementation. A community-based water institution would be trained and capacitated to take 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.

b. Co-managed water supply options

Collaborative/co-management water management between communities and mandated Government stakeholders presently has no legal, structural or process under pinning, 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 toward institutionalising these approaches.

3.7 GUIDELINES

a. Approaches and methodologies

These guidelines promote an alternative institutional mechanism that is built on multi-stakeholder dialogue, action and accountability at a village level. In this document, we have coined a 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.

Village water dialogues 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. *Village water dialogues* is action and solution oriented where all parties agree on ways for improving 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 *village water dialogues*.

- 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 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 village water dialogues. 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 implementation of a water project. During this phase, community members monitor all the processes that are 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 a sustainability plan is 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.

Activities proposed in these phases are essentially calling for the re-integration of 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 no or limited 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 would be polluted. This makes municipalities transgressors of 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 *village water dialogues* approach is employed to facilitate the re-integration of community-based management in the rural water supply programmes.

b. Governance considerations.

Community level involvement

All members of a community are expected to make use of provided infrastructure and water access in a responsible manner. For this to be possible all community members need to:

- be considered in terms of their needs,
- be informed about the technical aspects of operation for the system,
- 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 single member in the community takes some individual responsibility and considers the impact of their actions on their neighbours and 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.

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 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 dependant on financial and other contributions.

In complex programmes scenarios are developed. These are refined in the planning and implementation 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 tendency is to not provide detail or make specific ‘promises’ to avoid the resultant conflict, but the better practise 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 selection/election of local water governance structures/committees.

They need to be a part of the process of decision making around beneficiation and equity.

ASSUMPTIONS:

It is possible to make some assumptions on how individuals in rural communities will behave, based on 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.*

Guidelines for local governance structures

At 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 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 be 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 or complaints or difficulties are then not taken into account and

Members of committees can take advantage of their authority to improve their own beneficiation, often justified as a form of compensation for their efforts. This process, if managed in a transparent way, could 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 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 which 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 ostracises 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 systems that are fully equitable.

Traditional councils can fulfil a valuable function of oversight, providing coherence and conflict management support at 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 however need to be negotiated and institutionalised

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 and
- 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. These committees also need to have arrangements in place for operations and maintenance of the water service in their village as well as security of infrastructure.

Security concerns for infrastructure are a reality and something that water committees invariably will need to deal with. Local security arrangements are important and are already being more commonplace, both for infrastructure and for livestock. In some villages in Giyani, including Mayephu, 24hr 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' and are assisted by the water committees, or guards are appointed and provided with a stipend collected from community contributions.

INSTITUTIONAL ARRANGEMENTS FOR OPERATION AND MAINTENANCE (O&M)

O&M is sometimes thought to be a simple technical matter that is easy to solve. 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 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 waster service providers that communities can undertake day to day tasks in operation and maintenance. 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 are also problematic mostly due to 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 being preventative. For the latter, a high level of pro-active planning and collaboration between stakeholders is required.

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 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 is no e.g. 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 is an option. The value of such fees should in their opinion not be higher than R20/ user/ 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 can assist greatly in overall sustainability.

Regular monthly payments by all households in a village is however logistically problematic, especially for larger villages. Generally ongoing financial contributions for groups larger than 20-30 members becomes unwieldy, with high levels of effort spent on policing and the resultant conflicts often lead to failure of the process. Below are some suggestions of 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 difficulties in access. 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. In this approach, each section can be provided with a target value of monthly, weekly or daily financial contributions to allow for access. The decentralization of this system is a strength, but defaulting can still cause major difficulties. Cross subsidization for the 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 cashflow 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 equitability 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-subsidize those who cannot. This approach would entail tariffs set at village level related to the volume of water accessed.

Recommendations for water service providers and authorities

A number of participatory instruments and guidelines have been championed and developed the Department of Water and Sanitation (previously DWAF), Water Research Commission, local water non-governmental organisations and international water development agencies. The purpose of this section is not re-invent the wheel, but to point out the most important components of community-based management approach to water services.

- Focus on creating an enabling environment for communities to engage with municipalities on non-confrontational terms
- Aligning municipal and water services policies with community-based management approaches
- Simplifying the role and responsibilities of community-based water institutions
- Provision of incentives and designing financing mechanisms by municipalities to promote community-based management
- Development of community educational materials on water and sanitation, resource management, water protection and conservation, demand management, water quality management, etc.
- Non-punitive policies that would 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:

1 Local level governance systems need to be respected but also interrogated in terms of acceptable levels of provision for equity in access to water within the community.

2 Engagement of the governance committees and community as a whole in being more equitable in terms of their access arrangements is important.

3 Community engagement needs to be broader than just the committees and operators at all stages of the discussion: Feasibility, design, implementation, operation and maintenance.

4 Committees should be well represented – traditional authorities, local government councillors, active water users in the areas, such as crop and livestock farmers and individuals who can represent more vulnerable groups in the village.

5 Institutional engagement in punitive measures for those who have informal or illegal connections is unlikely to have a positive outcome.

6 Hoarding of water and water provision options, by those households which 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.

7 Payment for water use in excess of an agreed amount, can be used towards setting up a community level fund for maintenance and operations.

8 Ongoing monitoring of water levels, specifically for borehole schemes, with a coherent system of reporting is important. In this respect 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.

3.8 EXAMPLE: CO-MANAGEMENT OF WATER SUPPLY SERVICES.

Preamble

In the light of the Water Services Act which obligates municipalities to provide safe, quality, reliable and affordable water (and sanitation services), there could be no parallel water services provision mechanisms outside the ambit of municipalities.

The approach taken in these guidelines is thematic: community participation and community-based management. Community participation is different from community management, and in fact, community participation is a forerunner for community-based management. In putting together these guidelines for provision of reliable water services to rural communities, we need to build on what is already there and already happening. In the morning of the 26th of January 2024, uKhozi FM allowed listeners around the province of KwaZulu-Natal to share their experience regarding access to water services. Callers complained about non-functional piped water schemes and dry borehole hand pumps. Some said they are competing with livestock for dirty water in rivers, streams and springs. Such experience demonstrates 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 of engagement have transformed communication between municipalities and communities into a battlefield of broken service delivery promises. However, tensions between communities and municipalities can be managed better. The focus should be building sustainable alliances between communities and public organisations (municipalities and non-governmental organisations) charged with water service obligations to work together in finding lasting solutions.

In an ideal world, communities would initiate water development dialogues (engagements) and only call for outside support only when they require specialised expertise and capital investments. However, the reality is that platforms of engagements 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 organisation such as non-governmental organisations are better positioned to facilitate village water dialogues between municipalities and water-distressed communities. There are many lessons that can be drawn pre-1994 and just before rural water schemes were transferred to municipalities.

Analysis of effectiveness

Mogane-Ramahotshwa (Mogane Ramhotshwa, 1995) conducted action research between 1989 and 1993 in three community-managed rural schemes, namely, Relela in Bolobede in the former Lebowa, KwaHlophe and KwaNyuswa in Ndwedwe in the former KwaZulu. Other examples are Nhlungwane

rural water scheme in uMsinga in KwaZulu-Natal (Mvula Trust, 2002; The Water Wheel, 2004), and 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.

The argument presented emphasizes the challenges associated with community-based water supply projects, as highlighted by Mogane-Ramahotshwa (1995). The conclusion is drawn that participation and negotiations in such projects can be time-consuming and frustrating for water-starved communities. However, successful outcomes have been observed in self-initiated projects where communities, with strong support from development agencies, mobilize financial contributions, take ownership of construction, operations, and maintenance.

