PROFESSIONALISING THE MANAGEMENT OF MALAWI'S RURAL WATER SUPPLY SERVICES

SITUATION ANALYSIS AND PROPOSED MANAGEMENT MODELS

OCTOBER 2023

FOREWORD

The Government of Malawi recognises the challenges of managing rural and market centres water supply facilities and systems and their consequences on the sustainable access to safe drinking water for all people. As such, the Government has prioritized reforms on how rural and small-town water supply facilities and systems are managed to achieve universal access to sustainable WASH services that are available and accessible to all, all the time. This is boldly stipulated in the national overarching "Malawi 2063" and the "Malawi Implementation Plan 1" (MIP 1, 2021 to 2030).

As a country with the highest proportion of people at risk of frequent water shortage, generally underdeveloped water services infrastructure, coupled with rapid population growth, Malawi is faced with a rapid decline of water per capita. While the country has made significant progress in increasing access to water and sanitation services in the past two decades, the functionality, operation and maintenance of the systems and services remain a challenge. Hence the need for immense sectoral investment to further accelerate the rate of progress made to meet the sector targets set out in the MIP- 1where the population using improved drinking water services needs to increase from 87% to 100%. The Ministry of Water and Sanitation recognises that this goal may only be achieved when the water facilities and systems are sustainably managed.

It is against this background that the situation analysis was conducted on rural water supply management models which has proposed professionalised management models for piloting to ensure sustainable management of rural and market centres water supply. This will contribute to the achievement of WASH sector targets as envisioned in the MIP-1 and Malawi 2063, by improving water service delivery.

The proposed pilots that are designed to build on existing initiatives centred on supporting the public water boards and strengthening community-based management, will run for a period of 24 to 60 Months, starting October 2023 The Ministry of Water and Sanitation is committed to consolidating and sharing learning from the pilots, which will generate rich evidence that will inform further policy development and strategic planning in the water sector.

The Malawi Government will lead the rollout of the two proposed pilots and implementation in collaboration with development partners, private sector, and public entities. The Government, therefore, seeks the support (financial, technical) of WASH sector stakeholders to avail and commit to the implementation of these pilots, to ensure that all Malawians access sustainable services in a bid to achieve its development targets.

Hon Abida Sidik Mia, MP

Minister of Water and Sanitation

PREFACE

This situation analysis for rural and market centres water supply systems proposes the professionalised management models for improving functionality, operation and maintenance of rural and market centres water facilities, which for a long time have been hindering the achievement of the WASH Sector goals in Malawi.

This document provides an understanding of the current situation and proposes two management models for rural and market centres water supply systems that are based on existing arrangements and initiatives in Malawi and can improve the sustainability of the water infrastructure.

This was developed through a comprehensive stakeholder consultation process led by the Ministry of Water and Sanitation's water supply services and policy and planning departments. It was done by employing technical assessment of the current community-based management model and other hybrid models being implemented in the country as well as learning from similar notable arrangements from other countries.

I would like to call upon all development players including the private sector and development partners to take part in the piloting of the proposed management models while supporting the Ministry to systematically learn and document lessons that can inform policy review process on managing rural and market centre water supply facilities. I urge all stakeholders to align their programs and activities to this strategy so that together we can achieve the sectoral goals envisaged in Malawi 2063 and MIP-1.

Elias Chimulambe

SECRETARY FOR WATER AND SANITATION

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EXECUTIVE SUMMARY

Community-based management (CBM) has been an enduring strategy for operationalising participatory development in the rural water supply sector. CBM is the predominant arrangement for providing water services to rural Malawians, with water point committees (WPCs) and water user associations (WUAs) managing most rural water supply facilities, and borehole user associations and water user committees also managing some facilities. It was introduced in the late 1980s in response to growing disillusionment with top-down based approaches and because of a desire to empower communities to take decisions relating to the water supply service they received.

Malawi has made considerable progress in expanding rural water supply services over the last two decades, with access rates to improved water sources increasing from 60% to 87.5% in rural areas (2000-2020). However, many community-managed water supply facilities do not provide an adequate service, often under-performing over time (MoAIWD, 2019; Water Point Functionality Dashboard, 2019; MoAIWD, 2020; MoWS, 2021). Within this context, Malawi's Ministry of Water and Sanitation commissioned a study on professionalising Malawi's management arrangements for rural water supply service provision. This study had the following core objectives:

I. To assess the effectiveness and sustainability of different management arrangements, including financial sustainability (the full life-cycle costs of each arrangement and current sources of funding for life-cycle cost category, assessing the current gaps, and providing an understanding of affordability, and willingness to pay of service users).

II. To analyse the key challenges related to the effectiveness and sustainability of the different management arrangements.

III. Based on international best practice and current best practice in Malawi, to propose at least two alternative management arrangements (or adaptations of existing arrangements in Malawi) that could address the identified challenges.

IV. To develop a detailed description of the approach and financial model, as well as collaboration / partnership arrangements.

This is the study's situation analysis report. It provides an analysis of Malawi's primary management arrangements for rural water supply services, specifies the key strengths and weaknesses of each arrangement, provides insights and learnings from the steps taken to professionalise rural water supply service management across the global south, and proposes refined management arrangements to be piloted and upscaled to help ensure the professionalised management of rural water supply services.

This study classified Malawi's management arrangements for rural water supply services according to the formal responsibility for performing key functions. This resulted in identifying eight management arrangements for rural water supply service provision that are currently utilised in Malawi: (i) Supported Self-Supply; (ii) WPC Direct Provision; (iii) WPC Direct Provision with Maintenance Function Delegation through Service Contracts; (iv) Borehole User Association Direct Provision; (v) Water User Committee Direct Provision; (vi) WUA Direct Provision; (vii) Water User Association Direct Provision with Delegation by the Water Board; and (viii) Water Board Direct Provision.

WPC direct provision, WPC direct provision with maintenance function delegation through service contracts, WUA association direct provision, and water board direct provision are the four primary management arrangements. The four other arrangements are only applied on a limited scale. The effectiveness and sustainability of these four arrangements were studied in detail, with primary and secondary data sources used to assess the performance of each of these four management arrangements against a series of service quality, financial, institutional, environmental, technical and social indicators. Key takeaway messages from this assessment include:

I. Vital progress has been made in strengthening Malawi's management arrangements for rural water supply service provision, providing a foundation that future efforts can build upon.

II. WPC and WUA direct provision do not deliver safe and reliable services, and WPCs and WUAs struggle to perform key operation and maintenance functions as stipulated in their respective operations and maintenance manuals.

III. WPCs' delegation of maintenance functions to area mechanics through service contracts significantly improves the functionality rate of rural hand pumps, but key challenges persist.

IV. Water board direct provision benefits from more professionalised management than Malawi's other management arrangements and delivers the safest and most reliable services.

Ultimately, this study concludes that Malawi's existing management arrangements have the necessary foundations to enable the professionalised management of rural water supply services. A two-pronged approach to professionalising rural water supply service provision is recommended. This centres on:

I. Refining and strengthening WPC direct provision with maintenance function delegation. WPC direct provision with maintenance function delegation provides considerably more reliable services than WPC direct provision, with a functionality rate over 30% higher (62% to about 95%). The already moderate application of WPC direct provision with maintenance function delegation to area mechanics for 5,500-7,500 water points provides a strong foundation to build upon. A more systematised and consolidated variation of this current arrangement is proposed for piloting. This centres on establishing private operators or social enterprises as higher-level maintenance service providers. Other vital proposed modifications to the current arrangement include consolidating area-wide service areas, increasing area mechanic oversight, ensuring ongoing data collection, integrating guaranteed repairs into service contracts, leveraging potential economies of scale in spare part procurement and integrating a community-level financing mechanism into the arrangement.

II. Facilitating water boards to manage a greater proportion of rural water supply facilities. Malawi's water boards deliver the most reliable and safest rural water supply services and benefit from economies of scale, more capacitated staff, and the existence and application of a range of pertinent processes across the areas investigated. Ultimately, while this makes water board services more expensive than those provided by WUAs, it enables the generation of the required resources to perform the operation and maintenance activities necessary to deliver safe and reliable services. Malawi's water boards currently play a limited role in rural water supply service provision and lack an explicit legal mandate to manage rural water

supply services. Accordingly, the Government of Malawi is advised to support the formal piloting of the expanded provision of services by water boards in rural areas.

Effectively applying these arrangements at scale will be a long-term process, and within this two-pronged approach there remains an important role for WUA direct provision in at least the short- to medium-term. There is also room for greater emphasis to be placed on private sector involvement in the management of WUA facilities, especially where these facilities are not deemed suitable to be directly managed by water board. A series of action points for consideration at the sectoral level to enable the professionalised management of rural water supply services at scale are also provided.

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ACRONYMS

BWB	Blantyre Water Board
CapEx	Capital Expenditure
CapManEx	Capital Maintenance Expenditure
CBM	Community-Based Management
CRWB	Central Region Water Board
ESCOM	Electricity Supply Corporation of Malawi
ExpDS	Expenditure on Direct Support
LCCA	Life-Cycle Cost Analysis
LUO	Local Utility Operator
LWB	Lilongwe Water Board
MoWS	Ministry of Water and Sanitation
NGO	Non-Governmental Organisation
NRW	Non-Revenue Water
NRWB	Northern Region Water Board
NSO	National Statistics Office
OpEx	Operational Expenditure
SRWB	Southern Region Water Board
SSA	Sub-Saharan Africa
WASAMA	Water Services Association of Malawi
WASH	Water, Sanitation and Hygiene
WMA	Water Monitoring Assistant
WPC	Water Point Committee
WUA	Water User Association

1. INTRODUCTION

This section provides an introduction to the report. It covers the background to the study as well as the study scope and objectives.

1.1. BACKGROUND TO THE STUDY

Community-based management (CBM) has been an enduring strategy for operationalising participatory development in the rural water supply sector. CBM originated in the 1980s – the first UN Water Decade – in the face of disillusionment with top-down approaches where national governments played a much larger role in service provision. In the 1990s, the CBM model gained impetus where community management coupled with a stronger focus on user financial contributions; became a cornerstone of first the 1990 New Delhi Statement (UN 1990) and then two years later, the influential Dublin Statement on Water and Sustainable Development (UN 1992). As a result of these developments, amongst other drivers, CBM became a central tenet of major policy and practitioner discourses on water supply.

In Malawi, CBM was introduced in the late 1980s, and is the predominant arrangement for providing water services to rural Malawians, with water point committees (WPCs) and water user associations (WUAs) managing an overwhelming majority of rural water supply facilities, and borehole user associations and water user committees also managing some facilities. However, many community-managed water supply facilities do not provide an adequate service, often under-performing over time (MoAIWD, 2019; Water Point Functionality Dashboard, 2019; MoAIWD, 2020; MoWS, 2021).

The Ministry of Water and Sanitation (MoWS), as well as many development partners and non-governmental organisations, continue their efforts to improve WPCs' and WUAs' management of water supply services. Vital progress has been made in many respects over the last 15 years, including developing detailed implementation guidelines and training manuals, increasing the number of area mechanics available to assist with technical functions, and strengthening spare parts supply chains. Nevertheless, Malawi has an overall functionality rate of 58.5% for its improved water points (21.3% partially functional, 13.8% non-functional, and 6.5% no longer exist or have been abandoned) (Water Point Functionality Dashboard, 2019). There is now a clear recognition of the need to professionalise the management of Malawi's rural water supply services to address ongoing sustainability challenges and enable accelerated progress towards ambitious sector targets of universal access to an improved water source by 2030 (National Planning Commission, 2021).

1.2. STUDY SCOPE AND OBJECTIVES

To support and help guide the long-term process of professionalising rural water supply management, MoWS commissioned a study on professionalising Malawi's management arrangements for rural water supply service provision. This study had the following core objectives:

I. To assess the effectiveness and sustainability of different management arrangements, including financial sustainability (the full life-cycle costs of each arrangement and current sources of funding for life-cycle cost category,

assessing the current gaps, and providing an understanding of affordability, and willingness to pay of service users).

II. To analyse the key challenges related to the effectiveness and sustainability of the different management arrangements.

III. Based on international best practice and current best practice in Malawi, to propose at least two alternative management arrangements (or adaptations of existing arrangements in Malawi) that could address the identified challenges.

IV. To develop a detailed description of the approach and financial model, as well as collaboration/partnership arrangements (done through accompanying concept notes).

This document is the study's situation analysis report. It provides an analysis of Malawi's primary management arrangements for rural water supply services, specifies the key strengths and weaknesses of each arrangement, provides insights and learnings from the steps taken to professionalise rural water supply service management across the global south, and proposes refined management arrangements to be piloted and upscaled to help ensure the professionalised management of rural water supply services.

2. METHODOLOGY

This section presents the methodology utilised for this study. It outlines the assessment framework utilised, provides an overview of primary and secondary data collection, and notes the methodology's limitations.

2.1. ASSESSMENT FRAMEWORK

The assessment of the **sustainability** of Malawi's main management arrangements for rural water supply service provision utilised an assessment framework centred on five key categories: financial, institutional, environmental, technical and social. The study also investigated the **effectiveness** of Malawi's primary management arrangements for rural water supply service provision by determining the quality of service provided. Table 1 presents the different areas investigated and assessed under each category and provides a top-level overview of which aspects of the assessment framework utilised primary and secondary forms of data.

Table 1: Assessment Framework – Primary and Secondary Data Collection

Category	Area of Investigation	Primary Data Collection	Secondary Data Collection
Financial 	Definition of Responsibilities for each Life-Cycle Cost	✗	✓
	Tariff Setting Process	✗	✓
	Tariff Existence and Level	✓	✓
	Service Provider Financial Planning	✗	✓
	Service Provider Financial Record Keeping	✓	✓
	Service Provider Revenue Generation	✓	✓
	Service Provider Revenue Collection Efficiency	✓	✓
	Service Provider Operational Cost Coverage	✓	✓
	Affordability	✓	✓
Institutional 	Definition of Roles and Responsibilities	✗	✓
	Service Provider Legal Registration	✗	✓
	Support to Service Provider	✗	✓
	Service Provider Training and Experience	✗	✓
	Service Provider Monitoring	✗	✓
	Service Provider Regulation	✗	✓
Environmental 	Water Safety Planning	✗	✓
	Water Treatment	✗	✓
	Water Quality Testing	✗	✓
Technical 	Operations and Minor Maintenance	✗	✓
	Major Maintenance and Rehabilitation	✗	✓
	Spare Parts Accessibility	✗	✓
	Non-Revenue Water Rate	✗	✓
Social 	Transparency	✗	✓
	User Participation	✗	✓
	Complaints Mechanism	✗	✓
	Indirect and Third-Party Oversight	✗	✓
Service Quality 	Reliability – Functionality	✓	✓
	Reliability – Average Downtime	✗	✓
	Reliability – Hours of Supply	✗	✓

2.2. DATA COLLECTION

The assignment's assessment framework was completed through a mixed-methods approach comprising primary and secondary data. Table 1 provides a summary of which aspects of the assessment framework used primary and secondary forms of data, while the following sub-section summarise the primary and secondary data collection activities performed.

2.2.1. PRIMARY DATA COLLECTION

Primary data collection centred on collecting the data required to perform a detailed costing and financing analysis for each of the 23 water supply facilities visited. The costing and financing analysis was based on the life-cycle costs approach (LCCA) framework. Life-cycle costs refer to the costs of ensuring the delivery of adequate water, sanitation, and hygiene (WASH) services to a specific population in a determined geographical area, not just for a few years but indefinitely. The study considered different cost categories and funding sources to cover these.

The following cost categories were considered:[1]

- **Capital expenditure (CapEx)** is the initial investment in establishing or extending water services. It includes hardware costs (i.e., technical design, construction, purchasing of fixed assets) and software costs (i.e., one-off work with stakeholders such as community engagement, capacity building, or setting up customer service structures).
- **Operational expenditure (OpEx)** is the regular ongoing expenditure required for operation and maintenance. This includes staff costs, fuel or energy costs, materials and supplies, and routine maintenance tasks. It does not cover large, one-off repair or replacement costs.
- **Capital maintenance expenditure (CapManEx)** is the cost of maintaining the service provided by the water supply facility at the original level. It includes the renewal, replacement and repair of assets and infrastructure, for example replacing a pump or rehabilitating a borehole. These costs are typically incurred for one-off or periodic items.
- **Expenditure on direct support (ExpDS)** is the cost of supporting water service providers, communities and users. This can be technical support and advice, field monitoring and follow up and dispute resolution. These costs are typically borne by the local service authority.

This study considered sources of funding in line with the "3Ts" model (tariffs, taxes and transfers) developed by the OECD:

- **Tariffs** are payments by water users (households, institutions and businesses) directly for the use of the service. This can include fix-rate tariffs (i.e., monthly fees) or volumetric payment. Within tariffs contributions by communities or households for initial construction or extension of water services (including connection fees) were also considered.
- **Taxes** are the expenditure on water supply services covered from general taxation. This can be allocations from national, district or community level taxes.
- **Transfers** include official development assistance grants and funding channelled via external organisations such as international and national NGOs.

Different strategies were utilised to source the requisite information on the various cost

1 This study did not look at expenditure on indirect support. This includes costs for activities that strengthen the enabling environment for water supply services at a district or national level (i.e., capacity building, policymaking, planning and monitoring), which cannot easily be assigned to individual schemes or management arrangements.

and revenue categories. Typical unit costs for OpEx and ExpDS were collected at each water facility. Typical unit costs for CapEx and CapManEx were gathered per technology type through targeted stakeholder engagement. This differentiated strategy was adopted to account for the difficulty in accessing reliable CapEx and CapManEx data in the field. Table 2 specifies the different sets of stakeholders consulted and the focus of these consultations.

Table 2: Costing and Financing Analysis - Data Sources

Stakeholder	Focus Cost and Revenue Categories
Service Providers (WPCs, WUAs, Water Boards)	• **OpEx**, including staff salaries, fuel/electricity, materials and spare parts, and minor repairs. • **ExpDS**, including details of any support (frequency and nature of visits) provided by external bodies to triangulate with information received from other sources. • **Tariffs**, including details of both approved tariffs (water user charges and new household connection charges) and actual tariffs collected in terms of number of users paying, amount of tariff and total tariff collected on a monthly basis.
Service Authority (District Council)	**OpEx** where service authorities either cover operation costs directly (e.g. paying staff salaries) or in-kind. **ExpDS** where service authorities have a responsibility to provide ongoing support to service providers. **Taxes** collected in the district which are assigned to water supply specifically.
External Support Agencies (NGOs, Donors, Faith-Based Organisations)	**ExpDS** in the case where external agencies play an ongoing role in supporting the service provider, more than one-year post-construction. **Transfers** which target specific water schemes.

2.2.2. SECONDARY DATA COLLECTION

Secondary data collection centred on reviewing existing resources and stakeholder consultations. Consulted stakeholders are presented in Annex 1. Reviewed secondary resources, which spanned the following categories:

I. Legal instruments.

II. National policy documents.

III. National strategy documents.

IV. Implementation guidelines and training manuals.

V. Sector investment plans.

VI. Annual sector performance reports.

VII. Water board benchmarking reports.

VIII. National water supply monitoring data from water point mapping exercises.

IX. Sector studies commissioned by development partners.

X. Programme monitoring data from international organisations and international and local NGOs, including programme evaluations and post-implementation monitoring.

2.3. SAMPLING

Primary data was collected from 23 water supply facilities. The resources available for this study meant a non-statistically significant sample was utilised (see Sub-Section 2.5.). Table 3 presents background information on each of the 23 water supply facilities visited as part of primary data collection.[2] These were selected through **purposeful sampling**. Data collection occurred in five districts across the Northern, Central, and Southern regions and encompassed a broad selection of the main rural water supply technologies in Malawi and covered a variety of types of rural areas. While the sample size is not statistically significant, it does achieve the following:

I. Covers Malawi's four main management arrangements for rural water supply service provision.

II. Spans Malawi's three predominantly rural regions (Northern, Central, Southern).

III. Comprises a range of types of rural areas (i.e., dispersed rural settings to rural market centres).

IV. Contains the main types of water supply facilities utilised in Malawi.

V. Contains water supply facilities operated at a diversity of scales (from serving small individual settlements to large schemes serving multiple market centres), including water boards managing moderately sized piped water supply facilities serving 2,500-4,500 households.

2 *The following facilities were visited but excluded from the analysis: (i) Dzaonanji (WPC Direct Provision) because there was no expenditure or revenue; (ii) Chikadayenda and Gelevulu (WPC Direct Provision) because these WPCs had benefitted from borehole banking, which prevented a realistic analysis of revenue collected and reserves available for water services alone; (iii) Nkhomboli (WUA Provision) because the scheme merged with Henga Phoka WUA (Hewe WUA was added as a replacement); (iv) Chapananga (WUA Direct Provision) because the infrastructure had been destroyed by floods (Tengani WUA was added as a replacement); and (v) Makawa South (WUA Direct Provision) because it was not possible to obtain reliable financial records.*

Table 3: Service Provider and Water Supply Facility Sample

Management Arrangement	#	Region	District	Service Provider	Technology Type	House-holds Served
WPC Direct Provision	1	South-ern	Chikwawa	William WPC	Hand pump - AfriDev	62
	2	South-ern	Chikwawa	Sezu WPC	Hand pump - AfriDev	112
	3	South-ern	Chikwawa	Kalema WPC	Hand pump - AfriDev	37
	4	North-ern	Rumphi	Mamulili WPC	Hand pump - AfriDev	32
WPC Direct Provision with Maintenance Function Dele-gation through Service Con-tracts	5	Central	Dowa	Madzi Ada WPC	Hand pump - AfriDev	83
	6	Central	Dowa	Makalani WPC	Hand pump - AfriDev	150
	7	Central	Dowa	Changula WPC	Hand pump - AfriDev	158
	8	Central	Dowa	Mtipulula WPC	Hand pump - AfriDev	325
	9	Central	Dowa	Chisanja WPC	Hand pump - AfriDev	120
	10	Central	Dowa	Kangulo WPC	Hand pump - AfriDev	377
WUA Direct Provision	11	North-ern	Rumphi	Rumphi-Henga Phoka WUA	Piped water supply scheme – Gravity-Fed	16,500
	12	North-ern	Rumphi	Nkhamanga WUA	Piped water supply scheme – Gravity-Fed	4,250
	13	Central	Dowa	Msakambewa WUA	Piped water supply scheme – Solar-Powered	247
	14	South-ern	Zomba	Zomba East WUA	Piped water supply scheme – Gravity-Fed	9,877
	15	South-ern	Chikwawa	Miseu Folo WUA	Piped water supply scheme – Solar-Powered	2,152
	16	South-ern	Chikwawa	Limphangwi WUA	Piped water supply scheme – Gravity-Fed	1,225
	17	North-ern	Rumphi	Hewe WUA	Piped water supply scheme – Gravity-Fed	1,400
	18	South-ern	Nsanje	Tengani WUA	Piped water supply scheme – Conventional	2,115
Public Water Board Direct Provision	19	North-ern	Nkhata Bay	NRWB – Chintheche Scheme	Piped water supply scheme	2,700
	20	North-ern	Rumphi	NRWB – Rumphi Scheme	Piped water supply scheme	4,350
	21	Central	Dowa	CRWB – Mponela Scheme	Piped water supply scheme	4,000
	22	South-ern	Zomba	SRWB – Zomba Scheme	Piped water supply scheme	24,540
	23	South-ern	Chikwawa	SRWB – Ngabu Scheme	Piped water supply scheme	2,705

2.4. DATA ANALYSIS

2.4.1. ANALYSING COMPILED PRIMARY DATA

Following primary data collection, an extensive data cleaning and validation process was undertaken. This involved:

I. A line-by-line review of individual costs to ensure that these were correctly categorised and consistent with scheme financial data.
II. A review of the overall financial position (surplus) to ensure that this was feasible and realistic.

