



Professionalising management and accountability in rural water supply

An SNV-organised and facilitated learning event

Nampula, Mozambique
6-9 May 2024

[Learning event proceedings | Prepared by Jeremy Kohlitz, Research Director,
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Executive summary

The Professionalising Management and Accountability in Rural Water Supply Learning Event, held in Nampula, Mozambique from May 6-9, 2024, was organised as part of SNV's Climate Resilient Rural WASH programme. This event aimed to exchange ideas and deepen understanding of rural water service management models across different contexts. It was attended by 67 participants from Mozambique, Tanzania, Zambia, Burkina Faso, Kenya, Bhutan, Lao PDR, Uganda, Ghana, Nepal, Benin and the Netherlands, including SNV advisory teams, partners from local and national governments, local NGOs, and international research institutes. The learning event comprised of five blocks:

Block 1 focused on the **institutional set-up of rural water supply** in participating countries. It highlights the predominance of community-based management models, which, despite being common, face numerous challenges. The block includes an introductory presentation summarizing the issues with community-based management, followed by country poster presentations that detail the institutional arrangements for rural water services in different countries. These presentations facilitate discussions on the similarities and differences in water service delivery, the challenges faced, and the reforms being implemented. The block aims to enable cross-learning and improve the understanding of how rural water services are managed across different contexts.

Block 2 looked at **rural water supply management models in Mozambique**. It begins with an overview of the context of water supply and sanitation in Mozambique, highlighting the historical challenges and current management modalities. The block then describes the field assignments where participants were divided into four groups to visit different rural water supply sites in Nampula province. Each group examined the infrastructure, technical and financial management, and organizational aspects of the water supply systems. They provided feedback and recommendations based on their observations. The findings emphasized the importance of government support, local operator involvement, and the need for financial sustainability and community engagement in rural water management.

Block 3 explored **innovations in rural water supply management**. It showcases innovations in service delivery models, including rapid response mechanisms for repairs. The block highlighted the importance of adapting to local contexts and leveraging private sector capabilities. It also includes the results of a debating game in which participants explored and challenged one another's views on the use of pre-paid meters for household connections in rural piped schemes and the success of private sector models.

Block 4 addressed **accountability and regulation in rural water supply**. It emphasised the importance of regulations in ensuring sustainable and equitable water services. The block included discussions of the challenges and perspectives of regulating water supply in small rural populations, particularly in Mozambique. It highlights the need for clear regulatory frameworks and effective oversight to address issues such as water quality, service reliability, and consumer protection. The block also includes a group exercise where participants presented regulatory practices in their own countries.

Finally, Block 5 wrapped up with **country team reflections and takeaways**, where participants shared insights and reflections on the event's learnings. The sessions emphasized the importance of collaboration and knowledge exchange in supporting continuous improvement in rural water supply management.

Overall, the event underscored the critical need for professionalizing rural water management, fostering innovation, and ensuring accountability to achieve sustainable and climate-resilient water services.

Introduction

The **Professionalising management and accountability in rural water supply** Learning Event was held in Nampula, Mozambique 6-9th May. The learning event was part of the rural Climate Resilient Rural WASH (CRRWASH) programme of **SNV's global water sector**. CRRWASH is an area-wide approach which integrates all elements of sustainable service delivery, and how these interlink consumers, service providers (public, private, water users' associations or other) and responsible government entities to leave no-one behind.

The focus of the CRRWASH approach includes strengthening WASH governance, social support systems, and regulation, improving the performance of rural service providers, raising the quality of infrastructure construction and rehabilitation, implementing evidence-based behavioural change, and making consumer supply chains and financing more robust.



Climate Resilient Rural WASH is a rural programme with 5 components, which are:

1. Rural WASH governance and regulation
2. Operator performance and post-construction services
3. Quality of rehabilitation and construction
4. Behavioural change
5. Consumer supply chains and finance

In addition to the above, there is a 6th component for analysis, dissemination, and learning. This workshop is part of the learning activities. The learning activities are not limited to the SNV programme but intended to promote discussion about best practices in rural water, sanitation and hygiene within the sector.

The learning event aimed to exchange ideas and deepen our understanding of **different types of management models for area-wide rural water services**, and how these play out in different contexts. New management arrangements for rural water supply are emerging in different countries in Africa and Asia. We will look at the performance of these arrangements for service delivery and reaching all, their climate resilience as well as accountability and regulation around these.

Specific objectives were:

1. Exchange and reflect about the institutional set-up in the different countries with focus on sub-national level:
 - a. Management models
 - b. How these combine in area-wide service delivery models
 - c. Where regulation/ accountability sits, who is responsible
2. Explore innovation in management models and regulatory mechanisms in light of service delivery outcomes as well as future trends
3. Reflect about ways to innovate incrementally in improve service delivery

It was attended by 67 participants from Mozambique, Tanzania, Zambia, Burkina Faso, Kenya, Bhutan, Lao PDR, Uganda, Ghana, Nepal, Benin and Netherlands, including SNV advisory teams, partners from local and national governments, local NGOs, and international research institutes.

In the weeks leading up to the Learning Event, the participants engaged in an online Egroup forum discussion that covered three topics:

1. What makes a good management model for reaching all with rural water supply?
2. Exploring new rural water supply arrangements (models and regulations).
3. Are our management arrangements future-proof?

A summary of these online discussions can be found at <https://snwater.groups.io/g/RuralWASH>.

This report synthesises and documents the key presentation content, discussions, reflections, and outputs generated during the event. It provides a reference point for participants of the Learning Event to recollect the knowledge exchange and for WASH professionals to draw upon to inform CRRWASH programming, service delivery, policy and research.

Official opening



Photo: Official opening. **Photo credit:** DPOP-NPL.

Presentation by Dr Rita Zacarias, WASH and Climate Change Adviser, FCDO

The learning event was opened by Dr Rita Zacarias who is a WASH and Climate Change Adviser for the United Kingdom FCDO program. Dr Rita emphasised that the UK Government has embraced the challenges of supporting water services in rural Mozambique. Many years ago, that started with drilling boreholes and now the focus has evolved to achieving climate resilient and sustainable WASH structures. She noted the Learning Event was an excellent opportunity to advance learning on this front.

Presentation by Mr. Raul Mutevuie Júnior, National Directorate for Water Supply and Sanitation, Mozambique Ministry of Public Works and Housing

Mr. Raul Mutevuie Júnior was delighted to be surrounded by people who share a common language on water and sanitation and a common goal to achieve sustainable WASH services by 2030. He emphasised the importance of focusing on WASH services over WASH infrastructure, including developing WASH services that are resilient to the effects of climate change. He highlighted that Government of Mozambique has made important strides in supporting WASH service needs including passing legislation that enable the involvement of private sector actors in service provision and the establishment of a regulator that looks after water quality, customer satisfaction and tariffs. Finally, he noted the importance of information and knowledge exchange: The Government of Mozambique has set up a database on rural WASH (SINAS) to support planning and monitoring and the Learning Event offers an opportunity to exchange experiences so all participants can come out better equipped to improve services.

Expectations of participants by country

Participants from each country introduced themselves and shared their expectations of the Learning Event, as summarised below.

Table 1: Expectations from Professionalising management and accountability in rural water supply learning event, by country

Country	Expectations
Tanzania (and one participant from Malawi)	<ul style="list-style-type: none"> • Learn about service delivery models that work in other countries and what doesn't work • Learn about institutional arrangements in other countries and lessons on laws and regulations • Find ways to enable more sharing and learning after the Event finishes
Zambia	<ul style="list-style-type: none"> • Learn about how other countries are promoting private sector involvement in rural WASH servicing • Learn about best practices, especially in terms of regulation water quality and availability at sub-national levels
Kenya (and one participant from Benin)	<ul style="list-style-type: none"> • Learn more about rural water management models in other countries • Learn effective ways to involve a wide group of stakeholders in rural water management, including national government • Learn about new technologies and innovations
Bhutan	<ul style="list-style-type: none"> • Learn about different water management modalities from other countries • Build networks and relationships
Lao PDR	<ul style="list-style-type: none"> • Learn about different ways to approach climate resilient WASH • Learn new ways of managing different types of water sources and resources
Mozambique	<ul style="list-style-type: none"> • Gain experience on sustainable WASH management from other countries • Learn from other countries about regulations and policies on water supply • Share our actions and efforts to integrate resilience into water service provision • Learn about new technologies • Learn about the extent to which Mozambique is aligned with other countries • Share experiences about how the private sector is working with the public sector on water supply
Uganda	<ul style="list-style-type: none"> • Learning how water supply is being managed in other countries and their challenges • Learn what we need to do differently to respond to climate change • Learn about new technologies that will strengthen climate resilience
Ghana	<ul style="list-style-type: none"> • Learn how other countries are regulating rural water services • Learn about climate resilience of WASH services • Learn about professionalising the rural WASH sector
Nepal	<ul style="list-style-type: none"> • Learn about water and sanitation management models in other countries • Learn how to make rural water supplies more sustainable • Learn about different legal provisions and regulations that can be implemented • Learn about the types of support mechanisms that government can implement
Burkina Faso	<ul style="list-style-type: none"> • Learn how to make water supplies more resilient, particularly considering the security context in Burkina Faso • Learn about different financial models for rural water supplies • Learn about data management and monitoring
Global	<ul style="list-style-type: none"> • Learn about the roles and responsibilities of regulators • Learn about accountability mechanisms for regulation



Photos: Country expectations. Photo credit: DPOP-NPL.

In summary, the workshop participants expressed diverse yet interconnected expectations centred on learning from international experiences in rural WASH management. Key themes included exploring regulatory practices, stakeholder engagement, and innovative technologies. Participants were keen to understand best practices for sustainable and climate-resilient water services, including financial and management models. Building networks and sharing experiences were also important, highlighting the need for a collaborative approach to improving rural WASH services globally.

Summary of Egroup discussions

Antoinette Kome, Learning Event Facilitator and SNV's Global Head of Water, delivered a presentation to set the scene for the Learning Event through a summary of key learnings from the Egroup discussions, the latest thinking on rural water service delivery, and the overall agenda for the Learning Event.

Antoinette first acknowledged and thanked the Government of Mozambique for supporting the Event and the funders of SNV programs, which include FCDO, DFAT, USAID, the EU, and Dutch and Swiss development organisation, that enabled the participants to join the Event.

There are many critical dimensions of rural WASH service delivery, such as behaviour change, supply chains, and quality of construction of infrastructure, but this Learning Event is focused on the **performance of operations, governance and regulation**. Learning is an important aspect of our rural WASH programmes. The Egroup discussions leading up to the event included 65-70 contributions over the course of three weeks that inform this Event. WASH programmes may last 3 – 5 years or longer, but eventually they end. Hence, they need to institutionalise and support learning.

Post-construction support and ongoing management is critical – without these, infrastructure investments become meaningless. On paper, capital investments take about 6-8 months, then operations

go on for around 15 years before another 6-8 months is needed for rehabilitating assets. But without appropriate operations, rehabilitation may be needed after just three years.

Several actors play critical roles:

- The government is the duty-bearer and has responsibility for progressive improvements. The service authority is a specific entity within government to actualise this.
- The service provider is the operator and is the body or person that carries out the everyday operations.
- Services are consumed or used by the end-users or consumers.
- There should also be a regulator involved to ensure laws and regulations are followed.

The **rural water management model** is how we organise these people around the infrastructure so that the expected lifespan is achieved.

From the Egroup discussion, we can distinguish four broad types of management models:

1. Self-supply,
2. Community management,
3. Public sector management, and
4. Private sector management (through delegated support or privately built supplies).

Community management is by far the most common model in rural areas. In different countries they go by different names: Water user associations, Water sanitation management committee, Community-based water supply organisations, and so on.

Usually, community managed models work with a committee and a caretaker. The households pay the committee, and the committee pays the caretaker. But from the Egroup discussion, we can see there are different levels of post-construction support to these systems. And regulation and oversight are organised differently. All countries in the Egroup discussion reported some form of post-construction support, but they are often resource constrained. Sometimes they only have a few staff members overseeing hundreds of communities.

Direct support from local government is the main form of post-construction support. For example, the committee may send a representative to a post-construction support unit at the local government level that will provide training and technical support. Usually this is subsidised by the national government. A second model occurs where there is an agreement between the government and an association representing the community-based organisations (CBOs) in an area. For example, an association of pump mechanics. Payments from households may either go to committees or directly to the mechanics.

However, **there are emergent models.** In Uganda, there is a specialised rural water supply agency that provides oversight to water committees in the communities. They provide training and technical assistance funded by national government. In some cases, piped systems are managed by a private or government actor. Sometimes communities manage piped services, but it can depend on the size of the piped scheme in some countries. There is a trend for regional utilities to manage bigger piped schemes, but communities still have responsibility over local aspects.

How does it all fit together across a district? There can be different management models spread over a district. Utilities may manage bigger more dense systems while community-managed or delegated management exists in smaller settlements. **The right configuration needs to be sought out** to reach all, achieve economies of scale, and avoid competition for public resources. Unfortunately, usually more tax money goes to urban areas, so consequently urban people sometimes pay less for water than rural water users.

Community managed water supplies have pros and cons:

Strengths	Weaknesses
<ul style="list-style-type: none"> • Closer to end users • Low cost • Uses local knowledges • Engagement of women on committees • Can be democratic 	<ul style="list-style-type: none"> • Depends on volunteers • Weak support and accountability and long lead time for support from government • Capacity gaps • Water quality issues • Reactive management that pays once things break • Not always financially viable

What does a good water supply model look like? There were many contributions from the Egroup discussion on this that may be summarised in terms of:

- **Good water service outcomes:** Good service delivery models will mean that people are getting a good service (water at agreed service levels for all in the service areas).
- **Good service delivery process:** For example, in terms of technical management and sufficient revenues to maintain financial sustainability (efficient and effective core functions).
- **Good internal processes:** There are many – for example, participation, bookkeeping, training, planning, etc. – but to summarise, much of it is about having good people that well-trained, good administration such as for finances, and good structures with clear roles and responsibilities.
- **Good embedding:** There is a legal basis for the management arrangement and effective oversight that enables accountability of the service provider. Oversight can come from communities, but it’s important that external oversight is also present.

These above points align with an urban water utility framework put forth by the World Bank.

There are many parameters or examples from the Egroup discussion for each of these four levels:

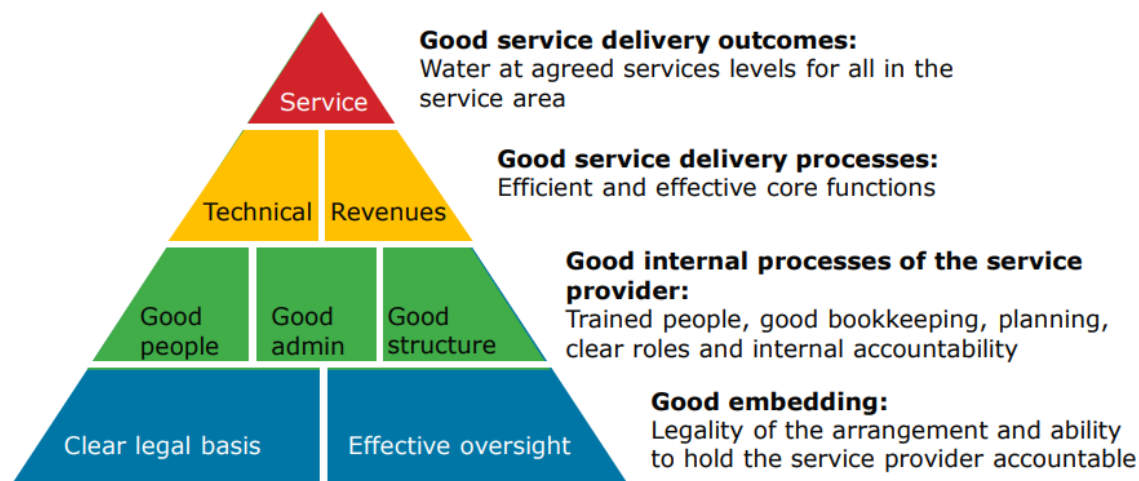


Figure 1: World Bank utility turnaround framework adapted for rural water management

Event objectives

The overall intent of the Learning Event is to learn what are the best practise professional in rural water supply management and what we can learn from each other generally, not specific to any project or program and not even specific to SNV. We want to exchange ideas, explore innovations, and reflect about how we can innovate incrementally.

Figure 2 shows the logic of the learning event and the five blocks of presentations and workshops intended to achieve the learning

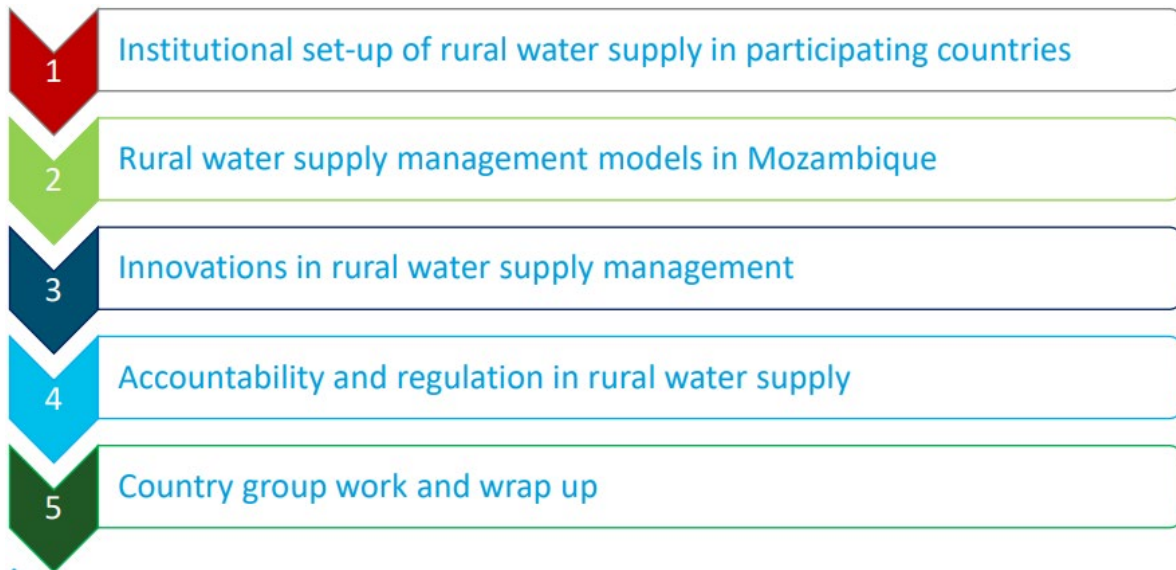


Figure 2: Logic of the workshop

Block 1: Institutional set-up of rural water supply in participating countries

Overview

Countries that SNV works in have different institutional arrangements for overseeing rural water service delivery. Each of these arrangements comes with its own opportunities and challenges. Community-based management continues to be the predominant rural water management model, but it comes with many challenges. Some governments are reforming their institutional set-ups to create opportunities for new management models or make improvements to existing ones.

This block focused on exchanging knowledge on how diverse countries in Africa and Asia oversee rural water service delivery to enable cross-learning between country teams. In particular, teams exchanged knowledge on challenges with common types of water supply technologies and services, stakeholders involved in managing and overseeing rural water services, reforms and ongoing changes to institutional set-ups, and the extent to which the human right to water is being achieved in their countries.

This block included an introductory presentation to summarise comments from an Egroup discussion related to the challenges of community-based management, country poster presentations on the institutional set-up for governing rural water services, and preparation for field trips to rural water supply sites in Mozambique the following day.

Introduction to Block 1

Presentation by Antoinette Kome, SNV Netherlands

Community management is the most common model for rural water services. In some places, communities only manage points sources whereas in other places piped services may also be community managed. In these cases, the community is the service provider that is delivering services on behalf of a service authority.

The Egroup discussion highlighted that these services are being delivered in **a context of many ongoing changes**:

- **Changing demographics** in terms of young people moving out of rural to urban areas. Negative population growth is happening in some rural areas in both Asia and Africa.
- **More connectivity** in terms roads and communication. This is providing more information, but also generation of more solid waste.
- Ethiopia in particular talked about a **decrease in yield from springs and boreholes**, more service interruptions, and competition with irrigation committees especially in the growing season.
- **Higher energy costs** due to water tables going down and increasing pumping intensity.
- More repairs and damage from **increased flooding**.
- Water quality management and overall **sanitary management** challenges.
- **More remittances** from family members abroad such as children sending money back to parents which can help pay for water.
- **Increased private land ownership** which makes it hard to place infrastructure.
- Many countries (e.g. Kenya, Nepal, Burkina Faso) have pursued decentralisation strategies which have created confusion at different levels. Some duplication and some things are left out.

These ongoing and future trends have many implications:

- Trained young people are leaving to use their skills where they can make money.
- Conversion of handpumps to solar pumps.
- Less young people available to provide manual labour.
- Less viable schemes due to lower populations and higher energy costs.

- Some areas are trying multi-villages schemes where piped schemes are servicing multiple settlements.
- Water quality challenges are ongoing.
- More complex systems where there has been population growth, such as rural growth centres where government puts investments.

Hence, there is a need to explore opportunities for other rural water management models. Each country team presented posters to facilitate discussion on how rural water services are delivered in their country, ongoing challenges, reforms being made, and thoughts about how well the systems for water services are working.

Country posters on institutional set-up in each country

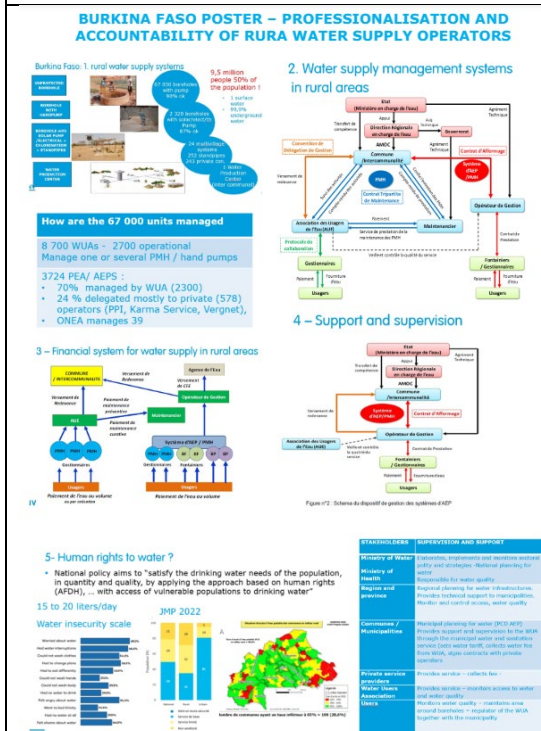
Prior to the learning event, country teams were invited to prepare a poster showing the institutional set-up relating to rural water service delivery in their country. Each country team presented their poster and national situation with Q&A. During discussions some teams amended their posters to make clarifications. Following the presentations, observations summarising the overall points of the posters were presented in plenary. The country posters are available at:

<https://snvwater.groups.io/g/RuralWASH/files/2024%20Nampula%20Learning%20event/Country%20posters>.

COUNTRY POSTER GUIDING QUESTIONS

1. Explain the (sub-national) service delivery models and related rural water supply management models
2. Does it ensure rural water supply services for all?
3. How do you see this model performing in future? Is it future proof?

Burkina Faso [\[View full poster\]](#)



Context: In Burkina Faso, there are two main types of water supplies in rural areas: piped schemes and handpumps. Half of the people in rural areas use handpumps, although there are increasingly recommendations to use boreholes with solar pumps.

Water supply operation: The responsibility of overseeing rural water supplies is delegated to the municipality. The management activities are done by the community or a private operator who has a contract with the municipality. Handpumps they are always managed by a Water User Association (WUA) which may manage several handpumps. Bigger systems with boreholes, standpipes and chlorination systems are managed by a community organisation or a private service operator. A third management model provided by the national policy is management by the National Agency on Water and Sanitation.