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

The self-supply mechanism is introduced, encompassing 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 predating integrated water resource management. Such an approach involves 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 mobilization, rule enforcement, and water education programs. The argument underscores the importance of collaboration among stakeholders, recognizing communities as essential players in the sustainable management of water services.

The key insight is that a sustainable rural water system is achieved when communities, through their representative structures, mobilize household contributions and maintain a sufficient water fund for operational needs, maintenance, and future infrastructure investments. The lesson learned is that external development agencies should avoid taking total control of projects, as it 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.

Case study: Co-management of water supply services started pre-2000

MNYWANENI COMMUNITY WATER SUPPLY (BY NQE DLAMINI)

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 of the collapse of homeland government administrations and was established to provide safe and adequate water.

Figure 2:Picture 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 of had approximately 80 households. Today, there are about 150 households. This project is located north-east of Donnybrook town in KwaZulu-Natal. The Water Services Authority is 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 10KL ferrocement reservoir which feeds communal standpipes. Before the scheme was transferred to Harry Gwala District Municipality, Mnywaneni Water Committee took full responsibility of the operations and maintenance of the scheme.

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

- Mvula trust conducted a needs assessment process in the community and established a temporary and voluntary community level committee to facilitate communication during the proposal and project development phase.
- When the feasibility study was approved, Mvula Trust would request the community to commit to make financial contributions towards the construction costs of the project. This community contribution would be reflected in the funding proposal.
- On approval of project funding, Mvula Trust would facilitate stakeholder engagement as well as training and capacity building sessions to prepare the local water organisation to participate meaningfully in the project. The local water organisation takes some project management roles and specifically managing project funds, establishing labour desk for local labour procurement, and paying service providers (material suppliers, consulting engineers, contractors and social consultants). Project funds would be disbursed in tranches to the bank account that is operated by the water committee. Books/transactions would be audited by Mvula Trust before another tranche is disbursed into the water committee's account.
- The project design would be discussed with the community in terms of water source, reticulation network, number and location of standpipes. Standpipe wardens would be elected by the community – and usually wardens are women that would be closest to communal standpipes. Standpipe wardens would 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 (care takers) would be recruited and trained during the construction phase of the project. They are given in-depth training on operations and maintenance, for example, 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 using a communal standpipe. Total money (service fee) collected will be declared by each standpipe warden at a water committee monthly meeting. The treasurer of a water committee would deposit the total collection at the bank. A feedback community meeting will then be 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 made by the households on monthly basis.

Current Status

With the emergence of local government, the role of municipalities in providing water services, the role of local water organisations (water committees) diminished. Harry Gwala District Municipality appointed one warden/caretaker replacing all standpipe wardens. Payment for water services was replaced by free basic water. The ward committee that is 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 was not a gravity scheme. She mentioned that the promised upgrades by the HG DM have not been forthcoming. She also believes that because their community is small, it 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 3: Water ponding and forming a wetland on the side of the road form one of the community springs.

The Harry Gwala District Municipality (HG DM) improved an additional spring that gravity feeds to a 2 200 L plastic tank (Jo-Jo tank). This tank only supplies a few nearby households and a few further households who can afford to have linked 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. There has been no consultation. Small systems are put in with little to no consideration of distance to the scheme or amount of water provided or even if it would be enough for the households there.

In another community, Erith Trust (KwaThathani) in the HG DM, the community water supply scheme that was commissioned in 2004 and upgraded in 2006 has not been functioning for more than two years. It was upgraded to supply about 850 households. 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, effect of load shedding, high water demand from a single source and obviously and 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 after the water committee was dismantled. The community of KwaThathani has been getting water from alternative sources which includes few springs, a river and water tanker from Harry Gwala District Municipality. A sub-village has protected a spring and installed pipes that supply the few households that paid for spring improvement.

Case study 2: Co-management of water supply services: Present prototype development

GIYANI LOCAL SCALE CLIMATE RESILIENCE PROJECT (GLSCRP) (BY ERNA KRUGER)

The Giyani Local scale Climate Resilience Programme 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, Department of Water and Sanitation 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 have been designed and are being implemented in 9 sites; 5 community water supply options and 4 agricultural cooperative support options. Innovations to be introduced include solar systems for boreholes and reticulation, reverse osmosis for water purification, and also drip irrigation and hydroponic systems for agriculture. Local scale water treatment options are also being explored.

Mahlathini Development Foundation has joined the team to integrate the CCA framework developed into this process and 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 in Mayephu village (communal water supply) and in the Dzuvadzi youth organic agricultural cooperative (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 the following a community village water dialogue. In addition, homestead visits were undertaken to explore water access, water use and livelihood options and an analysis was undertaken of the Mayephu water access management system.

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

These guidelines highlight a number of the process considerations, using the Mayephu community in Giyani as a case study and example and 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

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 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 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 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 and*
- *Various levels of self-supply options, which include individuals and groups.*

There are many positives to communities getting involved in water management, but this

DESPITE THE DESPERATE NEED AND STRATEGIC INTENT FOR COMMUNITY PARTICIPATION, COLLABORATION AND CO-MANAGEMENT IN WATER ACCESS AND SERVICE PROVISION IN UNDER SERVICED RURAL AREAS OF SOUTH AFRICA, LEGAL AND INSTITUTIONAL FRAMEWORKS DO NOT YET ALLOW FORMALISATION OF THESE OPTIONS.

'involvement' brings with it a number of 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 in having access to sufficient water for domestic and productive use and as such have shown a greater and remarkable willingness to be more involved in co-management of water supply options. Self-supply options, both on an individual and group level are already very common in many underserviced rural communities, South Africa and Limpopo (Hofstetter, van Koppen, & Bolding, 2021), including Giyani.

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

1. *Communities have to be given a voice in making decisions regarding their own water.*
2. *Mobilisation of communities should happen from the very start of the endeavour and not only in the use phase.*
3. *Recognising (on both community- and authority side) that communities have co- or complete ownership of scheme and the responsibility that goes along with it.*

4. *Different stakeholder input and support is required through the different phases of the intervention and through its life cycle.*
5. *Co- or complete ownership requires commitment on the community's side to take up their portion of responsibility in terms of operations and management of the scheme and its infrastructure.*
6. *Researchers and implementers of such schemes need to learn from the past, and build on the past to create greater odds for success; and,*
7. *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.*

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 the Mayephu village. Care was taken to include a range of respondents in these processes such as the traditional council councillors, system operator, 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, as well as 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 multi stakeholder forums inclusive of the project teams, institutional and academic role players and relaying information back to communities.

Policy alignment, norms and standards

National norms and standards for domestic water and sanitation services were reviewed and updated by DWA 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.

At 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 Water Services Authority (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 as outlined in the diagram below.