Finalised and cleaned data from the sampled schemes was collated into three Excel workbooks covering: WPC direct provision (with disaggregation by whether there was delegation of maintenance functions through service contracts), WUA direct provision, and water board direct provision. Each of these workbooks was analysed separately to establish operational expenditures and, where possible, capital maintenance expenditures, revenues and surplus/deficit. Average costs were calculated both for schemes and per household. This analysis was used to provide insights into the relative financial viability of each of the management arrangements.

Following the financing and costing analysis, a light-touch affordability assessment was conducted. This paired the average annual expenditure of each household with available secondary data on household income and an international affordability threshold of 3-5% (UNICEF/WHO, 2021). In addition to enabling the costing and financing analysis, primary data collection also included water quality testing as well as a rapid service level assessment for facilities managed by WPCs and WUAs.

2.4.2. ANALYSING COMPILED SECONDARY DATA

The resource type was considered when determining whether and how to use insights and data from existing secondary resources. As much as possible, data sources and analysis from resources developed by the institutions that comprise the Government of Malawi (i.e., MoWS, National Planning Commission, past ministries responsible for water affairs) were utilised because these provide inputs and insights from a range of stakeholders and have been formally validated. Following this, data and analysis are utilised from academic and sector studies and existing datasets with a large sample size and rigorous methodology. As much as possible, steps have been taken to utilise the most up-to-date and recent secondary resources available. However, a shortage of up-to-date consolidated data in some areas has required the use of some secondary resources that are five years and older. The wide range of utilised secondary resources are referenced throughout this report and a comprehensive bibliography provided.

2.5. STUDY LIMITATIONS

The methodology employed by this study faces four main limitations:

- ***Primary Data Collection Sample Size.*** 23 of the 28 water supply facilities visited as part of the primary data collection process provided data of sufficient reliability to be included in the study. This is an average of 5.75 facilities per the four case-

study management arrangements selected for review. This is not statistically significant. Accordingly, the costing and financing analysis presented in this report is illustrative and does not seek to present a definitive overview of the financial viability of each management arrangement.

- ***Service Provider Reported Figures.*** The costing and financing analysis is based on information provided by service providers. The completeness and reliability of this data varied between service providers, and any misreporting of expenditure or revenue information will affect the financial analysis. For some service providers, and especially WPCs, there was limited written financial information available, requiring the data collection team to make reasonable assumptions to calculate the total expenditure and revenue based on the information available. Five visited water supply facilities were excluded from the analysis because of concerns over the reliability and / or usability of the information availed to the data collection team.
- ***Consolidated Data Shortage.*** There is a shortage of up-to-date consolidated data on many key aspects of rural water supply service provision. This is most apparent for the level of service (outside of headline functionality figures) provided by WPCs and WUAs, and the extent to which service providers, service authorities, and actors at the national level are effectively performing key functions. This limitation was overcome through primary data collection, bringing together quantitative information from the wide-ranging set of one-off studies undertaken on aspects of rural water supply service provision in Malawi and using qualitative findings from existing secondary resources.
- ***Lack of a One-Off WUA Study.*** Malawi's rural water supply sub-sector currently lacks sufficiently detailed information on the quality of service provided by WUA-managed facilities as well as WUAs' performance of key technical and financial functions and the factors supporting and undermining the direct provision of rural water supply services by WUAs. Consequently, this report brings together the views of key stakeholders on this management arrangement, but the overview and analysis of this arrangement could not draw on the same level of quantitative information as was done for the other arrangements.

3. RURAL WATER SUPPLY STATUS

This section details the status of rural water supply services in Malawi. It specifies current access rates and outlines the main types of rural water supply services and their sustainability.

3.1. ACCESS RATES

The Government of Malawi has placed considerable emphasis on expanding access to safe drinking water services. Safe water is one of the Key Priority Areas highlighted in the Malawi Growth and Development Strategy III and Malawi Vision 2063. More specifically, the Government of Malawi aims to ensure that 100% of Malawians access an improved water source by 2030 (National Planning Commission, 2021). Considerable importance is placed on expanding access to piped water supply facilities, although specific targets have not been developed.

Box 1: What is Rural?

Malawi is rapidly urbanising (4.4% urban population growth in 2020) but remains largely rural, with 84.5% of the population residing in rural areas. These rural areas comprise a diverse set of socio-economic contexts; 'rural' refers to all areas outside the four major metropolitan areas of Lilongwe, Blantyre, Mzuzu, and Zomba, as well as secondary cities such as some district centres (National Statistics Office, 2018; Ministry of Water Development and Irrigation, 2014). Different types of rural areas are evident across Malawi, including district market centres, rural market centres, and dispersed rural settings. The type of rural setting (i.e., rural market centre vs. dispersed rural setting) has a bearing on the type of water supply infrastructure present (i.e., piped water supply facility vs. hand pump), the management arrangement used to manage the facility, and actors' (i.e., users, service providers, service authorities) performance of the key functions required to provide safe and reliable water.

Table 4 specifies data reported by the Government of Malawi regarding access to water supply services. It highlights how Malawi has made substantive progress in expanding access to improved water supply services. Especially significant progress has been made in improving access to rural water supply services, with the 2020 Malawi Integrated Household Survey reporting an 87% access rate to an improved water source in rural areas (a 26.5% increase since 2000). As Box 2 highlights, Malawi has made more rapid progress than most Sub-Saharan African countries. Despite this important progress, Malawi is not on track to meet Sustainable Development Goal 6.1 (by 2030, achieve universal and equitable access to safe and affordable drinking water for all), with limited progress made expanding access to piped water supply services.

Table 4: Access to An Improved Water Sources and Piped Water Source (2000-2020)

Year	Source	Improved Water Source			Piped Water Source		
		Total	Urban	**Rural**	Total	Urban	**Rural**
2000	Demographic and Health Survey	NA	94.8%	**60.5%**	NA	83.5%	**13.8%**
2004	Integrated Household Survey	NA	87.5%	**64.2%**	NA	76.9%	**12.8%**
2005	Welfare Monitoring Survey	NA	92.0%	**69.0%**	NA	NA	**NA**
2006	Multiple Indicator Cluster Survey	NA	96.2%	**71.5%**	NA	77.0%	**8.5%**
2007	Welfare Monitoring Survey	NA	98.0%	**76.0%**	NA	NA	**NA**
2008	Population and Housing Census	NA	91.0%	**69.6%**	NA	76.9%	**8.9%**
2008	Welfare Monitoring Survey	81.0%	94.0%	**78.0%**	9.0%	35.0%	**4.0%**
2010	Demographic and Household Survey	NA	92.6%	**77.2%**	NA	76.2%	**11.9%**
2011	Welfare Monitoring Survey	83.8%	96.1%	**82.6%**	20.6%	88.2%	**14.3%**
2012	Malaria Indicator Survey	80.7%	92.6%	**78.7%**	20.9%	70.0%	**12.4%**
2013	Integrated Household Panel Survey	83.6%	81.9%	**92.6%**	18.9%	73.1%	**8.5%**
2014	Multiple Indicator Cluster Survey	86.2%	84.3%	**98.6%**	20.0%	88.6%	**9.1%**
2014	Welfare Monitoring Survey	87.0%	96.7%	**85.5%**	20.5%	81.3%	**10.4%**
2016	Demographic and Health Survey	87.1%	98.2%	**85.2%**	20.2%	85.9%	**9.1%**
2017	Malawi Integrated Household Survey	87.2%	93.5%	**85.7%**	20.3%	75.9%	**7.3%**
2018	Population and Housing Census	85.7%	NA	**NA**	18.9%	NA	**NA**
2020	Malawi Integrated Household Survey	88.6%	97.6%	**87.0%**	19.7%	76.8%	**9.1%**

Box 2: Malawi's Progress Expanding Coverage – African Comparison

Figure 1 highlights the average rate of progress across Africa and on a region-by-region basis in expanding access to at least 'basic' water supply services. For Africa, the average rate of progress in expanding access was 13% (58% to 71%) for the period 2000-2020, while for Southern Africa it was 14% over the same period (59% to 73%). The Government of Malawi data presented in Table 4 highlights that Malawi's considerable progress in expanding access to water supply services is above this average and that especially impressive progress has been made in expanding access to rural water supply services.

Figure 1: At Least 'Basic' Water Supply Coverage (2000-2020) – Regional Averages (JMP, 2020)

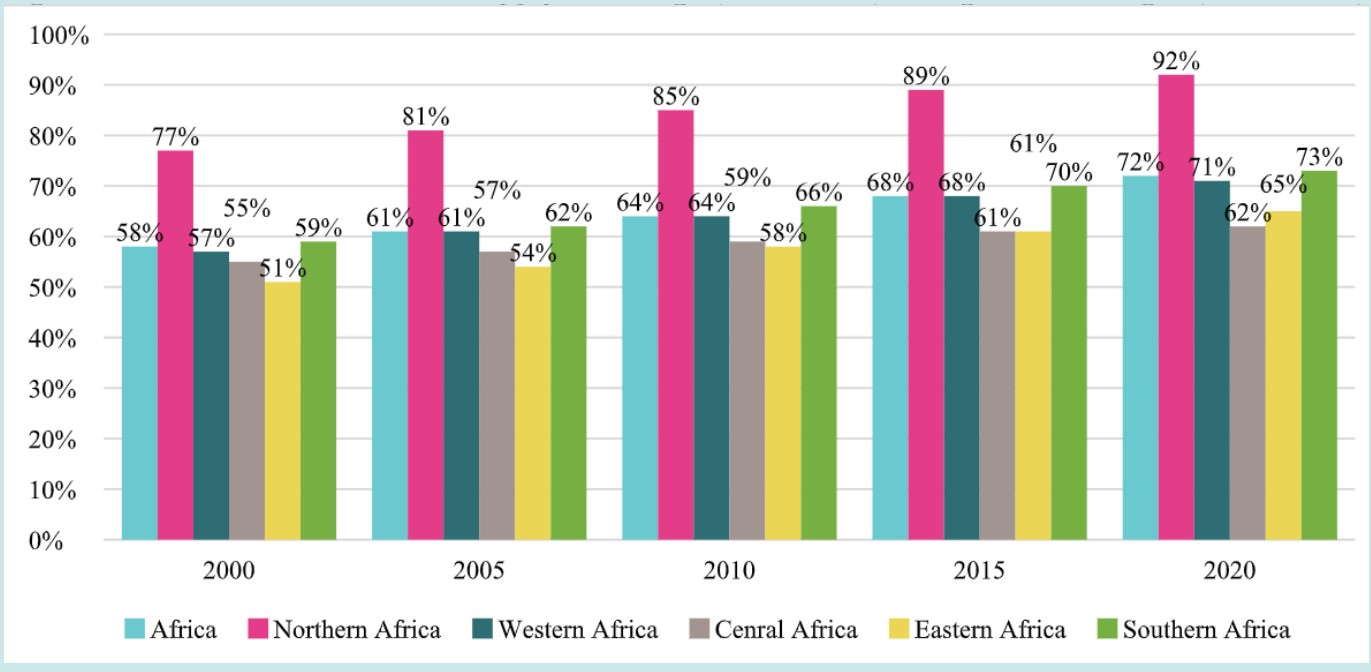
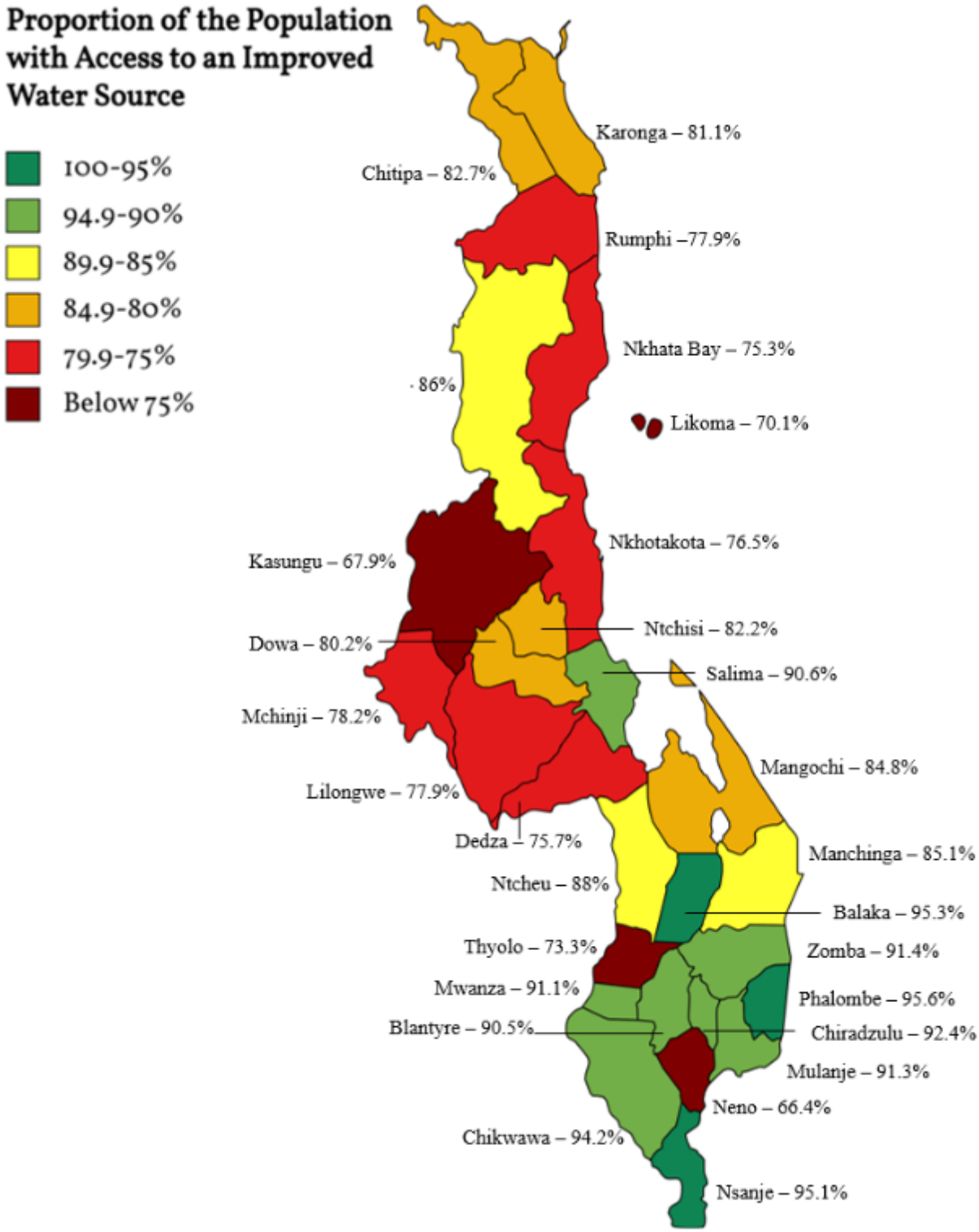


Figure 2 is a map specifying the proportion of Malawi's 28 districts' population with access to an improved water source. It highlights important distinctions between districts, with several districts having an access rate above 95% (Phalombe, Chikwawa, Nsanje, Balaka) and a couple below 70% (Kasungu, Neno). Districts in the Southern Region generally benefit from higher access rates than those in the northern and central regions.

Figure 2: Access to an Improved Water Source – District Level (National Statistics Office, 2020)



3.2. **TECHNOLOGY MAPPING**

Table 5 details the distribution of the six main types of water sources across Malawi, in urban and rural contexts, and in Malawi's three predominantly rural regions. It highlights that boreholes are the primary improved water source utilised across Malawi (64.5%), especially in rural areas (73.9%). A comparatively small proportion of the population access a piped water supply facility with a connection to their dwelling (2.4% across

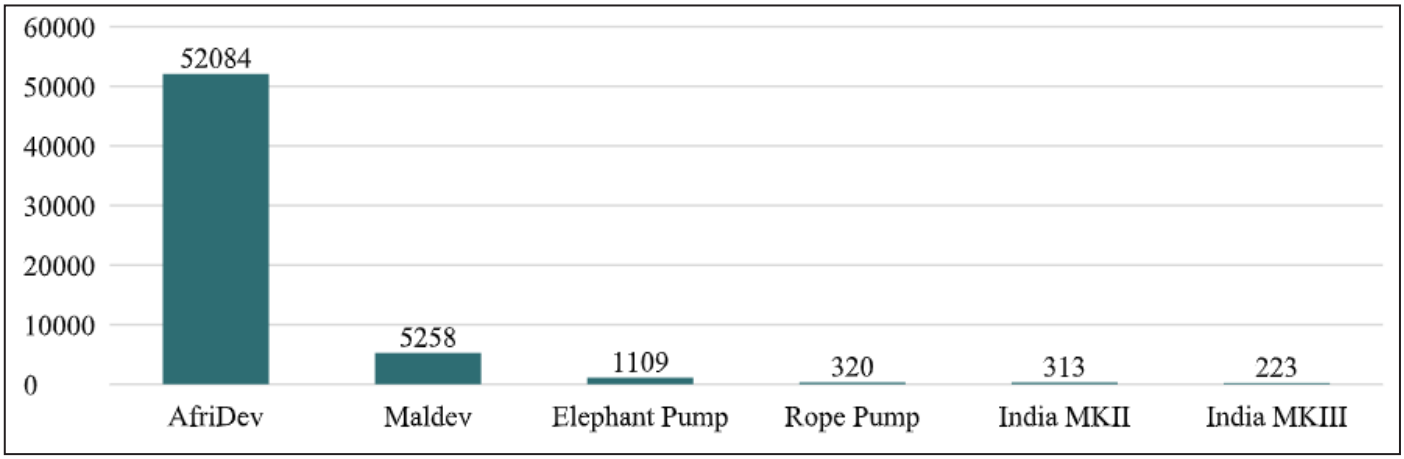
Malawi), especially in rural areas (0.6%).

Table 5: Main Types of Rural Water Supply Technologies – Malawi (National Statistics Office, 2020)

	Piped into Dwelling	Piped into Yard / Plot / Communal Standpipe	Borehole	Protected Well in Yard / Plot / Public Well	Open Well in Yard / Plot / Open Public Well	Spring / River / Stream / Dam / Pond / Lake / Rainwater
Malawi Average	**2.4%**	**17.8%**	**64.5%**	**3.6%**	**6.8%**	**4.9%**
Rural	0.6%	8.6%	73.9%	3.5%	7.7%	5.7%
Urban	12%	64.9%	16%	4.2%	2.2%	0.7%
Northern Region	3.3%	21.6%	58.9%	3.1%	4.6%	8.5%
Central Region	2%	16.3%	62.5%	5.2%	9.4%	4.5%
Southern Region	2.6%	18.1%	67.8%	2.3	4.9%	4.2%

Figure 3 details the main types of hand pumps used in Malawi. It highlights that that AfriDev hand pumps (52,084) are by far the most common hand pump, followed by the Maldev hand pump (5,258) and Elephant Pump (1,109).

Figure 3: Main Types of Hand Pumps in Malawi (Water Point Functionality Dashboard, 2019)



There is no consolidated overview or inventory of Malawi's piped water supply facilities. Nevertheless, the available information highlights that there are a range of different types and sizes of piped water supply facilities, which play a vital and growing role in rural water supply service provision (MoAIWD). Of note:

I. Water boards manage Electricity Supply Corporation of Malawi (ESCOM) powered facilities that serve 21 district centres and eight rural market centres.

II. MoWS estimates that there are 120 gravity-fed systems that range in size and serve 2-3 million people.

III. MoWS estimates there to be 20 solar-powered facilities in Malawi.

IV. MoWS estimates that there are five ESCOM-powered facilities managed by water boards.

3.3. **RELIABILITY AND WATER QUALITY**

This assignment looked at service quality through two dimensions: (i) reliability; and (ii) water quality. The following sub-sections provide details on both these elements.

3.3.1.**RELIABILITY**

Consolidated information is available on the functionality of Malawi's improved water sources; however, there is a shortage of other key metrics of reliability, including hours of supply and average downtime. Figure 4 details the functionality rate of Malawi's improved water sources on a national and district-by-district basis. It highlights an overall functionality rate of 58.5%, with important variations between Malawi's districts (high of 76%, low of 31%). Of the 41.5% of improved water points that are not fully functional,[3] 21.3% are partially functional,[4] 13.8% are not functional,[5] and 6.5% no longer exist or have been abandoned.

3 A water point is considered functional if it is providing water at the minimum appropriate flow rate at the time of a spot check, and if components of the water extraction system are in good working order.

4 A water point is considered partially functional if it is providing water at a rate below acceptable flow rate (0.25 litres/second for groundwater points, 0.076 litres/second for taps) at the time of a spot check.

5 A water point is considered non-functional if it is not providing water at the time of a spot check. There are several possible reasons for non-functionality: (i) broken; (ii) disconnected (non-payment); (iii) vandalised; and (iv) abandoned.