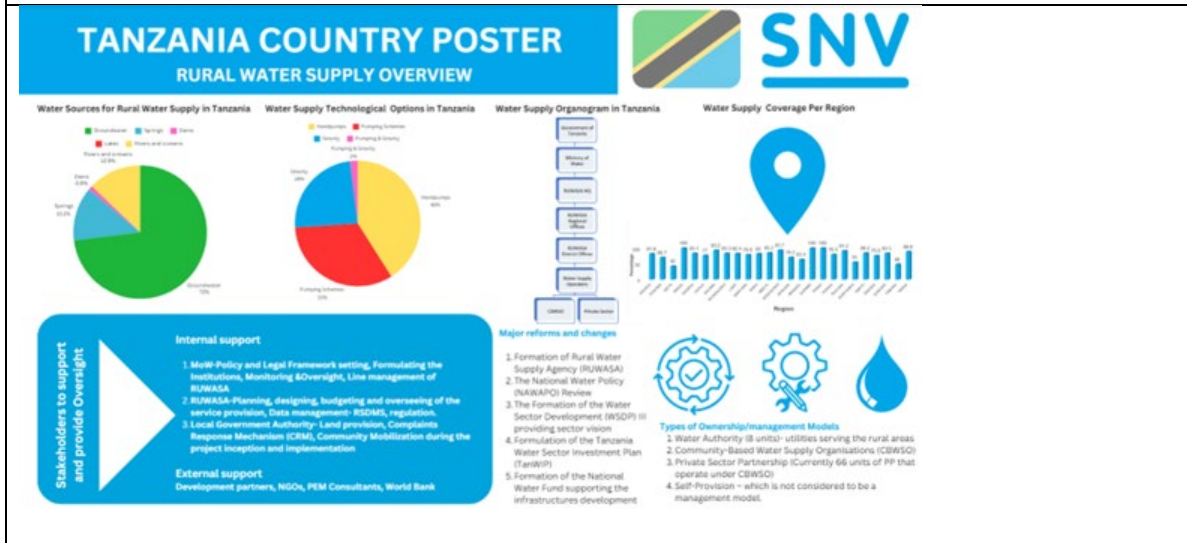
Financial management: When a water supply is managed by communities, households pay once per year based on how many people are in the family or by economic status. For private operators, the fee is paid by volume.

Regulation and support: Regulatory aspects are set at the national level under the Ministry of Water and Sanitation. The Ministry of Health should regulate water quality, but in practice it is not done well. Too many units and agencies are under-resourced. The regional office of the Ministry of Water and Sanitation provides post-construction support. The municipality provides support for operation if a municipal water and sanitation service exists in their area.

Human rights: Human rights to water are well-accounted for in National law. There is good progress of water service and human rights. Yet, 70% of the rural population has to walk more than 30 minutes to get water. 70% of people have been worried about water, 40% of people go thirsty, 45% people are unable to wash clothes for lack of water.

Question	Answer
How is water typically accessed from the boreholes?	Through handpumps or solar-powered pumps.

Tanzania [\[View full poster\]](#)



Institutional arrangements: Water supply at sub-national level is overseen by the Rural Water Supply and Sanitation Agency (RUWASA). There is a Ministry of Water which ensures all citizens have a water supply. Within rural areas, there are district offices, with some private sector representation.

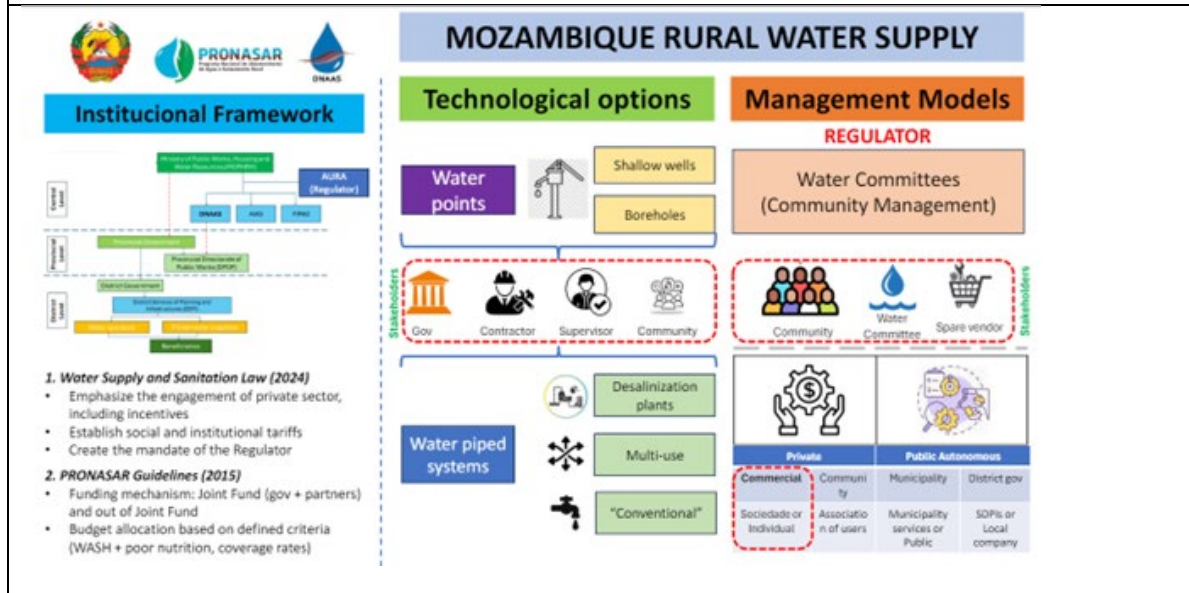
RUWASA oversees 8,091 schemes. Most of the water supplies are groundwater but surface water from streams and dams and springs are also used. After completing construction, the water supply is handed over to a community-based organisation and RUWASA provides service standards. A business plan is developed and a performance contract is signed to say the water will be provided to the standard.

Policy and financing: The role of the Ministry of Water is primarily policy-making. RUWASA will interface with local areas. The national policy is currently being reviewed to make improvements. Not enough money is available to do all the interventions that are needed. So, a Tanzania Water Fund is being launched which will seek water from different sources of financing to accelerate coverage. The future national water fund is meant to finance not just construction, but also ongoing service delivery.

Future ambitions: In the future, it is hoped there will be better financing of O&M. We want to achieve economies of scale, so we want to cluster water schemes to improve financial efficiency. Rural growth areas are becoming towns so there is more embracement of technology use like meters. Global issues like climate resilience are getting more attention. The feasibility of a national water grid is being explored – there are places with major water resources and places with little water, so ways to distribute that water around the country is being looked at.

Question	Answer
How is the basket fund operated? Who sets the tariffs?	RUWASA is the regulator so they set the tariff. The national water fund comes from national revenues (Tanzania revenue authority) – tax on petrol goes into the national water fund.

Mozambique [\[View full poster\]](#)



Institutional arrangements: Oversight of water supplies falls under the Ministry of Public Works, Housing and Water Resources. Under the Ministry, there are three bodies which separately cover rural areas and bigger cities. District level governments are responsible for implementation.

Private operators: At the district level, there are private operators, community operators and municipal operators. Government recently approved a water supply regulation that has been discussed for a long time. With this law, there is more focus on the engagement of the private sector which is an innovation. It includes tax exemptions for work related to water supply. An important point of the law is that it establishes taxes and fees for water and health. There are also social fees for populations with very low income.

Technologies: There was a civil war following independence in 1975. Water was then provided for free to the population, mainly sourced through boreholes. Nowadays there are still boreholes and shallow wells, but also conventional piped water supply systems, desalination systems, and multi-use systems. In these multi-use systems, there can be competition with irrigation for water.

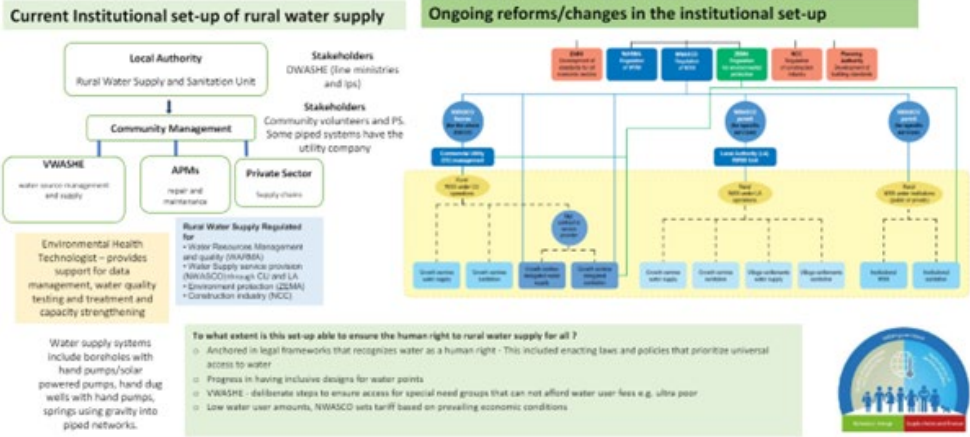
Management: Management is most often done carried out by the community. There is management by private commercial entities and public entities (like the municipality or district government). There is a regulator called AURA.

Question	Answer
How do you manage in the context of cyclones and storms?	We have different emergency responses. When there are displaced people, we have to look at the availability of infrastructure after the event. We have water trucking for the emergency period.

Zambia [\[View full poster\]](#)

SNV Climate Resilient Rural WASH – Professionalising Rural Water Supply Sub-National Rural Water Supply Service Delivery Model – Zambia

By Sarah Muleya Nchimunya and Solomon Mbewe



At the district level, water supplies are overseen by local authorities. Community management is the most common management model.

Private sector engagement: The private sector is involved in the supply chain, like if a borehole or handpump breaks down. A WASH committee can mobilise funds. But often fees are not collected until the breakdown happens, then the committee gather funds. Area pump mechanics are trained by the local authorities and can be hired to do the repairs needed. Communities that use a dam/piped scheme often don't have mechanics that can make repairs, so this is a problem. There are shops that stock spare parts for handpumps at a subsidised price. But with inflation, some of these shops are struggling. They sell something, then need to re-stock at a much higher price so they take a loss.

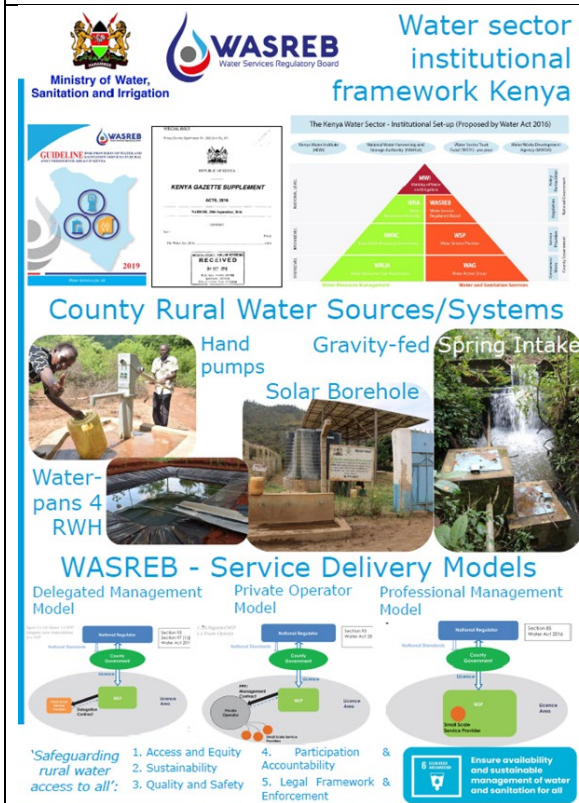
Regulation: Environmental health technicians will do monthly sampling if a site is found to be contaminated. Then treatment will be done. Rural water supply systems are regulated by NWASCO. They also regulate the type of drilling. They will look at the type of drilling and the water resource. Water service provision is approved through the CEO at the local authority level.

Reforms: In 2018, the government extended the mandate of local utilities to cover rural communities nearby urban centres. The commercial utility can directly provide water or delegate a management contract to a local service provider. This is currently being evaluated to see how well it works. We are hoping that if this shift happens at scale, it will further achievement of the human right to water.

User fees: There are challenges around user fees; the CEO of the local authority cannot set the fees.

Question	Answer
What are the tariffs? How much is needed to be collected to have enough money for O&M?	Under the community management model, the community decides. Usually these are quite low.

Kenya [\[View full poster\]](#)



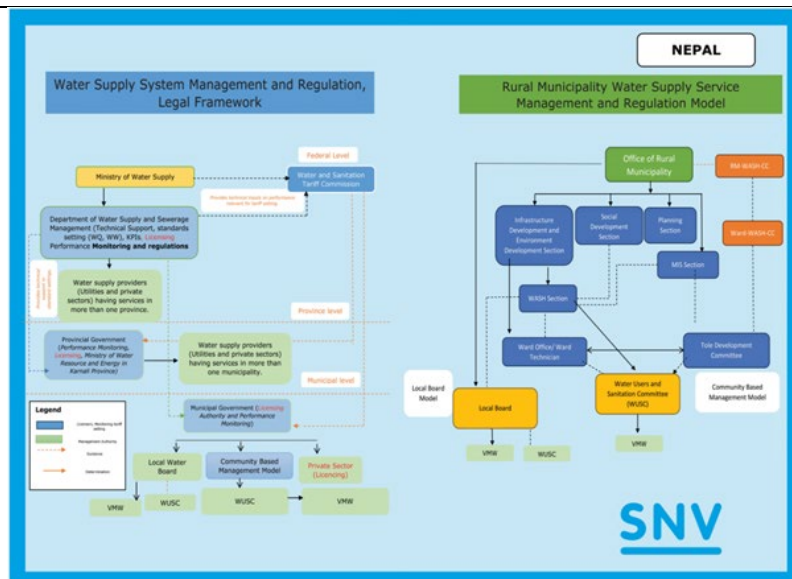
Institutional arrangements: The Ministry of Water has a mandate to set policy for rural water supplies. There is a National Water Harvesting and Storage Authority, a Water Works Development Agency and a Water Sector Trust Fund. The Fund gives grants to lower scales. Standards are set at the national level. At the national level, there are water development agencies that look after bulk water supply. The bulk water supply is usually surface water, such as used for megadams.

Water service provision for rural areas is delegated to the county level. There is a National Water Act which sets a framework for water service provision including financing. Water resource management and water service provision can be financed through the national fund.

Management models: At the county level, the licenses can be issued to local water service providers. At the local level, there are different water management models. There is a delegated management model whereby the county government gives a water service provider a license who then delegates a contract to a small-scale service provider. The private operator model involves establishing a PPP agreement in which the national regulator gives a license to a local water service provider who then signs a management contract with a local private operator. The county government can also directly be the water service provider through a public model. This occurs for communities around the Nairobi area.

Technologies: Gravity-fed water supplies from spring and boreholes are most commonly used. Water tanks are used to collect rainwater.

Nepal [\[View full poster\]](#)



Institutional arrangements: The Ministry of Water is taking the lead role of overseeing water supply. The Water and Sanitation Commission was founded to coordinate with the local government. The municipal level is the most responsible for service delivery to the community.

Management models: There is a WASH unit within the municipal level and they provide technical support to the water user committees. Some municipalities have a local board that provides the service and collects the tariffs from the users. The water user committee interfaces with the local board about water issues they have. So, the water user committee and the local board are the two management models used in the rural areas of Nepal. But not many places are actually using the local board model.

The rural municipality has autonomous authority to prepare and implement water supply schemes without the permission of the national government. There is a Management Information System (MIS) being set up that give real-time information about the performance of water supplies. This system also contains information about the households that are being underserved.

Private sector engagement: Most rural projects are under the rural municipality level. The private sector does not have a big role in rural water supplies in Nepal. They do in the urban areas but not rural. The WASH act provides for licensing in rural areas, but it is currently not being practiced.

Question	Answer
For the MIS, the information is uploaded by the municipalities. Who funds the data collection?	Not much budget is being invested towards water supply monitoring since federalisation started. But some budget is being provided by the federal level. The data is collected by a surveyor. The WASH unit is responsible for the data collection.

Bhutan [\[View full poster\]](#)

Professionalising management and accountability in rural water supply

Bhutan Country poster on sub-national rural water supply service delivery model

1) What are the different types of rural water supply systems at the sub-national level ?

- Primarily a gravity fed system
- Pumping
- Rain Water Harvesting

Water Supply (Components) structures in Gravity Flow System

Management model :

- Community based
- Individual

Active role of communities in water management, operation and maintenance of the water supply scheme

5) To what extent is this set-up able to ensure the human right to rural water supply for all ?

- Clear mandates of the respective agencies which will contribute to better coordination and efficient service delivery
- Sufficiency – Ensure availability and continues supply of the 95 litres per person per day
- Safe & acceptable – Ensure quality of drinking water through periodical testing and monitoring
- Physically accessible & affordable - Consideration of targeted interventions for People with disability, elderly, women and children

Women engaged in the role of WUA and as contributors to support and help ensure water accessibility and to meet the needs of everyone

2) Who are the stakeholders involved to manage this? I.e. what kind of management models exist ?

- Local Government – Planning, budgeting, implementation, monitoring
- Communities
- Institutions (schools, monastic institutions, HCFs etc)

District and Sub-district multi-stakeholder, Thanglagang and Chhutha District

3) Who are the stakeholders involved to support and provide oversight ?

- Local Government
- District Engineering Sector, Engineers/Technicians at the Gewog(sub-district).
- Health Assistant
- CSOs- Tarayana, RSPN, Communities/water committee
- Devoups- Volunteers

4) Are there any reforms or changes ongoing in the institutional set-up ?

- Creation of the new Department of Water = mandated to oversee the overall water sector policies and regulations, guidelines and strategies
- Rural Water Supply and Sanitation programme mandates transferred from the Department of Public Health, Ministry of Health to the Ministry of Infrastructure and Transport
- Formalisation of the WUA
- Revision of the Bhutan Drinking Water Quality Standards 2016
- Review /revision of the Water Act of Bhutan 2011

Presenter:

- Mr. Dorj Khando, DWI, MCHM
- Ms. Sonam Pezom, WSG, MCHM
- Mr. Ugyen Rinpo, PL, SWV
- Mr. Tashi Dorj, WASH Advisor, SWV

Water management: Gravity-fed systems are common in rural areas and rainwater harvesting is sometimes practiced. The stakeholders involved in rural management include local government who looks after planning, budgeting, monitoring and implementation. The water committees of institutions (schools, monastic centres, HCFs) manage their own water supply. Some individual households have their own individual water supply. An engineer or technical person is assigned to the sub-district level for advising on the design of water supplies and providing technical support. Water quality testing should be conducted on rural water supplies twice per year. Volunteers provide labour support in the construction of water supplies.

Service authority: A Department of Water was created recently to oversee the execution of water policies. The Ministry of Infrastructure and Transport has a role in infrastructure provision in both rural and urban settings. They also provide technical backstopping for surveying and design.

Policy: Water User Associations are being formalised through a set of guidelines. The guidelines will soon be finalised which will lead to improvements in the institutional set-up.

The 2011 Water Act is being reviewed. In this act, the mandates are fragmented. So, this will be improved. With the new revision the roles and responsibilities will become clearer.

Question	Answer
What is the experience with the gravity-fed piped supplies being managed by water user committees?	So far it has been a good experience, but with some challenges.

Lao PDR [\[View full poster\]](#)

Rural Water Supply in Lao PDR

     	<p>Overview Self-supply through boreholes, surface water and rainwater for all domestic needs is practiced in some communities, particularly in isolated regions of Laos. Rainwater collection is common although access is seasonal and few households have adequate storage for year-round use. Household water treatment prevalence is low despite poor water quality (79% of rural drinking water sources are contaminated with E.Coli). Households are responsible for the purchase and maintaining water supply infrastructure.</p> <p>Stakeholders There is limited institutional oversight or support for household self-supply. The Department for Groundwater under the Ministry of Natural Resource and Environment is responsible for maintaining a register of boreholes, but this is not currently extended to private boreholes for domestic use.</p>	Household Self-Supply
  	<p>Overview The water source, system type, size and quality of construction can vary widely depending on the context, location and funding available. Gravity-fed systems are largely relied upon in upland and mountainous regions of Laos. Supply can be directly to individual households or via communal access points or standpipes. An integral component of community managed water supply systems is a designated fund for the repair and expansion of the village water system. This fund is primarily financed through water usage fees which are determined by the community (which can include metered connections), managers can be supplemented by contributions from additional sources.</p> <p>Stakeholders Community systems are the responsibility of the Ministry of Health. At a national level the Department of Hygiene and Health promotion is responsible for supervising technical work while the Centre of Water Supply and Environmental Health (CWSEH) is responsible for implementation. This division of duties is replicated at a sub-national (provincial and district) level with the health department responsible for supervision, the Hygiene and Health promotion divisions providing technical work and financial and implementing work at the provincial and district level. At a community level village authorities have a role in supervision, facilitation and coordination while the village level Village Water Safety Plan committees are responsible for the practical day to day management, tariff collection and maintenance of water system.</p>	Community Managed Supply
  	<p>Overview For communities of over 100 households, the accountability for water supply lies with Ministry of Public Works and Transport (MPWT). They oversee provincial and district "Nem Papan" – state owned utility enterprises to manage rural water supply systems. There is ongoing investment in piped infrastructure in Laos, with financial support coming from multi-lateral loans and technical assistance. As of 2013 almost 1,500 villages had access to piped schemes.</p> <p>Stakeholders The Department of Water Supply (DWS) is responsible for planning, implementation, and construction of water supply systems. Once constructed they are transferred to the Nem Papan for ongoing operation, maintenance and management. Also within the MPWT, the Water Supply Regulatory Committee (WSRC) and its secretariat, the Ministry of Public Work and Transport (MPWT) encourage service providers to operate efficiently under state regulations. The WSRC, through DWS, monitors and evaluates the performance of the water supply services. While DWS primarily serves a regulatory role, Ministry of Natural Resource and Environment, acting through their provincial departments is responsible for review and approval of environmental assessments, monitoring and compliance.</p>	State-Owned utility

Current Government Priorities

- Enhance the content of the Water Safety Plan (WSP) manual to comprehensively address the impacts of climate change and integrate gender-sensitive approaches.
- Update the survey, design, and construction manual for clean water systems in rural areas to facilitate their transformation into household water distribution systems equipped with meters and filtration units.
- Revise the agreement on managing technical standards for the provision of clean water in rural areas, with modifications currently under consideration.
- Upgrade the water treatment plant infrastructure, analytical tools, and the supply and distribution of chlorine generators to enhance the management, inspection, and improvement of water quality to meet higher standards.

Ensuring Human Right to Water

Policy reforms and technical standards are designed to guarantee inclusive access to water within the community. By simplifying the management of the water supply system, the Government of Laos aim to provide a more sustainable and reliable service that will consistently meet the community's needs over the long term.

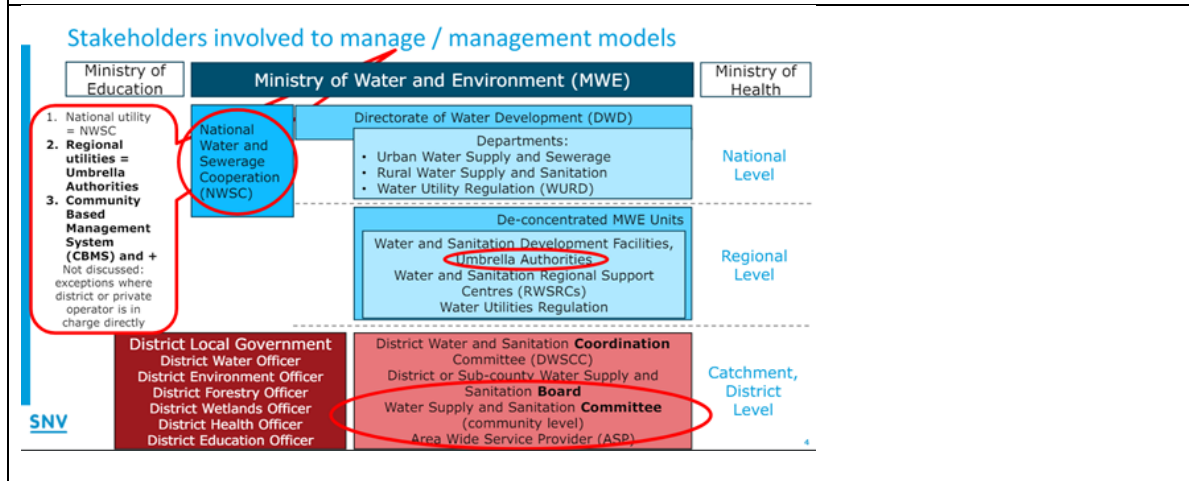


Water management: The Ministry of Public Works and Transport looks after water supply for settlements with more than 100 households. In some places there is a lack of water supply, so people just scoop water from surface water. Rainwater harvesting is practiced in many areas. Both electric and hand pumps are used. Gravity-fed piped systems are also used and are managed by communities.

Service authority: There is a district water supply section, but many communities manage the water supply by themselves. Under these community-managed water supplies, community volunteers look after the water supply. Ideally the water would be piped into people's houses with a meter to measure intake.