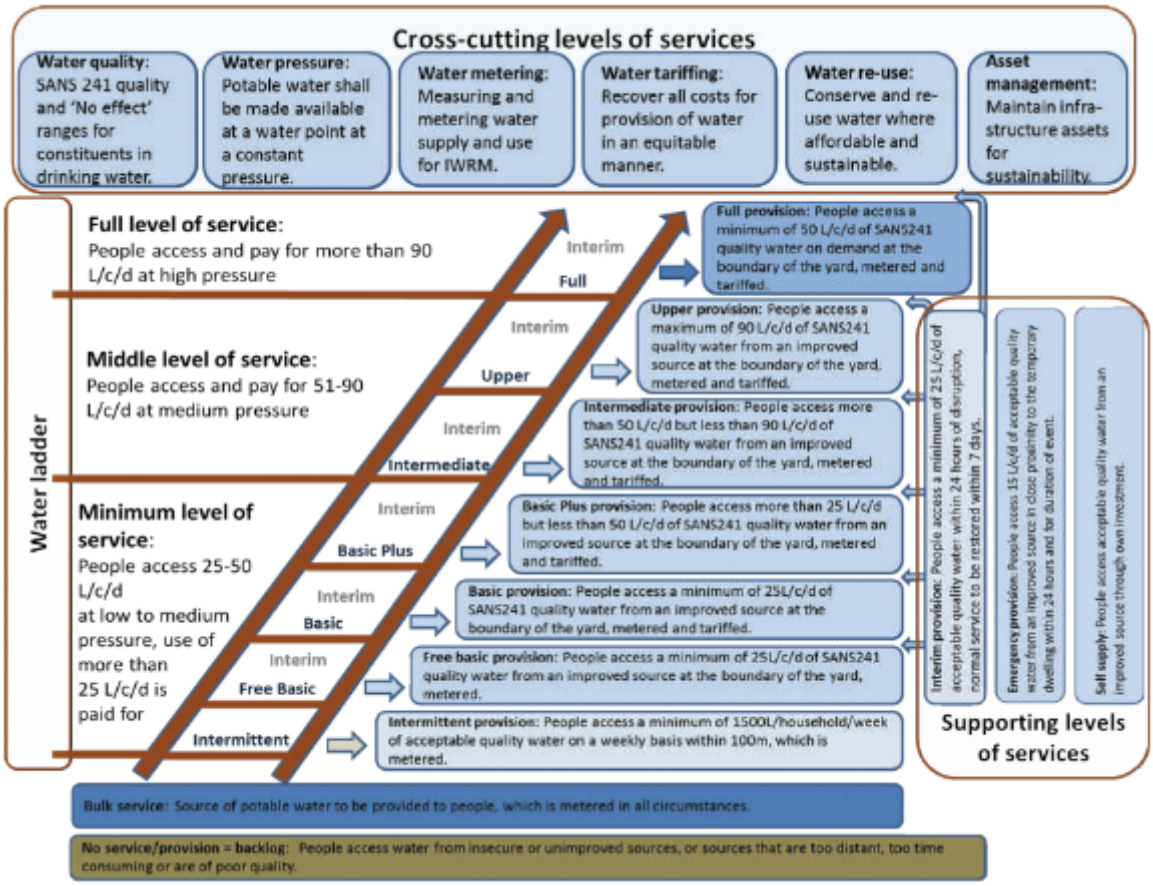

Figure 4: Water service level options as defined by the DWS, 2017.

There are a few significant points in this model.

Firstly, there is now recognition for self-supply – a self-funded, self-managed option with oversight from the Water Service Authority. Actual involvement from the WSA is not provided for. This unfortunately means that implementation of community owned water access models and processes are not guaranteed any follow-up and support from the 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.

Secondly, a category of intermittent provision has now been added to the bottom of the service level and supply ladder – suggesting an amount of 1 500l/ household/week. This allocation allows for domestic use at around 25l per capita per day and should be metered, but is not tariffed.

All other allocations in this water ladder including basic (25l per capita per day) to basic plus (25-50l 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/household/month. These

citizens need to be registered on the municipal indigency listings to be eligible for non-tariffed water.

Thirdly, there is an expectation of payment for services for the Basic plus water service allocation. It is expected that WSA's will set reasonable tariffs that will allow for cost recovery on their part.

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 our 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 needs to be given a lot more attention.

Multiple use systems

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 the following figure.

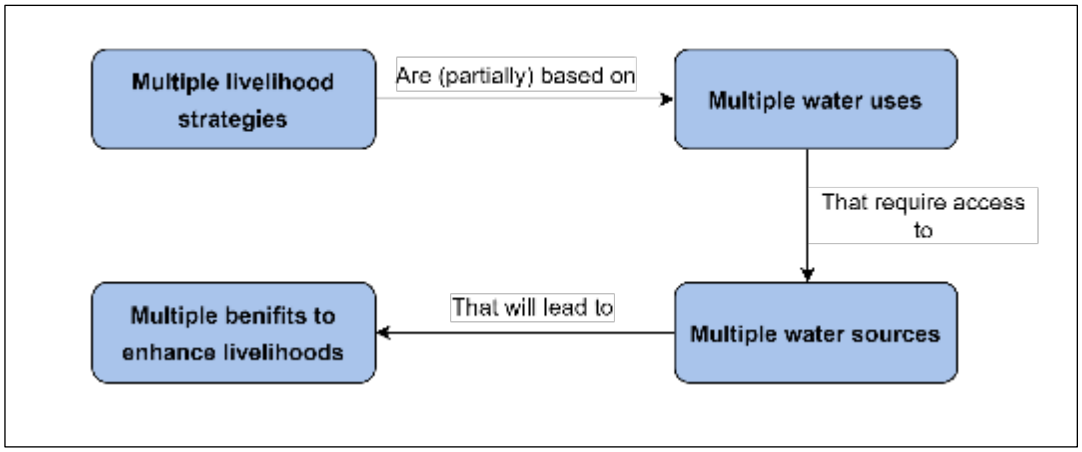

Figure 5:The MUS chain linking key components

Beneficial water use on the other hand does not necessarily result in economic growth however 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.

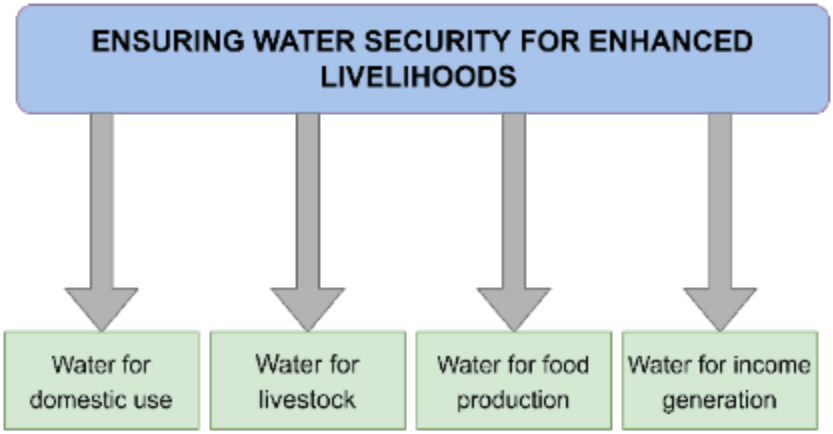

Figure 6: the key components of a MUS

Based on the above, a multiple use system could include a backyard food garden, car wash, water for religious events (e.g. baptism) through to 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 therefore for the purposes of this report small scale multiple use systems is defined as the use of water by the poor to reduce poverty, stimulate economic growth (sale of produce and provision of services) and support a sustainable livelihood. It is in no way implied that small scale multiple use excludes the householder from engaging in commercial activities instead 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 GLSCRP.