Figure 4: Functionality Rate of Improved Water Sources – District Level (Water Point Functionality Dashboard, 2019)

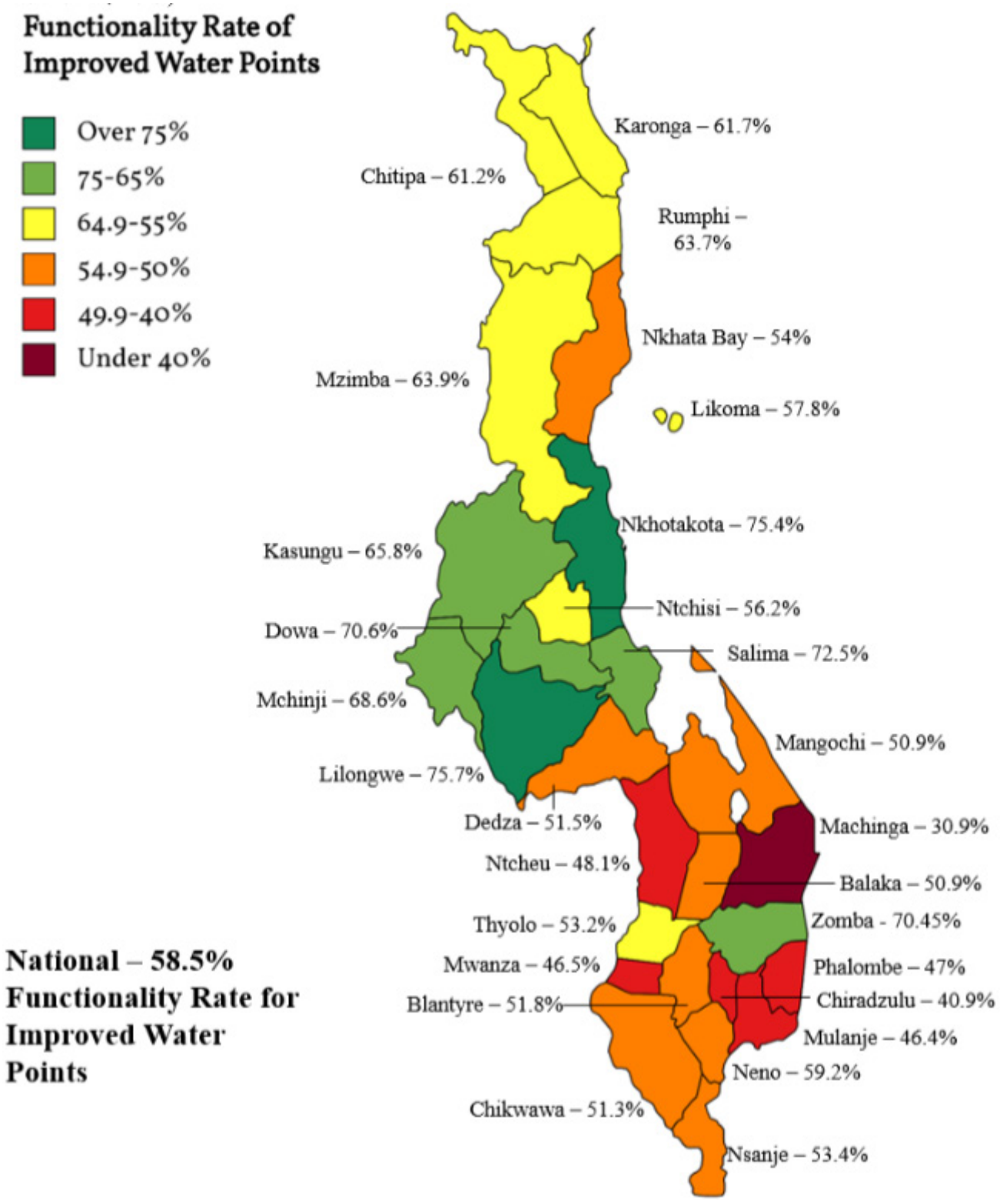


Table 6 details the functionality rates of different rural water supply technologies present in Malawi. Except for 'piped into dwelling' and 'piped into yard/plot', it is important to note that a functionality rate of just 50%-65% is evident across each of the different water point types. This highlights the pervasiveness and considerable impact of key sustainability challenges.

Table 6: Functionality by Water Point Type – Malawi (Water Point Functionality Dashboard, 2019)

	% Functional	% Partially Functional	% Not Functional
Protected dug well	55.97%	20.24%	14.53%
Borehole or tube well	60.93%	24.79%	8.68%
Protected spring	62.65%	22.89%	5.62%
Piped into dwelling	85.92%	3.64%	8.74%
Piped into yard / plot	73.30%	15.09%	8.81%
Piped into public tap / standpipe / basin	50.46%	18.34%	23.52%

Malawi's low functionality rate for improved water sources – both by district and water point type – impedes progress toward the sector target of 100% access to an improved water source by 2030. The extent of the non-functionality challenge is recognised by key sector stakeholders, including the Ministry responsible for Water Affairs. Sector performance reports and studies highlight that deteriorating service levels are caused by a range of factors. Weaknesses in the management arrangements utilised are central to many of these factors.[6] Low functionality rates are a pervasive and long-standing challenge across Sub-Saharan Africa, and Malawi's overall functionality rate is broadly comparable to the functionality rates commonly found in Sub-Saharan African countries and evident in several neighbouring countries (see Box 3).

Box 3: Functionality of Improved Rural Water Sources

The functionality of rural water supply facilities is a deep-rooted and persistent challenge across Sub-Saharan Africa, with multi-country studies commonly citing functionality rates of 60-80% (USAID, 2022; RWSN, 2010; World Bank, 2017; Foster F. B., 2020; RWSN, 2016). The following functionality rates have been reported in neighbouring countries (WaterAid, 2021):

- **Eswatin**i has a 30% non-functionality rate for water points, while 33% of rural water supply schemes are non-functional, with a further 12% functioning only partially.
- In **Madagascar**, high non-functionality rates exist for hand pumps (29%), mechanised pumps (25%) and gravity systems (22%) in rural areas.
- In **Mozambique**, non-functionality rates have hovered at around 20% for water points for several years.
- In **Zambia**, 38% of protected rural water points were reported non-functional.

6 For example, the 2019 sector performance report cited the following key challenges undermining accessibility to rural water supply services (MoAIWD, 2020): (i) shortage of financial resources making it considerably hard for the water supply sub-sector to adequately address the O&M issues in the district; (ii) inadequate back-up support to communities due to lack of (WMAs) in most areas; (iii) untrained WPCs due to lack of resources for software components i.e. Community Based Management (CBM) trainings; (iv) frequent incapacitation of water supply systems due to perpetual disasters like floods. Drought etc; (v) vandalism/theft of boreholes and piped water systems infrastructure; and (vi) shortage of Area Mechanics and repair parts shops, especially in the districts with few WASH partners.

3.3.1. WATER QUALITY

Consolidated water quality data is available for water board managed facilities; however, there is a lack of consolidated water quality data for other facilities and data from a series of one-off studies of varying sizes is relied upon. Water boards largely provide drinking water that complies with the Government of Malawi's standards. For example, in 2017/18, 97% of the 49,686 residual chlorine tests performed were compliant with standards (WASAMA, 2019).[7] There is a shortage of ongoing monitoring of the quality of drinking water provided by other service providers; however, one-off water quality monitoring exercises highlight significant challenges:

I. A sample of 223 water quality tests on hand-pumped boreholes, shallow wells, and tap stands in Balaka, Machinga, Lilongwe Rural, Nkhotakota, and Mzimba districts highlighted revealed that 18% of boreholes fitted with hand pumps showed thermotolerant coliforms contamination in the dry season and 21% in the rainy season (Ward, 2020).

II. Water quality tests conducted in Machinga and Zomba districts for WUA-managed piped water supply facilities have previously found E.coli present in 39 of 80 (49%) tests (Ministry of Forestry and Natural Resources - Water Quality Services Division, 2020).

III. Water quality tests conducted as part of this study found E. coli present in 70% of the tests conducted on WUA-managed facilities and 58% of WPC-managed facilities.

7 The breakdown of residual chlorine tests that were compliant with standards per public water board are as follows: (i) Lilongwe Water Board = 98%; (ii) Blantyre Water Board = 98%; (iii) Central Region Water Board =97%; (iv) Southern Region Water Board = 96%; and (v) Northern Region Water Board = 97%.

4. RURAL WATER SUPPLY MANAGEMENT ARRANGEMENTS

This section details the status of rural water supply services in Malawi. It specifies current access rates and outlines the main types of rural water supply services and their sustainability.

4.1. GLOBAL SOUTH

A management arrangement is a set-up for managing water supply services, which goes beyond an individual service provider and relates to the adoption and performance of a series of practices at three levels: (i) service provider; (ii) service authority; and (iii) national. Community-based management has been an enduring strategy for managing rural water supply services across the global south since the 1990s.[8] However, with a few exceptions, CBM has ultimately not delivered safe and reliable services at scale, with multi-country studies commonly citing functionality rates of 60-80% for community-managed facilities (USAID, 2022; RWSN, 2010; World Bank, 2017; Foster F. B., 2020; RWSN, 2016).

The combination of the ambitious and fast-approaching targets set out in SDG 6.1., often rapidly evolving socio-demographic contexts, and the accumulated evidence of failure have led many countries to recognise the need to move away from a focus on infrastructure provision to a more holistic consideration of safe and universal service delivery (USAID, 2022). This has resulted in many countries in the global south taking concerted efforts to strengthen the management of rural water supply services or modify the management arrangements applied. This encompasses a range of measures and approaches, which broadly fall into two groups:

I. ***Strengthening Community-Based Management.*** Moving away from a reliance on unpaid and largely unsupported volunteers to forms of CBM with trained and renumerated staff, clearly defined roles and responsibilities, the adoption of good management practices, the delegation of key technical functions (i.e., maintenance and repairs), and the provision of systematic support to communities.

II. ***Alternative Management Arrangements***. Adopting and tailoring arrangements such as the direct utility provision of services or variations of private service providers that are commonly found in urban and peri-urban contexts to rural settings, especially the often rapidly growing and more economically advanced district centres and market centres.

Figure 5 presents a typology of the main management arrangements utilised for rural water supply service provision across the global south. Good practice examples from the global south are placed on this typology along with the management arrangements applied in Malawi. Malawi's management arrangements for rural water supply service provision are in bold (see Sub-Section 4.3.).

Figure 5: Typology of Management Arrangements for Rural Water Supply Service

8 CBM gained impetus in the 1990s; community management and a stronger focus on user financial contributions were a cornerstone of the 1990 New Delhi Statement and the influential 1992 Dublin Statement on Water and Sustainable Development. As a result of these developments, among other drivers, CBM became a central tenet of policy and practitioner discourses on rural water supply service provision in developmental contexts.

Provision – Global South

	Self-Supply	Community-Based Management		Private Service Providers				Public Service Provision	
	SS 1: Households are enabled to move up the water ladder, largely by their own means, but supported by government, NGOs	**CBM 1:** Water committee management with external support (i.e., service authority, local mechanic)	**CBM 2:** Water committee management with the formal delegation of some technical functions	**PRIVATE 1:** Privately owned and operated schemes (invest, build, operate)	**PRIVATE 2:** Private operators delegated O&M functions by water committee	**PRIVATE 3:** Private operators delegated O&M functions by local government	**PRIVATE 4:** Private companies delegated O&M functions by specialised asset holding entity	**PUBLIC 1:** Local government unit or department directly manages water supply infrastructure	**PUBLIC 2:** National or sub-national utility directly manages water supply infrastructure
Malawi's Rural Water Supply Management Arrangements	Supported Self-Supply	**WPC Direct Provision; WPC Direct Provision with Borehole User Association Support; Water User Committee Direct Provision; WUA Direct Provision; Water User Association Direct Provision with Delegation by the Water Board**	**WPC Direct Provision with the Formal Delegation of Maintenance Functions**		Private Operator Delegated O&M Functions by Water User Association				**Water Board Direct Provision**
Good Practice Examples	Thailand	**Peru**	Mali; **Uganda;** Kenya	Ghana; Cambodia	Tanzania	Mali; **Rwanda;** Mozambique	**Mozambique**; Senegal	The Philippines	**Uganda;** Zambia

4.2. **SOUTHERN AFRICA**

A diverse set of management arrangements, which span CBM as well as local government, national and sub-national utility and private operator direct provision, exist for water supply services in rural through to smalltown contexts across the Southern Africa Region. Table 7 notes the seven main categories of rural water supply management arrangements in Southern Africa and specifies whether they are present in five Southern African countries other than Malawi (Eswatini, Madagascar, Mozambique, South Africa, Zambia).

Table 7: Rural Water Supply Management Arrangements Across Southern Africa

Management Arrangement	Countries where Arrangement is Found (out of Eswatini, Madagascar, Mozambique, South Africa, Zambia)
CBM Direct Provision with External Support from the Service Authority and Local Private Sector.	Eswatini, Madagascar, Mozambique, Zambia

CBM with the Formal Delegation of some Technical Functions to Private Operators.	Eswatini
Local Government Directly Provision.	Madagascar, Mozambique, South Africa
National or Sub-National Utility Direct Provision.	Eswatini, South Africa, Zambia
Private Operator Direct Provision with Delegation by Local Government.	Madagascar, Mozambique, South Africa, Zambia
Private Operator Direct Provision with Delegation by National or Sub-National Utility.	Zambia
Private Operator Direct Provision with Delegation by Asset Holding Entity.	Mozambique

Southern Africa is illustrative of the wider trends and headline developments in rural water supply management across the global south (see Sub-Section 4.2.). Of note, across the region, many countries are looking to professionalise rural water supply management through adopting and tailoring arrangements such as the direct utility provision of services or variations of private service providers that are commonly found in urban and peri-urban contexts to rural settings, especially the often rapidly growing and more economically advanced district centres and market centres. This is most explicitly seen for utilities in Zambia and private operators in Mozambique but remains an ongoing and long-term process in both countries.

4.3. **MALAWI**

Malawi has a wide range of management arrangements for water supply service provision to households in rural areas and district market centres. These arrangements span self-supply, several variations of CBM, public and service provision. Overall, Malawi has **eight management arrangements** currently applied for rural waters supply service provision:[9]

I. ***Supported Self-Supply.*** Supported self-supply is the process by which households and small groups are enabled to move incrementally up the water ladder, largely by their own means, but supported by government, NGOs, and the private sector to improve the level of service they can provide for themselves (Sutton & Butterworth, 2021). Supported self-supply was first piloted in Malawi in 2014 in three traditional authorities in Kasungu District and has since been upscaled on a limited basis to several districts, including Dowa, Lilongwe Rural, Mangochi, Ntchisi, and Thyolo. The arrangement functions with approval from MoWS and is supported by provisions of the National Water Policy of 2005; however, it does not benefit from a detailed articulation of roles and responsibilities.

9 Three further management arrangements were also identified but ultimately not included in the classification of management arrangements because they are not currently utilised. Firstly, some district councils previously directly managed water supply facilities; however, this arrangement is no longer utilised and is not recognised in key sector documents. Secondly, while the direct delivery of services by private operators is promoted by the Government of Malawi, it is not yet applied in rural areas or district and market centres. Finally, some WUAs previously delegated functions to private operators (i.e., from 2014-2018, Precise Civil Engineering managed four WUAs of Nkhamanga, Chingale, North Kawinga and Malosa); however, this arrangement is not currently applied.

II. ***Water Point Committee Direct Provision***. A WPC comprising 10 members (i.e., Chairperson, Secretary, Treasurer and 7 committee members) is responsible for performing service provider functions such as operation and maintenance, tariff setting, revenue collection, conducting minor repairs, and organising major maintenance and repairs beyond its capabilities. The District Council is supposed to monitor and regulate the WPC and provide support as required in addressing challenges beyond WPCs' capabilities, while area mechanics should be available to assist with major maintenance and repairs.

III. ***Water Point Committee Direct Provision with Maintenance Function Delegation through Service Contracts.*** This is a variation of 'Water Point Committee Direct Provision'. It addresses the limited performance of preventive maintenance by WPCs by facilitating the periodic (i.e., quarterly) performance of preventive maintenance by area mechanics. Area mechanics are delegated responsibilities for periodic preventive maintenance by the WPC through one-year contracts, with NGOs typically playing a facilitative role. Asides from this important change, the core responsibilities of WPCs and district councils remain the same.

IV. ***Water Point Committee Direct Provision with Borehole User Association Support.*** This is a variation of 'Water Point Committee Direct Provision, whereby WPCs are grouped into a Borehole User Association that provides support across several areas. Under this arrangement, the WPC retains key responsibilities such as revenue generation and minor maintenance. The Borehole User Association role is responsible for organising preventive maintenance through area mechanics and aiding with the performance other functions when these are beyond the capabilities of the WPC. District councils retain their service authority functions under this arrangement.

V. ***Water User Committee Direct Provision.*** Water user committees are community-based organisations that manage individual gravity-fed or solar-powered water supply schemes with up to 20 taps. Water user committees comprise a committee with ten members. There is no legal framework governing this arrangement. Unlike Water User Association Direct Provision, this arrangement does not have a General Assembly. District councils retain their service authority functions under this arrangement.

VI. ***Water User Association Direct Provision.*** This is supposed to represent a more advanced form of CBM to WPC direct provision. The WUA is a community-based organisation comprising a General Assembly that draws its membership from the communities served and is responsible for tariff setting and key decision-making based on recommendations from the WUA's board, which comprises about 10 members. The WUA employs a Local Utility Operator (LUO) responsible for key operations and maintenance tasks, including ensuring good quality water, tariff collection, minor maintenance, reporting to the WUA Board, scheme expansion, and preparing annual work plans. The WUA is responsible for the overall management of the facility, with WPCs sometimes attached to each point water source (i.e., standpipe). The District Council is supposed to monitor and regulate the WUA.

VII. ***Water User Association Direct Provision with Delegation by Water Board.*** This is a variation of the 'Water User Association Direct Provision' arrangement detailed above. Under this arrangement, the Public Water Board clusters a number of water kiosks in a low-income area not directly served by the Public Water Board and

forms a WUA that is responsible for selling water to households without individual taps at their yard. The WUA is responsible for ensuring bills from the water board are paid in a timely manner through revenue collected from users. The biggest achievement has been that the setting up of the WUAs in the Boards water supply areas has improved revenue collection for the same. The repairs are done by the water board.

VIII. Water Board Direct Provision. Malawi's five water boards are parastatal utilities responsible for commercially delivering water supply services. The three regional water boards (Northern, Central, Southern) provide piped water supply services for many district centres and market centres across each of their respective regions. The water boards are managed by a board of directors, with a team of managers led by the Chief Executive and directors of operations, finance, and human resources. Malawi lacks a dedicated regulatory actor; however, the WaterWorks Act of 1995 mandates MoWS to perform several key regulatory functions relating to the water boards.

Table 8 summarises key aspects relating to each of these arrangements, including the documents guiding their application, the scale at which the arrangements are applied, the context they are typically applied, and the main technology options the arrangements are applied to. Section Five provides a more detailed overview and analysis of the four of these arrangements applied at the greatest scale.

Table 8: Malawi's Main Management Arrangements – Background Information

Management Arrangement	Documents Guiding the Arrangement's Application	Scale of Application	Context Applied	Technology
Supported Self-Supply	Supported by provisions of key policy documents but no detailed document specifying how this arrangement should be applied.	**Limited scale.** Applied in multiple districts with around 2,500-3,000 pumps sold from 2018-2022.	Applied in a **range of rural contexts**. Primarily utilised by wealthier households and small villages where multiple households come together.	Principally a **rope and washer pump,** with variations for household and irrigation purposes.
WPC Direct Provision	2015 CBM (O&M Refresher Course) Training Manual. 2015 CBM (O&M Refresher Course) Tool Kits.	**Predominant arrangement for hand pumps.** There are roughly 16,250 WPCs in Malawi (Truslove, Coulson, Nhlema, Mbalame, & Kalin, 2020). Of these, about 12,000 operate without a service contract.	Principally **dispersed rural settlements** but also found in some rural market centres and district centres.	Mainly applied to **hand pumps**. Only utilised for a small number of piped water supply facilities.
WPC Direct Provision with Maintenance Function Delegation through Service Contracts	2015 CBM (O&M Refresher Course) Training Manual. 2015 CBM (O&M Refresher Course) Tool Kits.	**Moderate scale.** Through the work of InterAide, BASEDA, and PumpAide, this arrangement is applied in at least 16 of Malawi's 28 districts, with an estimated 5,500-7,500 WPCs having entered in service contracts with area mechanics.	Principally **dispersed rural settlements** but also found on a smaller scale in rural market centres and district centres.	Arrangement is reliant on external support and these actors have focused exclusively on WPCs managing **hand pumps**.
Borehole User Association Direct Provision	There are no documents from the Government of Malawi that guide the application of this arrangement.	**Limited scale.** Applied on a **pilot basis** in Chikuwa District.	Principally dispersed rural settlements.	**Hand pumps**.
Water User Committee Direct Provision	There are no documents from the Government of Malawi that guide the application of this arrangement.	**Limited scale.** Recently introduced by several NGOs – precise scale is not clear.	Gravity-fed or solar-powered water supply schemes with up to 20 taps	Smaller gravity-fed and solar-powered facilities.
WUA Direct Provision	2010 Guideline for Establishment of Water Users Association in Malawi. 2010 Water Users Association Training Manual.	**Moderate scale.** Applied to about 120 gravity-fed schemes and a smaller set of solar- and ESCOM-powered schemes. These facilities vary considerably in size from about 100-6,400 households taps.	Principally **rural market centres** but also found for some dispersed rural settlements.	Exclusively applied to **piped water supply facilities**, most of which are gravity-fed.
WUA Direct Provision with Delegation by the Water Board	2010 Guideline for Establishment of Water Users Association in Malawi. 2010 Water Users Association Training Manual.	**Limited scale.** Found on a modest scale in urban and peri-urban area, but only applied on a limited scale for district and market centres served by the water boards.	Principally **rural market centres** but also found for some dispersed rural settlements.	Exclusively applied to **piped water supply facilities.**
Water Board Direct Provision	WaterWorks Act No. 17 of 1995.	**Limited to moderate scale.** Directly deliver services in each of Malawi's 28 districts, with the Northern, Central, and Southern water boards managing 56 schemes that provide water to 1,280,000 people. Of these, about 5-10% reside in rural areas.	**District centres and rural market centres.**	Exclusively applied to **piped water supply facilities** powered by the Electricity Supply Corporation of Malawi.

5. STUDY FINDINGS – MALAWI

This section presents key findings from the assessment of Malawi's four primary management arrangements. It first presents a series of two-page overviews that provide case-study-specific findings before detailing key cross-cutting findings.

5.1. CASE-STUDY MANAGEMENT ARRANGEMENT SPECIFIC FINDINGS

Of the range of management arrangements utilised for rural water supply services in Malawi (see Sub-Section 4.3.), this assignment focused on four 'case-studies' of management arrangements. These case studies represent overall management arrangements rather than individual water supply facilities or small variations made to management arrangements by implementing organisations. The four selected 'case-study' management arrangements were proposed by the consultants based on the management arrangements for rural water supply service provision in Malawi applied at the greatest scale (see Table 8). The proposed 'case-study management arrangements were then confirmed by key sector stakeholder's during the assignment's inception workshop. The four selected 'case study' management arrangements were:

I. WPC Direct Provision.

II. WPC Direct Provision with Maintenance Function Delegation through Service Contracts.

III. WUA Direct Provision.

IV. Water Board Direct Provision.

This sub-section comprises a series of two-page overviews of these four case-study management arrangement arrangements. Each two-pager provides an overview of the arrangement, specifies the context where the arrangement is applied and the level of service provided, details how the arrangement works from a financial, institutional, environmental, technical and social perspective, presents key findings from the costing and financing analysis performed, presents an illustrative example, and spotlights key strengths and weaknesses in the arrangement. The two-page overviews are not designed to provide a comprehensive overview of each management arrangement in each of these aspects. Instead, they summarise and synthesise key information compiled using the assignment's assessment framework (see Sub-Section 2.1.) and present the most pertinent information and findings. The two-page overviews were completed based on the findings distilled from the assignments primary and secondary data collection (see Sub-Section 2.2.).

WATER POINT COMMITTEE DIRECT PROVISION
Overview: WPC direct provision was introduced in the 1980s and is Malawi's pre-dominant management arrangement for hand pumps. Under this arrangements, the WPC is responsible for minor maintenance, tariff setting and collection, and organising major maintenance and repairs beyond its capabilities. District councils are supposed to assist WPCs and monitor and regulate service provision. Local area mechanics are largely available to assist with maintenance and repairs but are not consistently utilised by WPCs. The overall performance of this arrangement is very poor, with a low functionality rate of 62% reported for AfriDev hand pumps.

Context Applied: With about 16,250 WPCs in Malawi, this is the predominant arrangement for hand pumps (primarily AfriDev).