The Government of Laos has two ministries relevant for water supply. If the settlement has fewer than 100 households, the Ministry of Health will oversee the water supply, although in practice it is managed by the community. If more than 100 households, the Ministry of Public Works and Transport has responsibility. A water supply unit in the government provides advice on how to design a water supply. The Ministry of Health sets water quality standards and is working to train stakeholders on how to do Water Safety Plans. Government policy calls for safe water with respect to the human right to water.

Uganda [\[View full poster\]](#)



Water sources: The types of water supply systems include point sources (boreholes and dug wells) that provide varying amounts of water. Electrified pumping is becoming more common with improvement in the coverage of electrification. Gravity-fed piped systems exist the hilly areas.

Institutional arrangements: The Ministry of Environment and Water is the main lead. But the Ministry of Health also looks after HCFs and sanitation. The Ministry of Education looks after water in schools. The Ministry of Water looks after communities.

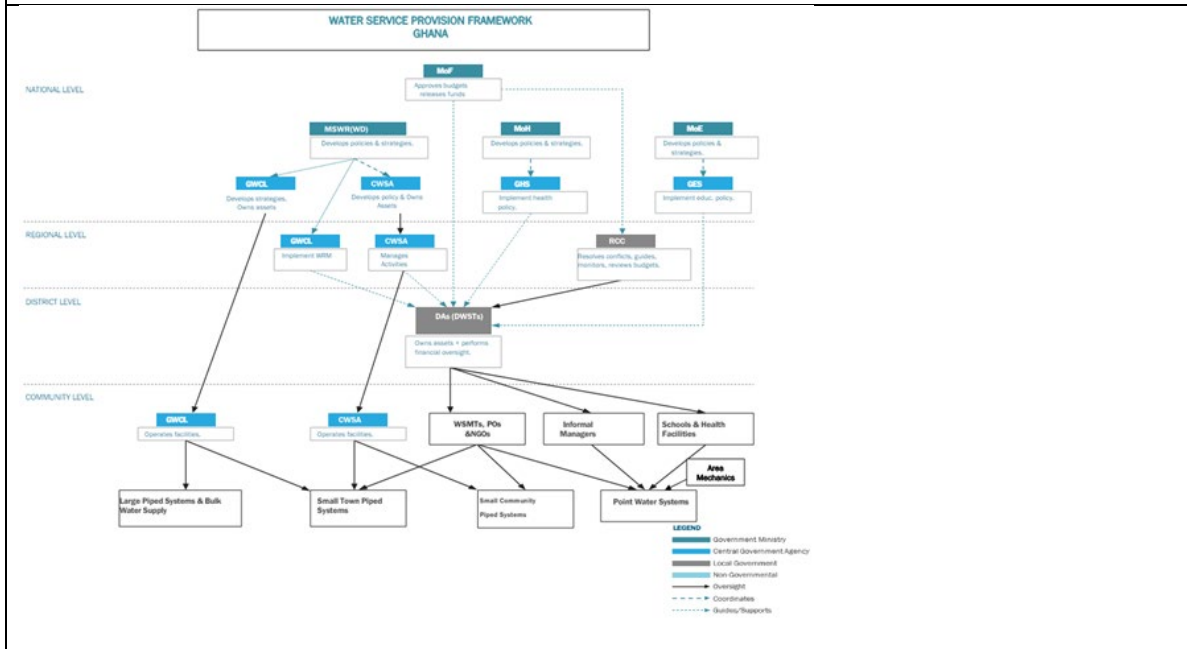
Management models: There are three types of management. The National Water and Sewerage Cooperation (NWSC) manages big towns. The second type is umbrella authorities. Initially there were so many piped water systems scattered around and various authorities were looking after them. Over time, the umbrella authorities were developed which look after well-functioning systems. The third type is community managed systems. Many of these systems are not functioning well and have long downtimes. The community elects a water user committee which has 5 – 7 members. They will appoint a caretaker to look after the day-to-day handling of these systems.

Improvements being made: By 2020 we tried to improve upon the community-managed systems. We wanted to take a professional management approach and an area-based approach. This means an area-based service provider would look after a whole area. Before, fee paying was often voluntary. Now it is being encouraged that fee payment is mandatory. We are also supporting improvements in creating supply chains for spare parts.

Ongoing challenges: Challenges include stagnation of functionality rates, fracking that is increasingly being practiced in rural areas which influences the groundwater and ongoing water quality concerns.

Question	Answer
Who exactly does the coordination when talking about water across schools and communities and other institutions?	Initially there was a lot of overlap. The three ministries signed an MoU about who should do what. There is a working group with people from each ministry and they work out such issues.

Ghana [\[View full poster\]](#)



Institutional arrangements: The Ministry of Finance, Ministry of Water Resources, Ministry of Health, Ministry of Education are the main stakeholders at the national level. At the regional level, there is Ghana Water. They mainly serve urban water. Decentralisation is being pursued so there are also district offices. At the community level, the Ghana Water Company can do water quality testing.

Water management: The water sector is highly dependent on donor funding. When a water supply is constructed, a local committee is trained on management. Since 2017, the Community Water and Sanitation Agency (CWSA) are taking over the management of some rural water supplies. They are paying off electricity bills, getting a reliable flow of water in communities, and if people have issues they know where to go to get help. But there are a lot of water supplies that CWSA cannot oversee. There are informal managers; for point sources there might be one person that looks after the point source. Some households are using self-supply to use their own resources to provide for themselves. Area mechanics are being trained so that when a borehole goes down, they can shorten the downtime with quick repairs.

Areas in need of improvement: Some organisations wanting to provide water supplies will come in and build water supplies without providing any training or support for sustainability. So, the Government needs to find a way to regulate water supplies in rural areas. There are private enterprises that provide water, but there are no standards for construction or licensing. So, there needs to be legislation to regulate this. One of the challenges that exists is non-revenue water. 45% of water is lost in distribution. So there needs to be advances in technologies to reduce the non-revenue water. A national water fund is being set up. There is already a sanitation fund where a tax is put on petrol revenue for the sanitation fund.

TRY THIS

Look again at the posters.

1. What is similar and what is different in the other countries? Levels- functions- sectors- degree of integration
2. Do you see things that are better than in your country? Why?

Think about your own country:

- Are all rural water services given sufficient attention within the existing institutional structure?
- Are all rural residents needs equitably covered by the existing system?
- Are the distinctions between who operates and who regulates strong enough?
- Is the role of the private sector in providing services appropriate (not too small, not too dominant, sufficiently regulated)?

Analia Saker Stanig of Aguaconsult provided comments to **summarise some of themes of the poster presentations:**

- There are limitations and challenges to community-based management, but is there is evidence that other models would work better?
- There is a push for more professionalised approaches to rural water supply management. For example, the creation of the RUWASA, review of governance structures in Bhutan, and more.
- There is limited private sector involvement, but some examples of this do exist. There are barriers to private sector involvement because of profit motives, but there are some innovations being made for rural areas. We always need to question if the innovations are any better than the status quo.

Block 2: Rural water supply management models in Mozambique

Overview

Block 2 consisted of a deeper dive into rural water supply management models in Mozambique so that participants could gain a more in-depth understanding through specific case studies. The participants first heard a presentation on the rural water supply management context in Mozambique, then were divided into four field trip groups. Each field trip group was assigned to visit and collect information about a rural water supply in Nampula province and present back what they learned.

Context of water supply and sanitation in Mozambique

Presentation by Mr. Raul Mutevuie Júnior, National Director for Water Supply and Sanitation, Mozambique Ministry of Public Works and Housing

To set the scene for the field visits the following day, the context of water supply and sanitation in Mozambique was presented.

In the first years of its independence, Mozambique had a civil war and water service provision was severely affected. At the time, there was a preference for water supplies with handpumps because it was low cost and the intervention was local. In that period, water supply was free. The country saw this as a social benefit to the country and the government saw it as a priority.

Since then, reforms were introduced in the 1990s which laid the groundwork for the decentralisation of many water management activities. It is not necessary to cover all the details of the institutional arrangements because this is already covered in the poster presentation. But it is good to highlight the role of the Ministry of Public Works, Housing and Water Resources who:

- Ensures the construction and rehabilitation of the water supplies
- Proposes and implements strategies and policies for expanding and improving water supplies;
- Guarantees universal access to water and sanitation; and
- Regulates water supply, sanitation and healthcare services.

The government has prioritised eliminating open defecation by 2030, reducing the proportion of population without safely managed water services, and improving access to hygiene by 2030.

There is no sanitation if we don't have water so these goals are interlinked. In the rural areas, the coverage of water and sanitation is lower compared to urban areas. There is a need to identify actions that can answer the demand for improved services.

The bar graphs on the next page show the sector goals which were related to the MDGs and where we are at. Since then, there have been improvements made in making the goals.

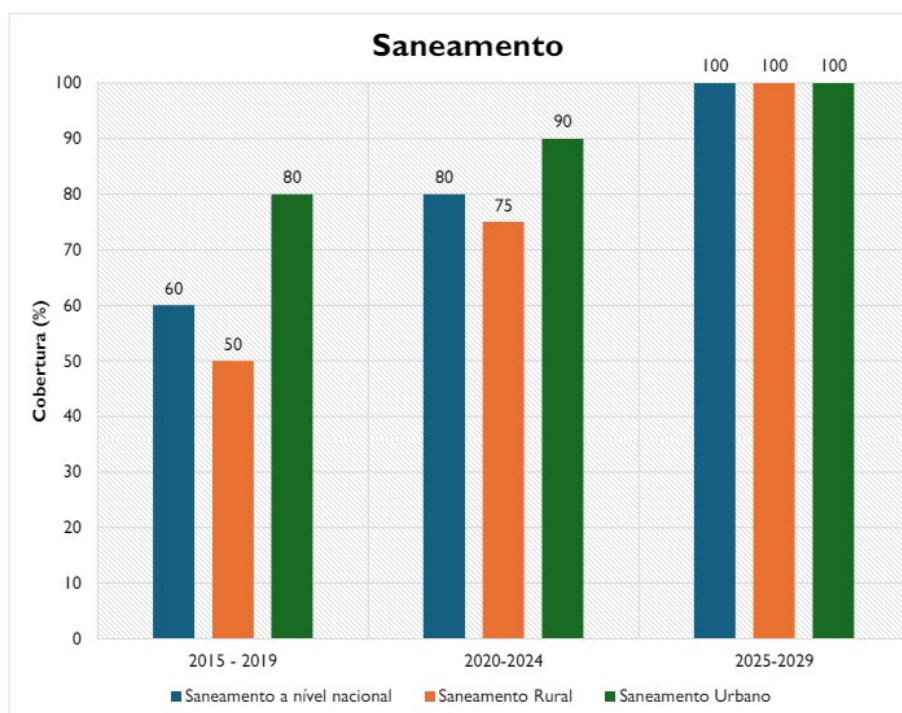


Figure 3: Mozambique sanitation coverage: Blue = national; Orange = Rural; Green = Urban

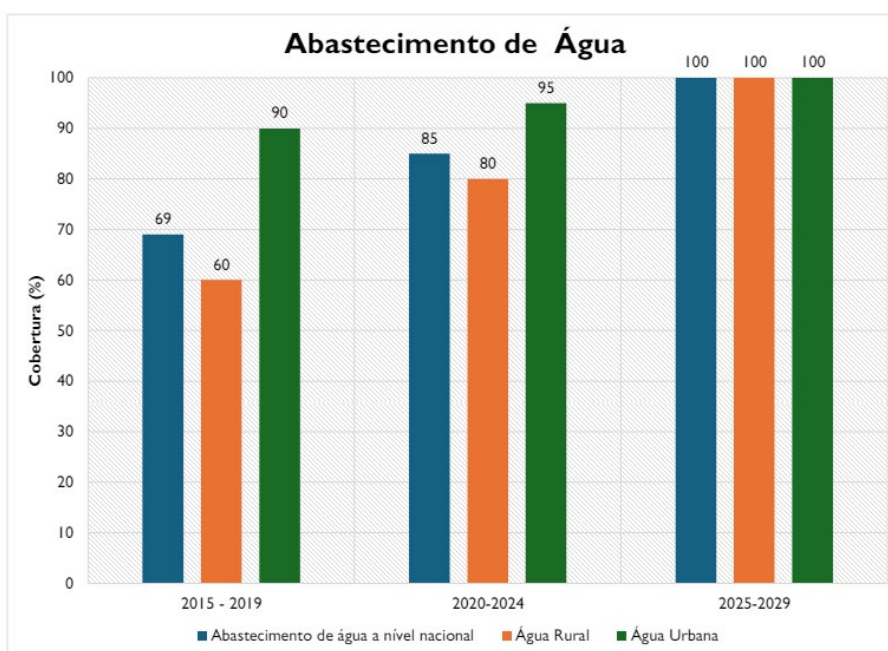


Figure 4: Mozambique water supply coverage: Blue = national; Orange = Rural; Green = Urban

Currently, rural water supply is being supported by Pronasar, which has been implemented since 2010. Previous efforts by the government and partners to work together to make a joint plan were challenging. We had many partners and sometimes we could have more than 2 partners in the same geographical areas. With Pronasar, which has been implemented since 2010, there are discussions with partners and financing of projects through joint funding. The planning is for improved water supply and sanitation.

Pronasar is also involved in all the activities referred to today. Pronasar also does an annual implementation plan.

Roles of implementation for Pronasar include:

- a central level of planning and coordinating
- provincial levels that look after implementation and planning
- district levels that look after the uptake and development of the program, including accelerating coverage, through the construction of new sources and water supply systems in rural areas, in addition to the current responsibilities for maintaining coverage and promoting sanitation and self-supply.

In terms of human resources, there are limitations at the district level. This is being strengthened in four ways:

1. Increased demand for improvement of coordination demand through strengthening information systems and intersectoral and participatory planning
2. Expansion of technology options in accordance with the availability of water resources
3. Expansion of management options that are relevant to the area
4. Strengthening the role of local governments

As mentioned in our poster, there are multiple options for technology. There are boreholes, they have vulnerability to contamination linked to climate events. Due to overexploitation, groundwater is becoming increasingly scarce. Resolving this problem involves for identifying and exploring other alternatives that, individually or combined, can contribute substantially to increasing the range of water supply options that are safe and sustainable.

The **private sector is particularly important in terms of investment and operations and maintenance** actions. To attract the private sector to rural water, we need to create a favourable environment for their investments and provide incentives and training.

Pronasar supports implementation and maintenance of wells and handpumps, piped water, desalination systems, use of small dams and excavated reservoirs, multipurpose systems, water supplied trucks and kiosks, and self-supply systems.

To achieve targets of having 100% coverage of an improved water source, it is estimated that **the required investment is on average 100 million dollars per year over the 2019 – 2030 period**. This includes the costs of construction and capacity building activities.

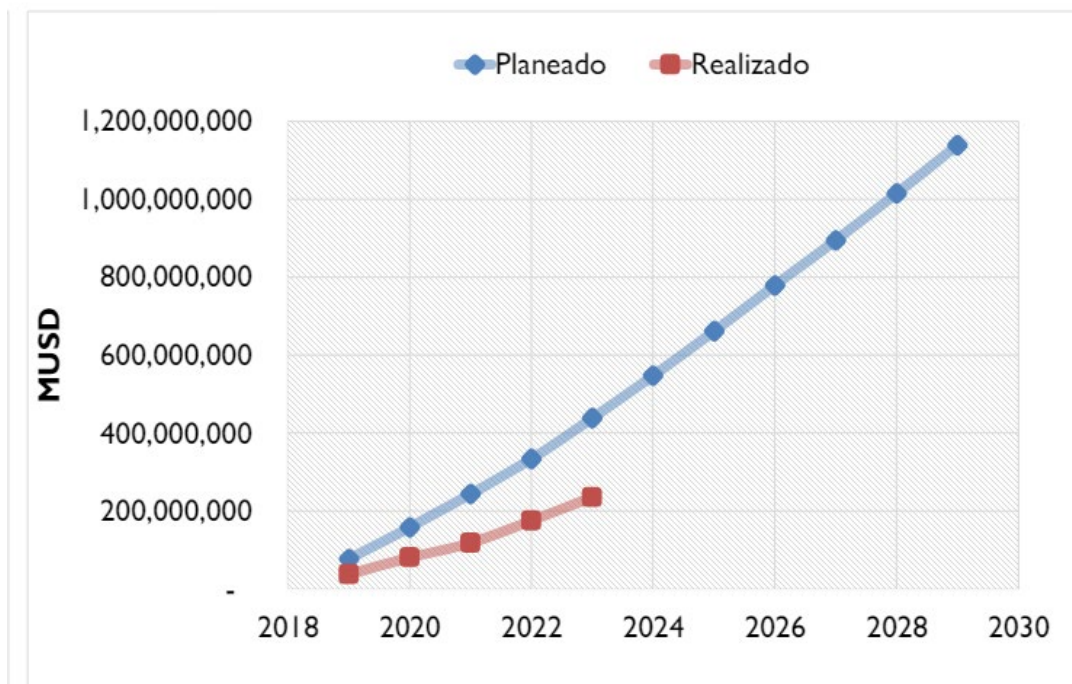


Figure 5: Cumulative investment in achieving 100% coverage improved water supplies. Blue = required accumulative investment, Red = actual cumulative investment

The line chart shows the cumulative investment volume in terms of what has been mobilised. The blue line shows the investment needed to achieve the 100% coverage targets while the red line shows the actual cumulative investment. From 2019, we have needed to mobilise 438 million dollars, but we have only mobilised about 104 million dollars, so the investment is inadequate to achieve our goals. **The investment deficit is about 203 million dollars.**

In summary, there are a number of challenges to overcome:

- Prevention and mitigation of impacts from extreme events;
- Improving monitoring network coverage;
- Mobilization of financing for water supply services;
- Complex institutional arrangements and the establishment of new institutions as a result of the ongoing decentralization in the country;
- Weak private sector participation in the area of water supply;
- The development of management instruments;
- Implementation of the international cooperation strategy;
- Improving the sustainability and resilience of services;
- The frequent occurrence of natural disasters, which are being exacerbated by climate change and continue to have a devastating impact on millions of Mozambicans, threatening the availability and the quality of the country's water resources, both surface and groundwater.

Finally, there are three key considerations that we should take forward:

1. The need to develop a water sector strategy in Mozambique to adapt to scenarios of greater variability and a context of lower water availability
2. The resilience of infrastructure and the efficiency of operations must guarantee continuity of services under increasingly demanding scenarios in terms of quality, quantity and safety
3. The multisectoral, concerted, integrated and innovative effort of the various actors and stakeholders in the water sector in Mozambique is essential for the country to prepare for short, medium and long-term.

Following the presentation, there was a brief Q&A session:

Q&A – National Director of Water Supply and Sanitation	
Question/comment	Answer
Regarding the budget allocation, is the \$104 million the allocation or is what you've actually spent?	The \$104 million has been allocated and spent. However, it is inadequate to reach our goals.
We need account for the population growth. The population in Mozambique is growing and that makes it more difficult in the planning process.	
Are these investments for the WASH sector in general? Are there strategies for getting the additional financing to fill that gap?	The investments are what is needed for water and sanitation in rural areas. The issue of financial resources is a problem everywhere. There will always be a challenge to secure sufficient funding. The water sector in our country is in competition with other priorities. So, we have to convince our government that the annual budget has to be used for water. There is a challenge to convince internally. We have resources but they are limited. We have been applying for funding from the GCF but there is a huge list of requirements. It's not easy for us but we are doing our best.
Of the \$104 million, how much of the money going to rural water supply is going to management versus construction of water supplies?	In terms of allocation, it's a small amount for O&M. I've highlighted the new law for the water services where it will hopefully increase that.
You started from an approach that focused on handpumps and water was free. Now there are new technologies. How about supporting people to pay for water? Or is it still free?	We discussed the issue this morning. In the rural areas, the management is community based with committees for looking after the boreholes. They contribute a small fee for maintenance and repairs. They also raise funds for spare parts for maintenance. For the case of systems, we have several management modalities. We have private management in which a commercial enterprise charges to cover the costs of the system. For systems managed by local government, there will be collections for O&M. There are challenges of course, people say they are not able to pay for the services because household income is low. The management models are not perfect, they need improvement. We need to identify the best model to be applied in different places. The cost of maintenance can be high if the parts need to be imported from abroad.

Field assignments

The workshop participants broke up into four groups to visit locations in and around Nampula and explore real-life issues relating to professional management of rural water supplies. Each group prepared their assignment on the Tuesday, and spent the next day visiting key stakeholders and observing rural water supply infrastructure relating to rural water management.

A pyramid framework was provided to aid in describing the rural water supplies:

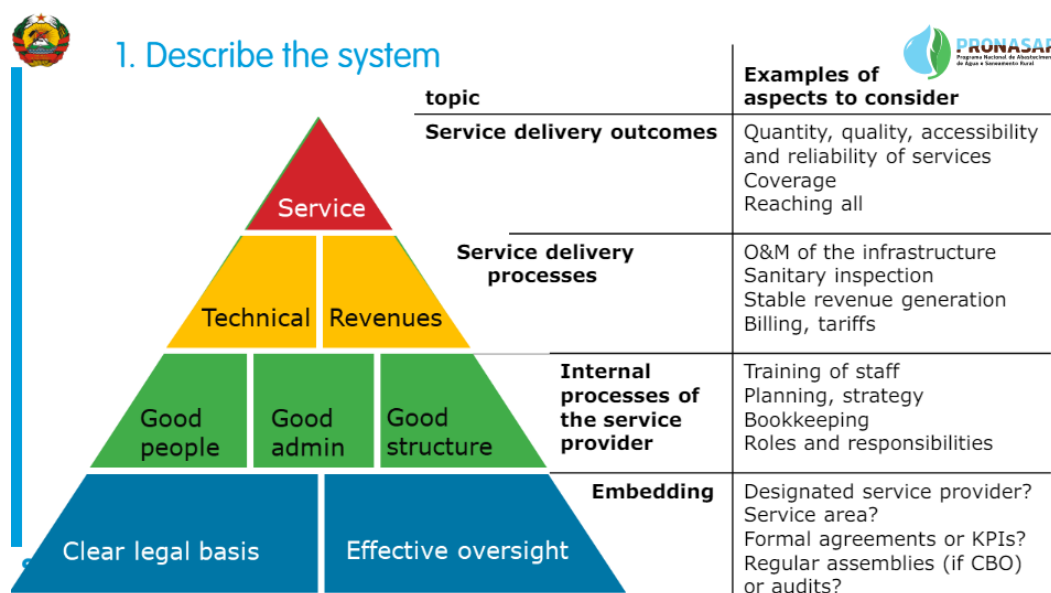


Figure 6: Core components of a successful rural water management model

The objectives for each group were to:

- understand and describe the rural water supply management model in terms of infrastructure, technical management, commercial management, and organisation;
- reflect on the current situation and future aspirations; and
- provide modest feedback and recommendations.

Each group comprised participants from different countries with mixed skill sets. The participants were asked to share their findings through a photo diary, a two-page case description, a testimony of a key stakeholder, and a PowerPoint presentation with impressions and recommendations.

These more detailed outputs are available at:

<https://snvwater.groups.io/g/RuralWASH/files/2024%20Nampula%20Learning%20event>.

The four sites visited by the groups were:

1. Nanhupo-Rio, Mogovalas: A piped water supply servicing about 15,000 people that abstracts water from boreholes using solar and grid power.
2. Mossuril: A piped water supply servicing about 7,400 people with water from four boreholes.
3. Namaita, Rapale: A piped water servicing about 35% people in the area from four boreholes.
4. Namialo, Meconta: Community-manged boreholes with manual handpumps and managed by a youth group.

Group 1: Field assignment – Nanhupo-Rio, Mogovalas

Nanhupo-Rio is about 2 hours away from the Nampula town centre. The population is 29,595. Before the piped water supply, people access water from handpumps, traditional wells, rivers and other unsafe sources. They paid 20 metical (0.31 USD) per month for using the handpumps.

Technical details of the piped water supply

Implementation: Government, FCDO, contractor for construction

Water supply completed: 2020

Planned service area population: 15,275 (3,055 households)

Water extraction: 34 solar panels power pumping from 4 boreholes

Storage reservoir: 150m³

Elevated tank: 80m³

Current connections: 196 households, 4 institutions, 10 standpipes (60 households per standpipe). All connections are metered.

The water supply provides over 50 l/c/d (the service standard for the area) and water quality is tested every 3 months. Water is provided for 5 hours per day (split over the morning and afternoon).



Photo: The Nanhupo-Rio water storage facility

Technical management

The water supply is managed by a team of five people: a technical manager, a plumber and analyst, a treasurer, and two guards. The owner lives in Nampula City.