Benefits of a Small-Scale Multiple Water Use System Verses a Single Water Use System

The benefits of a small-scale multiple water use system verses a single water use system are numerous and are well documented through various case study analysis. A single water use system only caters for domestic use however a small-scale multiple water use system caters for 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 the diagram below:

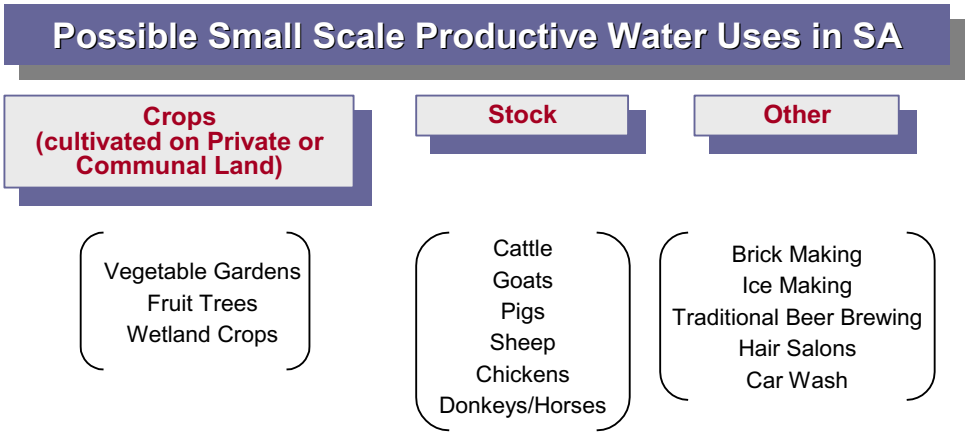

Figure 7: Gives an indication of the scope of what can be included in water for small scale productive uses.

The MUS water ladder and the domestic+ approach

The work of Renwick, et al 2007; van Koppen et al 2009 document an approach that consider the scale for 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 (figure 19).

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. Whilst this is the most important and immediate priority, water services authorities 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.

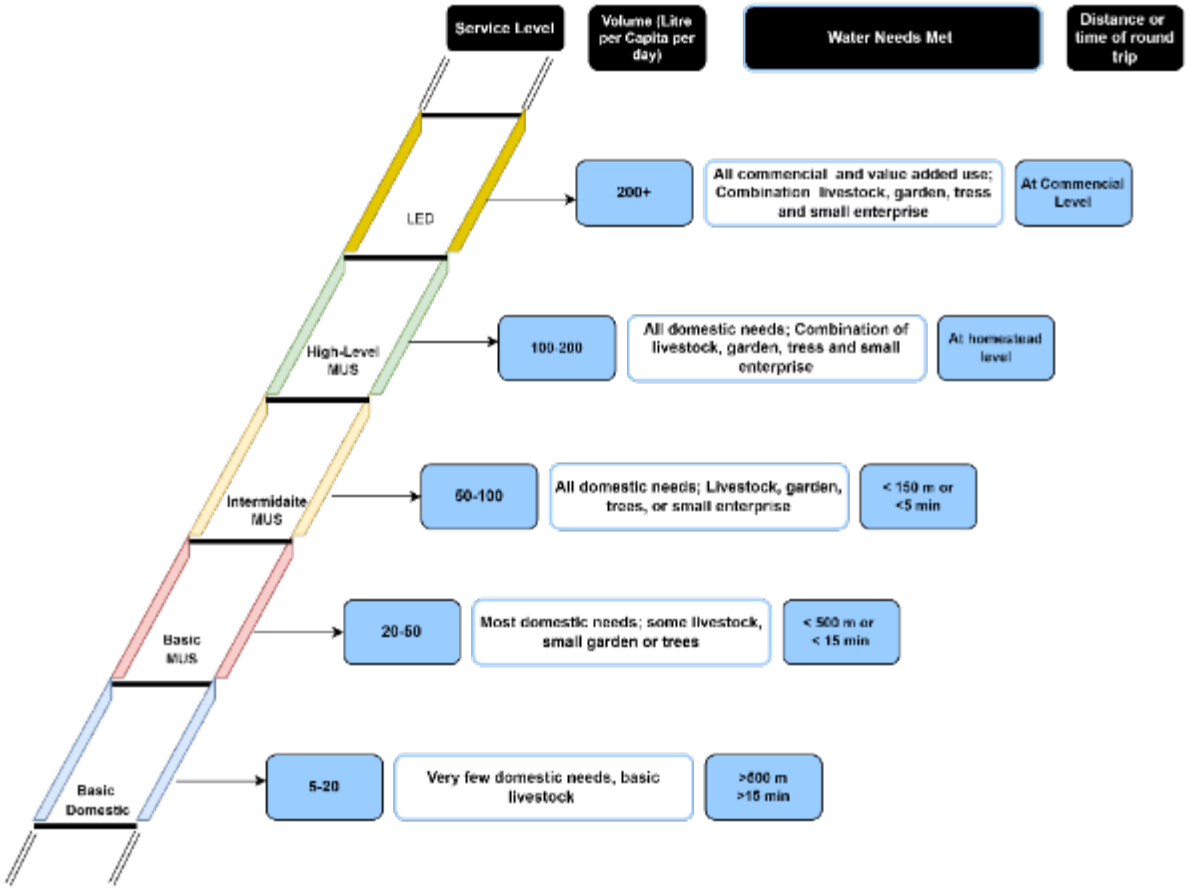

Figure 8: The Domestic Paus and MUS water ladder. Higher levels of service provide form more income options (stepping up the ladder) (Source: Renwick at al. 2007; van Koppen et al. 2009)

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 25l 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 25L and through undertaking a range of self-supply options, including individual boreholes.

Background

The Mayephu Village, situated in Dzumeri, Giyani, falls within Ward 27 of the Mopani District Municipality. This rural community has 365 households, housing 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.

Initially, water for Mayephu Village was sourced from the Letavi River through a bulk supply scheme until around 2007. However, water shortages and supply unreliability emerged as challenges. In response, the community transitioned to a system relying 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). Mayephu Water Management System Analysis. [Internal Report].

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

Present Infrastructure

The GLSCRP is intervening in the main water provision system in Mayephu that presently consists of 2 linked boreholes with water pumped to the 700 000l reservoir. Water is reticulated from there via mainlines to standpipes throughout the village. To improve functioning of the system – solar energy has been set up as a back up 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 9: A view of the 700 000l 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. For one of these the reservoir is leaking and for the other the borehole is not working due to cable theft in the past. 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 in light of the fact that the present system does not supply water equally across the whole village and that 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 borehole. There is one small dam for livestock watering, where Tsogang has assisted by removing silt to improve availability of water.

Water Use in Mayephu

The water supply system operates by filling the village reservoir, with a capacity of 700,000 liters, once a week. At present, due mainly to a reduction in capacity of the two main boreholes (over-pumping and climate change), linked to loadshedding and other inefficiencies, pumping is done continuously for 6 days – Saturday- 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 containers (25 liters), drums (210 liters), and JoJo tanks (2200 liters) to store water for the week. These containers are filled from standpipes or informal tap connections in their yards. It's estimated that there are close to 300 of these "informal" taps in the village.

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:

1. *Fetching from communal standpipes, using wheelbarrows and 20l containers. This is extremely labour intensive and also competitive as queues are long and people need to fetch all the water they need for a week in one day. (20% of households)* **(<25l per capita per day)**
2. *Illegal yard connections for households with enough resources. From these taps containers are filled, usually large basins 210l drums and 20L containers and buckets. This practise has been condoned by the water committee and local structures. Issues here are that these pipes often leak and that this practise (~80% of households) reduces water availability to the communal taps. Often those collecting from communal taps, need to wait for these households to first get water, before water is available in the communal taps.* **(25-50l per capita per day)**
3. *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 practise 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.* **(>90L per capita per day)**
4. *Individual boreholes at household level in addition to household JoJo tanks and yard connections*. **(>200L 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 for all the illegal connections presently in place.

Figure 10: Water access options in Mayephu village; communal standpipes, Yard connections with some storage, private boreholes with more substantial storage

Water Use Practices

In reality, only households in Group 4, with their private boreholes, have managed to maintain reasonably sized household gardens (200-400 square meters). Households in Group 3, with JoJo tanks filled from the communal system, often have smaller gardens (20-100 square meters). Households in Groups 1 and 2 are less active in 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 11: Examples of water use activities including diversified homestead food gardens, fruit production and small livestock husbandry.