The arrangement is found across a diverse set of rural contexts, but primarily in more sparsely populated, less connected, and less economically developed areas, than the national average.

Quality of Service: The arrangement results in a low overall functionality rate of 62% for AfriDev hand pumps (26% partially functional, 8% non-functionality). Water quality challenges also exist with E.coli was present in the water supplied by 58% of WPC-managed facilities visited.

HOW THE ARRANGEMENT WORKS

Financial: WPCs are supposed to set the tariff in collaboration with community members, to cover the costs of supplying water over the design life of the facility (i.e., 15 years). In practice, 84% of WPCs have a tariff.

A combination of tariffs being set at low levels, users' insufficient willingness and ability to pay, and WPCs' limited attentiveness to tariff collection results in WPCs not generating sufficient revenues to cover operational expenditures and build up reserves to cover CapManEx.

District councils are responsible for covering CapManEx beyond WPCs' capabilities, but financial capacity constraints often prevent this support from being provided.

Environmental: WPCs are responsible for ensuring water supply facilities are kept sanitary. Performance in this area is highly variable. Other key aspects of water safety management (i.e., water safety planning, water treatment, quality testing) are rarely performed.

Institutional: Roles and responsibilities are explicitly defined in guidelines and manuals specifying actors' responsibilities and practical implementation.

WPCs receive training from districts and implementing organisations on key aspects but hold service provider functions that they generally lack the capacity to adequately perform.

District councils face capacity constraints themselves (i.e., shortage of water monitoring assistants), which often result in WPCs not receiving the support and oversight required.

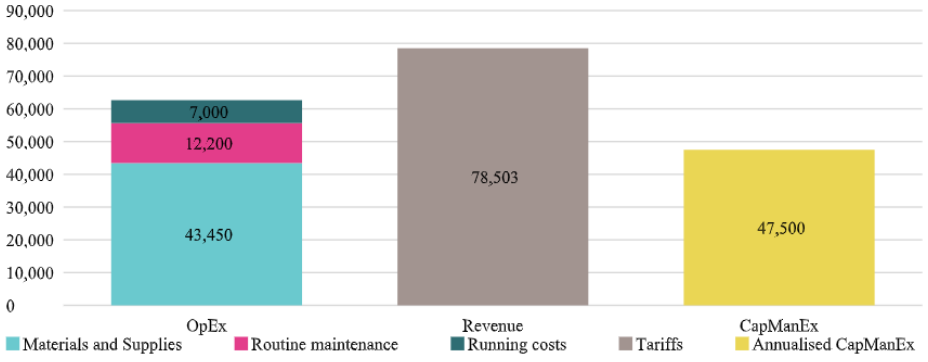
Technical: WPC training covers technical aspects, including preventive maintenance and sourcing spare parts. However, WPCs rarely perform – or organise– key maintenance tasks, with a 'fix-on-failure' approach. The lack of preventive maintenance results in frequent breakdowns that are beyond WPCs' financial and technical capabilities to repair.

WPCs go to a diversity of organisations to solicit support with repairs (district council office = 19%; NGO = 15%; ward councillor / MP = 49%; district water development office = 36%; area mechanic = 42%). Regardless of the actor, this approach often results in delays being performed or infrastructure remaining non-functional.

Social: WPCs are supposed to be drawn from – and elected by – community members and comprise at least 50% women. Most WPCs meet guidelines in these areas at their inception. Users can bring complaints to the WPC, the district, and local chiefs, with local chiefs often playing a central role in conflict resolution.

Figure 6: WPC Direct Provision Financial Performance – Overall Annual Average per Facility

Costing and Financing Analysis: WPC direct provision is not financially viable. WPCs' average annual revenue generation is only MWK 78,503, which is sufficient to undertake routine maintenance, but too low to generate a sufficient surplus (average of just MWK 15,000 per year) to cover estimated future CapManEx, creating a considerable dependence on districts and external organisations.



STRENGTHS

Roles and responsibilities are explicitly defined, and detailed guidelines and manuals have been developed to support its implementation.

Progress has been made in strengthening spare part supply chains and increasing the number of trained area mechanics.

WEAKNESSES

Districts face important human, financial and material capacity constraints, which prevent them from providing required levels of ongoing support to – and monitoring of – WPCs and addressing key challenges (i.e., limited revenue generation, non-functional or poorly performing infrastructure).

WPCs' limited revenue generation severely impedes their ability to perform key technical functions, creating a significant dependence on districts and external organisations.

Not contracting preventive maintenance functions to area mechanics results in maintenance rarely being performed. Breakdowns occur comparatively frequently, and most WPCs largely lack the financial resources and skills to perform or organise repairs without external assistance.

Sezu WPC (Chikwawa District, Southern Region):

- Water point was rehabilitated in 2021 and serves 112 households.
- WPC has only collected revenue once since rehabilitation, with revenue generation highly seasonal and uncertain.
- Maintenance has not been performed since the facility was rehabilitated; however, the WPC has purchased some spare parts.
- Annual surplus is only MWK 12,400, and the WPC only has reserves of MWK 8,000.
- WPC revenue would need to at least double to cover estimated future CapManEx requirements.

WATER USER ASSOCIATION DIRECT PROVISION

Overview: WUAs were piloted under National Water Programme 1 (2000-2005) as a more advanced form of CBM and subsequently upscaled, with the Government of Malawi issuing formal guidance on the arrangement in 2010. The WUA has a General Assembly drawn from the communities served and is responsible for tariff setting and key decision-making (based on recommendations from the WUA's board). The WUA also has a full-time LUO who is a paid member of the WUA and performs key functions, including O&M, reporting, and developing annual work plans and budgets. WPCs are sometimes attached to each point water source. District councils attend WUA board meetings and are supposed to assist WUAs and regulate several aspects of service provision.

Context Applied: Arrangement is applied to about 120 gravity-fed schemes and a smaller set of solar- and ESCOM-powered schemes. These vary in size (100-6,400 households). WUA direct provision is found in market centres and less dispersed rural settlements.

Quality of Service: Consolidated statistics are not available on key aspects of service quality (i.e., functionality, hours of supply, downtime, water quality). Consulted stakeholders consistently highlighted the highly variable performance of WUA-managed facilities and how many WUAs struggle to deliver reliable services. Water quality tests conducted for this study found E. coli present in 70% of WUA-managed facilities.

HOW THE ARRANGEMENT WORKS

Financial: The WUA Board and LUO propose a tariff for General Assembly approval, which is supposed to account for anticipated expenses, users' ability to pay and generate a surplus to account for future CapManEx. Although all WUAs have a tariff in place, the combination of low tariffs, users' insufficient willingness to pay, and low levels of tariff collection result in WUAs not generating sufficient revenues to cover required operational expenditures and generate reserves for CapManEx. District councils are responsible for helping to cover CapManEx beyond WUAs capabilities, but financial capacity constraints often prevent this support from being provided and heightens dependencies on external organisations.

Environmental: WUAs typically perform sanitary inspections to limit contamination risks and should have a water treatment plan specifying the processes to filter and treat (using chlorine) source water. There is limited water safety planning, and the extent – and efficacy of – water quality testing varies considerably. There is a lack of consolidated water quality data, with water quality testing largely performed on a projectized basis and following infrastructure construction.

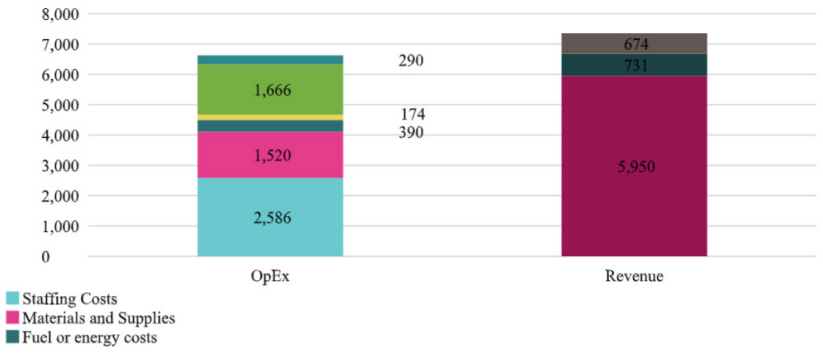
Institutional: Roles and responsibilities under this arrangement have been explicitly defined, and guidelines and manuals set out how this arrangement should function. WUAs benefit from being legally registered and having constitutions, although monitoring and regulation are limited. WUAs are required to report to districts, but this rarely goes beyond the small set of indicators required for sector performance report. Regulatory mechanisms such as sanctions, incentives, and performance reporting are rarely applied.

Technical: WUAs benefit from having a dedicated LUO that performs operations and maintenance activities as well as some repairs. Nevertheless, WUAs' performance of key technical functions varies significantly. While some WUAs have developed formalised processes based on prudent asset management, many adopt a 'fix-on-failure' approach.

Social: WUAs typically hold quarterly and annual meetings, which provide a formal role to community representatives through General Assembly members. Users typically issue complaints directly to the Chief, and there is a lack of more formalised complaints mechanisms directly with WUAs.

Costing and Financing Analysis: WUA-operated schemes perform very poorly financially and struggle to achieve financial viability. Per capita revenue generation is much lower compared to water board-managed schemes (less than 10%) and largely dependent on household tariffs. The limited revenue generation means that OpEx is very low across the assessed cost categories, preventing key tasks from being satisfactorily performed. Whilst more minor CapManEx is covered by revenue collection, WUAs rely on ad-hoc financial support from national and local government or international organisations to cover larger CapManEx when breakdowns occur.

Figure 8: WUA Direct Provision Financial Performance – Annual Average per Household



STRENGTHS

Roles and responsibilities are explicitly defined, and detailed guidelines and manuals have been developed to support its implementation.

WUAs are legally registered and have developed constitutions, providing an important basis for holding the WUA board, General Assembly and the LUO accountable.

Formal mechanisms for user participation are built into the arrangement, enabling communities to play an important and formalised role in decision-making.

WEAKNESSES

WUA revenue generation is very low, impeding sufficient OpEx from being incurred and preventing a surplus being generated to cover future CapManEx.

Despite having a dedicated LUO, WUAs' performance of key technical functions is highly variable, often poor infrastructure maintenance and service levels deteriorating over time.

Key water safety management practices are often not satisfactorily performed, resulting in water quality challenges with E. coli present in the water provided by 70% of the facilities visited.

There is insufficient ongoing monitoring and reporting on WUA performance and consolidated data is not available, impeding evidence-based decision-making.

Tengani WUA (Nsanje District, Southern Region):

- ESCOM-powered facility serving 2,115 households.
- Collects MWK 9,800 per household.
- Only 60% of households pay the tariff.
- 25% of OpEx goes to energy costs, leaving insufficient resources for routine maintenance.
- Revenue only covers 101.4% of OpEx, resulting in a very low surplus and reserves of just MWK 46,000.
- Due to the community moving uphill to avoid flooding, large investments in new infrastructure are needed which the WUA cannot cover.

WATER BOARD DIRECT PROVISION

Overview: Malawi has five sub-national water boards, which manage water supply facilities on a commercial basis. Water boards principally serve urban and peri-urban contexts; however, the Northern, Central and Southern regional water boards also manage schemes serving district and rural market centres. The water boards are managed by a board of directors, with a team of managers led by the Chief Executive and directors of operations, finance, and human resources. The districts under the regional water boards are divided into zones and schemes, respectively managed by a Zone and Scheme Manager Water board direct provision represents the most professionalised management arrangement for piped rural water supply services in Malawi, with the economies of scale, trained staff, cross-subsidisation, and organisational processes of water boards helping them to provide higher quality services than other service providers. Water board managed schemes are also largely financially viable.

Context Applied: Provide services in every district, with the Northern (10 schemes, 500,000 people), Central (21 schemes, 345,000 people), and Southern (25 schemes, 435,000 people) water boards managing 56 schemes that serve 1,280,000 people. While they mainly serve urban contexts, the three regional water boards provide piped water supply services for 21 districts and eight rural market centres.

Quality of Service: Deliver high-quality and reliable services. Average service coverage is 83%, 97% of water quality samples comply with relevant standards, and the average non-revenue water (NRW) rate is 35%.

HOW THE ARRANGEMENT WORKS

Financial: Tariffs are set by MoWS and differentiated by the type of consumer and level of consumption. Water boards benefit from metering and having a range of payment modalities. Revenue collection efficiency is around 82% for households and 28% for government institutions. Water boards are able to generate significantly greater revenues than other service providers, enabling the better performance of key functions and the delivery of higher-quality services. The average operating cost recovery of water boards was 124% for 2018/2019; however, water boards receive external assistance for CapEx.

Environmental: Water boards have dedicated water quality sections that undertake water safety planning and ensure effective water treatment. Water quality testing is frequently undertaken, with around 50,000 samples tested annually.

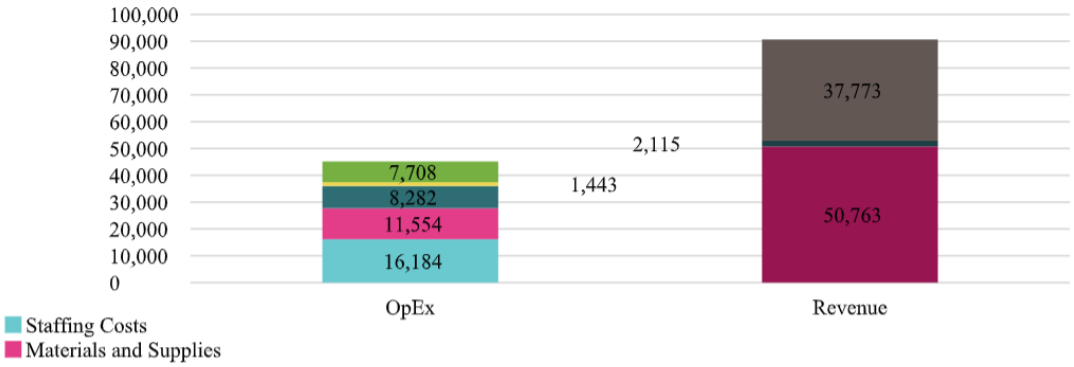
Institutional: The WaterWorks Act of 1995 sets out Water boards' mandate and powers. However, it centres on urban water supply and does not mandate water boards to provide rural water supply services. MoWS and the Water Services Association of Malawi monitor water board performance, and WASAMA produces benchmarking reports. However, these activities are not performed systematically, and other key regulatory mechanisms (i.e., incentives, sanctions) are not applied.

Technical: Water boards face important technical capacity constraints (i.e., staffing levels). Nevertheless, personnel have appropriate training and experience, and water boards have implemented processes to ensure operation and maintenance practices are performed. Water boards develop comprehensive operations and maintenance and rehabilitation plans; however, financial resource constraints mean that there is often a greater emphasis on repairs than maintenance. Economies of scale enable water boards to source spare parts efficiently.

Social: Customer information desks, complaints boxes, and formalised processes for requesting information provide opportunities for user participation. However, information on water board performance is not easily accessible, and online complaint mechanisms are absent.

Costing and Financing Analysis: Despite facing some financial challenges, water board schemes in are largely financially viable. Water Boards raise considerable revenue, enabling them to spend significantly more on OpEx than comparable schemes managed by WUAs. They are also largely able to generate the reserves required to cover CapManEx without external assistance. There is a level of risk sharing across water supply facilities in the same region. Even when individual schemes do not collect enough revenue, pooled resources cover ongoing OpEx and sustain service levels.

Figure 9: Water Board Financial Performance – Annual Average per Household



STRENGTHS

Capacitated staff and formal processes help to ensure the proper key technical functions, resulting in reliable service provision.

Significant revenue is generated from households and institutions, enabling water boards to incur necessary OpEx and generate a sufficient surplus to cover CapManEx.

Cross-subsidisation between schemes is an important form of risk sharing. When individual schemes do not collect enough revenue, pooled resources cover ongoing OpEx and sustain service levels.

Application of key water safety management practices (i.e., water safety planning, water treatment, water quality testing) results in 97% of tested samples complying with national standards.

WEAKNESSES

The WaterWorks Act of 1995 does not define water boards' role in rural areas and a well-established process does not exist to guide the process of water boards taking over the management of facilities from WUAs.

There is no dedicated water supply regulator and regulatory responsibilities are not precisely defined, impeding effective monitoring and regulation.

Average household expenditure on water under this arrangement represents 5.8% of average annual household income across Malawi, above international affordability benchmarks (3-5%), creating challenges in upscaling the arrangement to less economically developed areas.

Lack of an online complaint mechanism and challenges accessing information on water board performance impede user participation and undermine potential avenues to heighten accountability.

Chintheche Scheme (NRWB)

- Modestly sized piped water supply facility that serves 2,700 households.
- Collects an average of MWK 40,000 per household each year and complements this with revenue from other sources (i.e., institutions). Revenue generation enables NRWB to spend sufficient resources to perform key operational activities.
- Revenue is 122% of OpEx, enabling a healthy surplus to be generated to provide a reserve for future CapManEx and subsidise less profitable facilities.

5.2. **CROSS-CUTTING FINDINGS**

Table 9 presents a top-level overview of the performance of each management arrangement concerning the six aspects investigated in the analytical framework: (i) financial; (ii) institutional; (iii) environmental; (iv) technical; (v) social; and (vi) service quality. This is done using the simple scoring presented below. Following Table 9, seven cross-cutting learning are presented based on the assessment of Malawi's four main arrangements.

	Excellent. The management arrangement performs very well in this aspect with only very small challenges persisting (if any).
	Good. The management arrangement performs well in this aspect, and this represents an area of good practice that can be built on moving forwards. Nevertheless, some important challenges persist.
	Moderate. The management arrangement performs moderately. While there are aspects of good practice, significant challenges persist and performance between service providers or over time may vary considerably.
	Weak. The management arrangement performs moderately on several aspects but continues to show significant challenges in others.
	Very Poor. Significant challenges exist in the management arrangement's performance in this aspect, undermining the overall functioning of the relationship.

Table 9: Malawi's Primary Management Arrangements – Key Strengths and Weaknesses

Category	WPC Direct Provision	WPC Direct Provision with Maintenance Function Delegation through Service Contracts	Water User Association Direct Provision	Water Board Direct Provision
Financial 	Is not financially viable. WPCs only collect sufficient revenue to conduct basic maintenance tasks. The very low level of revenue generation means there is little surplus and creates reliance on external actors to cover CapManEx when breakdowns invariably occur.	WPCs generate sufficient revenue to fund regular preventive maintenance and generate a greater reserve than under WPC Direct Provision; however, this is still not sufficient to cover likely required CapManEx.	Is not financially viable. Revenue generation is very low and limits OpEx to essential activities. Most WUAs struggle to generate sufficient financial reserves to cover future CapManEx costs, creating dependence on ad-hoc financial support from external actors.	Water boards raise considerable revenue This enables required OpEx to be incurred and a surplus generated to cover CapManEx and support the small set of schemes that do not generate sufficient revenues to cover their OpEx.
Institutional 	Implementation manuals and training guidelines explicitly define roles and responsibilities. However, capacity constraints severely impede districts' ability to support and monitor and regulate WPCs.	Contracts provide further specificity to the roles and responsibilities of WPCs and area mechanics. Districts are not signatories to these, and districts struggle to support and monitor and regulate WPCs and area mechanics.	Roles and responsibilities are well-defined and WUAs are legally registered and have constitutions. However, there is limited monitoring and regulation of WUAs, and capacity constraints impede districts' ability to perform support functions.	The WaterWorks Act of 1995 specifies water boards' powers and responsibilities, and those of other actors as they relate to water boards. However, water boards' role in rural water supply service provision is not defined and key monitoring and regulatory functions are not performed.
Environmental 	WPCs perform variably in keeping the water supply facility clean and sanitary. Other key aspects of water safety management (i.e., water safety planning, water treatment, water quality testing) are rarely performed.	WPCs perform variably in keeping the water supply facility clean and sanitary. Other key aspects of water safety management (i.e., water safety planning, water treatment, water quality testing) are rarely performed.	Required to limit potential sources of pollution and have a water treatment plan. Performance is variable in these areas and there is also limited water safety planning and water quality testing.	Have dedicated water quality sections that undertake water safety planning and ensure effective water treatment. Water quality testing is frequently undertaken, with around 50,000 samples tested per year.
Technical 	Progress has been made increasing the number of trained area mechanics and strengthening spare part supply chains. However, WPCs rarely perform preventive maintenance and generally lack the capacity to perform repairs without external assistance.	Maintenance function delegation results in preventive maintenance being performed every 3-4 months and a reduction in the frequency of breakdowns. Nevertheless, water quality challenges persist, and WPCs still face challenges repairing facilities without external assistance.	WUAs benefit from having dedicated LUOs that perform operations and maintenance activities as well as some repairs. Nevertheless, WUAs performance of technical functions is highly variable, and often constrained by very poor revenue generation.	Face some technical challenges (i.e., staff levels), but water board personnel have required training and experience, and water boards have implemented a range of vital technical processes and practices. Economies of scale enable water boards to efficiently source spare parts.
Social 	WPCs are drawn from the local community and largely constituted in line with guidelines. However, ongoing user participation and reporting to users is often limited.	WPCs are drawn from the local community and largely constituted in line with guidelines. However, ongoing user participation and reporting to users is often limited.	Typically hold quarterly and annual meetings that provide a formal role to community representatives. Is a lack of formalised complaints mechanisms.	Opportunities for user participation have been enhanced. However, it is hard to access data on water board performance, and online complaint mechanisms are absent.
Service Quality 	Functionality rate of 62% for AfriDev hand pumps (21% partially functional, 14% non-functional). Pressing water quality challenges also persist, with 18% of hands pumps contaminated with thermotolerant coliforms.	Increases the functionality rate of AfriDev hand pumps to about 95% and is reported to help reduce downtimes when breakdowns occur. However, pressing water quality challenges persist, with 18% of hands pumps contaminated with thermotolerant coliforms.	Statistics are not available on key aspects of service quality. Consulted stakeholders consistently highlighted WUA-managed facilities' highly variable performance and how many WUAs struggle to deliver reliable services. Water quality tests highlight water quality challenges.	Provides the highest quality services of all management arrangements. 97% of water quality samples comply with national standards, the non-functionality rate is very low, and faults and breakdowns are generally addressed in a timely manner.

LEARNING ONE: Vital progress has been made strengthening Malawi's management arrangements.

While significant challenges persist, essential progress has been made in improving the management of Malawi's rural water supply services. This progress provides a vital foundation to be built upon. Especially impactful steps include developing a comprehensive set of training manuals and implementation guidelines, the training of area mechanics, strengthening spare part supply chains, and the strengthening of water boards to the point where they can manage schemes in a financially viable manner. Several ongoing developments, such as revising legal instruments and policy documents, provide an opportunity to set the foundations for further improvements.

LEARNING TWO: WPC and WUA direct provision do not deliver safe and reliable services and WPCs and WUAs struggle to perform key functions.

While important differences exist between direct provision by WPCs and WUAs, critical common challenges exist concerning revenue generation, the performance of core technical functions, and the support to – and oversight of – WPCs and WUAs. For WPCs, this results in a low functionality rate of 62% for AfriDev hand pumps (Water Point Functionality Dashboard, 2019), impeding progress towards universal access to an improved water source by 2030. For WUAs, this is reported to result in highly variable performance, many WUAs struggling to deliver reliable services, and water quality challenges.