The team has a professional management model including:

- An equipped office space
- HR expertise
- Meter reading / billing / payment services
- Account keeping
- Reduce non-revenue water from 40% to 20 – 25%

Several technical challenges have been experienced, including: failed chlorination system due to no local expertise or budget for repairs, 5 out of 34 solar panels broken down, pumping is stopped on rainy days

when not enough solar power can be generated, and the 4 boreholes are not sufficient for providing 50 l/c/d for more connections, so expansion cannot happen until more boreholes are made available.



Photo: The Nanhupo-Rio water management team



Photo: A typical household connection

Financial management

A block tariff is used to charge for water. Only about 100 out of 222 connections are regularly paying their fees. As a result, expenditures for the water supply tend to run higher than the income. There is a challenge with a lack of willingness to pay, institutions get water for free, and the operation has about 7,830 USD of debt.

Recommendations

- For operators, financial sustainability is the key. Ability to pay bill should be assessed before free connections. Water supply should be constructed where there is no water – some places already have alternatives so there is less demand there.
- Planning and design must be informed by willingness to pay. Build relationships with communities.
- Restructure the block tariff to charge per cubic meter and make expenditures more efficient.
- Increase connections and renegotiate tariffs. Have institutions like the healthcare facilities pay directly to the government for water to remove political pressure on providing water for free.
- Strengthen links to supply chains and make use of Water Safety Plans.
- Clarify roles of the provincial government (contract holder), district government and communities.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Group 1	
Question	Answer
What would you suggest to the private operator to increase the number of household connections?	Have an assessment done prior to connection to know if people are willing to pay or if they have other services. Need to check if there are sufficient incentives for customers to shift from current water supply to the piped water supply. The benefits of piped supply haven't been well articulated.
Looking at sustainability and resilience, what would recommend to the province and the district?	There needs to be more boreholes because the groundwater level is going down. But there are financial limitations.

Can the regulator play a role in such a distant place? Could there be an onsite regulator?

The provincial government as a contract holder could do some regulation.

Group 2: Field assignment – Mossuril, Mossuril

Mossuril has approximately 47,000 inhabitants. We visited one of the four boreholes supplying piped water in the community. There is also an infiltration gallery. 250,000 cubic meter reservoir where testing and chlorination are done. There is an infiltration well that has been in use for over 50 years.

The service delivery model is a private operator that has a 5-year contract provided by AIAS. There is utilisation of a payment by results program. The payment is used to expand services which has been up to 400 households. They have installed pre-paid water meters to the bulk users who are using a lot of water. But they also have installed these meters to customers who don't pay like government institutions and police stations. There are 6 water schemes in their area, but the same mechanics would be used for water schemes in different areas. So major operations are done by a few staff.

Multiple water source utilisation – water is collected from the river and stored. Water is pumped for an hour a day for storage and treatment. The company has been pumping 17 cubic meters/hour. Communication with community are done through the local radio and local leadership on new happenings.



Photo: The Mossuril water supply facility

Achievements and what is going well

- The scheme is fully functional
- The private operator contracted by AIAS is performing well
- Connections have increased from 50 to 830 over time including 85 pre-paid connections

- 10 public standposts
- Pre-paid meters have been installed with big or difficult customers
- Non-revenue water is at 20%
- Tariff is covering operation and maintenance costs

Future aspirations

- Increase production capacity to meet current demand
- Install more pre-paid meters
- Increase the size of fenced area around the water source
- Increase tariff collection and willingness to pay
- More resources for revolving fund are needed
- Increase the distribution network
- Keep in good and robust shape that can withstand cyclone impacts

Recommendations

- Meet current demand and gradually increase coverage
- Take a pro-poor approach (neighbour sharing, more public standposts)
- More community engagement and participation of women
- Water source protection
- Water quality monitoring and eliminating risks through Water Safety Planning
- Consider a longer contract duration for the operator

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Group 2	
Question	Answer
They have increased connections from 50 to 830. What was the incentive for the community to connect?	A few factors contributed to this. First there was a program that enabled the company to have the money to increase the program. When you pay at the tapstands, it's more expensive so people can save money if they connect. People can also pay by instalments to get connected to the system. The government had an initiative to target underserved people. Pre-paid meters were installed to control non-payment. Some people didn't like this initially but then they came around.
What would you recommend for a pro-poor approach?	Change from normal meters to pre-paid meters. But more information needed. Need to identify who is not being served in the expansion and understanding their barriers.
There is demand and a good operator, but there is not good coverage. What is missing?	The sources of water currently used are not enough to cover more people. So there needs to be more source development across the geography of the community which is big. Maybe it can be a different scheme operated by the same people. There also needs to be more community awareness to inform them about the decision to connect. The government should provide some of the funding for the capital for expansion.

Group 3: Field assignment – Namaita, Rapale

Namaita is about 40 minutes away from Nampula. The water supply is a relatively new system built in 2019, financed by FCDO. It is meant to service around 25,000 people. The system has already had two failed private sector operators. There were issues with upkeep and getting payments. In the past couple years, they have developed a quasi-community-based management run by young people, one of whom was a technician under the first operator.

The total service area is around 5,000 households. Currently there are only 141 households connections. 5 out of 10 tapstands are operational. The manager of a tapstand said they would service 20 – 50 households depending on the season and the tapstand. They are currently servicing around 10% of the designed capacity.



Photo: Pumping water to an elevated tank



Photo: Public tapstand and manager

The current service provider comprises 4 staff members, 3 of whom worked on the system before. The manager has a 3-month vocational education and also received some training from government. The service provider team meets on a weekly basis and meets with district government quarterly.

For bookkeeping, the manager keeps information on bills, households connections, and requests for connections on hard copies and soft copies on a laptop. The team does not have a bank account, they keep the money in a safe.

It's not clear if the water is being routinely treated before distribution. They had done water quality testing in the past that met standards, but there was no routine water quality monitoring. The inventory management for supplies and chemicals is not well done. They have the technical skills for electricity and plumbing, and the manager works on the side as an electrician. Anything bigger they need to get external help. They have been unable to repair the borehole pumps and chlorinator.

The local administrative post wants the supply to be 24 hours/day. But it is delivered in the morning and afternoon for a window of time. Each tapstand has a manger during the operational hours. The more affluent households are the ones with the household connections. The service provider referred to their existing customers as "businessmen".

The customers were satisfied with the reliability of the water supply during designated times, the taps on premises or accessible. The public tapstand have ramps, but they are in poor shape. The customers like the taste and the quality of the water. They currently can meet demand, but only have one borehole pump operating so might meet constraints in the future.

Most of the revenue from the system comes from the private household connections. 65% of households do not pay on time or intermittently. There is potential for expansion of household connections. The cost of connection is 1,500 metical (23.5 USD) for labour and materials for connection. Because the system didn't work well at first, there wasn't much interest in connecting but now that it is working better there is renewed interested for more households to connect. The tapstand can be paid monthly or by container. The tapstand manager receives 30% of the fees collected for the tapstand.

In terms of management, the system had managers who abandoned the system. The admin post organised the community to discuss the problem of water supply and agreed to take the technicians for the former management and have them manage the supply. There was a group of youth that arranged fundraising to pay for the repairs of the borehole pump which allows the supply to start working again. Also, debts accrued by the original manager were paid off. On average, water is supplied 7 hours per day and the youth are motivated to manage the system.

The families interviewed expressed satisfaction in the system. The management team has skills and knowledge via their training from the provincial government and vocational institutions. So, they have the capacity to repair smaller breakdowns.

Recommendations

- Increased connections to more people. More active strategy to reach more people. The tariff needs to be adjusted to that they can maximise revenue. Standpipe needs a fixed tariff. Leverage positive testimonial and the confidence of the post to reach out to new customers.
- The relationship between the district and service provider must be legalised on responsibilities.
- The electric power source should be powered by solar power for more sustainable solutions.
- The managers should be trained in sustainability.
- Train operators and raise awareness on water.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Group 3	
Question	Answer
Have you identified flaws in the design that might have led to operational problems and how this could be done better next time?	All of the pumps were damaged by surges in the electric grid, so breakers would have helped.
Are there any practical recommendations for local government so that the transitions from construction to operation is done smoothly?	Clearer criteria for operators. The initial operator had no skin in the game, so they need something that would hold them accountable and incentivise them. There should be a clear strategy for recruiting more households to connect to the system.
Did you gather any information about willingness-to-pay?	There should have been a study on willingness-to-pay at the beginning but it's unclear if it happened or not. The construction company shouldn't be tasked with it because they will always say that people are willing to pay.

Group 4: Field assignment – Namialo, Meconta

Namialo has a population of 270,000 people and is located 95 kilometres away from Nampula. The team visited Ampita village which has a population of 6,630.

The village uses four boreholes fitted with handpumps to meet their water needs. There is a piped scheme that was used by a local cotton factory, but it is now dysfunctional. One household self-supplies with a private piped water supply.



Photo: A handpump and borehole in Namialo



Photo: Spare parts stocked by the local supplier

What is going well?

- The government is supervising and monitoring the water supplies and has a database for recording information
- Local suppliers of spare parts and mechanics with capacity to do repairs are present
- There is clarity on the respective roles of the government, the community, and the water committee on managing and maintaining the handpumps
- Tariffs are collected from households – 20 metical (0.31 USD)/month/household
- There are community meetings about water and minutes are taken

What have been the achievements?

- The boreholes were constructed and links have been established between users, mechanicals and local suppliers of parts
- Spare parts are readily available
- Data on functionality is collected and stored
- The water committee was formed
- Tariff collection is ongoing (although not 100% of tariffs are collected)
- Sanitary inspections of the boreholes are undertaken and cleaning is undertaken to maintain a hygienic environment

What are the reasons for these achievements?

- An increasing demand for water security has motivated stakeholders
- The community is aware of the need to manage the boreholes
- Good coordination and collective effort between the community and the government
- Pump mechanics had their capacity built and local suppliers were connected with the community

What are the future aspirations?

- 51% of the village is currently covered by improved water supplies. In the near-term there is an aim to get coverage to 70%.
- Establishing a link between water and health in the area by comparing water quality monitoring with disease cases
- AfriDev pumps are currently being used but the potential to explore the introduction of India Mark II pumps (which can reach groundwater deeper than 45m) and solar pumps into local markets

Recommendations

- The availability and accessibility of water must be improved so that no one must travel more than 500 metres or 30 minutes to access the water points
- Real-time monitoring of functionality
- A more nuanced tariff structure
- The pump mechanic decides the charges for his services but this should be more regulated by the government and standard costs should be set
- Regular water quality testing and reporting

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Group 4	
Question	Answer
The amount of money that is raised by the pump mechanic is a bit strange. 600 meticals (9.40 USD)/month. How much is the cost for repair and spare parts? It would be interesting to see the comparison of revenue and costs.	The mechanic didn't seem to be making a profit. There is some cross-subsidisation across villages. He couldn't charge the amount needed to invest in more assets. He is more of a volunteer because the community is not willing to pay higher fees.
Rural growth centres are becoming more concentrated, so should we shift more to piped systems or are point sources still viable options in the future?	It can't be a one size fits all approach. We need to decide on a case-by-case basis. We need to check the willingness of users to pay and other challenges that they are having.
Does it need to be analysed community-by-community to see if it's cost effective to do a piped supply everywhere? Often people say they want a new water supply, but then they cannot pay for the ongoing costs.	The borehole is cheaper, but there are cost challenges with boreholes too. Sometimes it's good to have multiple options so that if one becomes non-functional, people can access the other.

After each of the teams presented their findings, the workshop participants shared a round of **reflections** on what they learned:

- The importance of the government in supporting different forms of water supplies is clear. But **what kind of support from each level of government is needed?** When support is missing, the situation gets much more complicated. The government should push for more external support.
- When the operator lives in the local area, like in Namaita, they seem to do better work as opposed to operators who live further away. **How can we support people who live in the communities to become the operators?**
- Do politicians support water supplies to get votes or because they really want to help communities and see results? **We need to plan for results.**
- **Monitoring and learning is critical so that we can make adjustments** along the way when things don't go to plan.

- **If alternative water is cheap, then people don't want to pay more for improved systems.** Should we make it mandatory for people to connect with an improved system and close down the alternative systems?
- Technological maladaptation is something we always have to be aware of. We want to improve things, but they can go wrong. We should be documenting this data against willingness-to-pay studies. **We should not restrict ourselves to certain technologies.**

When we build these services and they come from donors, **we need to take an area-wide approach so that subsidies aren't just captured by wealthy households.** A lot of time and thinking goes into the construction phase when we should think more about how to get the water to everybody.

Block 3: Innovations in rural water supply management

Overview

In many countries, rural water supply coverage has stagnated and/or water services are persistently faced with disruptions. Further, the contexts in which rural communities live are changing due to economic development, climate change, urbanization and other forces. Innovations in the ways rural water supplies are managed are needed to maintain or jumpstart progress, adapt to changing contexts, and take advantage of new opportunities (e.g. wider availability of telecommunications, falling costs of solar power, etc.).

Block 3 consisted of presentations of rural water supply management innovations, including specific cases from Kenya, Malawi, Ghana, and Ethiopia. It also included a debate game in which participants debated two possible innovations: pre-paid meters and increased private sector engagement.

Introduction to block 3: Innovations in rural water management

Presentation Antoinette Kome, SNV, Global

There are different ways to innovate when it comes to rural water supply management.

We can speak of innovations in the **management entity**. For example, community-based management entities can be professionalised through performance agreements. Other entities, like the private sector, utilities or specialised agencies can manage some parts of a water supply (and not the entire supply). Those other entities can also provide post-construction support services. We can look at how all those different entities fit together within an administrative area to see how we can achieve economies of scale.

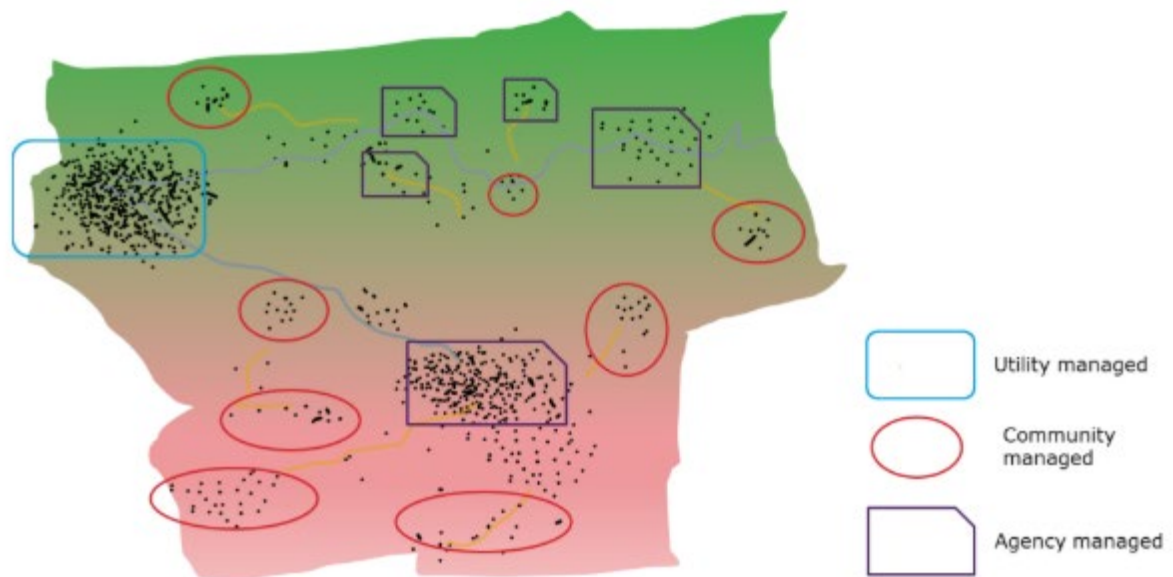


Figure 7: Different management arrangements in an area

We can also have innovations in **technology**. Technologies in the UDUMA initiative is an innovation in handpumps. The handpumps are owned and managed by a foreign company in France. They are equipped with water meters to record consumption and data are sent to a service provider, and payment is done through an e-card. Because there is an online account for the e-card, people living in the city can top up.

Experiences with operationalisation of water supply service delivery models under PPCP approach

Presentation by Eric Waweru, SNV in Kenya

SNV had an aim to move away from the normal way of doing business to focus more on the soft components of rural water supply rather than infrastructure components. After doing a baseline survey, we realised more than a third of water supply systems in areas we work in were non-functional within 2 years. We saw a need to delineate roles between stakeholders so it was clear who was meant to do what.

This program is being implemented in 8 counties. Capacity building and training was brought to various stakeholders at the county level.

The PPCP (public-private-community partnership) approach is a service delivery model that was developed through collaboration between the regulator and SNV.

The Water Service Regulatory Board provides guidelines on water provision. One set of guidelines focuses on water supplies that are in the jurisdiction of the county government (as opposed to a utility). These guidelines propose 4 approaches. One approach is to have a water company take over, but we realised this can create conflict. Instead, utilities can delegate responsibilities to community members. The private operator model is a work in progress because recovering expenses is a challenge. The fourth option is the professionalisation of the community water committee.

Hence, we identified the three most viable service delivery models were identified:

1. A delegated model,
2. a professional model and
3. a private operator model

The takeover model is not preferred because we want the community to have a say in how they are being managed. Ideally the county government is the owner of the assets.

The delegated model shows promise. Under this model, a contract is prepared and the roles of each stakeholder is made clear. The government provides oversight of the system. The community provides reports to the water service provider. The county government is able to audit the systems when the reports are made. This program has been successful because out of the 8 counties that implemented this system, O&M and financial systems improved. On the ground, the distribution of water has increased.

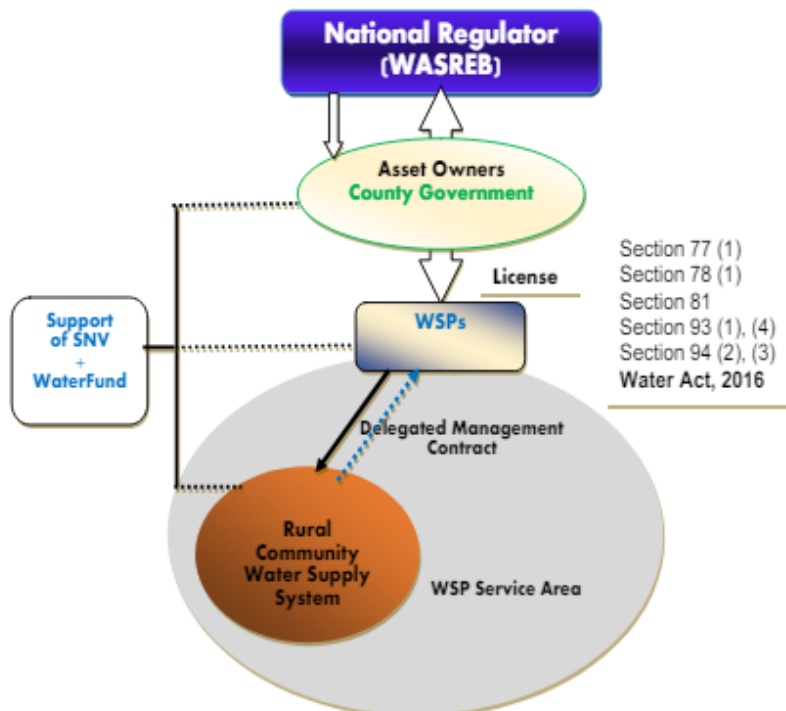
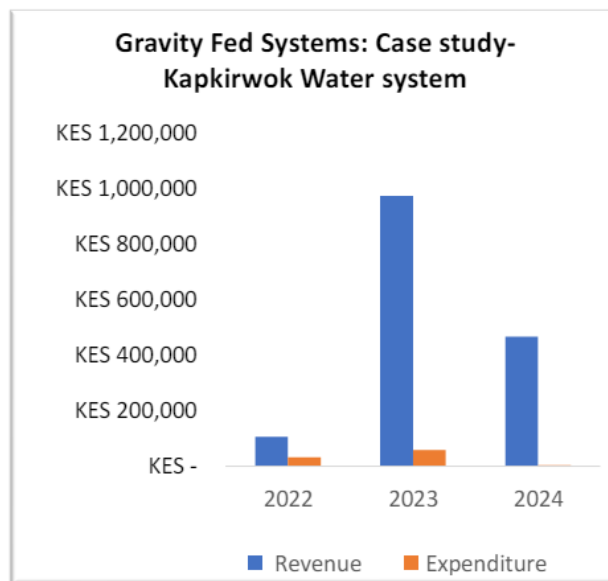


Figure 8: Structure of the delegated model

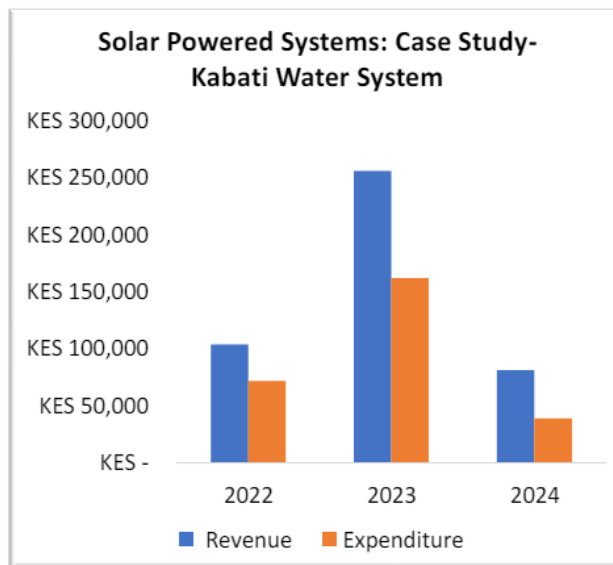
The revenues of these systems varied based on the characteristics of the system. But overall the capacity building for governance and financial management was effective at improving the revenue of the system. Gravity-fed systems had relatively low operational costs compared to other water supply technologies, hence their revenue often far exceeded expenditures:



KES 1,000,000 = approx. \$ USD 8,000 ₱

Figure 9: Revenue and expenditures of a gravity-fed system

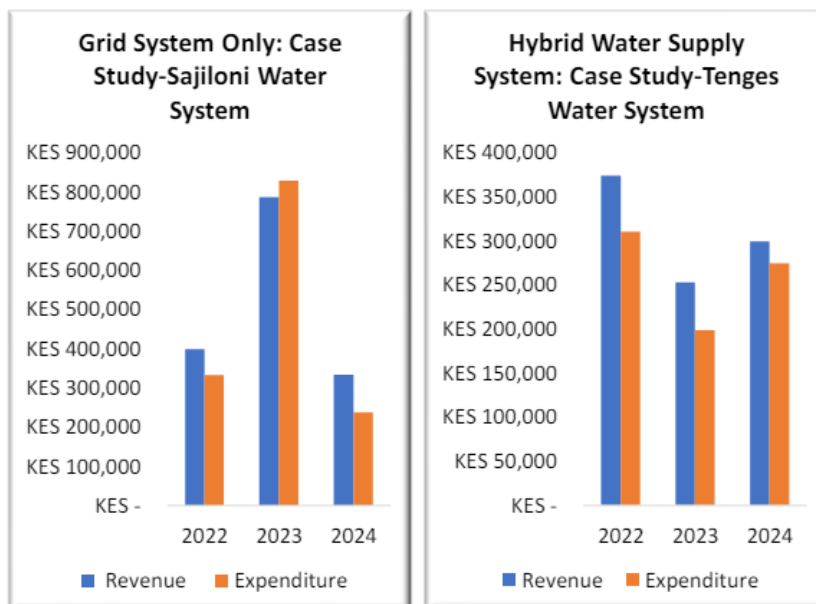
The solar powered systems were also efficient and had good management and governance systems put in place. They depend on sunshine to function, but still worked well overall.



KES 1,000,000 = approx. \$ USD 8,000 ,

Figure 10: Revenue and expenditures of a solar-powered system

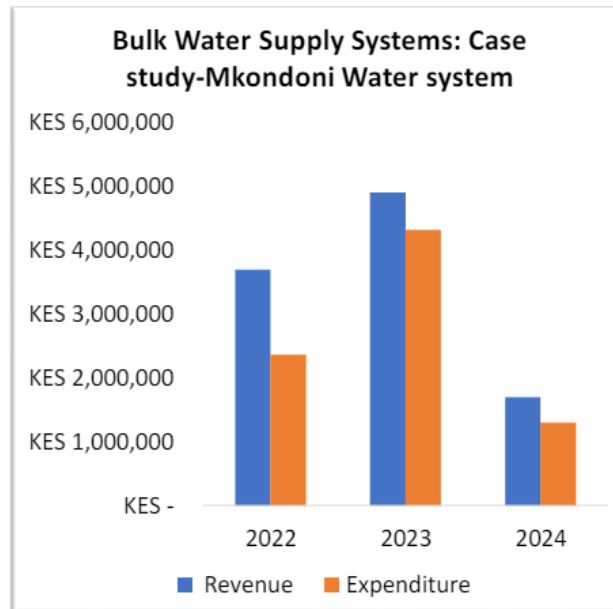
The profitability of the hybrid systems (systems using both solar and grid electricity) was above the breakeven point. The version using green energy incurs more expenses than revenue. So, there are still some challenges with high power consumption costs that need to be overcome.