Conclusion

Mayephu village practices an intermittent water provision supply option, effected and managed at a community level, to accommodate both for decreased supply and for provision of a stable, reasonably equitable distribution system in the community. Despite the challenges posed by climate change and water scarcity, community members are intrinsically 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 can improve the management of limited water resources in the village substantially.

The 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.

Community level engagement

Community water dialogues

During a community level water dialogue the 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, consisting of a list of prepared questions which were discussed, but also allowing for further questions from both the facilitation team and the community, as they arose.

Figure 12: One of the community meetings/ dialogues in Mayephu

Institutional arrangements

Below is a summary of some of the points raised and discussed during the community level dialogue.

The water committee (6 members) is a voluntary grouping and has been in place for a long time and consists for members of the traditional council and royal house as well as elected members from the community. The committee calls meetings and respond to community needs and suggestions. They fix leakages and manage illegal connections, report back to the community and assist in taking the payments required (not recently). They also work with the pump operator as required.

In the past, payments to the Municipality were manged by the traditional council... Everyone would be called to a meeting and each household had a book which was stamped upon payment.

For each communal standpipe there are households allocated to that tap and these households contribute towards fixing taps and pipes in their area/sections.

The pump operator is the only person who has working knowledge of the system – both electrical and solar 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, who 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 13: Venn diagram for relationships in the community around the Water Committee

The strong working relations between the Royal house, traditional council and the broader community in Mayephu has 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. Som of the biases inherent in this approach however are also visible here and include a lack of accountability, technical expertise and the exclusion of disadvantaged community members (Hofstetter, van Koppen, & Bolding, 2021).

Payment for services

These discussions were held with the intention of exploring options for payments by community members for operation and maintenance of their system.

The community is aware that in towns people pay for water access. They will struggle to pay in these villages as people are unemployed and survive primarily off social grants, which is not enough for all

their needs, as these grants also have to provide for their farming activities. Participants did mention 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/month/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, maintenance of the system was not undertaken well by the Municipality as there were leaks and breakages that went unattended for long periods of time.

They were not open to discussing options of using stokvels and savings groups as vehicles for payment for water services and believe 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 look after the infrastructure and do day-to day management and 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 surrounding 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. The Jo-Jo tank is being planned to be erected close to the main tank, so the same people who are already benefitting from more water, will also benefit from having good quality water.

Suggestions

In principle, the idea of those using more water needing to contribute financially was agreed upon by the group.
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 ahs 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 2 other smaller water provision systems in the village
- Provision of taps for those areas of the village lacking communal standpipes.
- Introduction of valves to be able 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 recharge.

- Water quantity and equitable distribution – The 700 000/ header tank can provide around 50l per person per day to each of the ~1940 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 20l per person per day and others accessing up to 100l per person per day. A few households cannot access water directly and need to get water from neighbours. A system of management that takes these issues into consideration and provides of more equity in distribution will need to be designed by the community.
- In closure 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, as Government is failing them and they need a better understanding to be able to take on some of these issues themselves.

3.9 CASE EXAMPLES COMMUNITY OWNED WATER SCHEMES

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 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 long before the birth of integrated water resource management. In this context, community-managed water supply services would pivot on participation of water users with regards to policy making, operations, cost-recovery, maintenance and building a water fund for future upgrades and/or major repairs of the scheme. A community water institution would need to partner with an external development agency to carry out water provision mandate. In addition to provision of water infrastructure, an external development agency would also carry out the following activities:

- Institutional strengthening which culminates in the establishment of 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, and
- Provision of water education programmes which may include water safety, health and hygiene/sanitation.
- Guidelines for implementation of the village water dialogue approach

The following are three main phases of village water dialogue approach drawn from the experiences of rural community water supply schemes implemented by non-governmental organisations. This

proposed approach suggests that municipalities need to consider partnering with non-governmental organisations and community institutions to ease the planning, financing and delivery of sustainable water services to rural communities.

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 to have a good understanding of how government policies and services impact different rural development. The focus of this phase is enabling and preparation of 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
- Identification of community stakeholders and stakeholders outside a community and confirm their roles and responsibilities regarding water service provision
- Helping communities to organise themselves into community representative structures in order 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 water services authority (municipality). Support organisations should select the most appropriate participatory tools and adapt them to a community water supply goals. These tools may include social or village maps, Venn diagram, 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, 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 history and strength of each water sources, and discuss changes that have occurred over time and help to probe potential solutions from communities.

Venn diagram

Venn diagram are facilitated specifically to analyse power relationships within and outside a community. It is used to probe who has power, who participates, who have links to whom, etc. In the context of a community water supply, Venn diagram can be used to show powerful individuals and groups in a community that have influence on decision making, and outside organisations that can promote of frustrate a development project.

River 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. Main stages of rivers of life may include stressors, frustrations, failures, sad times, success 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 is able to empower the 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 community representative water institution or committee,
- List of stakeholders, their roles and responsibilities,
- Water sources in a community, and
- Clear vision of a community in terms of water service provision

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

This phase focuses on deepening a community's understanding of water scarcity and 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 in particular, a municipality. This phase considers the following questions:

- What is it that is currently done by public organisations with regards to water service provision? What is done by a community to provide itself with water?
- What more can be done by public organisations?
- 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 which clearly defines the roles of responsibilities of each party as well as financial resources required to construct a water system/project. In addition to the action plan, a support organisation should help the community to develop community project scorecard and performance monitoring checklist. These must be combined to develop a community accountability plan. Basically, a community accountability plan outlines the role and responsibility 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.

Phase 3: Implementation of action plan and community accountability plan

This final phase is concerned with implementation of a water project. During this phase, community members monitor all the processes that are 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 roles and responsibilities of a community in terms of cost-recovery, water sharing, caring of water infrastructure, monitoring contamination, etc. the main focus of a *sustainability plan* is protection and conservation water sources. For instance, communities must be empowered to monitor the output of their water source in order to decide 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 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 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 on daily basis 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 community's role in water service provision.

In closing, a partnership agreement should form part of the state's initiatives to re-integrate 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.

Case study 1: Community owned water access:

MAMETJA-SEKORORO (Limpopo): Boreholes (BY ERNA KRUGER and BETTY MAIMELA)

Mahlathini Development Foundation assisted 4 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, 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 was outlined.

Upon drilling, the groups needed to be further consolidated, as only 2 of the 4 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 were 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. 5 participants continued for whom a 5000l JoJo tank was installed under the Sedawa 2 scheme, from which they can collect water manually.
    - Turkey 1; 15 participants continued and 2200l JoJo tanks were provided to 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 has an average of 5 household members (numbers were gleaned from baseline studies conducted in the villages under the RESILMO programme).
- Households also share their water with neighbours, friends and family in adjacent homesteads. An assumption has been made that each participant shares with 3 other households, based on informal discussions with participants during a water access audit undertaken recently during the COVID-19 lockdown period in the area.

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

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 also to allow them to understand the level of engagement required from them. In this process the facilitation was undertaken carefully to ensure equity in beneficiation 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 rule- making for the groups, rather than to try and trash 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 and operational issues and the like had to be re-negotiated a number of times before a suitable process was finalized.

These two schemes were visits again 3 years after initiation to ascertain how they were functioning.