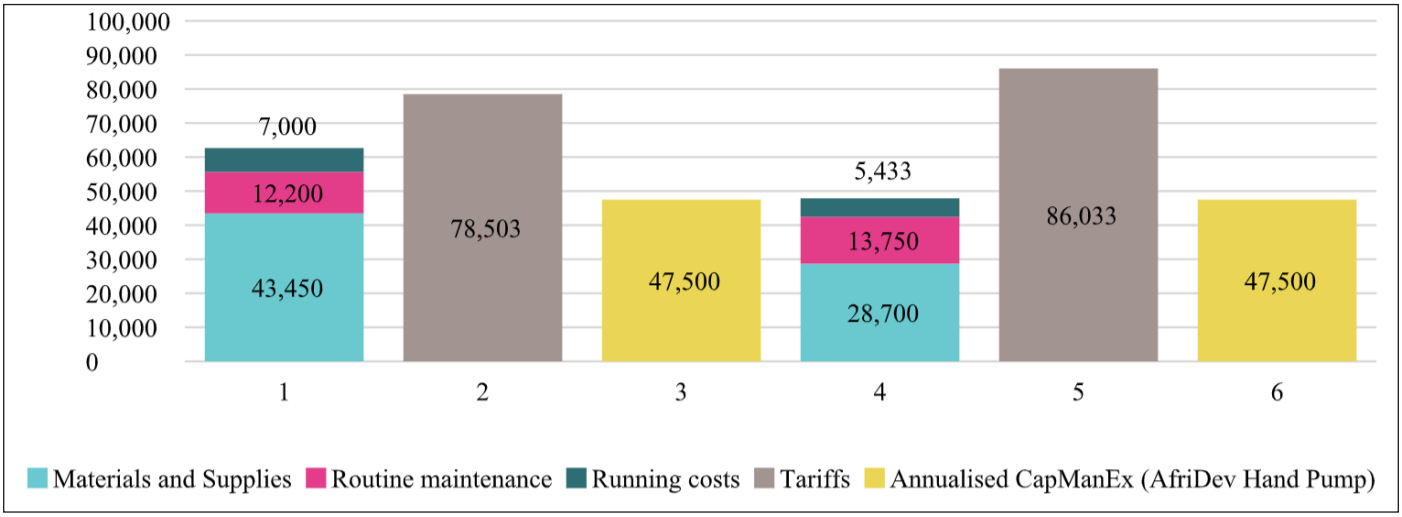
LEARNING THREE: WPCs' delegation of maintenance functions significantly improves the functionality rate of rural hand pumps, but key challenges in this management arrangement persist.

WPCs' delegation of maintenance functions to area mechanics through service contracts results in substantially more reliable services than under WPC direct provision, with a functionality rate for AfriDev hand pumps over 30% higher (about 95% vs. 62%). Nevertheless, other key challenges remain such as WPC revenue generation, data collection, support and oversight of area mechanics. Accordingly, while this arrangement results in more reliable services, further improvements are required to ensure the more effective and sustainable management of hand pumps.

LEARNING FOUR: WPCs typically face considerable challenges in generating sufficient revenue.

Figure 10 specifies the annual revenue generation and OpEx under WPC direct provision and WPC direct provision with maintenance function delegation through service contracts and also notes an estimate for the required CapManEx (annualised). Across all the hand pumps included in this study, WPCs collected average annual revenue of MWK 83,600 per year with only an MWK 7,500 difference between the two arrangements. This represents limited revenue generation under both arrangements. For WPC direct provision with maintenance function delegation, average revenue generation covers necessary OpEx. Under both arrangements, insufficient revenue is raised to cover required CapManEx, with alternative sources of funding required to cover the gap.

Figure 10: WPC Direct Provision and WPC Direct Provision with Maintenance Function Delegation



LEARNING FIVE: Water board direct provision benefits from more professionalised management than Malawi's other management arrangements and delivers the safest and most reliable services.

Water board direct provision faces several challenges, including water boards lacking an explicit mandate for rural water supply service provision,[10] the absence of a strategy for expanding the role of water boards in rural areas and their limited monitoring and regulation. Nevertheless, water boards benefit from economies of scale, more capacitated and experienced staff, and the existence and application of a range of pertinent processes and procedures across key areas (i.e., maintenance and repairs, revenue generation, water safety management). Ultimately, this helps to ensure better technical and financial performance by water boards than other service providers and enables water boards to deliver higher quality services than the other management arrangements.

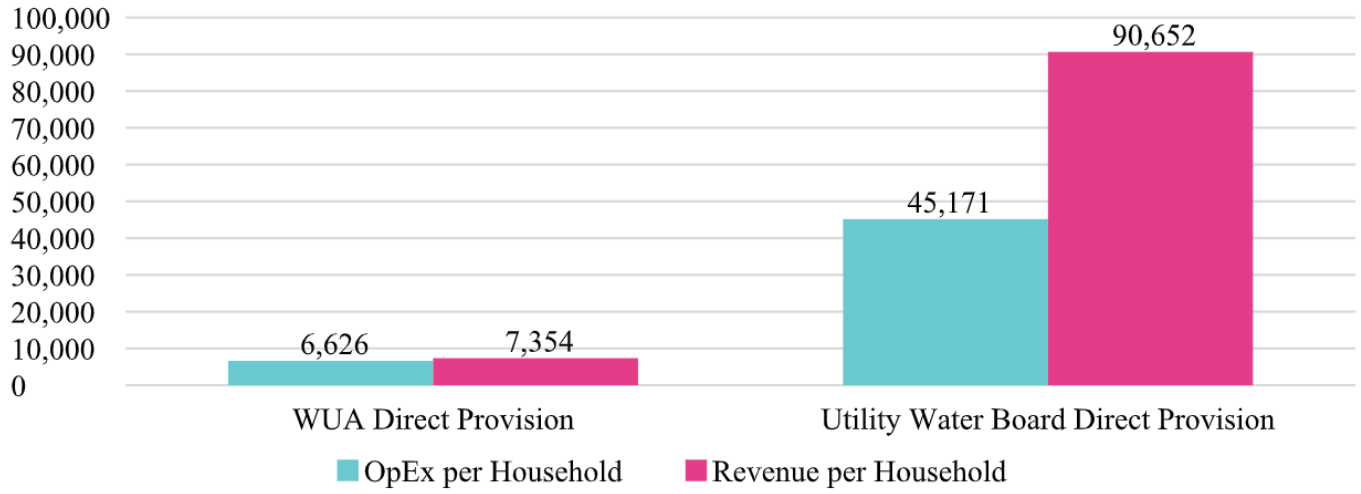
LEARNING SIX: Water boards are considerably more financially viable than WUAs.

Figure 11 details the annual OpEx per household and annual revenue per household under WUA direct provision and water board direct provision. This highlights water boards' considerably greater ability to generate the required revenue from households and institutions to fund required OpEx (i.e., staffing costs, materials and supplies, fuel or energy, routine maintenance) necessary to deliver high-quality services. Table 3 highlights that the scale of this difference cannot be explained by the size of the facilities managed. The scale of the difference in revenue generation (over 1,200%) between WUA and water board direct provision illustrates considerably better financial management by water boards and the positive impact of measures such as online bill payment and higher rates of metering and household connections. Significantly, water boards can

10 Section 6 of the WaterWorks Act No. 17 of 1995 states that "The Board shall, except for rural water supply areas, have the control and administration of Control of all waterworks and all the water in such waterworks and the management of the supply and waterwork distribution of such water in accordance with this Act". Section 4 of the WaterWorks Act No. 17 of 1995 states that "The Minister may, from time to time, by notice published in the Gazette, declare any Water-area area to be a water-area of the Board. The Minister may, in the like manner, alter, amend, reduce or extend the boundaries of a water-area and assign another name thereto".

generate a surplus that enables reserves to be generated for CapManEx. This is not the case for WUA direct provision, where the limited OpEx results in key operations and maintenance activities not being performed and can be expected to result in the need for greater CapManEx in the long-term.

Figure 11: Annual OpEx and Revenue per Household – WUA and Water Board Direct Provision



LEARNING SEVEN: Malawi's management arrangements are each suited to broad categories of rural areas and technology options.

Water board direct provision and 'WPC direct provision with maintenance function delegation through service contracts are the two management arrangements most effectively delivering rural water supply services. However, they are each best suited to certain technology options:

I. **Water boards** have proven capable of managing moderately sized piped water supply facilities (i.e., those serving 10,000-25,000) in a financially viable manner but are not suitable for managing different variations of hand pumps. Moreover, the cost of this arrangement means water boards' tariffs may not be affordable in less economically developed rural settings (i.e., outside of rural market centres).

II. **WPC direct provision with maintenance function delegation through service contracts** has effectively increased hand pump functionality but is not suitable for more complex piped water supply facilities where key technical functions need to be performed more frequently and a greater emphasis on revenue generation is required.

6. STUDY FINDINGS – GLOBAL SOUTH

This section presents several good-practice management arrangements of relevance to Malawi from across the global south (Mozambique, Peru, Rwanda, Uganda, and Zambia) and summarises key findings of particular relevance to Malawi as it looks to transition to the more professionalised management of rural water supply services.

6.1. GOOD PRACTICE EXAMPLES

The following one-pagers provide an overview of a series of good-practice management arrangements relevant to Malawi. These were selected to provide examples of better performing but comparable management arrangements to those in Malawi (supported CBM, CBM with technical function delegation, public utility provision) and arrangements not currently applied in Malawi but that offer key insights (private operator with delegation by local government, private operator with delegation by asset holding entity). Each one-pager provides an overview of the arrangement, specifies the context where it is applied and the level of service provided, outlines how the arrangement works from a financial, institutional, environmental, technical, and social perspective, details key sector improvements that supported or enabled the arrangements effective application, and highlights learnings of particular relevance to Malawi.

The following five one-pagers are included:

I. Peru – Supported Community-Based Management.

II. Uganda – CBM with the Delegation of Maintenance and Repair Functions.

III. Rwanda – Private Operator with Delegation by Local Government.

IV. Mozambique – Private Operator with Delegation by Dedicated Asset Holding Entity.

V. Uganda – Public Utility Provision.

<table>
<tr><th colspan="2">PERU – SUPPORTED COMMUNITY-BASED MANAGEMENT</th><th colspan="2">Country and Sector Status</th></tr>
<tr><td colspan="2" rowspan="5">Overview: A series of reforms have been introduced over the past 30 years to professionalise and strengthen CBM through comprehensive monitoring and ongoing technical assistance and support. Under this arrangement, community-based organisations (CBOs) are responsible for the day-to-day operations and minor repairs, while the municipality is in charge of major maintenance and rehabilitation works. The National Superintendence of Sanitation Services (SUNASS) regulates CBOs. The large number of CBOs (over 25,000) has led Peru to focus on trying to consolidate service provision by incentivising individual CBOs to manage multiple facilities.</td><td>GNI per Capita</td><td>$6,520</td></tr>
<tr><td>National Water Supply Coverage</td><td>93%</td></tr>
<tr><td>Rural Water Supply Coverage</td><td>81%</td></tr>
<tr><td>National Piped Water Supply Coverage</td><td>90%</td></tr>
<tr><td>Rural Piped Water Supply Coverage</td><td>76%</td></tr>
<tr><td>Context Applied: This is the predominant arrangement for rural water supply services. Over 25,000 CBOs manage 86% of rural water supply facilities. The predominant infrastructure is piped water supply facilities.</td><td colspan="2">How Does it Work?
Financing: Each CBOs' general assembly conducts tariff setting annually, and CBOs collect tariffs. Despite 99.7% of CBOs having a tariff, only 39.1% of CBOs cover their costs through tariff revenue because tariffs are set very low (lowest in Latin America). The municipality finances major repairs.

Institutional: Roles and responsibilities are explicitly defined between CBOs, municipalities and SUNASS in Supreme Decree 1280 of 2016. The substantive emphasis given to strengthening CBM has resulted in CBOs being regularly monitored and receiving ongoing support. Of note, comprehensive information management systems have been developed to monitor the performance of CBOs and municipalities; however, these only currently include 1,250 CBOs (about 5% of CBOs).

Environmental: Water safety plans are developed at the regional level, and service providers are required to at least monitor water quality at the point of adduction. CBOs are largely not treating the water they provide.

Technical: CBOs perform a range of technical functions and develop annual operations plans that cover operations, maintenance, administration, equipment replacement and minor repairs. These plans are largely implemented, and municipalities can assist with major repairs.

Social: Arrangements exist for user participation, including the fact that tariffs are approved in a general assembly that all users are invited and incentivised to join and data on CBO performance is easily accessible.</td><td>Sectoral Improvements:
• Supreme Decree 1280 (2016) details actors' responsibilities and mandates SUNASS to regulate CBOs.
• Increased prioritisation of ensuring the sustainable provision of rural water supply services.</td></tr>
</table>

Service Quality: There is a lack of data on the functionality of water supply facilities managed by CBOs; however, it is reported that CBO-managed facilities provide water for an average of 17.88 hours a day (against a national benchmark of 18 hours).

Key Learnings Relevant to Malawi
Ongoing support to CBOs from municipalities has played a key role in enhancing CBOs' capacity to perform key technical functions and has resulted in generally impressive service quality.
Impressive monitoring information systems have been developed for CBOs and municipalities, which provide up-to-date data on a range of key indicators and enable evidence-based decision-making.
The arrangement suffers from users' limited willingness to pay for water, resulting in most schemes not being run on a cost recovery basis and placing additional pressure on municipalities.
Consolidation is being prioritised moving forwards as a key means for improving regulation and CBO financial performance. The large number of CBOs (over 25,000) is seen as a key barrier to further progress in these areas.

UGANDA – COMMUNITY-BASED MANAGEMENT WITH TECHNICAL FUNCTION DELEGATION

Overview: This is a strengthened variation of CBM. Water user committees (WSCs) retain responsibility for daily operations and management, including tariff collection. The arrangement's defining feature is that it addresses persistent technical and financial challenges common in CBM by ensuring a consolidated set of key maintenance and repair functions are delegated to area service providers (ASPs) (usually private operators) by local government and WSCs through contracts. The contract with local government covers a cluster of facilities within the district, and the arrangement has achieved functionality rates of 96-100%.

Country and Sector Status	
GNI per Capita	$858
National Water Supply Coverage	56%
Rural Water Supply Coverage	48%
National Piped Water Supply Coverage	23%
Rural Piped Water Supply Coverage	8%

Context Applied:

The arrangement is utilised for a clustered set of point water sources (mostly hand pumps) not gazetted to utilities. It is applied to roughly 10-20% of rural point water sources. Whave is the best-known ASP and services facilities serving 250,000 people across 11 districts.

How Does it Work?

Financing: WSCs collect tariffs and pay an annual fee to the ASP, which the district approves. ASPs' financial performance varies. Whave covers OpEx and CapManEx via WSCs' annual fees but requires donor funding for CapEx and some of its overheads.

Institutional: Districts are signatories to contracts and have a formalised role in the arrangement, which centres on monitoring and regulation.

Environmental: The arrangement does not focus on improving water safety management and has not led to key water safety management practices being performed.

Technical: The ASP employs local hand pump mechanics, trains them and provides refresher training, ensures they follow preventive maintenance schedules and conduct immediate repairs, and sources spare parts. Regular preventive maintenance and guaranteed repairs has drastically increased service levels.

Social: ASPs must submit reports to districts on their performance and MWE's annual sector performance reports consolidate aspects of this information. The clear allocation of responsibilities (as set out in contracts) increases accountability within the arrangement.

Sectoral Improvements:

- The Ministry of Water and Environment formally adopted the model through the National Framework for O&M of Rural Water Infrastructure in 2020. This strategy document details precisely how the arrangement should function and sets out a roadmap for its implementation and upscaling.

Service Quality: Consolidated data is not available. However, one ASP (Whave) reports a very high functionality rate of 96-100% across 11 districts. Additionally, 90% of repairs are performed within one day.

Key Learnings Relevant to Malawi

Establishing a higher-level entity as a maintenance service provider can enable a range of vital improvements required to WPC direct provision with maintenance function delegation. These include leveraging economies of scale in spare parts procurement, providing an explicit role for local government that is entrenched in contracts, enabling risk sharing between water points, improving area mechanic oversight, and ensuring low-income communities benefit.

A higher functionality rate and lower downtimes can be achieved by integrating arrangements for guaranteed repairs and spare parts procurement into the technical functions delegated by WPCs.

It takes time for any arrangement that ensures an expansive set of technical functions are performed on hand pumps to achieve financial viability and development partner assistance and subsidies will be required in the short- to medium-term.

Developing an explicit strategy for professionalising rural water supply service provision can help ensure development partner support and coordinated action.

RWANDA – PRIVATE OPERATORS DELEGATED FUNCTIONS BY LOCAL GOVERNMENT

Overview: Rwanda has only one management arrangement for rural water supply service provision, with all rural piped water supply facilities and hand pumps under private management by licensed operators that hold contracts with districts. For point water sources, some private operators subcontract the management of the public tap to a tap manager. Districts are required to monitor private operators' performance and ensure compliance with contracts, while the Rwanda Utility Regulatory Agency (RURA) also plays an important regulatory role.

Country and Sector Status	
GNI per Capita	$850
National Water Supply Coverage	60%
Rural Water Supply Coverage	55%
National Piped Water Supply Coverage	38%
Rural Piped Water Supply Coverage	30%

Context Applied:

Applied in all types of rural areas and utilised for piped water supply facilities and hand pumps. There are now no more than two private operators allowed in each district, totalling 58 licensed operators across the 27 districts. The average population served under one PPP contract is 43,000 but varies from a minimum of 5,000 to a maximum of 267,000 people

Service Quality: Service quality is perceived to largely be good. However, there is a lack of consolidated service quality data. RURA reports that larger private operators tend towards better performance in terms of professionalised capacity for technical and financial management.

How Does it Work?

Financing: RURA sets and regulates water tariffs at a level of cost recovery that includes major repairs and replacement of equipment but not asset depreciation. Private operators' remuneration depends on sales of water the revenue collected. Private operators' pay a fee to the district, currently set by the regulator at 10% of revenue. Revenue collection efficiency is reportedly 79%.

Institutional: Districts are the asset owner and sign management contracts with private operators that explicitly specify roles and responsibilities and performance targets. Private operators are licensed by RURA area. Private operators are required to submit monthly, quarterly, and annual reports to districts. Districts monitor private operators and ensure compliance with contracts, while RURA typically undertakes an annual in-depth inspection and audit of larger private operators. RURA's annual reports do not cover private operators' performance.

Environmental: Districts develop annual water safety plans for all rural water facilities and private operators are required. Where it is performed, water treatment is limited to disinfection by chlorination.

Technical: Private operators are in charge of day-to-day operations and maintenance, while districts retain responsibility for major repairs and extensions. Rwanda's Water and Sanitation Corporation plays a supporting role to private operators (especially new operators), with capacity building programmes covering key technical aspects such as appropriate asset management practices.

Social: Water users committee are established at each water point and represent users in a range of areas and can report and make complaints to districts. RURA arbitrates when there is a conflict.

Sectoral Improvements:

- A pilot delegating responsibility for managing rural water supply services to private sector in 2002.
- Long-term support for public-private partnerships for rural water supply service provision dating back to 2004.
- Establishment of the Rwanda Utilities Regulatory Agency.
- Ongoing improvements to the policy and legislative environment, including adopting the National Water Supply Policy and Implementation Strategy in 2016 and Water Act in 2018.

Key Learnings Relevant to Malawi

There has been a considerable push for consolidating service provision as a means to enable service providers to leverage economies of scale and incentivise more competent companies to upscale their operations or enter the market. Moreover, by reducing the number of private operators per district to 1-2. service delivery can more easily be monitored and regulated

RURA reports better performance by larger private operators, highlighting the benefits of consolidation and economies of scale as well as how concerted efforts have been made to reward better performing private operators with licenses for additional service areas.

Establishing the necessary enabling environment for private sector participation and building the pool of capacitated private operators has taken multiple decades and continues to require further improvements.

MOZAMBIQUE – PRIVATE OPERATORS DELEGATED FUNCTIONS BY SPECIALISED ASSET HOLDING ENTITY	Country and Sector Status	
Overview: In 2009, the Government of Mozambique established a framework for delegating piped water supply scheme management for facilities in small towns of 10,000-50,000 people. This arrangement includes a national asset management agency, the Water and Sanitation Infrastructure Board (AIAS), autonomous private operators that perform substantial service provider responsibilities, and the Water Regulatory Authority. After a difficult start-up phase, private operators are now delivering largely reliable services at a moderate scale, and the arrangement's application continues to be upscaled.	GNI per Capita	$480
	National Water Supply Coverage	63%
	Rural Water Supply Coverage	49%
	National Piped Water Supply Coverage	41%
	Rural Piped Water Supply Coverage	19%

	How Does it Work?	
Context Applied: This is the preferred arrangement for small towns of 10,000-50,000 people; however, it also covers some smaller facilities. The arrangements application has increased considerably in recent years. In 2016, it was applied to only 20 piped water supply facilities; however, it is now used in most instances, and there are nearly 60 private operators.	**Financing:** Government covers CapEx to ensure schemes are in a 'viable' operational state before delegation. Private operators cover OpEx (and sometimes scheme expansions) via tariff collection. The revenue collection rate is 75%, and the operating cost coverage is 109%. **Institutional:** AIAS delegates responsibilities to private operators, which are generally tendered for when a scheme is built or rehabilitated. AURA is a dedicated regulator and developing a differentiated approach to account for the large number of private operators. **Environmental:** Contracts set out private operators' water safety management responsibilities; however, performance in this area is variable. **Technical:** Private operators are responsible for ensuring proper O&M, and contracts set out roles and responsibilities in detail. Private operators' size and capabilities vary; however, the average NRW rate of 29% indicates that key ongoing technical functions are performed. **Social:** Private operators are required to put in place mechanisms to ensure consumers concerns are heard and addressed, and an impressive 98% of consumer complaints are resolved within three days.	**Sectoral Improvements:** • 1998: Private operator delegated management introduced in urban centres. • 2006: Delegated management piloted for small towns. • 2007-2009: New water policy and legal framework. • 2009 onwards: AIAS established and substantive process of refinement and upscaling.

Service Quality: This arrangement is viewed favourably in the sector and as representing a significant improvement on other arrangements (i.e., CBM and local government management). AIAS reports a 100% functionality rate and an average of 12 hours of supply.

Key Learnings Relevant to Malawi

The arrangement includes private operators operating at various scales. Operators working at a larger scale (i.e., managing over three facilities) are generally delivering better services than those managing individual facilities.

Delegation by a dedicated asset holder has helped to ensure required expertise and experience in this aspect is in place; however, short contract terms (often 3-5 years) disincentivise investment by private operators.

Establishing the necessary enabling environment for private sector participation and building the pool of capacitated private operators has taken multiple decades and continues to require further improvements.

The arrangement has benefited from focusing on large, piped water supply facilities that are easier to run in a financially viable manner, enabling better private performance.

Scheme rehabilitation prior to delegation has been vital to making their management attractive to private operators and enabling piped water supply facilities to be managed on a cost recovery basis.