KES 1,000,000 = approx. \$ USD 8,000 ,

Figure 11: Revenue and expenditures of grid and hybrid powered systems

The bulk water system provided by the water utility provides water at a certain rate. They work well at the onset, but when they put tariffs in place, the community didn't want to consume water because it becomes too expensive. So, the county government must create ownership of this system amongst the community.



KES 1,000,000 = approx. \$ USD 8,000 ,

Figure 12: Revenue and expenditures of a utility-operated bulk water supply system

How can we incentive the private sector to invest in these systems? They often don't want to because they cannot recover their costs. So we need to make them feel secure. One intervention used the form of an automated billing system: Before 2022 the water supply did not have a billing system. A private sector implementer installed a billing system and the revenue rose substantially. To incentivise an investor, there needs to be collaboration. To bridge the gap, a skilled manager is brought in. The manager looks after small repairs. The quicker the water system could be repaired, the more confident the community became and were more willing to pay. The PPCP approach enabled this arrangement.

The delegated model creates ownership of the system. The people will feel part and parcel of the systems in the area. When they feel they need to contribute a lot, they also engage more. It also brings in more private sector engagement. It also helped to legalise the system in to legal units. CBOs are usually not doing business in a structured way, but when they become professionalised they are structured. The scheme manager, the water utility and the county government all feel they are part of the project.

8 public-private-community-partnerships were signed, which indicated the commitment of the counties to this type of approach. For this model to function efficiently, there needs to be accountability. The issue of accountability is a barrier for the private sector. There also needs to be incentives and financial capacity amongst the County government and water service providers.

Rapid response innovation in repairs of point water sources in Malawi

Presentation by Joseph Magoya, Water for People

Malawi borders Mozambique, Zambia, and Tanzania. There are 28 districts with 19 million people. Currently 66% of the rural population has access to an improved water source. 24% have access to safely managed sanitation.

The community-based model has been an enduring strategy for water services in rural areas. Under this, we have water point committees and water user association looking after point sources and piped water schemes. In the 1980s there wasn't much support from external funders, so community-based management became a default option.

Often boreholes are fitted with handpumps that have a functionality rate of around 60%. Safe drinking water is a key priority in the Malawi development strategy. Specific targets for water have not been developed yet. There is a target of reaching everyone by 2030. Under the community-based management model, there are 4 arrangements:

1. Water point committee (management arrangement for handpumps, found in all districts)
2. Water point committee with delegated responsibilities to private operator (the water committee pays a private operator for repairs)
3. Water user association direct provision (applies mostly to gravity-fed schemes, but also some urban schemes)
4. Water user association with oversight from a public utility (found mostly in peri-urban areas).

Low revenue collection and external support needed for major repairs are major issues in Malawi. Hence, we had two main recommendations:

1. Refine and improve the performance of existing management arrangements through improved maintenance and repair functions of water point committees and expanded provision of water board services in rural areas and market centres
2. Develop a coherent sector-wide vision and regulatory framework for professionalising rural water supply management

Uptime is an organisation that is working with water maintenance providers. They make results-based contracts which mean payments are based on clear performance indicators. This reduces downtime.

Under this arrangement, management responsibility is assumed by the Area Mechanic who is compensated. There are direct contracts between the Area Mechanic and water point committees with Key Performance Indicators (KPIs). Also, an MOU is signed between the maintenance service provider and the district government. Area mechanics provide support to water point committees and water users pay a user fee.

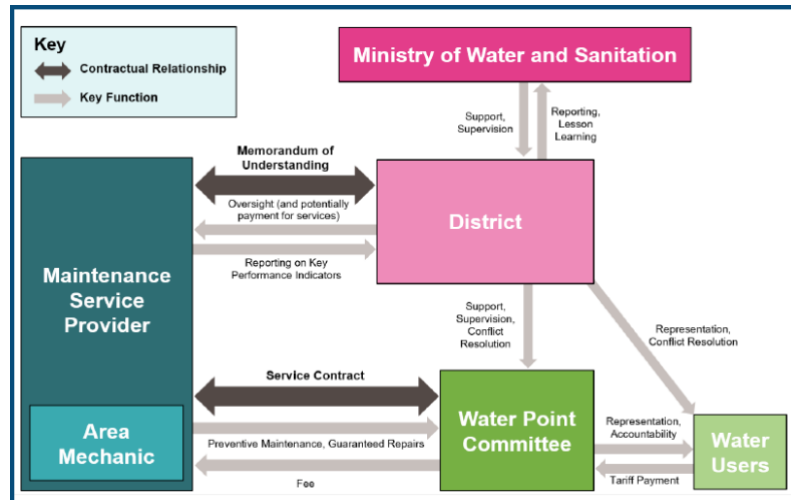


Figure 13: Diagram of the rural water supply management model

1000 boreholes were included in the pilot phase. The key indicators to be monitored were downtime and functionality. With the Uptime model, there are 3 major arrangements: Direct service contract to the communities (in which a mechanic oversees the system), direct service provision (in which the community gets a loan for spare parts) and an Area Pump Mechanic (APM) service contract (in which the APM supports a water point committee).

Under the APM Service Contract model, preventive maintenance is done through masons who are trained and are contracted with the water point committee. The mason is paid 5 – 12 USD per year by each committee and comes every 4 months to do preventive maintenance. Alternatively, communities can pay a lumpsum fee of 12 USD per repair. If there is a breakdown the mechanic will do the repair for free.

Functionality has been high amongst the beneficiary boreholes (95 – 98%). Downtime has also been reduced to less than 72 straight hours. Under the direct service contract, spare parts are provided. Downtime is a function of spare parts so if the community doesn't have the funds for spare parts then downtime can be longer. Financial viability is achieved through cost efficiencies, but full cost savings is not always achieved. For this to work, there needs to be some subsidies.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Joseph Magoya	
Question	Answer
Are the water point committees a legal entity?	Yes, the water policy accommodates this. They follow the protocols for becoming registered as a legal entity.
Are there any mechanisms to regulate the maintenance service provider?	No, there is not a downstream regulator in Malawi. Elements of regulation are being done by the Ministry of Water and Sanitation.
How do you manage the streamlining of spare parts and the quality of spare parts?	Under the direct service provision contract, there is a quality guarantee. We also lean on shop owners, but it cannot be guaranteed where there is not a contract.

What would it take to do this country-wide?

We are looking into how this program can be done at scale, the first year is gathering experiences, then next year we will look at which model is most promising at scale.

Management arrangements for rural water supply

Presentation by Analía Saker, Aguaconsult

Demographics are changing in rural water in which some small towns which are still considered rural areas, but are running on urban dynamics. Other rural towns are becoming less populated and have aging populations. We wanted to understand where the sector is moving. Countries are taking important steps to improve coverage levels and expectations for rural water service delivery are changing. Trends in rural water service provision started with one arrangement under municipal oversight. Then, there was a big decentralisation push. Now, we see there is a trend towards more centralised approaches.

There is a correlation with GDP; higher GDP correlates with higher rural water coverage.

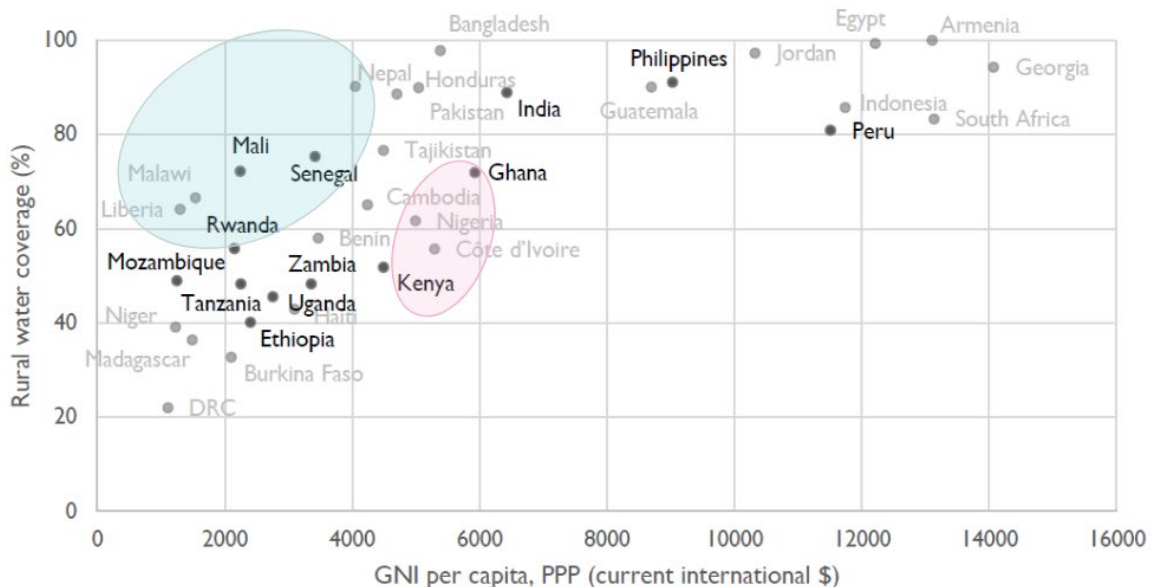


Figure 14: Country map of GNI per capita against rural water coverage

We haven't been performing as well in rural water, over the past 20 years certain indicators have remained the same. There are systemic weaknesses. This is broad recognition now that we need to be moving from only building just infrastructure to investing in how to manage the systems.

There is a diversity of management arrangements, ranging across supporting community-based management, private sector service providers, and public service provision.

What constitutes management performance is not agreed upon. There are varying definitions of success (very narrow or very broad). Performance is usually discussed in relation to community-based management and the evidence is mostly anecdotal. It's not clear what actually impacts on management performance, including contextual factors.

In Ghana, there are four management arrangements recognised by the Government: 1) Community based management, 2) public provision, water and sanitation management teams, 3) safe water enterprises and 4) Mechanised boreholes that are privately managed. Our study look at the first three arrangements but not the privately managed boreholes.

According to the local government act, the government is supposed to provide support and regulatory support, but they only provide that for community-based management systems.

We asked the question: **What influences the performance of rural water supply systems in low-to-middle income countries?**

We focused on this question in regard to rural piped schemes in Ghana. No point sources. We collected data on 150 systems (50 from each of the three above mentioned management arrangements) in 7 regions in Ghana. The research was conducted in 2023.

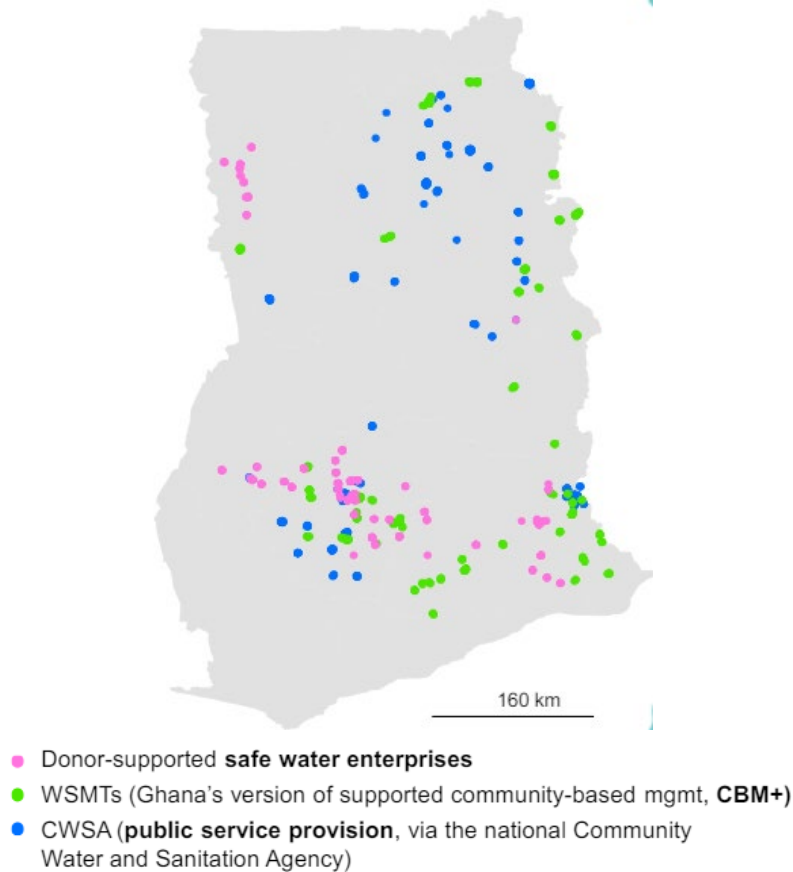


Figure 15: Aguaconsult study sites in Ghana

Performance was measured through 9 indicators including chlorination, hours/days supply, major breakdowns, unscheduled unavailability, functionality, convenience and governance indicators. We looked at how management arrangements and 55 practices and conditions across 8 domains affect performance. We also carried out 44 interviews at the service provide, district assembly and national level to understand the political economy context.

⚠️ **The following results are still preliminary!** ⚠️

The study found that donor-supported safe water enterprises (SWE) performed better on the convenience and chlorination performance indicators than public service provision (CWSA) and supported community-based management arrangements (WSMT).

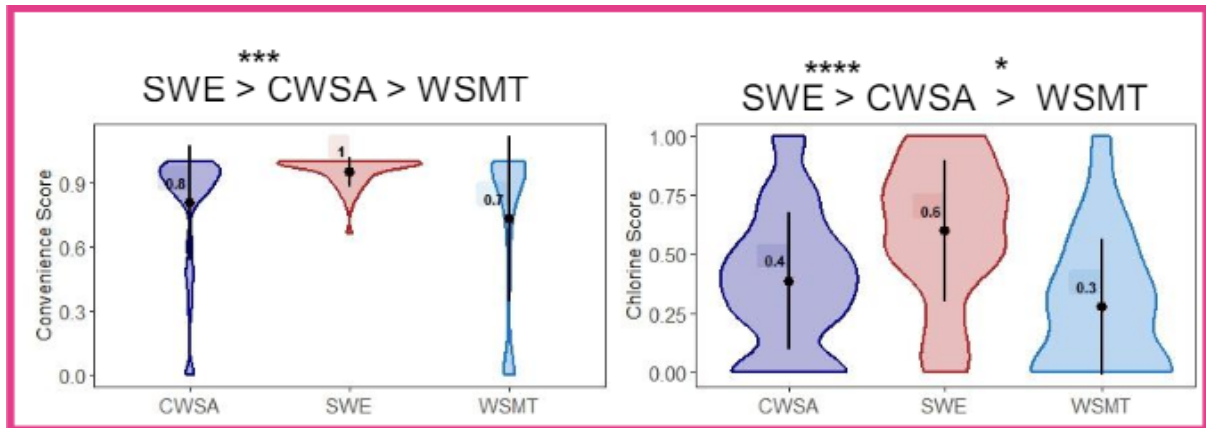


Figure 16: Violin plots indicating the distribution of response variable results for each management arrangements. We overlay the mean (symbol) and standard deviation (line) of the distributions over each violin plot

Reasons behind the findings: safe water enterprises are much more professionalised which in turn drives better performance. The capacity of communities to manage on their own is not enough. District assemblies are ill-equipped to provide support to communities. Water service providers, especially less formalized community-based managed ones, are prone to political influence (e.g. leaders wanting to use water for community events like funerals). There is no clear service authority.

We cannot include comments on comparative performance because cost-effectiveness was not calculated. About 100 management practices were identified but many could not be evaluated because there were little variation practices related to water resources management, public health and regulations which are little implemented in any of the sites. This would be useful to investigate in other countries.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A – Analía Saker	
Question/comment	Answer
The safe water enterprises have access to more resources, so why is the cost-effectiveness not done and is there something to capture the differences?	The safe water enterprises were not keen to share their financial information. It was difficult to get this information so it was out of scope. It's not that WSMTs have failed the system, the system has failed WSMTs.
If the management of water supply is to be professionalised, much of what is needed is information for the private sector to invest, but that is often missing. Much of the cost is covered by the local government. So, when someone tells you how much a water supply costs, it might not include the amount of private investment needed to professionalise it.	
What informed the performance indicators that you selected?	The indicators reflect user service. Some performance indicators look at non-revenue water or other things like that, but we focused on what was reaching users.

Private Local Service Providers (PLSPs) Model for Post-construction Service

Presentation by Antoinette Kome on behalf of Mahteme Tora, SNV in Ethiopia (iWET)

Rural water supply contexts in Ethiopia have similar issues to many other countries. Coverage is at 65%. Community-based management (WASCO) is the predominant model. There are high rates of non-functionality. The WASCO has to visit the district office for repairs. But the response time is slow, sometimes up to a month.

In 2017, SNV introduced a post-construction service model called Private Local Service Providers (PLSPs). PLSPs form a microenterprise and enter an agreement with the WASCO and the government. They are university educated people. There is an agreement on what they payment for the repairs will be. There is only one PLSP in each district. They reduced non-functionality to 7% and downtime to 3 days. There is transparency in the transactions which is supervised by the Woreda office. Each PLSP has about 5 people.



Photo: PLSP members learning about pump repair

They advise communities on breakdowns and management issues. Communities don't need to go to district now, they can call the PLSP who then comes. There is guaranteed water service quality because of the agreement with the government.

In terms of systems change, there are new markets because the uptake is faster for spare parts and services. Spare parts were held in the Woreda office before and procured by the government. When the local government isn't able to go to the villages, the system is still able to work because the communities know they need the PLSP for the water supply to continue functioning. There is some level of microfinance involved.

Some challenges with the PLSP model include:

- The definition of functionality differs at different levels of government, so there is inconsistency in how this is measured.
- The monitoring system is complex.
- Issues with willingness to pay because in the past the government would do repairs for free.

- Sometimes the PLSP is seen to jeopardise job security for government staff, so some district officials don't engage.
- Sometimes NGO programs repair systems for free which creates expectations for free repairs.

This is a private sector model, but the public sector is committed to this change. We want to see what roles can be taken over by the private sector and which should stay with the public sector.

University graduates want to make a lot of money quickly, but PLSPs take a while to get established. So sometimes they get frustrated and leave. Sometimes they do not want to work in rural areas. PLSP associations help each other. Some of the tasks can become bundled. At the WASCO level, it took a while for them to understand for this fee-for-service model.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
Is there a tariff regime or some legal basis that supports this model?	Regulations at that local level probably do not exist.
The project ends this year. How are will the PLSP continue after the 2024 IWET program ends?	Even when the war was going on, some mechanics were still able to continue. Can the stakeholders stay in their role? If someone starts doing maintenance for free, PLSPs will be put out. But there is interest to scale this.
What incentive can the government provide for university graduates to continue working in this area, and not moving on to find better jobs?	At the beginning they are provided with a motorcycle and a toolkit. However, they will consider it a real job when they can make real money, so it remains difficult to keep them.

Debating game

Debate 1

Participants were put into two opposing teams to debate the Statement:

Pre-paid meters are the best option for household connections in rural piped schemes

The purpose of the game was to encourage participants to explore the ideas emerging from Block 3 and possibly to challenge their own internal views on the topic. Participants chose whether they wanted to be on the team arguing in favour or the team arguing against the Statement, the other team against. Three participants volunteered to form an 'honourable jury'.

The objective: to convince the jury of the position of the group.

The debating game follows a series of instructions and strict rules:

- The decision of the jury is based on the consistency and coherence of the arguments as well as the response to the arguments of the other group.
- Each team has 3 minutes each to present their arguments without interruption.
- After both teams have argued for 3 minutes the first team counters with 2 more minutes, and the second then follows.
- The 'Jury' then retreats to consider the quality of the arguments and decide on a winner.
- The 'game' was very lively with very passionate arguments from both sides! The text in the table below reflects participants' actual statements as closely as possible.

Arguments from the Debating Game

Round 1

AGREE	DISAGREE
<ul style="list-style-type: none">• Creates reliable income for the operators• Operators don't need to depend loans that need to be paid back with interest• Provides more data that can be used to improve quality and reliability• Reduced conflict because of transparent billing• Strengthened accountability• Social protection mechanisms can be implemented through giving free credits to low-income households• Less water wastage• The costs of meters can be subsidised• Pre-paid meters for electricity in Mozambique has been very successful in increasing energy access	<ul style="list-style-type: none">• Technology failure is always an issue• Challenges with supply chains and availability of spare parts• Water could get cut off as soon as your credit runs out• There need to be available networks to run the pre-paid option• Limited producers• Costly to install – maybe \$200 per device• It takes a long time for customers to learn how to use them• Cost of maintaining them• Replacing them will take a long time• If people cannot pay, they may resort to drinking unsafe water

Round 2

AGREE	DISAGREE
First 2 minutes:	
<ul style="list-style-type: none"> • The technology can fail, but trained providers can provide timely and necessary maintenance • Spare part supply chains can be established • We need to try innovative things even if there is a risk of failure • Water is economic good and metering helps reify that • There would be savings because a lot of time and effort are lost trying to collect tariffs in inefficient ways • The savings and extra revenue could be used to help offset the costs of the meters 	<ul style="list-style-type: none"> • It's not feasible for the government to subsidise the cost of all the meters in the country • Only a few companies are capable of manufacturing these meters • There is a limited supply of meters because there are few producers of them

Jury deliberation:

After deliberations, the panel of judges declared the **Agree group to be the winners** based on the clarity and substance of their argument.

Debate 2

The debating game was played again with the following statement:

Private sector in rural water supply cherry-picks the most viable schemes, making all others relatively weaker

The rules were the same as in the first debating game.

Arguments from the Debating Game

Round 1

AGREE	DISAGREE
<ul style="list-style-type: none"> • The private sector will only support schemes that are already working well • The private sector has a business mindset and will seek out profits – they won't support unprofitable schemes • The private sector can afford more expensive technologies so can drive up market prices • The private sector isn't making other schemes absolutely weaker – the other schemes are relatively weaker and are increasingly falling behind 	<ul style="list-style-type: none"> • The private sector makes other stronger because it helps identifying scheme that are not working well and hence need more support • Viability depends on management • Profitable private schemes are able to invest in broader systems improvements • Private sector engagement promotes innovations in data management, technology adoption, and service delivery • It is the duty of the government to regulate access and ensure private schemes aren't weakening others

	<ul style="list-style-type: none"> • The private sector can strengthen supply chains which benefits everyone • The private sector isn't always able to cherry-pick
--	--

Round 2

AGREE	DISAGREE
First 2 minutes:	
<ul style="list-style-type: none"> • The private sector will poach the high capacity staff which leaves other service providers with less competent / experienced staff • The private sector aims for the low hanging fruits and build on existing infrastructure or investment in large communities with better rates of return, and leaves the smaller communities behind 	<ul style="list-style-type: none"> • Public utilities also perform professionally and invest in schemes to make them operational and give good services • The public sector has all the same operation and maintenance costs as the private sector, so the private sector won't take up all the markets • The private sector's investments in the market benefits other service providers as well

Jury deliberation:

After deliberations, the panel of judges declared the **Disagree group to be the winners** based on the clarity and substance of their argument.



Photos: Debating game. Photo credit: DPOP-NPL.

Block 4: Accountability and regulation in rural water supply

Overview

Accountability and regulation for rural water supplies in low- and middle-income countries enables good service delivery. They contribute to ensuring that water services are reliable, safe, and accessible to all, particularly in areas where populations are dispersed and infrastructure is limited. Effective regulation provides a framework that holds service providers accountable, ensuring they meet quality standards and protect public health. It also encourages transparency and efficient use of resources, and fosters trust among communities. Furthermore, regulation can stimulate investment by creating a predictable and stable environment for private sector involvement which can lead to improved water services and better health outcomes for people living in rural areas.

In Block 4, participants presented on case studies of regulations and accountability mechanisms in Mozambique, Peru, Colombia, and Rwanda. Country teams also shared the current status of regulations in their own countries.