Sedawa self-supply option

Eventually 19 participants were included, instead of the 16 originally agreed upon. The additional 3 participants were expected to provide some of their own piping and labour to effect 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 3 subsections with 6-7 participants who receive water 2 days/week. A total of 2500l is allocated to each household per week, translating to around 72l per person per day of water.
- Pumping is undertaken once a day to fill the 2x5000l header tanks. This precaution, set in place to protect the borehole from over-use has been well respected.
- Generally, the scheme is running well and all households are still involved and receiving water.
- The agreement that each household would provide their own storage options has not worked that well- as some households have not organised this well and generally just leave their pipes running on their allotted day.
- Magdalena Malepe, who controls the pumping 6 days per week is still doing this work, despite a lot of internal conflict and difficulties with the monthly payments. A record is kept of individual payments by one of the committee members. Some months, payments have been complete, but other months where 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 3 participants who came into the process later, who somehow 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 has been taken to the Traditional Council, with mixed results. In some cases, the TC has assisted, while in others they have claimed that it is not their mandate.

Participants mentioned that access to this water has changed their lives substantially, as they are now able to undertake productive and income generation activities which 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 to 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 formalized, so that members know who to talk to when issues arise.
- Meetings should be held with the TC to urge them to assist in cases of conflict and provide the water committee with some authority.

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.

A number of different options are in use in the village:

- Mvula trust scheme (whole village), late 1990's. Now services around 30% of the village only
- Private water suppliers, who manage pipes in the mountain for water access to households, who pay for this service, usually around R30/ month, after an initial investment of around R1 500/household.
- A range of informal group-based options with reticulation, ranging from between 5 to 26 participants, both from pipe connections in the mountains and boreholes. Some of these schemes do not last long either due to their source drying out or drying and collapsing of boreholes drilled.
- The MDF supported group-based scheme with 14 participants.
- Individual supply, either with pipes from springs in 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 200lJo-Jo tank for R350.
- Buying water from neighbours – generally R5/25L

In summary, there are many small informal initiatives. Access to water sources in the mountains and for springs is on a first come, first serve 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 25l 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 prioritized for this scheme.

Almost all the options are intermittent supply – so on specific days of the week, rather than continuous. Supply is however more than the 25L per person per day outlined for Basic water supply and averages between 50-100L. 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 practise). All water

suppliers are informal, unregistered and the source of water delivered is often unknown. People are aware that they are drinking unpurified water.

Figure 14: Above Left to Right. A cement rainwater harvesting tank, installed by Mvula Trust no longer operational and replaced by a 2 200l Jo-Jo tank in a household in Turkey 2. And old Mvula Trust tap, no longer operational. A small pipe from an individual borehole and collection containers for a group-based scheme.

Description

In the early 1990's 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 an option of accessing household standpipes. In addition, cement rainwater harvesting structures were built in a large number of the 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 has reduced the amount of water available, and a large number of illegal connections made in the higher portions of the village, which has meant that those lower down no longer have access. The community has been unable to effectively police the latter, as they have not authority to enforce removal of these connections.

The MDF supported self-supply scheme was in essence developed along similar lines, but with a focus on equity and multi-purpose 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, ensuring valves are opened and closed and checking 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 lesser 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 15: A Picture of 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 more collaboration within the community around water access options as well as with the Mopani District Municipality, who 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 localized 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 operation and maintenance, 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.

Case study 2: Community owned water access

STULWANE-BERGIVLLE (KwaZulu-Natal) Community owned water access schemes: Springs and streams. (BY ERNA KRUGER AND NQOBILE MBOKAZI)

This is a descriptive case-study of a recent and still ongoing community- based water access initiative, aimed to highlight 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 Mahlathini Development Foundation 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 a number of springs and a borehole. Due to the area topography, spread of households, and location and strength of the various water sources identified, more than one water source would likely 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 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)

The picture below indicates the sources as well as the already completed spring protection process (in green).

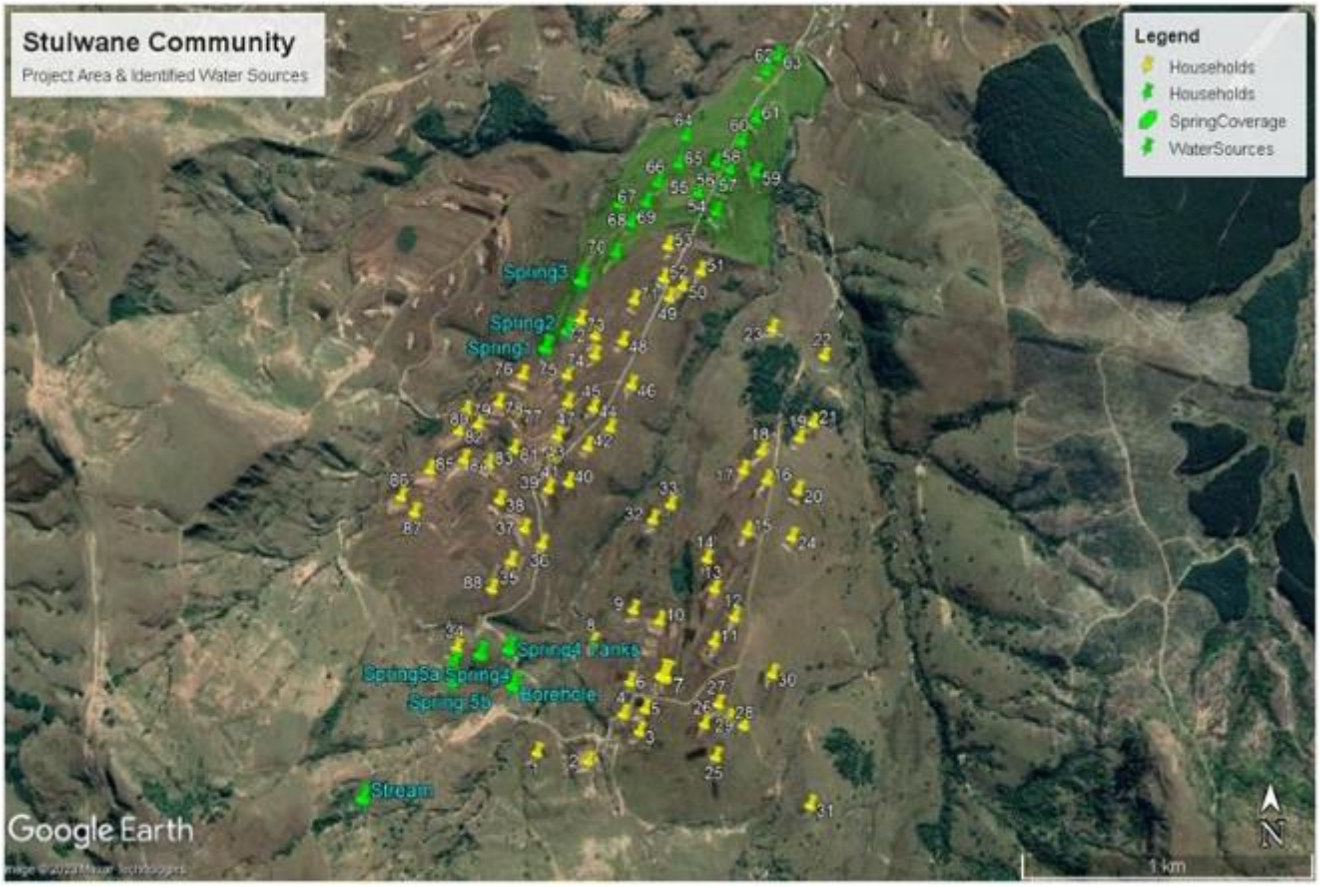

Figure 16: Local water sources and present local water access (April 2023)

Between April and August of 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 a number of households. The in-stream springs at higher elevations were investigated. These streams were indicated by the community as perennial. A point high enough to be away from livestock contamination was viewed. Water would be abstracted from a small concrete weir built in the identified streams and piped by gravity to a main storage tank part way 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 in order to reduce the pressure in the line and serve to provide additional water storage. Due to the higher elevation of the stream

abstraction points water supply could reach all parts of the village sections. Water quality tests were recommended to be carried out on this source as well.