UGANDA – PUBLIC UTILITY DIRECT PROVISION

Overview: Six sub-national utilities termed umbrellas for water and sanitation (UWS) directly deliver services in rural areas. UWS were established as support organisations. In 2017, they were mandated to directly provide piped water supply services, and now manage 239 schemes. UWS are responsible for day-to-day facility management, including tariff collection, maintenance, water quality testing, repairs and scheme expansions. They sign three-year performance contracts with the Ministry of Water and Environment (MWE), which are used to regulate UWS. UWS have achieved markedly higher services than under CBM.

Country and Sector Status

GNI per Capita	$858
National Water Supply Coverage	56%
Rural Water Supply Coverage	48%
National Piped Water Supply Coverage	23%
Rural Piped Water Supply Coverage	8%

Context Applied:

Utilised for rural areas and small towns not served by the national utility National Water and Sewerage Cooperation (NWSC). 498 schemes have been gazetted to UWS. Of these, 48% (239) are managed by UWS.

How Does it Work?

Financing: Tariffs are scheme specific, set by the district, and require MWE approval. Average UWS revenue collection efficiency was 90% in 2020 and benefits from utilising electronic payment systems. UWS operational cost recovery ratio was only 83%, creating a reliance on government funding. In 2019/2020, the conditional grant to UWS was equivalent to US$ 630,000.00.

Institutional: A clear process and explicit targets have been developed to expand UWS direct provision of services. UWS are regulated by three-year contracts with a dedicated department within MWE, and regulatory mechanisms have been tailored to rural areas.

Environmental: UWS apply a range of water safety management practices that have resulted in over 96% of collected samples complying with national water quality standards.

Technical: UWS apply a range of key technical practices that result in more reliable and higher quality service provision.

Social: When expanding to new areas or taking over the management of facilities, UWS work closely with water committees as an entry point. Data on UWS performance is easily accessible.

Sectoral Improvements:

- Formulating an explicit vision for utilities to deliver piped water supply services to all Ugandans by 2040 and developing interim targets.
- Establishing a dedicated department within MWE responsible for regulation.
- Creating a conditional grant to subsidise UWS' OpEx.
- Developing a streamlined process for utilities to take over facility management.

	Key Learnings Relevant to Malawi
Service Quality: 94% functionality rate in 2021, with a 36% NRW rate and an average of 11 hours of supply for 2019/20 (MWE, 2020). This represents modest performance for a utility in a low-income country but is markedly better than under CBM.	National and sub-national utilities typically provide higher levels of service than water committees. The role of utilities in rural water supply service provision can be rapidly increased; however, this requires political commitment, an appropriate enabling environment and various forms of support to the utilities (inc. financial support such as subsidies for CapEx, CapManEx and OpEx). Rapidly expanding the role of utilities in rural areas places significant financial pressure on utilities, and a subsidy from the Government of Uganda has been required to support utilities' operations in the short-term. Several development partners aligned behind the Government of Uganda's vision, with several programmes emerging with an explicit focus on strengthening UWS' operational efficiencies and financial performance. Regulatory actors can create a structured process for expanding utility direct provision of services and monitor and regulate utilities with an explicit focus on delivering services in – and expanding services to – rural areas.

6.2. FINDINGS FROM THE GLOBAL SOUTH

This sub-section specifies cross-cutting learnings from the analysis of the five good-practice management arrangements for rural water supply service provision across the global south. Across these learnings, a common thread is the need to focus on not only strengthening service providers' technical and financial capacity and performance of key functions but also creating the necessary legal and policy environment and strengthening the performance of vital functions (i.e., monitoring and regulation, support to service providers) at the national and district levels.

LEARNING ONE: A range of management arrangements can effectively deliver services.

As Figure 13 highlighted, a broad spectrum of management arrangements exists for rural water supply service provision, encompassing different variations of CBM, private service providers, and public service provision. Delivery by utilities and private service providers is typically associated with better management and higher quality services for piped water supply facilities than forms of CBM. However, there are good and bad performing utilities and private operators, as well as strengthened forms of CBM where ongoing support, enhanced monitoring, and the delegation of functions are helping to ensure safe and reliable service delivery. Ultimately, this highlights that it is not sufficient to develop a management arrangement appropriate to the socio-economic context and technology being managed. Regardless of the management arrangement, substantive ongoing efforts must be performed to ensure actors at the service provider, service authority, and national level have the capacity to perform – and are performing – their specified functions.

LEARNING TWO: There is considerable value in developing a sector-wide strategy for professionalising rural water supply services.

Several countries have benefitted from developing strategies explicitly focused on professionalising rural water supply services. The precise structure and focus of these documents vary. However, they usually centre on detailing a vision, specifying desired management arrangements, articulating short, medium, and long-term steps and guidance, outlining the roles and responsibilities of different organisations, and detailing

financing sources for key activities. Boxes 4 and 5 summarise the strategies developed by Uganda and Zambia, respectively. In both cases, development partners have financed specific interventions detailed in the documents and designed programmes and projects that support the attainment of the overall vision set out in the strategy.

Box 4: Harmonising Approaches to Rural Water Service Operation and Maintenance – Uganda

Uganda adopted a new National Framework for Operation and Maintenance of Rural Water Infrastructure in 2020. This framework promotes an approach to operations and maintenance that had been applied in Uganda for over five years through external financing and improved functionality rates considerably (see one-pager on CBM with technical function delegation). The framework provides (amongst many other aspects):

I. A situation analysis.

II. A specification of the exact features of the Government of Uganda's desired management arrangement for many rural water supply technologies, including when it should be applied and the roles and responsibilities of different stakeholders in the arrangement.

III. Guidance on how the operations and maintenance of rural water supply services should be financed.

IV. A roadmap for the strategic framework's implementation, including short- (2020-2021), medium- (2022-2025) and long-term (2025-2030) objectives.

V. A monitoring and evaluation plan for the strategy.

VI. A wide range of operations and standards for rural water service delivery.

Box 5: Articulating a Clear Vision and Formalising Commercial Utilities' Role in Rural Water Supply Service Provision – Zambia

In 2018, the National Water Supply and Sanitation Council (NWASCO) issued a strategy document setting out a 'desired vision' for providing and regulating rural water supply and sanitation services. This 'desired vision' centres on Zambia's 11 commercial utilities playing a greater role in delivering water supply services. In addition to providing a top-level vision for rural water supply service provision, the document provides detailed roles and responsibilities of different of stakeholders to attain this vision, provides an implementation plan, and outlines required sources of funding and the responsibility for covering key costs. Ultimately, the adoption of this strategic document has led to a much more coordinated and harmonised approach to professionalising rural water supply services in Zambia and has led to a series of development partners designing and financing interventions aligned with the vision.

LEARNING THREE: A dedicated process and evidence-base is needed to modify the management arrangement applied in a coordinated and efficient manner.

Many countries in the global south are expanding the role of utilities and private operators in rural water supply service provision. This typically occurs through three main pathways (IRC, 2021):

I. Expanding existing water supply schemes managed by the utility or private operator to serve a greater proportion of the rural population.

II. Constructing new rural water supply facilities to be managed by the utility or private operator from their inception.

III. Changing the management arrangement with existing or newly established utilities or private operators taking over the management of existing infrastructure originally managed by community-based entities or directly by local government.

This process occurs at a range of different paces. However, it is often most effective when there is a clear process and criteria guiding it and a set of measurable targets that utilities and private operators are monitored against. Since setting out its vision for a substantially expanded role for commercial utilities in rural water supply service provision in 2018 (see Box 5), Zambia's NWASCO has established such a process (see Box 6).

Box 6: Formalised Process and Criteria for Expanding Utilities' Role in Rural Water Supply Service Provision – Zambia

A key component of achieving Zambia's vision for commercial utilities managing a greater proportion of piped water supply facilities centres on commercial utilities taking over the management of piped water supply schemes in small-town and rural-growth-centre contexts from water committees. To ensure this process is coordinated and evidence based, NWASCO developed and is now implementing a roadmap for determining what schemes to transfer to commercial utilities. Key stages of this include:

I. Establishing a top-level target for rural water supply services provided by commercial utilities and commercial utility specific targets.

II. Compiling and inventory of rural water supply schemes, which contains data on the facility type, the management arrangement currently applied, and the technical and financial performance of the facility.

III. Developing a checklist comprising financial (i.e., level of investment, tariffs, revenue generation, expected costs, affordability), technical (i.e., quality of service, NRW, water source) and management (i.e., current management arrangement applied) indicators for commercial utilities to utilise to determine when it is appropriate for an alternative management arrangement to be applied.

IV. If the facility would benefit from being taken over by the commercial utility (i.e., a moderate or poor quality of service is currently provided), the commercial utility can apply to NWASCO for the approval that is required. NWASCO reviews applications on a case-by-case basis.

LEARNING FOUR: Consolidating rural water supply service provision arrangements can help service providers to leverage economies of scale and develop greater capacity, while also facilitating effective regulation.

It is challenging for small-scale service providers operating a single water supply facility – or serving a small set of facilities – to leverage economies of scale and develop the requisite capacity to deliver services effectively. The often highly decentralised and fragmented nature of rural water supply service provision also impedes government from engaging

with and efficiently regulating many thousands of service providers. Service provision consolidation is a rapidly growing approach to overcome this substantive challenge (USAID, 2022). It involves grouping together rural communities and their water supply schemes into larger service areas or extending the mandate of existing service providers across multiple service areas (see Box 7). This has been a key focus in each of the good practice management arrangements presented. The rationale behind this trend is achieving economies of scale, increasing the revenue base, reducing overhead costs, limiting exposure by pooling the risk of infrastructure failure, making rural water supply more attractive for both public and alternative investments, and reducing the costs of monitoring and regulation.

Box 7: What is Consolidation?

In the water supply context, consolidation occurs when two or more separate legal entities become a single entity operating under the same governance, management and financial functions (US Water Alliance 2019). Depending on the jurisdiction and geography of communities, consolidation processes may involve the merger of water supply schemes either physically (through interconnection of piped networks) or through the joint management of several disparate schemes under one management entity to cover a larger service area. There is a spectrum from less formalised partnership arrangements to forms of consolidation involving legal transfer and ownership.

Consolidation can occur across and between different management and governance models, and there are examples of this process involving (unincorporated) local government or municipal water providers, public utilities, cooperatively owned or not for profit schemes, and small private companies (World Bank. 2017; Landes et al. 2021).

LEARNING FIVE: No management arrangement is 'magically' financially viable in rural areas and concerted efforts are required under all management arrangements to ensure financial viability.

Despite ongoing demographic and socio-economic trends, the sparsely populated and low-income nature of rural areas, as well as the often-limited history of paying cost-reflective water tariffs, make raising sufficient revenues a common challenge rural water supply service providers face across the global south. There is no management arrangement that automatically overcomes these challenges. Concerted efforts are required for all management arrangements to ensure service providers' financial viability and the generation of sufficient revenue to enable necessary OpEx and CapManEx. Effective sets of activities to improve the financial viability of management arrangements, include linking community-based savings and credit associations to payment for water, increasing the number of household connections and the metering ratio, using digital financial services and pre-paid meters, and supporting and enabling service providers to benefit from economies of scale (USAID, 2022).

7. CONCLUSION AND RECOMMENDATIONS

This section provides an overall conclusion on the status of the management of rural water supply services in Malawi before providing several recommendations. Two management arrangements are suggested for piloting and several sectoral action points are also recommended to support the professionalised management of rural water supply services.

7.1. CONCLUSION

Malawi has made substantive progress in expanding access to improved water supply services. Especially significant progress has been made in improving access to rural water supply services, with the 2020 Malawi Integrated Household Survey reporting an 87% access rate to an improved water source in rural areas (a 26.5% increase since 2000). The Government of Malawi has taken – and is taking – a range of measures to ensure the effective management of improved water sources. These include establishing a dedicated Ministry for Water and Sanitation, updating legal instruments and national policies, developing implementation and training manuals, and area mechanic training and spare part supply chain strengthening. Despite this vital progress, Malawi suffers from an overall functionality rate of 58.5% for its improved water sources,[11] which impedes progress toward the sector target of 100% access to an improved water source by 2030.

Malawi's improved rural water supply sources in communities are currently managed through eight arrangements, which encompass forms of CBM, public service provision and private service providers and are each applied at varying scales:

I. Supported Self-Supply.

II. WPC Direct Provision.

III. WPC Direct Provision with Maintenance Function Delegation through Service Contracts.

IV. Borehole User Association Direct Provision.

V. Water User Committee Direct Provision.

VI. WUA Direct Provision.

VII. Water User Association Direct Provision with Delegation by the Water Board.

VIII. Water Board Direct Provision.

WPC direct provision, WPC direct provision with maintenance function delegation through service contracts, WUA association direct provision, and water board direct provision are the four primary management arrangements. The four other arrangements are only applied on a limited scale. The detailed assessment of the effectiveness and sustainability of these four arrangements concluded the following:

I. Vital progress has been made in strengthening Malawi's management arrangements for rural water supply service provision, providing a foundation that future efforts can build upon.

11 Of the 41.5% of improved water points that are not fully functional, 21.3% are partially functional, 13.8% are not functional, and 6.5% no longer exist or have been abandoned.

II. WPC and WUA direct provision do not deliver safe and reliable services, and WPCs and WUAs struggle to perform key operation and maintenance functions as stipulated in their respective operations and maintenance manuals.

III. WPCs' delegation of maintenance functions to area mechanics through service contracts significantly improves the functionality rate of rural hand pumps, but key challenges in this management arrangement persist.

IV. Water board direct provision benefits from more professionalised management than Malawi's other management arrangements and delivers the safest and most reliable services.

V. Malawi's management arrangements are each suited to broad categories of rural areas and technology options, impeding the ability of any one management arrangement being utilised for all types of rural areas and rural water supply technology options.

Overall, this study concludes that Malawi's existing management arrangements have the necessary foundations to enable the professionalised management of rural water supply services. Accordingly, the Government of Malawi is recommended to build on the vital progress that has been made over the last two decades in rural water supply service management by further refining, strengthening, and upscaling existing management arrangements for rural water supply services that have proven capable of effectively delivering services. This requires some fundamental changes to existing management arrangements; however, it is not deemed appropriate or cost-efficient for entirely new management arrangements to be piloted.

7.2. RECOMMENDED MANAGEMENT ARRANGEMENTS FOR PILOTING

Based on this study's findings, the Government of Malawi is recommended to undertake two five-year pilots:

I. WPC direct provision with maintenance and repair function delegation.
II. The expanded provision of water supply services by water boards in rural areas and market centres.

In both cases, pilots are warranted to ensure the suitability and effectiveness of the proposed arrangements before they are formally adopted, institutionalised and upscaled. The following two sub-sections provide an overview of the proposed pilots and the rationale behind them, while two accompanying concept notes provide further details. While the recommended approach is based on refining, further strengthening and upscaling two existing management arrangements for rural water supply services applied in Malawi, it leverages insights from across Malawi's management arrangements for rural water supply services and incorporates improvements that have proven effective across Malawi and the global south. Based on learnings and evidence from the two pilots, it is envisioned that at the end of the two five-year pilots the Government of Malawi would be in a position to take further measures to officially adopt the proposed management arrangements for rural water supply service provision and support their institutionalisation and upscaling.

7.2.1. PILOTING WPC DIRECT PROVISION WITH MAINTENANCE AND REPAIR FUNCTION DELEGATION

MoWS, and several organisations working in Malawi's rural water supply sub-sector, have worked to address weaknesses in the direct provision of services by WPCs. In many cases, this has centred on training area mechanics and facilitating WPCs to delegate the performance of regular (i.e., quarterly) maintenance functions to area mechanics through service contracts. This approach, termed WPC direct provision with maintenance function delegation through service contracts, is applied to an estimated 5,500-7,500 hand pumps and has resulted in substantially more reliable services than under WPC direct provision, with an over 30% higher functionality rate for AfriDev hand pumps (about 95% vs 62%). Nevertheless, key challenges remain. Of note, the arrangement is not financially viable; WPC revenue generation covers the cost of the service contracts but is insufficient to cover required capital maintenance expenditures when breakdowns occur, often resulting in lengthy downtimes. Moreover, there is limited area mechanic oversight, which causes variable performance of key functions by area mechanics.

Figure 12 overleaf provides an overview of a more systematised and consolidated version of WPC direct provision with maintenance function delegation that is termed 'WPC direct provision with maintenance and repair function delegation' and proposed for piloting in several geographies. This includes a top-level overview of the roles and responsibilities of districts, MoWS, WPCs, water users, the maintenance service provider, and area mechanics under the arrangement, as well as the contractual relationships in the arrangement. The accompanying concept note provides further information on the context and scale of the proposed pilots, the roles and responsibilities of key stakeholders, and vital financial considerations. However, overall, key features of the arrangement can be summarised as:

I. Establishing a maintenance service provider (private operator, social enterprise, or hand pump mechanics association) as a higher-level actor that develops and applies a range of processes and procedures to ensure the consistent performance of functions by area mechanics, operate at a larger scale than individual area mechanics can, and work closely with district offices.

II. Consolidating area-wide service areas for maintenance and repair services to ensure maintenance and repair services reach service providers (predominantly WPCs) in a given area (i.e., that poorer, more sparsely populated areas and worse performing WPCs are not neglected) and enable potential economies of scale to be leveraged in key areas (i.e., spare parts procurement).

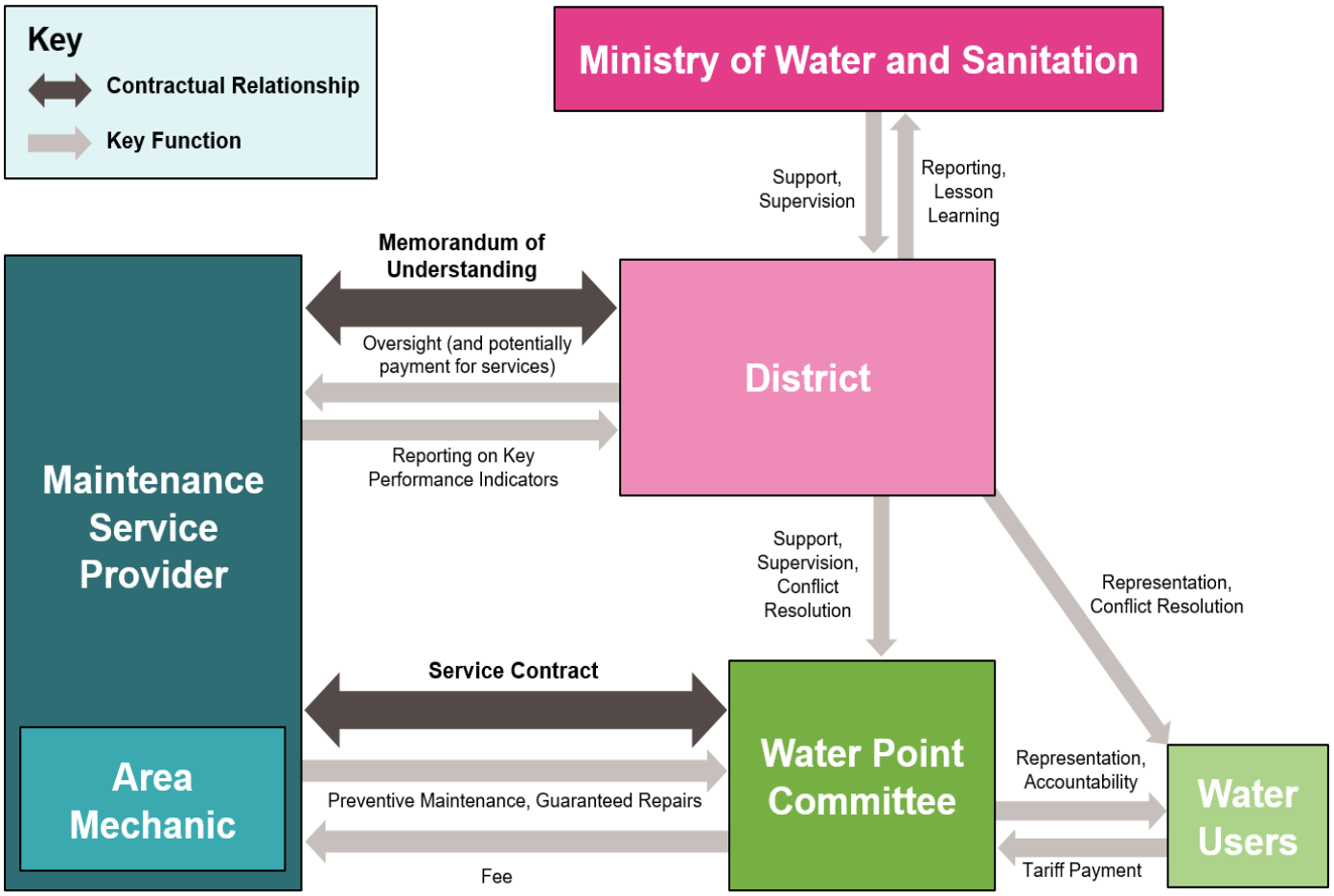
III. Enabling districts to perform a more consolidated set of functions centred on entering into a memorandum of understanding with maintenance service providers, monitoring the performance of the arrangement, and ensuring maintenance service providers comply with the technical (i.e., preventive maintenance, guaranteed repairs), financial (i.e., fees to WPCs), and managerial (i.e., regular reporting) provisions of their service contracts with WPCs.

IV. Ensuring ongoing data collection on water supply facility performance and maintenance and repair activities and link collected data to corrective action.

V. Integrating into the arrangement guaranteed repairs within a set period (i.e., three days) to reduce downtimes and a community-level financing mechanism to increase WPC revenue generation.

Figure 12 does not detail an explicit role for facilitating organisations such as international and national NGOs and CSOs in the proposed arrangement. However, these organisations are envisioned to play a key role in supporting the arrangements functioning and operationalisation through assisting maintenance service providers and district councils to perform their new roles and responsibilities and documenting and sharing key learnings.

Figure 12: Proposed Refined Management Arrangement – WPC Direct Provision with Maintenance and Repair Function Delegation



7.2.2. PILOTING THE EXPANDED PROVISION OF WATER SUPPLY SERVICES BY WATER BOARDS IN RURAL AREAS AND MARKET CENTRES

Managing rural and small-town water supply schemes presents a special set of challenges, including:

I. Facilities are typically small, dispersed, and contain a modest proportion of household connections, raising required expenditures and creating challenges in raising necessary revenues.

II. The facilities typically serve rural growth centres and small towns, which experience rapid, unpredictable, and unplanned population growth.

III. Populations tend to be poorer and often do not have a history of paying tariffs at a level required for professionalised service delivery.

IV. Service providers struggle to attract and retain staff with the necessary skills.

In response to these challenges, many Sub-Saharan African countries (i.e., Ghana, Kenya, Uganda, Zambia) have recognised the limitations of community-based management and are increasingly pushing and facilitating utilities to provide services in rural areas (IRC, 2021). Malawi's water boards are responsible for commercially delivering water supply services. The three regional water boards (Northern, Central, Southern) provide piped water supply services for some rural areas and market centres across each of their respective regions. The water boards are managed by a board of directors, with a team of managers led by the Chief Executive and directors of operations, finance, and human resources. MoWS is mandated by the WaterWorks Act of 1995 to perform several regulatory functions related to the water boards.