Introduction to Block 4: Rural water supply regulations

Presentation by Antoinette Kome, SNV Netherlands

Why do we do regulation in water supply? There are multiple reasons:

Economic regulation

- It's a natural monopoly – you can't switch water supplies and water providers.
- The provider has much more knowledge and information about the water supply than the users.
- Water supply is a human right – it doesn't need to be free but it needs to be accessible and affordable.
- We want to avoid the risk of cherry-picking and only supporting some systems

Public health regulation

- From a public health perspective, it's not just the people's individual health, it supports the greater health of the public.

Environmental regulation

- There is also a need to protect the environment and water resources that are shared with others
- There are negative externalities in polluting the environment. For example, the brine discharged by salinization technologies.

What do we regulate?

We often talk about regulating the tariffs, but what else needs to be regulated? One could also regulate

- Service outcomes and service levels
- Technical and commercial processes
- The qualification of staff and administrative procedures

But the more you want to regulate, the more work you need to put in. We can't regulate everything, so we should start with deciding what are most important things to regulate.

Who is regulating?

Regulation agency: Many people think about an independent regulator, semi-autonomous from government, that is not influenced by politics. They can really cross-check requirements and are specialised with a specific mandate for water or WASH. In several countries in Africa, this is the case.

Often the national regulator has a lot of work to regulate urban services, so it is hard for them to reach rural areas.

Regulation by contract: For example, when a service provider enters a contract with government and the government holds them accountable for upholding certain aspects of water supply version, like standard tariffs or service delivery standards.

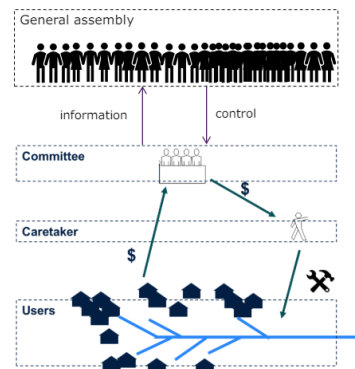
Ministerial regulation: When a ministry puts out standards (often not service specific) and performs regulatory responsibilities themselves.

Self-regulation: Sometimes big utilities or other service providers will regulate themselves through a control department. The service provider can be legally mandated to do this.

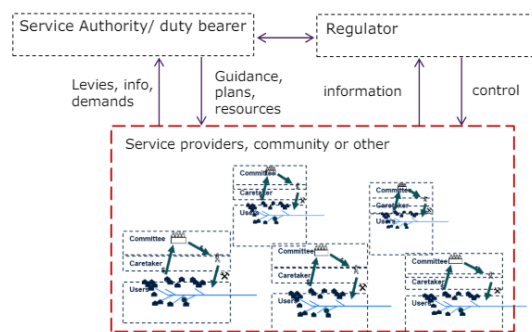
Co-regulation: Regulation done by a responsible government authority in partnership with citizens' groups through a formal arrangement.

Each of these regulation models is explained in more detail as follows:

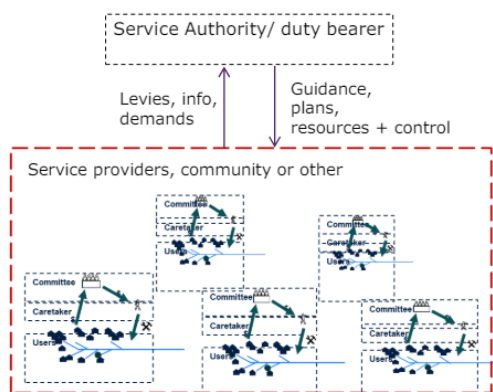
In theory, in the community-managed model, the general assembly of the community regulates the water committee. The assembly decides who has the right to vote, decides how to run the system, etc. This is a traditional system which works very well in some countries in isolated areas. The challenge is that of this is all voluntary. Nowadays, many people are leaving the communities and the assemblies are no longer held.



Under regulation by agency, the government or assigned regulator oversees multiple rural areas and provides them with guidance.



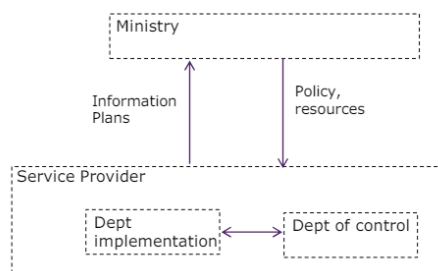
The service authority controls regulation when there is regulation by contract. Laws and policies guide high level aspects of service delivery and the contract defines service standards, key performance indicators, etc.



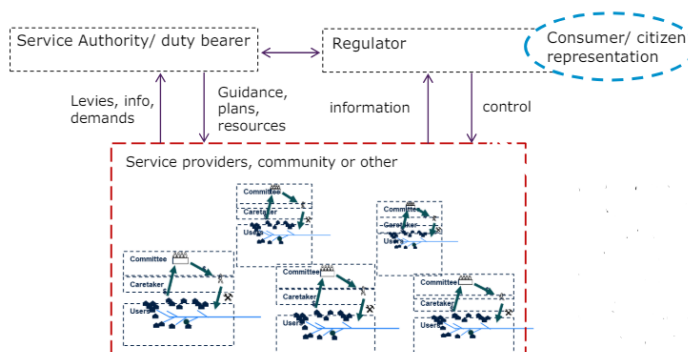
Ministerial regulation is even higher level and usually doesn't emphasise operational aspects. The service authority cascades ministerial guidelines down.



Under self-regulation, the service provider and the regulator report to the same director within the organisation. Inside an organisation, there is always a risk that the director gives more resources to implementation and less to regulation.



In co-regulation, there is representation from some community body that interfaces with the government or other regulators.



How to regulate?

The majority of countries are using a mix of standards, guidelines, incentives, sanctioning, monitoring. At the rural level, in some countries it is more just guidance. For example, in Burkina Faso, they make a contract with the maintenance provider and focus is just on the functionality

If you want to do regulation, you must bring the service provider in compliance with your standards. This is similar to behaviour change – it is like organisational behaviour change. The first question, is which behaviours are we going to focus on? Generally, we want to focus on things that have a high impact and address a high risk. For example, water quality might be both.

The second point is about the information we need and the determinants we need:

- What are the current practices of the service providers?
- What are the desired practices?
- What are the determinants of change where they may be unprofessional or informal?

We need reliable information: from the providers, through inspectors, automatic readers, engagement of citizens.

Then, find out what are the determinants of change: recognition, pride, incentives, competition, fear of penalties, etc. There are other factors like capacity, support, and trust that mediate this. We need to expect small incremental steps towards behaviour change; don't expect it to happen all at once.

What could be improved? In Tanzania and Zambia, it's working, but there is room for improvement in implementation, enforcement, transparency, community engagement, and collaboration. In Ghana, the CWSA has direct responsibility. In Bhutan, there needs to be greater clarity in the roles of each stakeholder. In Nepal, due to federalisation, the local government is overwhelmed so struggles to do regulation. In Uganda, they are signing a formal agreement with the idea that lower level district boards will regulate through contracts. In Ethiopia, there are mechanisms in place in different states but they are inconsistently applied. In Nigeria, there is almost no regulation for the lowest level.

Challenges and perspectives of regulation of water supply in small populations in rural areas in Mozambique

Presentation by Carla Sotomane, AURA

In earlier times following the civil war, dispersed water sources equipped with handpumps were being overseen by municipal governments, but this was not sustainable. The Government of Mozambique decided to found and delegate responsibilities to the regulator AURA to do administration of water and sanitation infrastructure. AURA is an entity/authority that is semi-autonomous because it has a mother link with the Ministry of Public Works and Housing.

Management of rural water supplies may be delegated to a private operator, with the Provincial Directorate assuming the role of transferor/owner of the assets. The District Authority is playing an increasing role lately. Service regulation was initially conceived as a district responsibility through District Regulatory Commissions, as provided for in the Manual for the Implementation of Management Modalities of Small Water Supply Systems.

According to SINAS, 1425 rural water supply systems are registered water supplies in Mozambique. Some run on solar energy and a few use desalination where groundwater is not available.

All of the rural water supply systems have been financed by various entities and not always in an orderly way. PRONASAR was created to manage the financing in an integrated way. Of the new PRONASAR guidelines, the following stands out:

- The owner of the property is the District Authority and is responsible for the decision hiring the operator;
- Regulation is the exclusive responsibility of AURA, which is responsible for defining and establishing the appropriate regulatory regime, including dispersed water sources;
- There is a recommendation to develop an integrated management system for all services on a district scale.

In 2019, AURA was set up with the following attributes:

- Regulation and supervision of public water supply and sanitation services
- Economic regulation of the public water supply and sanitation service and the tariffs
- Design and execution of contracts
- Defining standards applicable to public and private service provision of water and sanitation
- Definition of a regulatory framework for service provision
- Reconciliation of interests between the consumers and management entities

Each of the systems have a regulatory board that looks at the interests of the service providers and the users. AURA manages conflicts between the two parties.

The vision for AURA is to be an authority that watches over water and sanitation service quality, sustainable and accessibility for all. The mission for AURA is regulate water supply and sanitation, ensuring the balance between the quality of service and its sustainability, acting with impartiality and good faith in the interests of Mozambique and the people of Mozambique.

AURA currently regulates 5,843 water and sanitation systems and expects to increase this number by 2026. The below map shows the locations where systems are regulated: Blue dots indicate the primary systems, red dot indicate secondary systems (systems that are indirectly regulated), and yellow dots indicate sanitation systems.



Figure 17: Map of locations where AURA regulates water and sanitation systems

AURA has 11 main challenges. These are not intractable challenges, but areas for us to improve on:

1. Legal and institutional obstacles
2. Funding regulations
3. Administration of infrastructure regulations
4. Private water supply regulations
5. Rural water service regulations
6. Sanitation service regulations
7. The respective roles of AURA, ALC, and CORAL
8. The financial sustainability of AURA
9. The technical skills of AURA
10. The visibility and recognition of AURA
11. Interaction with stakeholders

Currently we are looking at a new model for tariffs of rural systems. The managers of the systems should be professionals that can maintain the system, so we are working on certifying the providers and registering operators. We created AURA-net which mimics IB-net used in the United States which is a portal for queries.

The definition of tariffs is a challenge because the operators and customers don't know how to do this. AURA explains how the process of tariff-setting is done and an analysis needs to be done to determine viability. The tariff is placed under the contract and AURA reviews the contract. If the contract already exists, then AURA calls on the supplier to see if all is well.

In 2 – 3 years, we want to have indicators to provide data that will allow us to evaluate the sustainability of the systems. Then we will do the evaluations to monitor the sustainability of the systems. We publish an annual report on our findings that is made public.

AURA can operate by making an agreement between AURA and a local entity trained by AURA with staff who receive a fixed commission. AURA provides them a table and a room. This entity does monitoring, engages consumers, and holds meetings with the service provider. They also try to find the problems from the community. AURA has offices in North, Central and Southern regions. The headquarters are in Maputo. The offices collect data locally through the local entities and report upward to Maputo and the info is published on AURA-net. This gives us oversight of the regulatory area. We do training for the district government and operators so that they are aligned with the regulations.

In the short term (1 year), we want water and sanitation systems in rural areas to operate similar to systems in urban areas. Regulatory activities will be expanded through (i) signing of Collaboration Agreements with District Governments, (ii) carrying out audits for systems and (iii) training of District Governments and Water Supply System Operators and sanitation in alignment with the Decree 41/2021 (tariff indexation and adjustment mechanisms reference averages).

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
There is a discussion between AURA and the service provider about the tariffs. Is a willingness to pay analysis done first?	Under normal conditions, the willingness to pay study comes before the system starts, but this hasn't always been done.
We saw the mapping of the water systems. Is that mapping combined with other information like possible number of	The managers of those systems are the people that give AURA the basic information. The information that we take complements the information already

customers that would help attract private sector investment?	shared with us. We go there with some information already, and we will call the management provider before we go to the field if we want to collect more.
The map that was presented has to do with regulated with systems. SINAS collects information about systems in the country. But the AURA map is about regulated systems which is different. Just to clarify.	
Regarding the regulatory scope, are you expecting to cover all types of rural providers or are you trying to reach piped schemes only?	If there is a system that provides to a group of people, we include them. There are no systems that we will not regulate. We even include schools. We ask about new systems being built so that we can arrange for regulations.
You said regular visits are done for sanitary inspection. What happens when you find that the water quality is unsafe? What is the system to ensure that it will be safe? Is there an incentive or penalty?	There are systems that are not operating well. We are developing regulations for incentives and sanctions compliance. When the operator does not fulfil what AURA elaborates, they must be sanctioned.

Regulations for rural water supply

Presentation by Analía Saker, Aguaconsult

This presentation covers lessons learned from a study of regulations in Rwanda, Colombia and Peru.

Why is regulatory activity important? Regulations organise the setup and ensure all the actors are pushing in the same direction. In other words, it reduces disorganisation. Regulation also brings stability to the market by letting know private actors know what they can expect. It promotes customer protection which is often poor in rural areas. Finally, it can increase willingness to pay by improving accountability.

Rural contexts are challenging because populations are highly dispersed. We think of them being located in a settlement area, but often they are spread over broad area. Levels of income, education, and internet access are very different from urban areas, so regulatory mechanisms must be different.

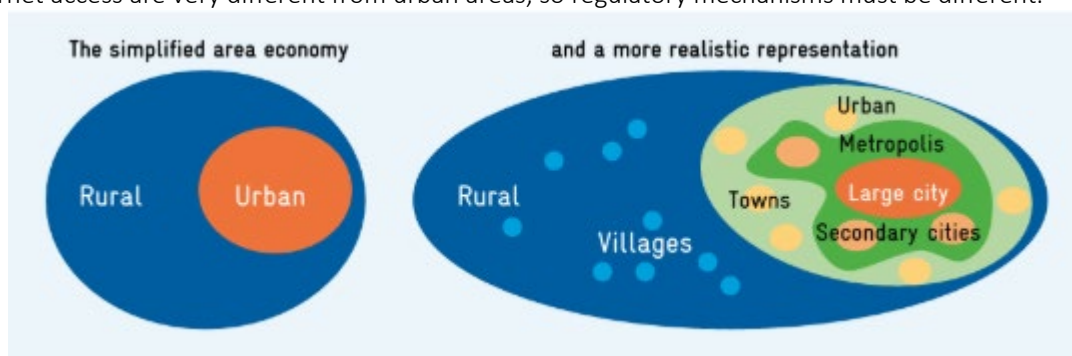


Figure 18: Visualisation of how rural settlements are often perceived versus a more realistic representation

Here, we look at three rural water regulations in three countries. In Colombia, rural water coverage is good but has stagnated. Basic coverage in Peru is increasing and catching up to Colombia. Rwanda is also experiencing growth in basic water coverage in rural areas.

Rural areas are not consistently defined around the world. The below figure explains how each of the three study countries define rural areas and their primary models for rural water service provision:

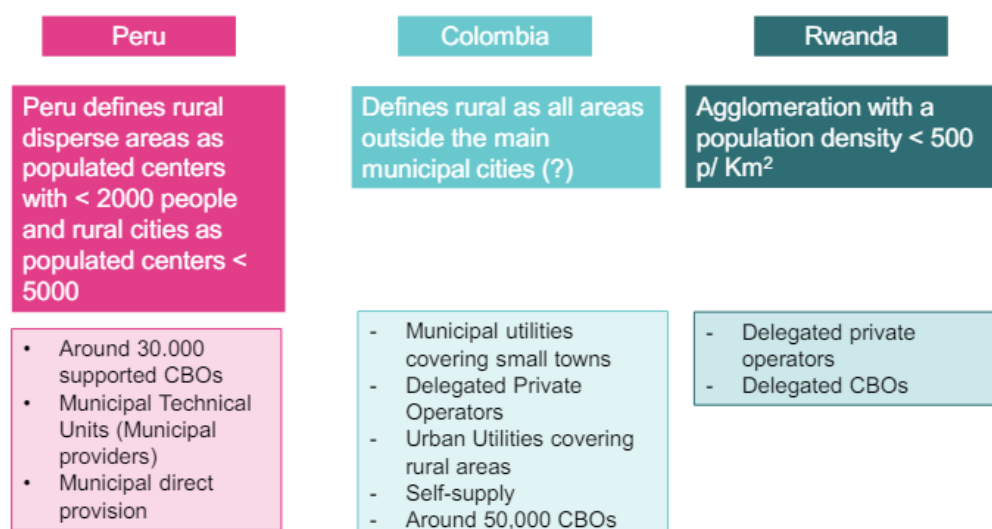


Figure 19: Definitions of rural areas and primary water service provision models

Peru provides a definition based on settlement size. Colombia defines it based on populations based outside the 9 main cities. Rwanda determines rural populations by density. By Colombia's definition, it's a large portion of the country. The community-based model is common in Peru – they don't like the private sector. In Colombia, there are utilities and municipalities covering rural towns. In Rwanda there are delegated private operators and delegated CBOs.

- Peru has a regulator by agency.
- Colombia has regulation by multiple agencies. Different tiers of regulators – those that set regulatory frameworks and those that enforce them.
- In Rwanda, there is regulation by agency and regulation by contract. Regulations are enforced through contracts and set by an agency.

The regulatory agencies have different levels of autonomy. In Peru, there is a high level of independence and the regulator will fight with the government. They also hold consultations with the public. In Colombia, the president appoints a commission for looking after the regulators. The commission is made up of appointees by different presidents. They have well established procedure for making regulations. In Rwanda, the regulator has a fair degree of independence as it is an independent agency funded through service levies, but the president has the power to remove its director.

Each of the countries implements a range of regulatory mechanisms on paper, but it is difficult to see how many are being put into practice.

Regulatory Mechanism	Aspect	Peru	Colombia	Rwanda
Standards & Guidelines	Service levels and water quality	✓ CBO	✓ ALL	✓ YES
	Tariff rates, tariff setting and adjustments	✓ CBO	✓ ALL	✓ YES
	Planning	✓ CBO	✓ ALL	✓ YES
	Citizen involvement and complaints mechanisms	✓ CBO	✓ ALL	✓ YES
	Are standards tailored to rural realities?	✓ YES	✗ NO	✓ YES
Monitoring & Performance Reporting	Are quality of service indicators periodically tracked by the regulator?	✓ YES	✓ YES	✓ YES
	Are economic efficiency indicators periodically tracked by the regulator?	✓ YES	✓ YES	✓ YES*
	Are operational sustainability indicators periodically tracked by the regulator?	✓ YES	✓ YES	✓ YES*
	Do regulated service providers submit reports and data to regulatory actors (on an annual basis)?	✓ YES	✓ YES	✓ YES*
	Do regulatory actors inspect and audit regulated service providers on an annual basis?	✓ YES	✓ YES	✓ YES*
	Are annual reports produced on sector and regulated service provider performance?	✓ YES	✓ YES	✗ NO
Incentives	Are there financial incentives regulatory actors can provide to service providers to promote good performance?	✗ NO	✓ YES	✗ NO
	Are reputational incentives regulatory actors can provide to service providers to promote good performance?	✓ YES	✗ NO	✗ NO
Sanctioning	Do regulatory actors have the ability to issue fines to service providers?	✗ NO	✓ YES	✓ YES*
	Do regulatory actors have the ability to suspend, remove, or transfer service provider licenses?	✗ NO	✓ YES	✓ YES*

Figure 20: Water regulatory mechanisms in Peru, Colombia and Rwanda

Colombia has developed many regulations, but they have only reached 2,400 out of 50,000 service providers. Similarly, Peru's regulations only reach about 10% of service providers. Rwanda claims to have reached all service providers, but that seems doubtful.

Several **good practices** were observed, particularly in Peru:

- Peru is in a more advanced stage of effectively regulating rural areas. In 2016, the extended the mandate of the regulator to cover rural areas. Guidelines and tariffs have been established and they created 24 offices in the rural areas that are well-resourced with vehicles and laptops.
- In Peru, there is an inventory on rural water systems. Some parts have not been updated for 5 years, but it's a pretty good picture. It was funded by a Swiss corporation, but now being managed and operated by the Government of Peru.
- The regulator in Peru has a small number of indicators that need to be regulated and sticks to those. CBOs cannot be created any more, they need to be merged. The government is trying to reduce the number of 28,000 CBOs to regulate through consolidation.
- In Peru, there is a system of incentives because municipalities that provide up-to-date information they will get increased access to funding.
- There is a benchmarking of service providers in Peru – they find the best service providers and bring them to Lima and give them prizes.
- In Rwanda, the regulator reaches rural areas with regulatory activity through regulation by contract in which the model of contract is set by the regulator, but it is enforced through the terms within the contract by the District or the water and sanitation utility. It is a practical way of keeping some regulatory oversight with limited capacity

It does not make sense to apply a big regulatory framework, like used for urban areas, to rural areas because it is overwhelming. But then, it may be asked, **why should rural populations be given lower standards?** It is an ethical question.

The distinction between rural and urban areas is arbitrary in most countries, but it has practical implications for regulation. This needs to be clarified.

We should think of regulating rural water services like “performance monitoring plus”. Advisory services should be provided and when something is failing there should be a way to log a complaint.

Regulatory design can start with relatively simple mechanisms that can gradually evolve into providers being held to account in more conventional ways as the rural system transitions towards a greater level of professionalization.

Final learnings:

- The sector is learning how to regulate both rural and urban areas. We should facilitate learning from one other.
- Regulatory reforms must come with sector reforms that enable the application of regulatory activity, such as incentives.
- We should stop thinking that the regulatory agency is always the best model, because unless you have the capacity to reach rural areas, it will be difficult. What could work better in rural areas? Even countries that have invested a lot in regulation haven't been able to reach all service providers in rural areas.
- Incentives, and not sanctions, in the case of rural areas should be put in place to encourage performance.
- Management information systems play a vital role in enforcing rural regulations.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
If the water utility enters into a contract with a local entity, but the regulator gives the license, does the water utility act as the regulator? That is, the regulator is meant to regulate the utility, but the utility delegates down to local entities, who then regulates the local entities?	In theory, the utility could be the one to do audits to check the conditions of the license are being met. The key performance indicators of the license should be in the contract.
In Peru, the regulator is highly independent. How are they financed?	They were financially independent until they got the rural mandate. Before, they get a percentage of levees from the water tariff. The regulated water service provider pays a fee. Now they are getting some funding from the central government.
What are the key regulatory elements that should be focused on in rural contexts if we need to only select a few?	It depends on the priorities of the country. In Peru, chlorination is a key indicator, but for some other countries they don't see this as important. Having an official registration is often important. Monitoring how many connections. Are they following the tariff guidelines and are they calculating per the guidelines and are the tariffs rising over time?
The financing stream for the regulator is very important. Some governments reduce the funding of the regulator which reduces their performance. So, the service provider (e.g. utility) looks very knowledgeable compared to the regulator. Regulators are very vulnerable. It's helpful to have it protected by the constitution.	
Usually the wealthier areas in rural parts get more regulation which is the case in Colombia.	

Group exercise – Accountability and regulation

The workshop participants were split into four groups based on the region in which they work: Asia, West Africa, Southern Africa, and East Africa. Because the number of participants from Mozambique was large, half joined the East Africa group and half joined the Southern Africa group. Each group discussed the current regulation modalities of rural water in their region.

In particular, they were asked to consider:

- What is regulated?
- Who is regulating?
- Who is regulated?
- What are the mechanisms?
- Are there any perverse incentives?

Each group then present the results of their discussion:

Southern Africa (Zambia, Tanzania, Malawi, Mozambique)



Photos: Group work – accountability and regulation. **Photo credit:** DPOP-NPL

<p>What is regulated?</p> <ul style="list-style-type: none"> ● Tariffs (except in Malawi which doesn't regulate points sources and small schemes) ● Quality of service (response time, access) ● Water quality ● Type of technology (only in Malawi) ● Quantity ● Revenues against expenditure 	<p>Who is regulating?</p> <ul style="list-style-type: none"> ● Zambia: NWASCO (National Water and Sanitation Council) ● Tanzania: RUWASA (The Rural Water and Sanitation Agency) ● Mozambique: AURA (The Water Regulatory Authority) ● Malawi: Ministerial regulation (no single regulator)
<p>Who is regulated?</p> <ul style="list-style-type: none"> ● Zambia: Commercial water utilities; private service providers; VWASH (not regulated/covered by guidelines) ● Tanzania: Community-based water supply organisations ● Mozambique: Publica and private water operators and self-providers ● Malawi: Commercial companies, water user associations, regional water boards 	<p>What are the mechanisms of regulation?</p> <ul style="list-style-type: none"> ● Business plans (Tanzania and Zambia) ● Performance contracts (Tanzania and Zambia) ● Direct regulation (Mozambique) ● Indirect regulation (e.g. agreements with public institutions) (Mozambique) ● Key performance indicators (Malawi) ● Licensing and permits (Zambia) ● Compliance orders (Tanzania, Zambia)

What are some strategies for improving regulation?