Some potential challenges of these sources were:

- How assured is the supply towards the end of the dry season.
- There is evidence of high flow (moving rocks) during downpours. This would mean that maintenance to the off take may be required during the rainy season every year.
- 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 could mean a possibility of the water becoming contaminated.

Figure 17: Possible alternative source to supply Costone/Stulwane village.

A meeting was held with the community on the 1st and 2nd of June (60 participants) to discuss the scenarios proposed by the engineer as well as community level engagement, contributions and organization.

Figure 18: Community meeting to discuss water supply scenarios in June 2023

Agreements were made about separate sources to be used for village A and B and also the split of participating households (69) between the two sub-schemes. Households agreed to provide labour for implementation as well as R500 /households towards the infrastructure.

Implementation was planned and separated into 3 phases. This was to organize and strictly keep track of the progress of this program including the buying of the materials for this program. The first phase is working from the sources up until the first Pressure Tank in both sections. Phase 2 is simply about channeling water from the source to the first pressure tank then to the header tank. The last phase is about reticulation, supplying water from the header tank to the standpipes which will 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 have had too many bad experiences in the past. In addition, the community has not been consulted at all regarding the placement of schemes and taps. They were determined that working with Mahlathini is a much better option as this is then within the community ambit to use and manage. They expressed gratitude for being involved and a strong commitment to manage 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 of water can now be done easily and within a short period of 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 19: Right: Interns and eco champs finalizing the list and map positions of participating households.

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

Figure 20: Above Left to right: Construction of the weir and v-box in stream for both Sections A and B. The finalised weir, with shade cloth and rocks in the inlet chamber and the brake pressure tank 92500l), with pipes connected form the source and towards the header tank – also for both sections A and B.

The map below 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 6 and 9 taps respectively, proposed.

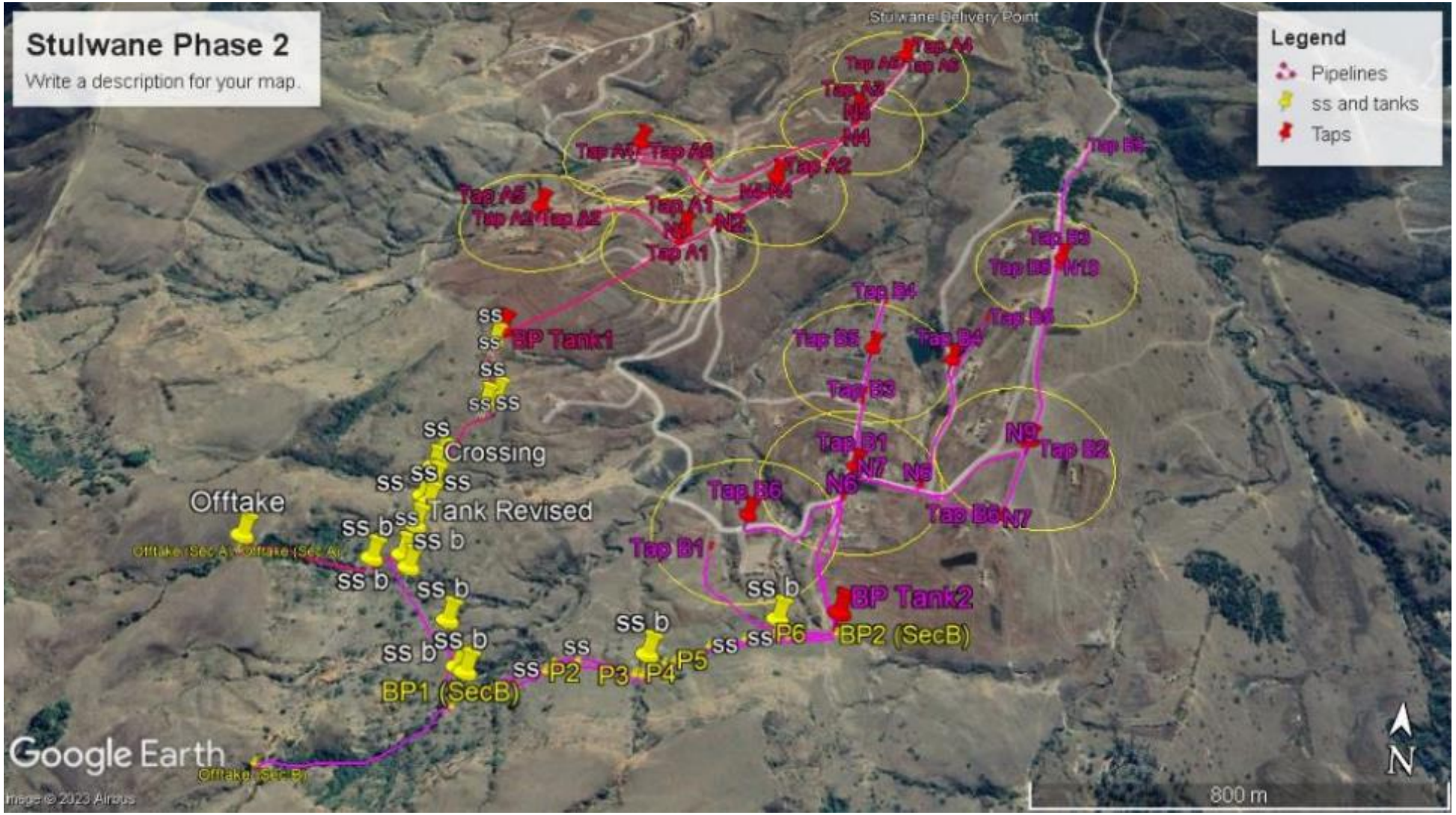

Figure 21: Stulwane Phase 2: With two abstraction points and reticulation for Stulwane A and B for all 75 participating households.

In January 2024, 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 this, despite attempts to plan for high water flow options. Repairs will need to be undertaken, including strengthening of v-box lids, and piping. Securing of pipes outside of the flood level streambeds and filtration of water prior to filling up 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 streams subsided. Not surprisingly these samples indicated high levels of turbidity and E Coli and would need to be treated prior to use.

Figure 22: Views of the flooded source for Village A (Danger's side): This shows the lid for the v-box has washed away and pipes no longer anchored at the side of the stream, but floating.

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 4x500l 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 (Hlanganisile Hlongwane -cell:0720326431), the ward councillor (Jeffrey Dladla-Cell:0656023356) and the operational manager for ILZ Consulting installing the Uthukela water scheme (Sibusiso Mgadi – Cell:0837403646).

Upon opening and welcome all parties noted that the meeting was to discuss collaboration and that the Uthukela scheme and the self-supply scheme were both important and were not competing with each other.

Figure 23: Mr Mgadi talking to the Uthukela layout, His map showing the two standpipes planned for Costone and Village members comparing the community owned layout and tap placements with the Uthukela Scheme taps.

Comparison of the two schemes

UTHUKELA WATER SCHEME. This aims to provide potable, drinking quality water, through installation of a diesel pump on 1 borehole below the wattle grove in Stulwane The 1st community tap will be supplied in the line going up to the 4 header tanks, and will thus provide continuous supply while the pump is operational. The header tanks provide 20 000l storage. The pipeline from there continues to a second tap (Village B), along the main road close to Makethi Dladla's home, before continuing along to the far ridge (Emahlathini village) to provide another tap on the other side, close to the Stulwane hall and then proceeds to Emadakaneni village. The Consulting company is to be responsible for operations and maintenance of the pump for 1 year post installation and then the idea is to hand this over to the community, including payment for diesel.