Water board direct provision faces important challenges. Nevertheless, as this report has highlighted, compared to Malawi's other management arrangements, water boards benefit from economies of scale, considerably more capacitated and experienced staff, and the existence and application of pertinent processes and procedures across key areas (i.e., maintenance and repairs, revenue generation, water safety management). Ultimately, while this makes water board services more expensive than those provided by WUAs, it helps to ensure better technical and financial performance by water boards than other service providers and enables water boards to deliver higher quality services than the other management arrangements. Significantly, water boards have displayed a considerably greater ability to generate required revenue from households and institutions to fund key operational and capital maintenance expenditures than Malawi's other management arrangements.[12]

Based on these findings, it is recommended that a pilot is undertaken to support one of Malawi's regional water boards to expand its provision of water supply services in rural areas and market centres. Piloting an expanded role for water boards in the delivery of water supply services in rural areas and market centres is a considerable undertaking, typically requiring a holistic programme of support that works collaboratively with the water board across a range of areas. It is not a short-term endeavour that can be effectively undertaken in a couple of years. Accordingly, the piloting of an expanded role for Malawi's water board's in directly delivering rural water supply services will last five years and follow four phases:

I. Assessment and design.

II. Foundation setting.

III. Expansive but realistic improvement.

IV. Institutionalisation and upscaling.[13]

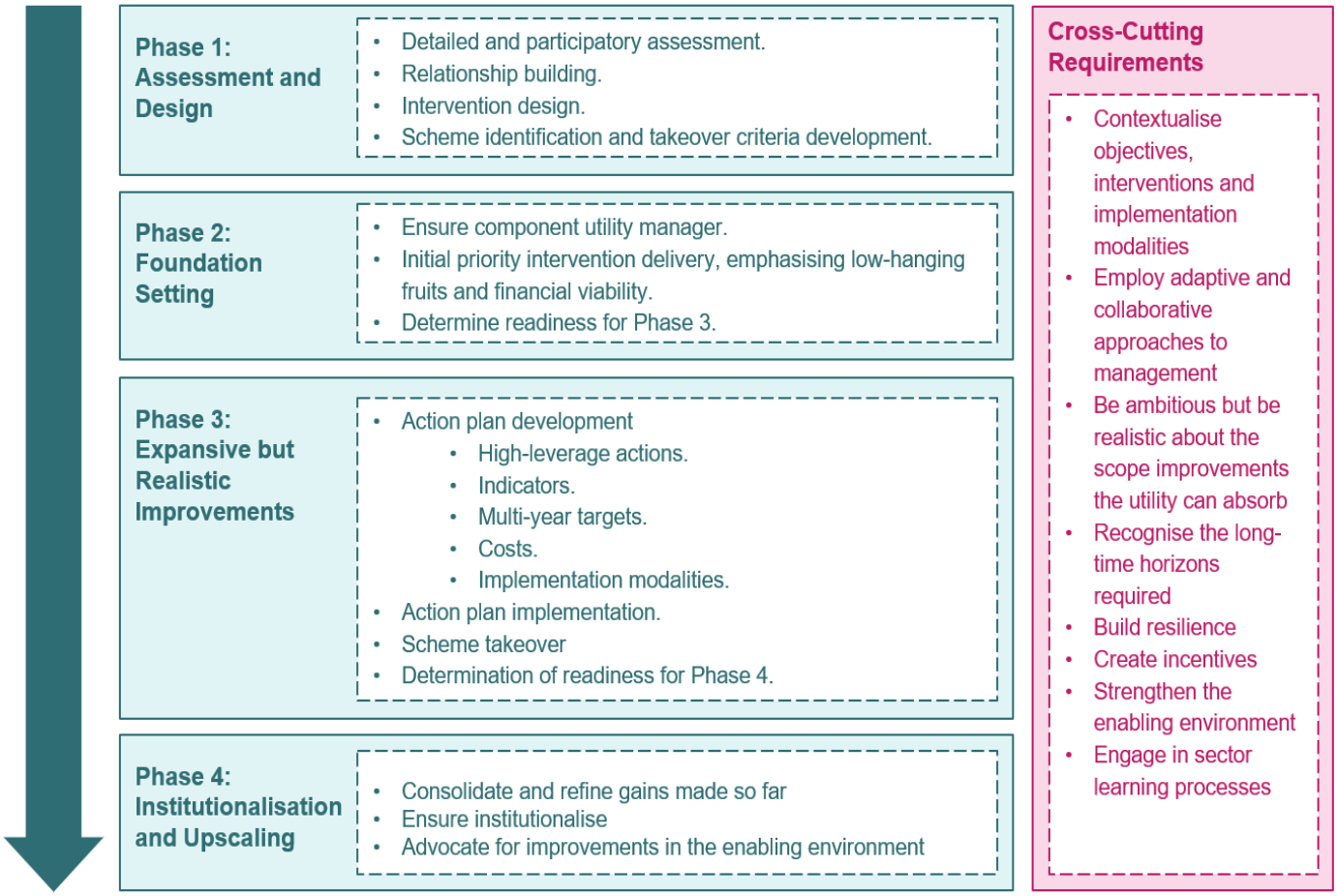
Figure 13 provides a schematic overview of this proposed roadmap, while one of the

12 Of note, the wider study on professionalising Malawi's rural water supply services found that across five schemes, the water boards generated an average MWK 90,562 per household per year compared to just MWK 7,354 on average for water user associations.

13 These four phases have been determined based on the World Bank's Utility Turnaround Framework (World Bank, 2018) as well as learnings from six years of support to Uganda's sub-national utilities (umbrellas for water and sanitation).

two concept notes produced in conjunction with this report provides further details. Across each of these phases, planned activities will be orientated towards supporting the expansion of the water board's operations into rural areas, the water board will be supported to takeover 10-15 piped water supply facilities (as well as the point water sources within the service areas of these facilities) in rural areas and market centres from WUAs , which will serve as model facilities for specific improvements. However, much of the support to the water board will be cross-cutting in nature, seeking to develop key improvements that will benefit the water board's overall operational efficiency.

Figure 13: A Roadmap for Piloting the Expansion of Water Board Direct Provision in Rural Areas and Market Centres



7.3. SECTORAL ACTION POINTS

This sub-section presents a series of action points for consideration at the sectoral level to enable the professionalised management of rural water supply services at scale through applying the two above-presented management arrangements at scale.

7.3.1. FORMULATING A DEDICATED STRATEGY FOCUSED ON PROFESSIONALSING RURAL WATER SUPPLY SERVICE MANAGEMENT

Professionalising rural water supply service provision in Malawi will be a substantive

undertaking that will require coordinated action from a wide-ranging set of stakeholders over several years. When it has determined the optimal arrangements for managing rural water supply services (i.e., having completed the five-year pilots detailed in the two concept notes), it would be hugely beneficial for MoWS to develop a dedicated strategy for professionalising rural water supply service provision to guide the wide-ranging activities required. Key aspects that need to be addressed in this strategy include:

I. Articulating a vision for the management of Malawi's rural water supply services and specifying short-, medium-, and long-term milestones to be achieved.

II. Presenting desired management arrangements for different rural water supply technologies and types of rural areas, including the roles and responsibilities of different stakeholders under each arrangement.

III. Outlining key improvements and changes required to enable desired management arrangements to be effectively applied at scale, including required amendments to legislative instruments.

IV. A top-level financing plan for achieving the short-, medium-, and long-term vision for rural water supply service management, including required financial resources per activity and sources of funding.

V. Outlining arrangements for monitoring and reviewing the strategy's implementation.

Once developed, MoWS is advised to work with development partners to formulate a roadmap that they can align behind to support the strategy's implementation.

7.3.2. DEVELOPING AN INVENTORY OF PIPED WATER SUPPLY FACILIITIES AND ESTABLISHING A PROCESS AND CRITERIA FOR MODIFYING THE MANAGEMENT ARRANGEMENT APPLIED

In the limited set of cases where it has occurred, the transfer of responsibilities for managing piped water supply facilities from WUAs to water boards has lacked a sufficiently robust evidence base and not followed an explicitly defined process. MoWS is advised to take two sets of activities to enable the direct delivery of services by water boards to be expanded in an evidence-based and structured manner. These are:

I. ***Piped Water Supply Facility Inventory.*** There is currently a pressing shortage of consolidated data on the service quality provided Malawi's piped water supply services not managed by water boards and the extent to which WUAs are performing key technical and financial functions. MoWS is advised to develop an inventory of rural piped water supply facilities not managed by water boards. This inventory needs to go beyond compiling information on the status of the rural water supply infrastructure to also include key technical and financial aspects as well as the perceptions of the users of the water supply facility on the desired management arrangement (i.e., willingness to pay for higher quality but more expensive services from water boards).

II. ***Process for Management Arrangement Determination.*** Once compiled, this information should be paired with existing information on the capacity of the

respective water board. This information can then be used to determine the rural water supply facilities to be prioritised for takeover by water boards, the overall speed at which water boards should take over the management of rural water piped water supply facilities, and on a facility-by-facility basis whether the water board should take over the management of the facility. These decisions should not be taken in isolation by the service providers involved. MoWS is advised to develop a clear process and set of criteria to be utilised when determining when the management arrangement to be utilised should be altered. This should comprise the following aspects:

a. A clearly defined set of steps and processes to be followed.

b. The development of broad criteria and principles to guide the determination of whether the management arrangement should be changed but retaining the flexibility to take decisions on a case-by-case basis.

c. A (semi-)independent third-party entity (i.e., regulator) responsible for final decision-making.

d. Mechanisms to ensure transparency in decisions taken.

7.3.3. STRENGTHENING THE REGULATION OF RURAL WATER SUPPLY SERVICES

Malawi currently lacks a dedicated regulatory actor for rural water supply service provision and regulatory responsibilities and powers are not sufficiently defined by relevant legal instruments. Both these factors contribute to the limited structured application of regulatory mechanisms across Malawi's management arrangements for rural water supply service provision (ESAWAS, 2022). The Government of Malawi is advised to strengthen water supply service regulation by either establishing a dedicated regulatory actor for water supply (and sanitation) service provision or modify existing legal instruments to provide an explicit set of regulatory functions for water supply (and sanitation) service provision to an existing dedicated regulatory actor (i.e., Malawi Energy Regulatory Authority, the National Water Resources Authority). Either way, this actor should be empowered to perform a range of key regulatory functions including monitoring and performance reporting, applying sanctions and regulatory incentives (reputational and financial), and arbitrating disputes and key processes such as water boards taking over the management of piped water supply facilities.

7.4.4.ENSURING PERIODIC MONITORING AND BENCHMARKING OF RURAL WATER SUPPLY SERVICE PROVISION

Malawi has undertaken several key activities to build a clear picture of the status of water supply service provision, including large water point mapping exercises and developing water board benchmarking reports. Nevertheless, across Malawi's main management arrangements, weaknesses in the monitoring and benchmarking of rural water supply services prevent a clear picture from being provided on the status of service provision and actions being promptly taken to address key challenges. Therefore, MoWS is advised to take the following measures:

I. Establishing a Government of Malawi managed management information system for rural water supply service provision and facilitating districts and development partners to provide the data required to update this on an ongoing basis.

II. Working with the Ministry of Local Government and Rural Development to increase the number of WMAs.

III. Ensuring the annual development of benchmarking reports on water board performance as well as making sure these reports are made publicly available and disaggregate water board performance between demographic contexts (urban vs. rural, district centres vs. rural market centres), where appropriate.

CONCEPT NOTE: IMPROVED MANAGEMENT FOR RURAL PIPED WATER SUPPLY SERVICES AND POINT WATER SOURCES

1. CONCEPT NOTE OVERVIEW AND OBJECTIVE

This is one of two concept notes produced for a broader study on **'Professionalising the Management of Malawi's Rural Water Supply Services'**.[14] Based on key findings from this study, it presents a proposal for piloting the expanded direct provision of services by Malawi's water utilities in market centres and rural areas. This arrangement is area-based. Although it primarily focuses on piped water supply facilities, it also includes point water sources (i.e., hand pumps) within the service areas of the piped water supply facilities taken over by water utilities. A pilot has been developed for the upscaling water utilities' role in water supply service provision because the broader study identified that water utility direct provision benefits from more professionalised management than Malawi's other arrangements for rural water supply service provision, delivers the safest and most reliable services, and has taken the greatest strides towards achieving financial viability. Overall, it is hoped that the successful implementation of this pilot will highlight the feasibility and benefits of the expanded delivery of water supply services by water utilities in rural areas and market centres and lead to its subsequent institutionalisation and upscaling.

This concept note elaborates on the rationale for expanding the provision of services by water utilities and outlines a roadmap that a programme of support should follow to assist a water utility through this process. It is intended that a water utility(ies), the Ministry of Water and Sanitation (MoWS), and organisations with a strong track record supporting the organisational development of water supply utilities use this concept note as the basis for designing a programme that would explicitly support this process. The remaining sections of this concept note are structured as follows:

- Section 2 provides a background to this concept note by summarising key relevant findings from the wider study.
- Section 3 specifies current roles and responsibilities in water utility direct provision and details the area-based nature of the proposed arrangement.
- Section 4 outlines the main phases of the proposed programme(s) of support for the piloting of the expanded delivery of rural water supply services by Malawi's water utilities.
- Section 5 notes likely necessary investments to support the functioning of the arrangement and outlines how these will be determined.
- Section 6 provides information relating to the scale of the proposed programme of support.
- Section 7 presents roles and responsibilities in such a programme.
- Section 8 offers a summary business case and rationale.

14 The other concept note sets out key features of a pilot for WPC direct provision with maintenance and repair function delegation.

2. BACKGROUND

Managing rural and small-town water supply facilities presents a special set of challenges, including:

V. Facilities are typically small, dispersed, and contain a modest proportion of household connections, raising required expenditures and creating challenges in raising necessary revenues.

VI. The facilities typically serve rural growth centres and small towns, which experience rapid, unpredictable, and unplanned population growth.

VII. Populations tend to be poorer and often do not have a history of paying tariffs at a level required for professionalised service delivery.

VIII. Service providers struggle to attract and retain staff with the necessary skills.

In response to these challenges, many Sub-Saharan African countries (i.e., Ghana, Kenya, Uganda, Zambia) have recognised the limitations of community-based management and are increasingly pushing and facilitating utilities to provide services in rural areas (IRC, 2021). Malawi has five parastatal utilities termed water utilities responsible for commercially delivering water supply services. The three regional water utilities (Northern, Central, Southern) provide piped water supply services for many rural areas and market centres across each of their respective regions.

Water utility direct provision faces important challenges. Nevertheless, compared to Malawi's other management arrangements, water utilities benefit from economies of scale, considerably more capacitated and experienced staff, and the existence and application of pertinent processes and procedures across key areas (i.e., maintenance and repairs, revenue generation, water safety management). Ultimately, this helps to ensure better technical and financial performance by water utilities than other service providers and enables water utilities to deliver higher quality services than the other management arrangements. Significantly, water utilities have displayed a considerably greater ability to generate required revenue from households and institutions to fund key operational and capital maintenance expenditures than Malawi's other management arrangements.[15]

3. MANAGEMENT ARRANGEMENT OVERVIEW

This concept note does not propose a fundamentally new management arrangement for Malawi but instead focuses on supporting the upscaling of an existing arrangement. Sub-Section 3.1. below provides an overview of current roles and responsibilities in this management arrangement, while Sub-Section 3.2. details the area-based nature of the proposed arrangement.

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15 Of note, the wider study on professionalising Malawi's rural water supply services found that across five schemes, the water utilities generated an average MWK 90,562 per household per year compared to just MWK 7,354 on average for water user associations.

3.1. ROLES AND RESPONSIBILITIES

Water utilities are managed by a board of directors, with a team of managers led by the Chief Executive and directors of operations, finance, and human resources. Malawi currently lacks a dedicated regulatory actor; however, the WaterWorks Act of 1995 mandates MoWS to perform several key regulatory functions relating to water utilities. Table 1 outlines the actor responsible for performing specific functions under the arrangement.

Table 1: Water Utility Direct Provision – Roles and Responsibilities

Function	Actor Responsibile
Asset Ownership	Water utility.
Tariff Setting	Proposed by water utility and approved by Ministry of Water and Sanitation.
Revenue Collection	Water utility.
Day-to-Day Operations and Management	Water utility.
Preventive Maintenance	Water utility.
Major Maintenance and Rehabilitation	Water utility.
Spare Parts Procurement	Water utility.
Water Safety Management	Principally the water utility, with the National Water Resource Agency and district councils performing some functions.
Monitoring	Ministry of Water and Sanitation.
Regulation	Ministry of Water and Sanitation.
User Participation	Water utility responsible for creating opportunities for participation.

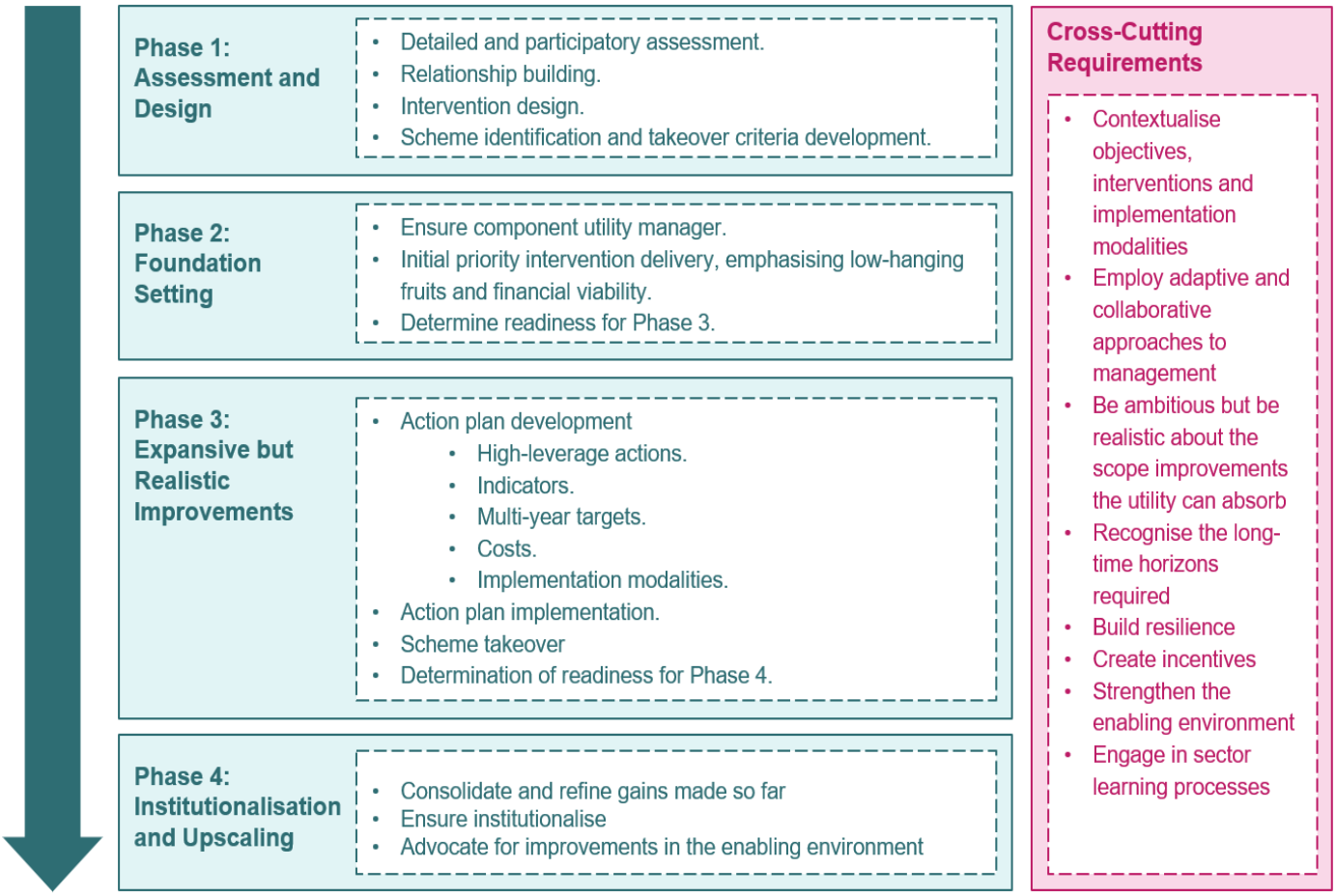
AREA-BASED

Malawi's five water utilities currently manage piped water supply facilities. Critically, the expanded role of the water utilities in the provision of water supply services in market centres and rural areas will be area-based, with the water utilities taking responsibility for the provision of all water supply services within the service area of the piped water supply facilities that they take over the management of. As sub-section 4.1. highlights, an important part of the proposed programme of support will involve determining the optimal arrangements for water utilities to fulfil this function. Specifically, whether water utilities directly manage these services or a hybrid arrangement is developed and implemented where the water utility does not directly perform all service provider functions but rather provides technical and financial backstopping support to the existing service provider.

4. PROGRAMME OF SUPPORT

Piloting an expanded role for water utilities in the delivery of water supply services in rural areas and market centres is a considerable undertaking, typically requiring a holistic programme of support that works collaboratively with the water utility across a range of areas. The piloting of an expanded role for Malawi's water utilities in directly delivering rural water supply services will last five years and follow four phases: (i) assessment and design; (ii) foundation setting; (iii) expansive but realistic improvement; and (iv) institutionalisation and upscaling.[16] Figure 1 is a schematic overview of this proposed programme of support, while the following sub-sections provide further information. Across each of these phases, planned activities will be orientated towards supporting the expansion of the water utility's operations into rural areas, and several model facilities serving rural areas and market centres will be identified for the piloting of specific improvements. However, much of the support to the water utility will be cross-cutting in nature, seeking to develop key improvements that will benefit the water utility's overall operational efficiency.

Figure 1: A Roadmap for Piloting the Expansion of Water Utility Direct Provision in Rural Areas and Market Centres



16 *These four phases have been determined based on the World Bank's Utility Turnaround Framework (World Bank, 2018) as well as learnings from six years of support to Uganda's sub-national utilities (umbrellas for water and sanitation).*

4.1. ASSESSMENT AND DESIGN

The first phase of the roadmap begins with the actor implementing the programme of support working with the water utility, MoWS, WUAs,[17] district councils and other key sector stakeholders to assess the current status of the water utility as well as water supply service provision in the given region. The following aspects are covered in the assessment:

I. Evaluating the current human, material, and financial capacity of the water utility and the extent to which the water utility performs key technical, financial and managerial functions and has the required processes and systems in place.

II. Developing an inventory of piped water supply facilities in the water utility's region and point water sources within the service areas of these piped water supply facilities. This should cover the status of rural water supply infrastructure, the population served, the existing service providers' level of performance of key technical and financial functions, as well as users' desired management arrangement (i.e., willingness to pay for higher quality but more expensive services from the utility).

III. Determining key stakeholders' (i.e., the water utility, MoWS, and district councils) objectives and priorities for the direct delivery of water supply services by the water utility.

IV. Assessing the enabling environment that the water utility operates within, with a particular focus on the policy and legal context, the regulatory environment and financial mechanisms and flows.