Issue	Strategy
Insufficient presence of the regulator (Zambia)	Delegate the regulatory functions with associated financial needs
Absence of an autonomous regulator (Malawi)	Establishment of an independent regulatory authority for water and sanitation
Delayed information and feedback from regulated utilities (Mozambique)	Use of real-time data collection systems involving all parties (AURANET)
Mixed mandate between providers and regulator (Tanzania)	Establish a separate department for rural water supply regulation

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
Licensing and permits for Zambia, what's the difference?	At the national level, the water utility company exists but they are not everywhere. So, they can do regulation through licensing in their jurisdiction. The local government gives a permit. NUWASCO issues the license, at the subnational level the permit is issued. They are different in terms of the mandate. Permits cannot be issued for very long time. Licenses are longer and less local.
Licensing can be a revenue generation for NUWASCO. Licensing is supposed to be for ensuring qualified service providing. In Ghana, there are many informal service providers. If they don't have licenses to begin with, you can't control them. Even if it's not a permit you can give them a license if they meet certain standards. It provides assurance to the consumer because a licensed service provider is held to a certain standard.	
What is the data collection system for AURA?	The platform allows for us to have information from every part of Mozambique in real-time. The service provider can upload information and the user can access the data online and the client can add data. A report can be produced which is used to do assessments for reporting to public and government.

East Africa (Kenya, Uganda, Mozambique)



Photos: Group work – accountability and regulation. Photo credit: DPOP-NPL

<p>Who is regulating?</p> <ul style="list-style-type: none"> Uganda: WURD plus district and local government Mozambique: AURA Kenya: WASREB 	<p>What is regulated?</p> <ul style="list-style-type: none"> In theory, everything should be regulated but this isn't the case. Uganda: Piped schemes, points sources: quality, quantity, walking distance, functionality, O&M costs Mozambique: Piped water schemes, point sources: quality, non-revenue water, tariffs, hours of supply, coverage, O&M cost %, response time/ customer service Kenya: Water service providers: quality, tariffs, supply hours, governance of service providers, OCCR/non-revenue water
<p>Who is regulated?</p> <ul style="list-style-type: none"> Uganda: Water service provider, regional water utilities, district water boards and water user committees Mozambique: Private water service providers, local government/public water service providers, public enterprises, community water committees Kenya: Rural water utilities, private sector providers, and water user associations 	

Key difficulties:

- Uganda: Political intervention, capacity of the regulator
- Mozambique: Coverage of water provision with regulation services
- Kenya: Financing regional plans, human resource capacity, political influence

What are some strategies for improving regulation?

- Most of the regulators are at the national level so there should be more decentralisation of regulation in all 3 countries. For example, regional offices.

- There is need for enhanced data for informed decision making. Make use of new technology. Some good examples of practice include the use of MIS in Kenya and Uganda and AURANET in Mozambique

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
How is climate change resilience regulated?	There is a lack of robust service provision during floods and droughts. It's not an aspect that is regulated.
Sometimes it looks like government is regulating itself. How can local government best be regulated?	Different institutions have different mandates in terms of service provisions. If a government agency is providing and investing in a scheme and producing water that is not fit for human consumption, by law the regulator can shut it down. So the law makes clear that one government agency can do this to another.
In Mozambique, when there is a problematic system, AURA does not want to close it. There has to be a contingency plan to ensure that population has water. So, if the scheme is shut down what happens to the recipients?	If it's not fit for human consumption, it is better to shut down the system. It's better to not deliver that water and use some alternative. It's a difficult dilemma, for example in the case of Bangladesh when there is arsenic in the water.

West Africa (Ghana, Burkina Faso)



Photos: Group work – accountability and regulation. Photo credit: DPOP-NPL

<p>What is being regulated?</p> <ul style="list-style-type: none"> ● Ghana: Rural water service provision ● Burkina Faso: The quantity of water 	<p>Who is regulating?</p> <ul style="list-style-type: none"> ● Ghana: Regulation by agency. Water and sanitation management teams are overseen by district assemblies ● Burkina Faso: Piped schemes and point sources are regulated by separate bodies
<ul style="list-style-type: none"> ● Who is regulated? ● Ghana and Burkina Faso: The rural water service providers (private operators, communities, informal providers) 	<p>How is it regulated?</p> <ul style="list-style-type: none"> ● Ghana: There are national standards in Ghana and it can be checked whether service provider is in compliance. Water Safety Plans are required ● Burkina Faso: Water User Associations do not have a contract

Challenges

- In Ghana, there are different reporting lines; the national monitoring system is supposed to capture data on water quality and quantity, but it is not working effectively; there is no synergy in who provides services. All services are on their own, there is no shared resources
- In Burkina Faso, there is a lack of human resources and logistical coordination for the regulator to monitor service providers; unclear definition of roles in peri-urban areas; limited staff with unclear responsibilities.

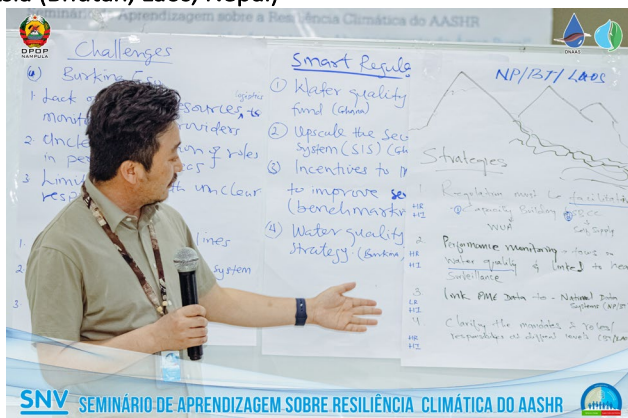
What are some strategies for improving regulation?

- Ghana: There is a pilot project to make a national water fund in 2 regions in Ghana. It will make funds available for water service providers and could also support water quality testing
- Upscaling the sector information management system in Ghana. There is a platform where data should be transmitted from the community level, but the information often doesn't go for a lot of reasons.
- Burkina Faso: Need an incentive for municipalities to improve service delivery (benchmarking)
- There is also a need for a water quality surveillance strategy in Burkina Faso.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
<p>You said that you are using contracts in Burkina Faso. What is the basis for that contract? What is the content?</p>	<p>The contract is between the municipality and delegated community. The municipality does repairs and the delegated community provides water to the users and ensures the availability of water. They have to give a fee to the municipality which the municipality uses for prevention maintenance – they pay directly to a maintainer/mechanic. It is a tripartite contract. There is another type of contract with private operators in which a private operator is licensed by the national government. There are 16 operators with a license. If you want to operate the water supply within the municipality, then you need a contract with the commune/district/municipality. In the contract there are standards, like for chlorination and continuity, and the tariff is set. The delegated operator should also pay a fee to the water basin agency – the agency protecting the water resource including from climate change.</p>

Asia (Bhutan, Laos, Nepal)



Photos: Group work – accountability and regulation. Photo credit: DPOP-NPL

In Nepal, Laos and Bhutan, there is not a strong regulatory environment for rural water services. Hence the group focused on four strategies for strengthening regulations:

- Regulation must be facilitated to focus on the softer components of capacity building and social and behaviour change communications to water user associations. There is a high risk if it's not implemented, but it could make a high impact if was implemented.
- Performance monitoring, especially water quality, and linking that to health surveillance is a priority. This will help health services as well. High risk to not implement and could make a high impact if implemented.
- Link performance data with national information management systems for better regulatory oversight from a national level. Low risk to not implement but could make a high impact if implemented.
- Clarify the mandates for regulations; in Bhutan and Laos the mandates are scattered and it is not clear who is meant to be regulating. High risk if not implemented and high impact if implemented.

Following the presentation, the audience shared their thoughts and asked questions.

Q&A	
Question/comment	Answer
Because there are little or no regulations implemented, does that mean a self-regulation model is followed?	There is some regulation in Laos but only in the form of guidelines and policy and standards at the national level. It's up to the water committee to follow them and they are not aware of their existence. Water quality becomes a key parameter that is missing. But access to water quality surveillance is cost-prohibitive in rural Laos. No clear roles and responsibilities
Bhutan and Laos are very decentralised. In Bhutan there are ministerial regulations that have been devolved to local levels, but it's not being put into practice. No regulations, just some guidance that exists at the national level.	

Block 5: Country groups sessions and wrapping up

Overview

Block 5 involved the participants reflecting on what they learned, and which lessons they were most eager to take back to their countries and use to improve policy and practice.

Activities included a World Café in which participants asked each other for advice on their questions relating to professionalising rural water management, group work to share key lessons learned, and closing remarks.

World Cafe

The World Café is a group exercise where a representative of each country poses two or three rural water service challenges that they are facing to participants who 'pitch' their proposed approaches to solve the problems. Participants form 'consultancies' and do a round of interviews. The global team also participated as one of the teams.

Due to time constraints, the results documented by the country representative were not shared in plenary. Summary of challenges and preferred 'solutions':

Country shopping bags

At the end of the learning event participant country teams were asked to consider what they have learned that they will immediately take back to try to apply in their home countries.

The final activity of the learning event was for SNV country teams and their partners to discuss what they learned that they immediately want to take back to apply in their home countries. Each group discussed their key takeaways and presented them to the workshop participants.

Zambia and Malawi

1. Extended mandate to manage water supplies by utilities – particularly for non-performing systems. Malawi and Kenya have given examples of how this can work.
2. Clustering of rural water systems and incentives for private sector participants has a lot of potential.
3. Information dissemination for private sector investment – they need to know whether a system is worth investing in.
4. Regulation plays a critical role in bringing sanity for rural water provision.
5. Try handpump technology with meters because the point sources will continue to be there so we need to make them more sustainable.
6. How do we remove subsidies from water service provision – sometimes systems look like they are breaking even, but they are subsidised.

Ghana

1. Need for a regulator. In the rural settings in Ghana there is more than 1 utility and small water enterprises. All these institutions are self-regulated, they determined the tariffs and other technical parameters.
2. Issue of non-revenue water – it needs to be reduced. Installation of district meter areas which means every community there should be a district meter to help detect leakages and illegal connections. It's the duty of the community to resolve it otherwise they will pay for it.
3. Mobile water quality testing kits. There are laboratories only in some regions.
4. There shouldn't be a uniform tariff across the board – it should be a formula. District metered areas means the main branches of the piped water are metered.

Burkina Faso and Benin

1. In-depth understanding of regulation. Regulation is not just norms and standard but also monitoring incentives and penalties. In Burkina Faso, there are no incentives at the governance levels.
2. Mechanisms to strengthen the national level to monitor the contracts.
3. Benin has an IWRM program, but there is no clear framework with guidelines for rural WASH, so the a framework should be made to regulate IWRM.
4. Interesting to see there is flexibility, how the roles and responsibilities can be distributed across actors within a framework including the functional roles.
5. We should establish the priorities for regulation (high risk high impact issues).
6. We had a feeling that we shouldn't continue with community-based management, but in fact we could see that community-based management is still valid and works, and should be professionalised.
7. Behaviour change and accountability should be addressed together and we should focus more on it. Focusing a lot on behaviour change for sanitation. We hear about low willingness to pay, so we should consider the behaviour change aspects of that. This goes together with accountability mechanisms and social accountability – people are willing to pay when the service provider reports on how they used the money

Uganda

1. An area service provider can work in Uganda.
2. In order to mitigate political interference, we need to advocate that they fully know what the tariffs are about before we impose them on the communities.
3. Our communities should know they are paying for the service, not the water.
4. Understand the technical issues for low water yield before blaming climate change. Sometimes there are just technical issues.
5. Spell out the O&M costs for communities and the time of commissioning so that they are aware.
6. Need to look for various sources to cover O&M costs and timing to pay when people have money in their pockets.

Kenya

1. Private company contracted by the water utility could be used as a model.
2. We have learned from Tanzania on how they have their regulator going down to the rural areas.
3. Involvement of technical professionals from the vocation school.
4. Examples of management information system at the lower levels which would help the regulators work at the local level.

Mozambique

1. Improving management of the water supply system through updating the MIS. Moving to performance-based management.
2. We can try to use the community to provide more reliable information.
3. Sustainability regarding operational costs and energy costs. We can use hybrid sources of energy.

Tanzania

1. Adopt the CBM+ model and improving supply chain management.
2. Different models, like in Kenya, not one model works for every context. We can have different models for different rural contexts and criteria for choosing amongst models.
3. Rural water supply regulations can be improved by changing the organogram to give more independence of the regulator.
4. Decentralisation of regulatory authority. We have reached the regional level, but could go to the district level.

5. Strategy for pre-paid meter installation. We learned that there needs to be a clear strategy for rolling them out.
6. Private sector engagement guidelines need to be reviewed through the lessons learned here.
7. Need to revamp performance reporting which can provide incentives by reporting who is performing best and worst.
8. Installation of water meters at handpumps which we currently don't use but we can see that can be done.
9. Reform the structures of the local water supply organisations because the politicians often negatively influence them.
10. Design financially viable projects to attract private investment.

Lao PDR

1. Look at all the different PPP and PCPP management arrangements and give thoughts on how they could be applied in Laos
2. Tariff models about what would possibly work and how different modalities influence consumption.
3. Different models for cost recovery and business models for handpumps and community standpipes to enable cost recovery – mechanisms for transparency and accountability to ensure willingness to pay.
4. Look at how we approach regulation of rural systems that are very small, taking technical guidelines and standards that exist at the national level and make them practical at the local level.
5. Different private sector ideas around water quality testing, areas wide climate risk assessments

Nepal

1. Engaging the private sector in rural areas
2. Engagement of private sector through the TVET
3. Pre-paid water meters
4. Groundwater level studies by provincial river basin authority applied by the local government to manage the groundwater.
5. Private sector without engagement of community may not lead to sustainable services.
6. Want to replicate the world café idea.
7. Will use the debate game in our own work to engage stakeholders.

Bhutan

1. Bhutan is in the process of reforming water policies and institutions. One thing to look at are the different community-based models such as those used in Kenya.
2. The CBM+ models can help with maintenance issues.
3. There are not clear mandates for water regulation and management. We have initiated a review of the water act so that is an opportunity.
4. Area level support, possibly maintenance and repair responsibilities given to a private sector actor. Bhutan currently doesn't have private sector involvement so we would like to see how TVET could incorporate that.

Closing remarks

Abilio Cuamba, programme manager for SNV Mozambique, thanked the participants and acknowledged the sharing of management experiences that may help us improve our own processes and the opportunities and challenges in supporting regulation of water supply service. She invited the stakeholders represented at the event to take the lessons learned home and apply them in their own settings.

Lydia Joseph, the Assistant Director for the Ministry of Water Tanzania, gave her thanks and conveyed her appreciation the Government of Mozambique for hosting the event. She remarked on the hospitality of the people of Mozambique, the beautiful sites and culture we observed during our sites visits, and the greetings we received by leaders. She commends SNV and its partners and donors for the good work they are doing and looks forward to future collaborations. Personally, she will take feedback to her own government and advocate for change.

Alex Grumbley, the SNV Mozambique WASH sector lead, thanked the partners and the Provincial Director from Nampula for their support in organising this event and the visits to the field. It was a great success to SNV.

Mr. Rui Domingos Ramo, The Provincial Director of Nampula, made statements on behalf of the Governor of Nampula who was unable to attend. He summarised the achievements of the workshop and acknowledged site visits to different parts of Nampula. He stated that challenges with sustainability must be addressed and acknowledged that there difficulties in terms of payment for water services. He stated that the government is aware of the issues that the participants have observed and appreciate that they have been debated by the different delegations attending the workshop. He said in light of the experiences, we can improve our situations based on the learnings of each country. He finally thanked the participation of all people present and wished everyone a safe return home.



Photo: Group picture. Photo credit: DPOP-NPL.

Appendix 1: E-group summary

- 10-17th of April: Summary Topic 1: [What makes a good management model for reaching all with rural water supply?](#)
- 18-24th April 2024: Summary Topic 2: [Exploring new rural water supply arrangements \(models and regulation\)](#)
- 25th April - 2nd of May 2024: Summary Topic 3: [Are our management arrangements future proof?](#)

Topic 1: What makes a good management model for reaching all with rural water supply?

Dear colleagues,

A big thanks to all of you who contributed to the first topic of the Egroup discussion “Professionalising Management and Accountability in Rural Water Supply”, which was on rural water supply management models and ran from 10-17th of April. In total we had 30 messages from 16 countries (Bhutan, Ghan, Australi, India, Uganda, Nigeria, Zambia, Malaysia, Nepal, Ethiopia, Switzerland, Kenya Burkina, Mozambique, Tanzania and Laos). The questions for this topic were:

1. How is rural water supply management organised in your area?
2. What makes this management model good or bad in your view?
3. In general, which criteria would you use to assess whether a rural water supply management model is good or successful?

Gabrielle Halcrow and myself have done our very best to summarise your contributions, but inevitably it remains generic. If you want to understand the different realities in more detail, please refer back to the messages from the different countries and writers.

Please don't forget also to write on the topic 2!

Best,
Ant.

What is a rural water supply management model?

Access to water is a **human right**. This means that everyone is entitled to water supply, in other words, all people are “**right-holders**” (they are also **end-users** of the water). The State is the **duty-bearer** of the human right to water. Depending on the specific legislation in a country, the responsibility for rural water supply may lie with a specific ministry or sub-national government. Being the duty-bearer does not mean that the government needs to provide the services themselves. Their responsibility is to ensure that, progressively, all people have access to water at the **nationally agreed service level**. Governments can delegate the responsibility for service provision to others, but ultimately remain responsible if there are people without access.

To provide water supply services practically, a number of activities are needed besides investment in infrastructure. These activities are related to the day-to-day operations of the infrastructure, minor and major maintenance of the infrastructure, administrative & financial management, communication to end-users etc. The entity that does the practical work of providing the service, is called the **service provider or operator**. In some situations, a further distinction is made:

1. Between strategic management of the service provision, and the practical work
2. Between scheme level operators and post-construction support services (such as area-mechanics)

The rural water supply management model refers to how service provision is organised and how roles & responsibilities are divided around specific infrastructure.

When we talk about rural water supply management, we look at the whole lifecycle of infrastructure, not only the capital investment (construction of the infrastructure). Whereas the capital investment is essential, it is insufficient to ensure quality of services over time.

<i>6-8 mths</i>	<i>15-20 years</i>	<i>6-8 mths</i>
<i>Capital investment</i>	<i>Operation and Maintenance, including minor and major repairs</i>	<i>Rehabilitation or replacement</i>

Which rural water supply management models did you share?

Sean Furey from the Rural Water Supply Network (RWSN) based in Switzerland shared a couple of studies¹ which classify rural water supply management models as follows;

- Self-supply by individual households
- Community managed (unsupported or supported)
- Public sector managed (by local government or by public utilities)
- Private sector managed (privately owned systems, delegated management)

From your contributions it emerges that community managed rural water supply is by far the most frequently used management model.

Nearly in all countries, capital investment is made by the local or national government with a level of own contribution (unskilled labour and local materials) by the community. In many countries, day-to-day management of the rural water supply infrastructure is then handed over to a committee:

- In [Bhutan, Nepal and Burkina](#) these are called Water Users Associations (WUA)
- In [Ghana](#) these are Water and Sanitation Management Teams (WSMT)
- In [Uganda](#) it is a Water and Sanitation Committee (WSC)
- In [Nigeria](#) it is a WASHCOM
- In [Zambia](#) a Village Water, Sanitation and Hygiene Committee (VWASHE)
- In [Ethiopia](#) a Water, Sanitation and Hygiene Committee (WASHCO)
- In [Kenya](#) these are Community Based Organisations (CBOs)
- In [Tanzania](#) they have the Community Based Water Supply Organisations (CBWSO)

In all these cases, these are voluntary committees. The difference is not so much in the committees itself (though there are differences) but rather in:

1. The types of systems committees are responsible for. For example in [Uganda, Ghana, Zambia](#) the community based organisations are primarily responsible for point sources, whereas there are other management models emerging for piped systems.
2. The level and type of post-construction support that is provided to committees. In [Burkina, Ghana, Uganda, Nigeria and Mozambique](#), there are area mechanics. Whereas in [Bhutan and Nepal](#) the focus is on training of village level care takers and village maintenance workers (VMWs) respectively. In [Laos](#), support services are provided by the district health departments.

¹ REAL-Water. 2023. Desk Study: Professionalizing Rural Water. United States Agency for International Development (USAID) Rural Evidence and Learning for Water Project. REAL-Water. 2023. Emerging findings in rural water service management. United States Agency for International Development (USAID) Rural Evidence and Learning for Water Project.

Multiple models in one area

In most countries, the management of rural water supply and urban water supply is housed in different entities, sometimes even under different ministries. However, a number of countries have multiple management models for “rural water supply” within the sub-national area (district, commune, county or woreda), recognising the variation within rural water supply. There may be different management models depending on the remoteness, population density, types of water sources and infrastructure.

For example, [Susan Alobo from Uganda](#) explains that in her country three types of management models:

- Community based for point water sources (with variations like Pay as you fetch, VLSA, Water board, pre-paid systems)
- Umbrella authorities for small to medium piped systems
- The National Water and Sewerage cooperation for urban areas

Also in [Mozambique](#), [Alex Grumbley](#) writes, the community-based organisations are responsible for point sources, whereas piped sources are managed by private sector operators (under contract with the Provincial Public Works).

In [Ethiopia](#), as explained by [Gebrezigabher Andalem](#), the WASHCOs are responsible for point sources and small piped schemes of less than 10,000 people. For schemes between 10,000- 30,000 people and for schemes with more than 30,000 people a Water User Board (WUB) is installed, which has staff and in case of bigger schemes departments. The members of the WUB get a sitting allowance. However, [Gebrezigabher](#) adds that Ethiopia being a federalised country, the regional governments have the autonomy to apply and implement different models.

[Jeremy Kohlitz](#) explains that these different models for different sizes of schemes also exist in [Australia](#). With utilities providing water services to bigger rural communities, local governments to others, and the smallest communities through some form of self-supply or community management. They receive plumbing and maintenance training from government.

[Waweru Nyandia](#), [Jackson Wandera](#) and [Reinilde Eppinga](#) as well as [Isaac Kega](#), explain that in [Kenya](#) historically Water Service Providers (WSPs) operate in urban areas and CBOs in rural areas, but that several different options are possible, such as Small Scale Service Providers (SSSPs) with a delegation contract with the WSP or a county level rural WSP. In general it seems that the rural CBOs are operated more like a business in Kenya, including with conflicts about the service area delimitations.

[Sarah Nchimunya Muleya](#), [Chitanda Costa](#) and [Solomon Mbewe](#) explain that in [Zambia](#) point water sources are managed by VWASHE, as well as those small piped schemes constructed by NGOs. However, recently medium schemes constructed for rural growth centres are run by the regional Commercial Utilities.

Level and type of post-construction support

From the different countries, it is very clear that [none of the countries has an unsupported community based management model](#) for rural water supply. All countries with community based rural water supply management have support roles for communities defined, however, the extent to which this support can be provided in practice, is constrained by the availability of resources and time.

For example in [Bhutan](#), [Sonam Pelzom](#) explains that the investment as well as post-construction support functions moved from the Public Health Engineering Division under the Ministry of Health to the local government as part of the 2009 decentralisation. Currently both Public Health Engineering as well as the Ministry of Infrastructure provide technical backstopping to the district engineers, but mainly around the investment phase. The WUAs and caretakers are responsible for day-to-day operations and maintenance. [Gem Tshering](#) explains that caretakers can seek support from the district engineers, but the challenge is

that these district engineers are not specialised in rural water supply. Moreover, [Kencho Wangdi and Dorji Khando](#) add, not all schemes have functional WUAs and there is a lack of follow-up, sometimes leading to serious mistakes for example in source selection.

In [Ethiopia](#), [Abebe Tadesse and Yemane Gebree'gziabher](#) share that in practice WASHCOs have to be supported by the woreda (district) water bureau's with technical backstopping as well as and by kebele (sub-districts) government technicians. In some cases NGO-hired technicians support. The idea is good, but the implementation is weak for many reasons. [Mahteme Tora](#) points out that schemes in Ethiopia are becoming increasingly complex with electro-mechanical equipment and/or multi-village systems. In some cases this is beyond the capacity of the WASHCO, even when they get support from the district and sub-district. Similarly, in [Laos](#), [Malaphone Inthilath](#) writes, the district and province departments have the role to provide follow-up, spare parts, but this has been difficult due to a lack of funding and technical expertise at these levels.