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 (Eammus area). Due to the topography and water sources the Amaswazi reservoir will be going 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 initially in fact 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', 3 whole villages, would be willing and able to take over payments for diesel for the pump. The consultants were unclear just how much water could in fact be provided.

Community members were clear that they should have been consulted and that provision of only 2 taps for the whole village was unworkable as a solution. They also felt that it did not make sense to try and provide water for 3 villages from such a weak source and that it would be logistically and socially impossible for these 3 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. However, the water committee members and Mahlathini were invited to the next scheme site meeting (25th January), which was to the uThukela Water officials and the consultants. This meeting was subsequently postponed indefinitely.

This is an unprecedented situation for the WSA and their 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. It also needs to be noted that due to upcoming elections, there is a lot of noise around water provision as a selling point for a number of the political parties in the area and that this in part is responsible for the ward councillor's sudden enthusiasm.

COMMUNITY OWNED SCHEME: This water system is to provide 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 100m- 200m of each home. Each household will have access to between 50l and 70l 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 will be opened to supply the taps. Community members will fetch water every morning, but do not have access during the afternoon and evening while tanks fill up.

The two subsections (Village A and B) have both elected a water committee to manage this process and in addition households have been allocated to a tap close by. Each 'tap group' is to manage the water access, use and maintenance for their tap. Costone also has a village level water committee, which oversees water access for the entire village. There is now a patch work of small access options, including an uThukela borehole with 10 000l 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 (25l per capita per day). There are between 3 and 5 households that will still be quite far from the present sources.

Strengths of this process

- Community involvement from inception through to completion.
- All households in the scheme (75) have been involved in the meetings.
- Understanding at 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 issue in the village and catchment.
- Incremental inclusion of neighbouring villages in discussion
- Community level agreements for water access and water use (quantity/day /household) have been agreed to and is 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 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 be able to reliably supply the basic water service requirements.
- Despite recognition of different flow volumes in the streams for summer and winter, planning and implementation by the NGO and the community, was unable to fully take into account the severity of flooding- causing damage to v-boxes and piping.
- Community members themselves work on a mainly verbal basis, meaning that agreements and decisions often morph to 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 a number of the existing taps dry.

3.10 RECOMMENDATIONS

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

- Communities have 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.
- Recognising (on both community- and authority side) that communities have co- or complete ownership of 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 commitment on the community's side to take up their portion of responsibility in terms of operations and management of the scheme and its infrastructure.
- Researchers and implementers of such schemes need to learn from the past, and build on the past to create greater odds for success; and,
- 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 owned water access (COWA) actors on technical, financial, institutional, and human aspects of water management.
- Develop and implement clear legal and regulatory frameworks that recognize 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 in COWA and
- Implement and improve monitoring and evaluation systems to assess the performance, impact, and sustainability of COWA 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 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.
- Aligning municipal and water services policies with community-based management approaches.
- Incorporating the concepts of multiple use system from multiple sources in water infrastructure development policies and strategies.
- Simplifying the roles and responsibilities of community-based water institutions.
- Provision of incentives and designing financing mechanisms by municipalities to promote community-based management.
- Development of community educational materials on water and sanitation, resource management, water protection and conservation, demand management, water quality management, etc. and

- Non-punitive policies that would support community-managed water service provision.

a. Governance considerations

Below is summarized list of governance issues that needs 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 programs, 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 programs 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 marginalized 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, lack of skilled personnel, and limited access to spare parts and equipment. Establishing maintenance protocols, training programs 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, non-governmental organizations (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 formalized 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 marginalized. 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 in 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.

3.11 REFERENCES

Buthelezi, M. (2006). *An Evaluation of the Mvula Trust Strategic Plan with Special Reference to its Ability to Support the Water Services Delivery Role of Developmental Local Government in Northern KwaZulu-Natal.* Pietermaritzburg.: Graduate School of Business, University of KwaZulu- Natal.

Department of Water and Sanitation. (2017). *National norms and standards for domestic water and sanitation services.Version-3. Final.* DWS.Government gazette. No 982.

Drew, H., Francis, X., & Kenneth, E. (2001). Re-evaluating Community Power Structures in Modern Communities. . *Journal of the Community Development Society 32:2*, 199-225. doi:DOI: 10.1080/15575330109489678

Geere, J., & Cortobius, M. (2017). Geere & Cortobius. 2017. Who Carries the Weight of Water? Fetching Water in Rural and Urban Areas and the Implications for Water Security. *Water Alternatives 512*. doi:https://doi.org/10.1186/1476-069X-9-52

Group, P. D. (2003). *The Mvula Trust: Still a Blue-chip NGO? Strategic Review: gearing up for the next ten years.*

Hofstetter, M., van Koppen, B., & Bolding, A. (2021). The emergence of collectively owned self-supply water supply systems in rural South Africa – what can we learn from the Tshakhuma case in Limpopo? *Water SA, 47*(2), 253-263. doi:https://doi.org/10.17159/wsa/2021.v47.i2.10921

Krantz, L. (2001). *The sustainable approach to poverty reduction: In Introduction.* Stockholm: Swedish International Development Cooperation Agency. Division for policy and socio-economic analysis.

Mays, L. W. (2007). *Water resources sustainability. Chapter 12.Water-based sustainable integrated regional development. By Olcay Unver Kent State University.* US:McGraw Hill - Education.

Mogane Ramhotshwa, B. (1995). *A community-based apporach to rural water supply and sanitation: Three case studies.* Pretoria: UNISA.

Muller, M. e. (2009). *Water security in South Africa. Development Planning Division. Working Paper Series No.12,.* DBSA, Midrand.: Working paper Seris No 12. Development Planning Division.

Nortje, K., Mbhele, R., Polasi, T., & Zulu, S. a. (2022). *Legal and institutional barriers to community owned water supply schemes.* Pretoria: The Water Research Commission. Report No. 2922/1/22 .

UN DESA. (2023). *The Sustainable development goals report2023: Special Edition.* Retrieved from https://unstats.un.org/sdgs/report/2023

United Nations. (2010). *The human right to water and sanitaiton. Media brief.* UN-Water Decade Programme on Advocacy and Communication and Water Supply and Sanitation Collaborative Council. Retrieved from https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf

WHO. (2017). *Progress on drinking water, sanitation and hygiene: 2017 update and Sustainable Development Goal baselines,.* Geneva: WHO. Joint Monitoring Programme.

4. WORK PLAN: MARCH -AUGUST 2024

The following broad activities are to be undertaken during this period:

- Continuation of implementation for the CRA learning groups across three provinces
- Ongoing involvement in CoPs: AN-capacity building and learning, PGS-SA, Northern Drakensberg collaborative
- Update on postgraduate students' progress: Nqe Dlamini (PhD) _UKZN and temakholo Mathebula (MPhil)_ UWC.
- Development of 3 CbCCA implementation case studies
- Development of climate resilience monitoring framework and indicator sets.

Table 3: Work plan –March-August 2024

Work plan March-Aug 2024	Team	Activities	March-April24	June-July 24	Submission
Development of 3 CbCCA case studies	MDF: Erna Kruger, Betty Maimela, Tema Mathebula, Nqobile Mbokazi	COPs: Continue with village level CRA learning groups in KZN, EC and Limpopo engaged – develop case study framework and conduct interviews.			2024/08/12
	MDF: Erna Kruger INR: Brigid Letty	COPs: Northern Drakensberg Collaborative			
	MDF; Erna Kruger, Tema Mathebula and Karen Kotschy	Develop monitoring framework and indicators – pilot M&E process in selected learning groups			