In [Zambia](#), the rural water supply unit under the local authority should provide support to the VWASHE with technical backstopping from the Ministry. However, as [Solomon](#) explains, this is not possible because neither the local authority nor the line ministry have staff at the sub-district level. Hence the role is taken up by the Environmental Health Technologist linked to the MoH.

[Heman Paneru](#) from Nepal shares that village maintenance workers (VMWs) in [Nepal](#) should be supported by local governments and ward offices, but the capacity isn't always there. Nepal also has a number of tools for its WUAs. [Yogendra Subedi](#) mentions: the WASH Plan, Standard Operating Procedure (SOP), and the Water Safety Plan (WSP). Yet, implementation is not uniform across all WUA's, because, [Madan Bhandari](#) explains, tariffs are often too low to pay caretakers and minor maintenance work, and in some of the hilly areas, the schemes are too small to be viable. Moreover, with the federalisation of Nepal, all local governments may decide which management models they want to adopt.

The challenge with area-mechanics, such as the Local Area Mechanics (LAM) in [Nigeria](#), is that the WASHCOMs have insufficient funds to engage the LAM in a timely manner, [Chiranjibi Tiwari](#) describes. In some states, where the state government engages continuously with the WASHCOMs, the model is functioning well. [Temple Oraeki](#) also mentions the weaknesses of WASHCOMs due to the voluntary nature of their role and lack of capacity.

In [Burkina](#), the post-construction repairs are provided by private sector who are under contract with the local government and – in theory- covered by user payments. This is called the rural WASH management framework.

In [Tanzania](#) and [Ghana](#) there is now a central government agency responsible for follow-up, support and oversight of rural schemes. [Thomas Ntori](#) explains that in Ghana this is the Community Water and Sanitation Agency (CWSA) under the Ministry of Sanitation and Water Resources. They are now complementing the support roles of the Municipal Water and Sanitation Team, and in some cases moving into direct management of piped schemes. In [Tanzania](#), as explained by [Gloria Kafuria](#), the Rural Water and Sanitation Agency (RUWASA) has been created in 2019. It is a central agency with deconcentrated offices at region and district level. The objective is to strengthen support and oversight of rural water supply service delivery. In [Malaysia](#), [Ratna Nadarajan](#), water supply is also a government responsibility, but the service does not reach all.

What's success in rural water supply management?

You mentioned three types of criteria which show that a rural water supply management model is good:

1. **Good service delivery outcomes**, e.g. providing water at agreed service levels and for everybody
2. **Good service delivery processes**, e.g. affordability for all, clear and transparent processes, good community engagement and relations with other stakeholders
3. **Good internal organisation of the service provider**, e.g. the internal organisation, account keeping, having trained people/staff, good planning, good collection systems etc.

Good service delivery outcomes: agreed service levels in quantity, quality, accessibility, reliability for all **Mahteme** emphasises that the management model should increase access to safe water sources, and ensure that the supplied water meets national and international quality standards necessary to safeguard public health. It should also ensure that all groups have equal access to water services.

Both **Alex** and **Susan** further emphasize the need to have rapid repairs in case of damage, minimizing downtime.

The **Burkina** team, as posted by **Lompo Etienne Yentemma**, considers that a good rural water supply management model does not only ensure sustained access for all (in quantity, quality, accessibility and reliability), but ensures water security more broadly.

Good service delivery processes, e.g. affordability for all, clear and transparent processes, good community engagement and relations with other stakeholders.

Within any rural water supply management model, one of the bigger questions is how to divide costs and benefits in a fair and sustainable way. If there is a sustainable (predictable) external revenue or subsidy stream for the day-to-day operations of the system, this will be less of a challenge, but in the vast majority of systems this is not the case. The challenge is thus how to make sure that sufficient income is raised to keep the system financially healthy, while at the same time keeping the payment affordable for all. Not all community members have the same ability to pay not do all consume the same volumes of water, therefore as **Solomon** writes, good rural water supply management includes deliberate steps to ensure access to services for special needs or ultra-poor groups. Yet the majority of community managed water supply is not metered and there is a flat household contribution for all. Some community managed systems do make arrangements for households that are unable to pay, but this depends on internal social dynamics. **Tiwari** shares that in **Nigeria** the Public Private Community Partnerships (PPCP) do provide free water to households identified by the community as the most vulnerable needing extra support.

Isabel Calvert from **Australia** explains that from a disability perspective, specific needs of people with disability should be included. People with disabilities may have greater water needs for hygiene purposes, challenges to access the water supply. To ensure this, all people should have the same opportunity to influence the management processes and decisions. It should be clear that in most systems, if some households pay less or get water for free, other households should pay more or an external subsidy should be accessed...

Jeremy refers to the principles of the human right, in particular that the management is non-discriminatory, provides access to information, and supports meaningful participation. **Sarah** also mentions the importance of participation and involvement of the community, which is seen as a strength of community-based management by nearly all writers. However, as **Heman** and **Chitanda** write, it should not be idealised. Community based management also has the potential to reproduce existing inequalities in the community. **Susan** highlights the issue of mistrust between the rural water supply management organisation and users that arises when there is insufficient transparency.

Good linkages with government planning and budgeting processes is also key, [Heman](#) says. Several others point to the need to clarify roles and responsibilities in relation to other stakeholders, not in the least around asset ownership.

Good internal organisation of the service provider

The team from [Burkina](#), as shared by [Lompo](#), shares a range of good practices for internal organisation of service providers such as good account management, good technical management, preventive maintenance systems, standard operating procedures. [Madan](#) shares similar points and adds to this meeting minutes, public audits, grievance mechanisms. [Moumita Nandi](#) from [India](#) highlights the importance of skilled staff among many other aspects.

[Gloria](#) further points to the need to have a business strategy for each managing body or CBWSO, that considers the financial viability in short and medium term (over the life-cycle of the infrastructure).

Specific attention is given to the ability of the service provider to anticipate larger changes, such as climate change impacts and demographic impact. Of course government support is needed for that as well. This point is echoed by colleagues from [Ethiopia](#) and [Nepal](#) among others.

Topic 2: Exploring new rural water supply arrangements (models and regulation)

Dear colleagues,

Thank you to everyone who contributed to the second topic of the Egroup discussion “[Professionalising Management and Accountability in Rural Water Supply](#)” which explored rural water supply arrangements and regulation and ran from Thursday 18th till Wednesday 24th of April 2024. We have had 19 contributions from 12 countries across Africa, Asia and South America.

As a recap, the questions for this topic were:

1. In your context, does the overarching set-up of rural water supply services ensure that all people (in a district/ county) have sustained access or is there a bias? Why?
2. Are there any regulatory mechanisms to ensure sustained services for all in rural water supply?
3. Who is implementing these regulatory mechanisms, does it work and what could be improved?

The following is a summary,

Does the overarching set-up of rural water supply services ensure sustained access for all?

As discussed, the human right to water supply is not only about the construction of water supply systems but also about ensuring ongoing services for all people in the area. That means services up to the quantity, quality, accessibility, and reliability standards of the country. To sustain services there needs to be good management, but also support and oversight or regulation.

Overall, the discussion focused on the challenges the predominantly community-based management models have in both ensuring sustained access, and in reaching all in the area. Only in Tanzania, did both [Barnabas Taligunga](#) and [Allan Rushokana](#) feel that the overarching set up of rural water supply services had initiatives that ensured sustained access.

In the remaining contexts, the setups biased towards certain communities/service levels rather than working for the whole area (area-wide) or were at times unable to manage the challenges in keeping the services going as summarised below. In part these were also linked to broader socio-economic development factors including demographic change, increasing service level expectations, and blurred rural/urban lines.

Institutional setups better suited urban setups or areas with higher capacities in both Colombia and Nigeria. In Colombia, Analia Saker explained that challenges in adapting urban approaches to rural meant that the providers find the costs and obligations of regulation outweigh the benefits brought by being a regulated service provider. Whilst Chiranjibi Tiwari explained that the delegated responsibility in Nigeria meant that states are expected to develop and implement regulatory frameworks which had seen limited progress in certain areas.

Resource allocation bias was an issue for reaching all in Zambia, Ethiopia, Kenya and Malawi. As Mahteme Tora summarised in Ethiopia limited funding or prioritization of certain areas based on political, economic, or social factors can result in disparities in access to water services.

Poor management and maintenance posed challenges for keeping the services going and posed issues for certain communities in Zambia, Ethiopia, Bhutan, Lao PDR, Kenya, Ghana and Malawi. As Dorji Khando shared inadequate maintenance protocols and functions could hinder water supply. Whilst capacity to repair handpumps and issues in user fee payments presented issues in certain communities in rural Zambia. In Lao PDR, Malaphone reflected on issues of non-cooperation in the management, damage and lack of care of water systems and sources.

Disadvantage of hard to reach/remote/challenging environments presented issues for both keeping the services going and serving area-wide in Zambia, Uganda, Ethiopia, Lao PDR and Malawi. Joseph Magoya shared the example of saline aquifers and increased vulnerabilities due to climate change beyond the capacity of communities to manage. Solomon Mbewe shared the issues with aggressive water (high pH and Iron) that affects water supply system components and affordability. Susan in Uganda observed that the higher costs of infrastructure involved disproportionately affect certain populations e.g. mountainous regions or flood prone areas prone. In Ethiopia, Yemane Gebreegziabher surmised the more your location is remote, the less you get an immediate response and there is less incentive for a technician to do so.

Socio economic factors in Bhutan, Ethiopia and Uganda - Changing demands for service levels in Bhutan is leading to examples of disparity. Sonam Pelzom shared that the setup meant that those that are able to afford in house connections are increasingly using more water which results in shortages to those without. Whilst in Ethiopia some households struggle to pay fees, leading to disparities in access in community managed systems.

Exclusion of marginalized groups in Nepal was raised by Yogendra Subedi at the community level, notably ultra poor along with inadequate attention paid to the higher service level needs of people with disabilities.

Information management, data and evidence based decision making was an issue in Ethiopia, Zambia, Nepal and Malawi. Mahteme shared that in Ethiopia, the limited data on service levels and user satisfaction hindered decision-making. Both Solomon in Zambia and Joseph in Malawi also noted the lack of a well-functioning IMS for rural water supply to inform both strategic and operational decision making. In Nepal, Madan Bahadur Bhandari observed that the strong progress in establishing the WASH MIS system was improving the situation, but the annual planning process of all three tiers governments remained bias in terms of addressing the needs of unserved and marginalized populations.

Regulatory mechanisms to ensure sustained services for all in rural water supply

Regulation or regulatory mechanisms can help to ensure services for all and avoid bias in service delivery. It is a way to hold service providers accountable for the quality and cost of their service, public health and environmental standards, and any other performance aspects deemed important.

In terms of who does the regulation in practice in rural areas, there are examples of different regulatory models in use including,

Regulation by Agency - regulatory body (semi-) autonomous from the government has the specific and exclusive mandate to regulate water supply such as in Tanzania, Ghana and Zambia,

Regulation by Contract - the local government (or other public entity) and the service provider agree on contractual clauses that determine how key aspects of the water supply service provision are defined and controlled, such as tariffs and service standards such as in some examples in Burkina Faso and Uganda.

Ministerial Regulation - the ministry performs some or all regulatory responsibilities for water supply provision such as in Bhutan, Lao PDR and Malawi.

Self-Regulation - the service provider (typically a public utility or unit of local government) is legally mandated to perform key regulatory activities upon itself (i.e., setting tariffs and performance standards, performance reporting) such as in Nepal and soon to be in Ghana.

Co-regulation Regulation is conducted jointly by citizens' groups and the responsible government authority (in a formal set-up) as partially in Zambia.

Regulation can involve different mechanisms[1]:

- Standards and guidelines
- Incentives
- Sanctioning
- Monitoring.

Examples shared in the discussion included,

In **Tanzania**, the Rural Water Supply and Sanitation Agency (RUWASA) used the range of mechanisms to regulate community-based water supply organisations, including standards and guidelines, incentives for best performers and monitoring against agreed performance indicators as well as sanctions for any misconduct - Barnabas.

In **Zambia**, regulatory mechanisms for rural water supply are primarily implemented by various government agencies, with the National Water Supply and Sanitation Council (NWASCO) playing a key role in licensing, regulating, and monitoring water supply and sanitation services nationwide, including in rural areas.

Ethiopia has established regulatory frameworks to govern the provision of water supply services, including in rural areas. This includes regulations and guidelines for the establishment, operation, and management of water supply schemes, as well as standards for water quality and service levels. While these mechanisms exist, Mahteme reflected that limited resources, capacity constraints, and institutional gaps can impact their implementation and effectiveness.

In **Bhutan**, as Sonam shared, the regulation focuses on the centralised provision of guidelines (e.g. for committee setups) and standards and operational monitoring as set out in the sector policy. There are also provisions under the Local Government Act to set regulations at the local level. Similarly in **Nepal** and **Lao PDR**, examples were shared on the use of guidelines and standards.

In **Burkina Faso**, Cecile described that the institutional and regulatory framework is well defined at the central level (Ministry of the Environment, Water and Sanitation, planning tools at the local level (PCD-AEPA, BPO sheets), regulatory texts (conventions, contracts, approvals) and a programmatic framework

for investments (PN-AEPA). At the municipal level, there is a set of criteria for evaluating the functionality of managers and the ability of municipalities to properly follow them. There is therefore a good monitoring system in principle.

Does it work and what could be improved?

In **Tanzania**, the regulatory mechanism by agency is working although there are minor conflicts between its regulatory role and its project implementation role.

In **Zambia**, whilst there are established regulatory mechanisms for rural water supply, there is room for improvement in implementation, enforcement, transparency, community engagement, financial sustainability, and stakeholder collaboration - Sarah Muleya Nchimunya

In **Ghana**, ongoing reforms in the rural water supply sector will transform the Community Water and Sanitation Agency (CWSA) into a water utility company which will then have direct responsibility of regulating sector including fair tariff setting and may address ongoing issues.

In **Malawi**, there is no independent regulator for downstream service so it remains with the policy holder - the Ministry of Water and Sanitation. This is bringing challenges with quality control as there are no gazetted areas for a specific water supply service. i.e. One location may have handpumps and piped water supply service and one system may enforce tariff collection while the other no (particularly handpumps) - Joseph Magoya

In **Bhutan** the regulatory functions are broad, i.e., function amongst District, Sub-district and Water User Association/Committee members. This mandate between the three administrations could be made clearer for proper function of the water system - Dorji Khando

In **Nepal**, Federal government is working on WASH regulation aligning with WASH act, 2022 and currently Provinces and local governments do not have clear guidelines about regulatory mechanisms. Mechanisms though are being implemented by local government and the respective wards although the overburden of roles and responsibilities of the local government is hindering this process. Third party involvement in regulating the mechanism is anticipated - Madan and Yogendra

In **Uganda**, Susan explained the GOU is now adopting CBMS+ where the District Water Authority (DWA) through the Water Supply Sanitation Board (WSSB), formally outsources the O&M function to an entity which might be a Private Sector Organization (PSO) or Non-Governmental Organization (NGO), or Hand Pump Mechanics Association (HPMA) with the requisite training, skills and experience - referred to as the Area Service Provider (ASP). The District Water Supply Sanitation Boards (DWSSB) & Sub County Water Supply Sanitation Board (SWSSB) are then to ensure regulation of activities of the Area service SPs.

Whilst in **Ethiopia**, there are established laws, regulations, and standards for rural water supply, enforcement and compliance but mechanisms in most cases are weak or inconsistently applied.

In **Nigeria**, implementation, monitoring and regulation of the water services is a function devolved to the states level. In the current institutional framework, rural water services in Nigeria are self-regulated by voluntary WASHCOMs in several states. The voluntary WASHCOMs in turn operated without clear guidance on water tariffs and financing. As such, Chiranjibi Tiwari felt that in practice, implementation of regulatory mechanisms are almost non-existent.

Best

Gabrielle

Topic 3: Are our management arrangements future proof?

Dear colleagues,

Thank you to everyone who contributed to this third and final topic of the Egroup discussion “**Professionalizing Management and Accountability in Rural Water Supply**” in which we explored if our management arrangements for rural water supply are future proof. It ran from Thursday 25th April till Thursday 2nd of May 2024. We have had 15 contributions from 8 countries being Bangladesh, Bhutan, Nepal, Ethiopia, Malawi, Zambia, Uganda and Kenya.

As a recap, the questions for this topic were:

1. What are the most important trends or changes that you observe in rural areas in your country?
2. What are the implications of these changes for the way rural water supply services are managed?
3. How should rural water supply management arrangements respond to these changes?

The following is a summary of the contributions,

Important trends and changes in rural areas

This referred to changes that are happening more broadly, not necessarily in the water sector, but that have impact on people’s live and therefore indirectly could have impact on water supply services. More than 15 years ago, we would speak about sustainability of water supply for “changing communities”, this changing context is now even more visible.

There were two key trends shared across several of the country contexts,

Firstly, **changing demographics**. Predominantly this was **rural to urban migration** driven by economic, environmental and social factors. In the example of Nepal, youth in the mountainous regions were increasingly seeking work overseas whilst in the more urban and terai regions the population was rapidly increasing. In Bhutan, Tashi Dorji shared how the 21% (Census, 2017) reduction in people living in rural areas had reduced the available labour force and also agricultural production capacity. Solomon Mbewe shared that in Zambia there was correspondingly an increase in “rural growth areas” seeking economic opportunities and electricity connection.

Secondly, **decreasing safe water yields**, impacted by the **changing climates** with greater variability in the frequency, intensity, and timing of seasonal variations in Nepal, Bhutan, Malawi, Ethiopia, Kenya and Zambia. As Ratan Bahadur Budhathoki in Nepal shared, this trend was placing pressure on water sources availability. In Ethiopia and Zambia this is also placing pressure on farmers and livestock. Damage to infrastructure and water quality issues were also shared.

Further trends and challenges included,

Technology changes towards more “sustainable” options – particularly solar pumps in Zambia, Uganda and Malawi. As Costa Chitandra shared, rural communities are moving away from the use handpumps to solar driven water points including the conversion of boreholes once allowed for the use of handpumps. Joshep Magowa in Malawi shared also that there was a technology switch to more sophisticated solar propelled water schemes targeting both communities and public institutions (Schools and Health care facilities).

Increased connectivity with roads and mobile phone coverage in Nepal, Kenya and Bhutan. As Tashi shared, this connectivity facilitates information sharing, seeking updates on news, and fostering community connections despite geographic distances.

Increasing poverty in rural areas – in Ethiopia, Matheme Tora shared that this is due to a number of factors, including rural population growth, migration, climate change, and lack of access to education and healthcare. Whilst in Zambia Solomon Mbewe felt there were a number of compounding factors. This in turn also all impacts on households willingness to pay.

Rapid infrastructure development in Bhutan, Nepal and Zambia. As Dorji Khanda in Bhutan observed, the high number of farm road constructions has also been linked to drying of water bodies and blocking and diverting streams. Forest degradation was also shared. In Zambia, there have been improvement in the construction of public institutions (health centres and schools).

Complexity of systems is increasing costs and capacity issues – In Nepal as Ratan shared, the new systems construction requires huge investment with high per capita cost due to scattered settlement and expensive technologies (e.g. lifting systems). Mahteme described how the Ethiopian government has been investing heavily in water infrastructure in rural areas in recent years with technologies that are more and more complex, with electro-mechanical equipment requiring proper operation and regular maintenance, and increasingly complex multi-village schemes. Befekadu Kassahun added with the low electricity connections, rising energy costs meant either the cost of water is increased, the systems are abandoned or limit water availability to cope with high operational costs.

Changes in demands and access to WASH service levels - In the example of the recent national ODF in Bhutan this has also increased water demands. Whilst in Zambia Solomon shared the increase in demand for improved service provision (water quantity and quality) being voiced.

Increased private land ownership was increasing in Zambia and also Kenya. Chanda shared that this tends to isolate villages making it difficult for them to meet required condition for type of water supply system that can be provided (eg minimum number of 250 people).

Changing institutional and management arrangements – Sonam Pelzon in Bhutan shared the recent restructuring in Bhutan has brought rural and urban water services together under the Ministry of Infrastructure and Transport to provide 24/7 services, which has subsequently seen less investment and importance placed on management and soft skills. Whilst Susan shared the move towards more professional management arrangements with CBM+.

Implications of these changes for the way rural water supply services are managed

Reduced labour force and “volunteerism” – Ratan saw a potential loss of skilled water supply operators in Nepal with young people migrating out. Joseph in Malawi in turn saw serious implications for community-based management models which rely heavily on volunteerism.

Less viable schemes with decreased users in rural areas. Madan Bhandari was concerned that population decreases in rural areas of hill and mountain was increasing per capita cost of water supply services improvement, repair, operation and maintenance. In Bhutan, Tashi saw decreased demand in the market could also discourage the limited private sector involvement. Solomon in Zambia felt that meeting the demand of water in the rural growth centres and institutions would require management models that have financial capacity and technical abilities not only to ensure water quantity but also quality, be able to meet operation and maintenance costs from water user fees and ensure provision of water to the ultra-poor. Whilst Sarah felt that serving dispersed communities brought challenges for adherence to guidelines, such as the ideal ratio of one handpump per 250 people within a 500-meter radius which will compromises service quality and coverage.

Need to integrate climate resilience including incorporating climate risk assessments, adaptive management strategies, and resilient infrastructure designs into water supply planning and management processes. Mahteme explained this included the diversification of water sources, promotion of water conservation practices, and investment in climate-resilient technologies were also seen as essential components of climate-resilient water management.

Harnessing the opportunities of increased connectivity – the rise of mobiles was seen as a positive by Yogendra Subedi in Nepal and a useful tool in disaster events or behavior change message dissemination. Examples were also shared where it could be used to quickly resolve issues and seek assistance from service providers. Waweru Nyandia in Kenya saw the improved communication, data collection, and enhanced monitoring of water resources, thereby facilitating more efficient management practices.

Greater capacity needs to manage the technology advancements and complexity. Using the example of the shift from handpumps to solar pumps – these need to be implemented with capacity building at local or village level to sustainably maintain the systems. They also present technical sustainability issues where some of the boreholes used are not suitable for solar installations due to water quality and the depth of the boreholes. In Ethiopia, the increased complexity of the water supply systems in rural areas further necessitated the need for capacity building among the rural water utilities and WASH Committees to manage the systems effectively. Whilst Solomon in Zambia saw that in the face of extreme weather changes (a lot/ less rainfall) resulting in (floods/droughts) would require good strategic approaches/planning, more resources, technical expertise and system strengthening from the line ministries and Local Authorities.

How should rural water supply management arrangements respond to these changes?

Shift to professional more adaptive management services beyond CBM – As Befekadu in Ethiopia shared complex water system requires professionalizing system management to address the trends and challenges beyond conventional WASHcom (voluntary service) management models which may no longer be functional i.e. rural people will need more resilient water sources (deep boreholes, Dams combined with water treatment systems) that require high energy, technical skills (including digital systems), full-time services for operation and management of the systems.

Encourage water utilities services to expand – moving away from CBM will reduce burden on the already limited number of rural people and farmers and reduce associated transaction costs involved in management of the water supply works - Dorji Khando. Solomon in Zambia, also wanted to expand the mandate of water utilities to cover rural areas through both direct supply and management contracts to service providers (private sector, village committees) for grow areas and allow the regulator further powers.

Integrated water resource management approaches – Using the example of Kenya, rise in water demand (agricultural, drinking, technology) means there is a need to optimize and improve efficiency of water systems. As such water administrators must engage in community involvement, stakeholder collaboration, and the development of integrated water resource management plans that address the multifaceted impacts of socioeconomic changes on rural water systems. Md. Ruhul Amin Munshi in Bangladesh also saw a more integrated approach between water for agriculture and domestic uses including grey water management. Tashi added the need for promoting watershed and spring shed management practices alongside nature-based solutions and climate resilient design principles.

Cross-sector coordination, such as with roads, agriculture, and irrigation, which is crucial for proper water resource management should be ensured to address the climate change issues - Madan Bahadur Bhandari

Sector Financing, exploring innovative financing mechanisms and optimization strategies to secure the necessary resources for the sustainability of WASH initiatives and develop more conducive environments for private sector involvement. Innovative financing mechanisms such as results-based financing or performance-based contracts can also be considered to incentivize service delivery and accountability.

Climate resilience needs to be mainstreamed in management arrangements, along with climate risk assessments, adaptation strategies, and resilient infrastructure designs. Management arrangements should prioritize climate-resilient technologies, water conservation practices, and diversified water sources to enhance the resilience of rural water supply systems to climate change impacts such as droughts, floods, and erratic rainfall patterns.

Best

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