The comparatively high degree of uncertainty that will exist at the beginning of support to the water utility in expanding the delivery of rural and market centre water supply services must be appreciated, and the fact that there will not be clarity on all issues embraced. Once the diagnosis is complete, the objectives, interventions (and their sequencing) and implementation modalities must be defined. Two key elements need to be considered and receive particular emphasis in the design of the programme of support to be implemented in the subsequent phases of the roadmap:

I. A criteria and process for water utility takeover of facilities must be determined and agreed upon with key stakeholders. This criteria and process would initially be used for selecting 10-15 existing piped water supply facilities to be taken over by the water utility (as well as the point water sources within the service areas of these facilities) and subsequently represent 'model' facilities to be the focus of several of the planned activities.

II. A criteria and process for water utilities taking over point water sources within the service area of piped water supply facilities being taken over by the water utility as well as possible hybrid arrangements where the water utility does not directly perform all service provider functions[18] and rather provides technical and financial backstopping support to the existing service provider.

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*17 **WUAs that are currently managing piped schemes will need to be part and parcel of the process since they have a substantial interest in whether and how the takeover should be undertaken.***

18 This could include, for example, the use of vendors by the water utility for these facilities as well as the water utility providing technical and financial backstopping to existing service provider (i.e., WPC) and not taking responsibility for all functions (i.e., smaller day-to-day functions such as cleaning and revenue collection).

Phase 1, and particularly the design of activities, should be used by the entity leading the programme of support to build a strong relationship with key actors (especially the water utility), show the programme's responsiveness to the water utility's requirements and priorities, and identify 'champions' (i.e., the utility manager) that will lead the development and implementation of improvements. Ultimately, this phase should result in a concrete understanding of the primary barriers to the water utility fulfilling its mandate and expanding its delivery of rural and market centre water supply services, clearly articulated objectives and priorities, the determination of 10-15 piped water supply facilities (as well as point water sources within the service areas of these facilities) to be targeted for takeover by the water utility, and a set of headline activities to be implemented moving forwards.

4.2. FOUNDATION SETTING

Following the determination of objectives and interventions, it is imperative to ensure these are correctly sequenced. There will be foundational improvements required before more expansive improvements can be made. Phase 2 of the roadmap does not seek to put in place all of the conditions required for effectively managing facilities by a water utility in rural areas and market centres but rather aims to build the 'credibility' and 'conditions' required to strengthen the water utility. The following aspects will be critical (World Bank, 2018):

I. Ensuring the competency of the water utility chief executive and ensuring they have a minimal level of autonomy to spearhead the implementation of required improvements.

II. Empowering the water utility chief executive and other senior personnel of the water utility (i.e., directors of operations, finance, and human resources) to deliver on an initial set of priority and foundational commitments and actions. This should prioritise low-hanging fruits and interventions that will strengthen the water utility's financial viability. Across these interventions, the water utility's chief executive and other senior personnel must be empowered to lead key activities and monitor and evaluate progress.

III. Working with the water utility manager and other senior personnel to determine the readiness of the water utility to begin addressing a more expansive set of challenges and revisit the originally defined planned interventions.

Phase 2 of the roadmap may need to be repeated to create the space and credibility for a more expansive set of improvements to be implemented under Phase 3.

4.3. EXPANSIVE BUT REALISTIC IMPROVEMENTS

Once the necessary foundations are established, a more expansive set of improvements can be defined with the water utility's Chief Executive Officer, other senior personnel of the water utility, and other relevant stakeholders (i.e., MoWS, district councils). These should be compiled in an action plan comprising a series of high-leverage actions for improvement, indicators, multi-year targets and costs. A holistic set of interventions are likely required across several dimensions (i.e., technical, financial, administrative) to strengthen the water utility's overall organisational development and especially its ability to effectively manage facilities serving market centres and rural areas. The following aspects of organisational development are typically particularly important for a utility

serving rural areas and market centres:

I. The organisational structure and incentive frameworks.

II. The financial management and accounting practices.

III. The customer centricity of the utility and increasing the customer base (i.e., number of household connections).

IV. Water quality monitoring and management.

V. Water resources management.

VI. Non-revenue water management.

VII. Asset management and maintenance planning.

VIII. Internal monitoring systems.

IX. Scheme takeover process.

X. Corporate governance.

XI. The mechanism for cross-subsidisation between water supply facilities.

While a broad set of improvements will be required, it will be impossible to address all challenges at this stage. The action plan must be cognisant of the scope of the improvements the water utility can realistically absorb and prioritise interventions accordingly. During this phase, the water utility, in partnership with MoWS and district councils, will also be supported to take over the 10-15 piped water supply facilities serving rural areas and market centres identified in Phase 1 (as well as point water sources within the service areas of these facilities). These facilities should be utilised for testing technical improvements in key areas such as water quality and non-revenue water management and potentially be targeted for infrastructure improvements. By the end of Phase 3, the water utility should be able to focus on steadier performance improvements. If Phase 3 does not deliver the required improvements, it will need to be repeated.

4.4. INSTITUTIONALISATION AND UPSCALING

The fourth and final stage of the roadmap centres on the Government of Malawi deciding whether to promote the upscaling and institutionalisation of the direct delivery of water supply services by water utilities in district and market centres and rural areas and creating the necessary conditions for embarking on this process. In the first instance, based on the results of the first three phases, the Government of Malawi will determine the suitability of expanding the direct delivery of water supply services serving rural areas and market centres by Malawi's five water utilities. If it is determined appropriate, MoWS will formulate a strategy to guide this process. This strategy will:

I. Articulate a vision for the role of Malawi's water utilities in the management of water supply facilities in district and market centres and rural areas, including short, medium and long-term targets to be achieved (i.e., number of schemes managed by water utilities, technical, financial, and administrative key performance indicators to be achieved).

II. Outline key improvements and changes required to the organisational processes and systems of water utilities as well as the wider enabling environment (i.e., policy, legislative, regulatory, financial) to facilitate an expanded role for water utilities in

direct provision of water supply services for rural areas and market centres.

III. A top-level financing plan for achieving the vision and targets, including required financial resources per activity and sources of funding.

IV. Specify arrangements for monitoring and reviewing the strategy's implementation.

If the Government of Malawi chooses to promote the further upscaling of water utility direct provision of services in district and market centres and rural areas, actions will also be required to enable the institutionalisation and refinement of the improvements achieved by the water utility in the earlier phases. Developing a strategic plan detailing the water utility's long-term vision for service provision (with an emphasis on improving the management of water supply services in rural areas and market centres) is at the centre of this stage and will be followed up through a series of shorter business plans. These documents must align with the above wider strategy and will naturally be dependent on the Government of Malawi's determination of the role that the water utilities will in managing water supply services for district and market centres and rural areas. The exact actions to be included in the strategic plan will be informed by the extent and rate of progress attained in the first three phases.

This roadmap finishes with the development of the above strategies and plans. However, the process of expanding the role of Malawi's water utilities in the direct delivery of water supply services in district and market centres and rural areas will remain nascent, and a substantive set of activities will be required over many years to fulfil the Government of Malawi's vision and targets for water supply service provision in these contexts.

4.5. CROSS-CUTTING CONSIDERATIONS

Across the four phases of the roadmap, several cross-cutting points need to be considered and inform the design and implementation of interventions:

I. Objectives, interventions, and implementation modalities must be **contextualised** to the water utility, population served, and priorities of key sector stakeholders.

II. The programme must be managed **adaptively** to be reactive to changing priorities and account for the high degree of unknowns and managed **collaboratively** to ensure interventions are responsive to key stakeholders' priorities.

III. The challenge of expanding the direct delivery of water supply services in rural areas and market centres by water utilities is considerable. The programme of support should not shy away from developing an **ambitious**, holistic and comprehensive set of interventions. However, **realism** is required concerning the speed at which the water utility can absorb these interventions as well as the number of schemes that the water utility can take over.

IV. Ensure ongoing data collection and deliberate lesson learning and participation in **sector learning processes** is vital and must be purposefully built into the programme to ensure this pilot can inform wider decisions concerning the optimal arrangements for delivering rural water supply services. This will be crucial in determining the overall suitability of expanding the direct provision of water supply services in rural areas and market centres by Malawi's water utilities. More specifically, learnings from this pilot are expected to play a key role in helping the Government of Malawi to determine:

- The pace at which such a transition could occur.
- Key aspects of water utilities that need to be strengthened to enable them to deliver water supply services more effectively and efficiently.
- The costs to water utilities of providing water supply services to market centres and rural areas as well as priority interventions and investments to improve financial viability and required levels of subsidy from the Government of Malawi.
- The criteria and process to be followed for water utilities taking over the management of facilities from existing service providers.
- Optimal arrangements to operationalise the proposed area-based approach, including potential hybrid arrangements that see water utilities assuming responsibility for the delivery of safe and reliable water supply services within the service area of piped water supply facilities they manage but not necessarily performing all service provider functions for point water sources.

5. NECESSARY INVESTMENTS

Precise investment needs for piloting an expanded role for a water utility in the delivery of water supply services in rural areas and market centres will be determined during the assessment and design phase of the programme of support in collaboration with key stakeholders. Nevertheless, key expected investments required to support a water utility to ensure the effective provision of water supply services in rural areas and market centres are envisioned to span a wide-ranging set of areas, including those noted in Section 4:

I. Organisational structure for delivering water supply services in rural areas and market centres and incentive frameworks.
II. Financial management practices and processes.
III. Customer centricity and relations.
IV. Water quality management.
V. Water resources management.
VI. Non-revenue water reduction.
VII. Scheme improvements.
VIII. Asset management and maintenance planning.
IX. Internal monitoring processes.
X. Scheme takeover process.
XI. Corporate governance
XII. Business and strategic planning.

Both hardware and software investments are envisioned to bring about the required improvements in these dimensions.

6. SCALE

This concept note has been drafted based on a five-year programme of support to help develop the organisational capacity of one of Malawi's five water utilities to pilot the

expansion of water supply services in rural areas and market centres. However, this concept note could be used as the basis for developing additional programmes of support for additional water utilities. It is envisioned that a budget of US$3-5 million would be required for the programme of support for one water utility. For each water utility supported, it is envisioned that 10-15 existing piped water supply facilities will be taken over by the water utility (as well as the point water sources within the service areas of these facilities) and subsequently represent 'model' facilities to be the focus of several of the planned activities.

7. ROLES AND RESPONSIBILITIES IN THE PROGRAMME OF SUPPORT

Within this programme of support, five stakeholders will hold especially important functions:

I. **Implementing Organisation.** An implementing organisation will lead the programme of support's design and implementation based on an approved technical and financial proposal.

II. **Water Utility.** The selected water utility will naturally play a substantive role across the programme of support's implementation. This will include the design, prioritisation and sequencing of activities and leading the operationalisation of processes and systems designed by the implementing organisation.

III. **Ministry of Water and Sanitation.** MoWS will oversee the implementation of the programme of support and input into its overall design as well as the further specification of key activities and interventions. Moreover, MoWS will ensure and oversee the design of a learning agenda for the programme and establish mechanisms for the regular consolidation and sharing of lessons on the programme's implementation.

IV. **District Councils.** District councils will play a substantive role throughout the roadmap, and especially in Phase 1 (Assessment and Design) when they will inform the determination of the WUA managed facilities to be taken over by water utilities as well as the priorities and objectives of water utility direct provision moving forward.

V. **WUAs**. During Phase 1 (Assessment and Design), there will be substantive dialogue with WUAs regarding the suitability of water utility takeover, the desired process, and any future role for WUAs when water utilities take over the management of the facility. The role of WUAs in the subsequent phases of the roadmap will also be determined during Phase 1 (Assessment and Design).

8. SUMMARY BUSINESS CASE

The expanded delivery of water supply services by water utilities is being formally piloted because of the following rationale:

I. **Improving Services.** Malawi's five water utilities deliver generally high-quality

water supply services, with a high functionality rate, an 83% coverage rate and 97% of water quality samples complying with required standards. These figures are above those for Malawi's other main management arrangements for rural water supply service provision, and this pilot will further improve the quality of services provided.

II. **More Professionalised Management.** Water utility direct provision benefits from the existence and application of a range of pertinent processes and procedures across key areas (i.e., maintenance and repairs, revenue generation, water safety management) and having more capacitated staff. Ultimately, this can help to bring a vital degree of professionalisation to a section of rural water supply service provision.

III. **Helping to Formalise Water Utilities' Role in Service Provision.** Water utilities currently lack an explicit mandate for rural water supply service provision,[19] and this pilot is envisioned to be part of a larger process of formalising water utilities' role in the provision of rural water supply services.

IV. **Increasing Revenue Generation and Supporting a more Financially Viable Arrangement.** Water utility direct provision currently requires financial assistance to cover some staff and capital and capital maintenance expenditures. However, water utilities have displayed a considerably greater ability to generate the required revenue from households and institutions to fund required OpEx (i.e., staffing costs, materials and supplies, fuel or energy, routine maintenance) necessary to deliver high-quality services than Malawi's other main management arrangements for rural water supply service provision. Further supporting this arrangement can increase water utilities' ability to generate required revenues from customers, thereby improving the financial viability of the arrangement and rural water supply service provision.

V. **Providing Area-Based Services.** By consolidating area-wide service areas, the arrangement seeks to ensure all water users within a dedicated service area benefit from effectively managed services. This can improve the equitability of service provision by decreasing the discrepancy in the quality of services different populations receive.

VI. **Leveraging Consolidation and Economies of Scale.** Water utilities currently benefit from operating at a larger scale than Malawi's other water supply service providers. The pilot will support the further consolidation of the provision of rural water supply services, thereby providing the opportunity for water utilities to further leverage economies of scale and thereby ensure better technical and financial performance.

I. **Creating a Pathway for Reduced Dependencies on External Actors and Enabling More Sustainable Financing.** The arrangement offers a pathway for progressively reducing dependencies on external actors such as development partners and NGOs through further strengthening water utilities as permanent local actors and helping to create the necessary conditions for them to eventually access more sustainable sources of financing (i.e., commercial lending).

VII. **Improving the Evidence-Base and Promoting Evidence-Based Decision-Making.** The proposed programme of support places considerable emphasis on

19 *Section 6 of the WaterWorks Act No. 17 of 1995 states that "The Board shall, except for rural water supply areas, have the control and administration of Control of all waterworks and all the water in such waterworks and the management of the supply and waterwork distribution of such water in accordance with this Act". Section 4 of the WaterWorks Act No. 17 of 1995 states that "The Minister may, from time to time, by notice published in the Gazette, declare any Water-area area to be a water-area of the Board. The Minister may, in the like manner, alter, amend, reduce or extend the boundaries of a water-area and assign another name thereto".*

improving the evidence base on the steps required to enable water utilities to effectively deliver services in Malawi's rural areas and market centres, and the costs of these improvements. Down the line, this will enable the Ministry of Water and Sanitation to determine the applicability of the arrangements upscaling and consider key actions required to enable its effective application at scale.

CONCEPT NOTE: PILOTING WATER POINT COMMITTEE DIRECT PROVISION WITH MAINTENANCE AND REPAIR FUNCTION DELEGATION

9. CONCEPT NOTE OVERVIEW AND OBJECTIVE

This is one of two concept notes produced as part of a broader study on '**Professionalising the Management of Malawi's Rural Water Supply Services**'. It focuses on a proposed refined management arrangement termed 'Water Point Committee Direct Provision with Maintenance and Repair Function Delegation', which the Ministry of Water and Sanitation (MoWS) is looking to pilot in several rural geographies across Malawi. This arrangement seeks to ensure the more systematised performance of maintenance and repair functions by establishing dedicated maintenance service providers that are overseen by district councils and contracted by WPCs.

It is intended that organisations that have experience with the current arrangement will use this concept note to solicit funding for the piloting of the arrangement in different rural geographies across Malawi. Based on the anticipated impact of this approach on the reliability of rural water supply services, MoWS will determine whether to subsequently promote this arrangement and support its upscaling across the country.

The remaining sections of this concept note are structured as follows:

- Section 2 provides a background to this concept note by summarising relevant findings from the study on 'Professionalising the Management of Malawi's Rural Water Supply Services'.
- Section 3 details the proposed refined management arrangement, specifying the context it will be applied in as well as envisioned institutional and financial roles and responsibilities.
- Section 4 provides an overview of necessary investments to support the functioning of the arrangement and how these should be determined in greater detail.
- Section 5 details information related to the scale of the pilot.
- Section 6 presents a roadmap for the piloting of this arrangement and its potential upscaling.
- Section 7 offers a summary business case for the proposed arrangement.

10. BACKGROUND

Malawi has considerably expanded access to improved water supply services, especially in rural areas where 87% of the population access an improved water source in rural areas (a 26.5% increase since 2000). Despite this vital progress, Malawi suffers from an overall functionality rate of 58.5% for its improved water sources,[20] impeding progress toward universal access by 2030. WPCs directly manage an overwhelming majority of the hand pumps that serve 74% of the rural Malawians accessing an improved water source. A key finding from the broader study on 'Professionalising the Management of Malawi's Rural Water Supply Services' was that the direct management of water supply facilities by WPCs faces many significant challenges. MoWS, and several organisations working in Malawi's rural water supply sub-sector, have worked to address weaknesses in the direct provision of services by WPCs. In many cases, this has centred on training area

20 Of the 41.5% of improved water points that are not fully functional, 21.3% are partially functional, 13.8% are not functional, and 6.5% no longer exist or have been abandoned (Water Point Functionality Dashboard, 2019).

mechanics and facilitating WPCs to delegate the performance of regular (i.e., quarterly) maintenance functions to area mechanics through service contracts. This approach, termed WPC direct provision with the delegation of maintenance functions through service contracts, is applied to an estimated 5,500-7,500 hand pumps and has resulted in substantially more reliable services than under WPC direct provision, with an over 30% higher functionality rate for AfriDev hand pumps (about 95% vs 62%).

Nevertheless, key challenges remain. Of note, the arrangement is not financially viable; WPC revenue generation covers the cost of the service contracts but is insufficient to cover required capital maintenance expenditures when breakdowns occur, often resulting in lengthy downtimes. Moreover, there is limited area mechanic oversight, which causes variable performance of key functions by area mechanics and poses vital sustainability challenges. Based on insights from the wider study on 'Professionalising the Management of Malawi's Rural Water Supply Services', Section 3 proposes a more systematised and consolidated variation of this arrangement that gives a larger and more formalised role to the private sector.

11 . REFINED MANAGEMENT ARRANGEMENT OVERVIEW

Figure 1 provides an overview of the refined version of WPC direct provision with the delegation of maintenance functions termed 'Water Point Committee Direct Provision with Maintenance and Repair Function Delegation', which will be piloted in several geographies. The following sub-sections then detail key features of this arrangement in respect to context, institutional roles and responsibilities, and financing. Overall, key features of the arrangement can be summarised as:

I. Establishing a maintenance service provider (private operator, social enterprise, or hand pump mechanics association) as a higher-level actor that develops and applies a range of processes and procedures to ensure the consistent performance of functions by area mechanics, operate at a larger scale than individual area mechanics can, and work closely with district offices.

II. Consolidating area-wide service areas for maintenance and repair services to ensure maintenance and repair services reach service providers (predominantly WPCs) in a given area (i.e., that poorer, more sparsely populated areas and worse performing WPCs are not neglected) and enable potential economies of scale to be leveraged in key areas (i.e., spare parts procurement).

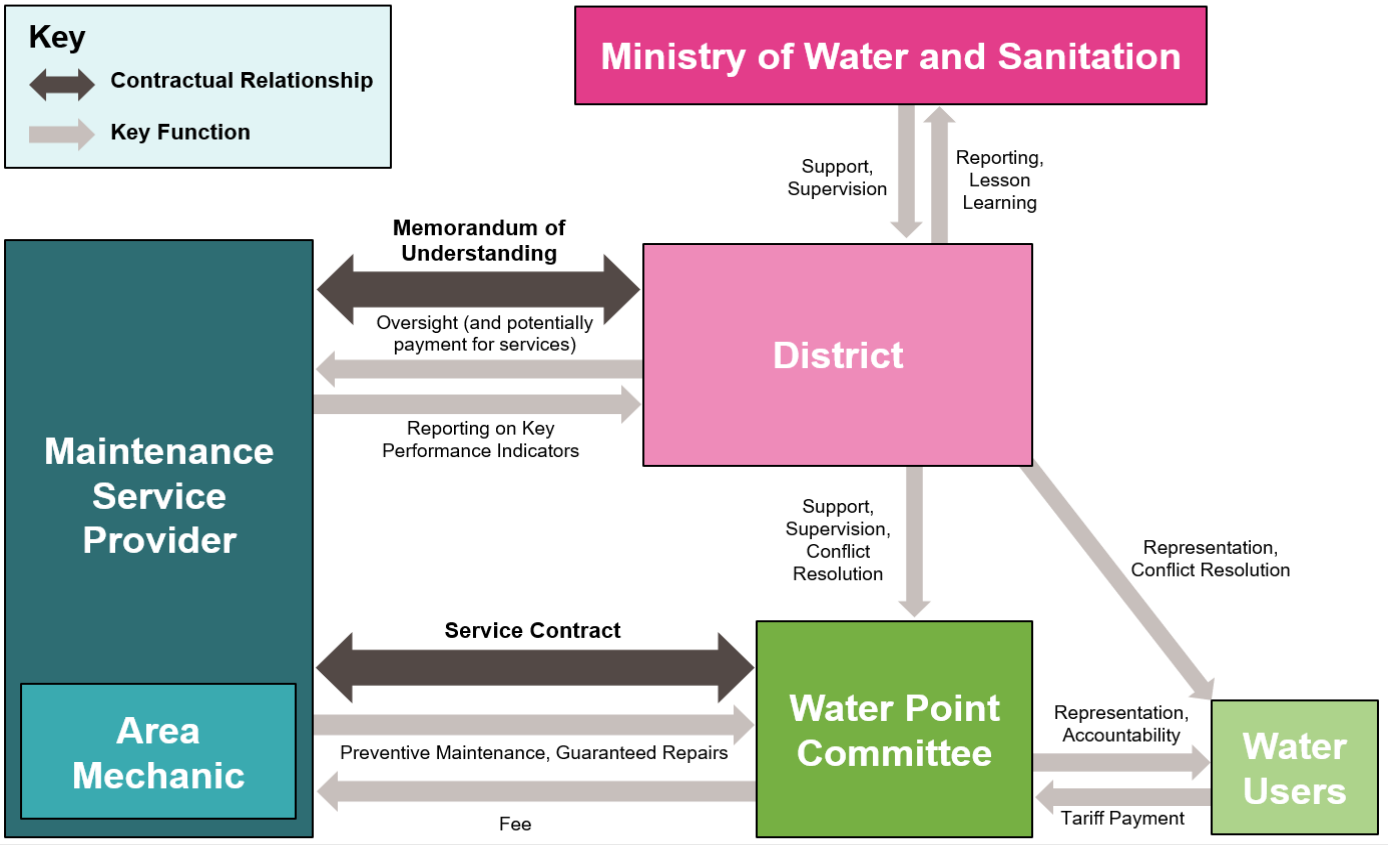
III. Enabling districts to perform a more consolidated set of functions centred on entering into a memorandum of understanding with maintenance service providers, monitoring the performance of the arrangement, and ensuring maintenance service providers comply with the technical (i.e., preventive maintenance, guaranteed repairs), financial (i.e., fees to WPCs), and managerial (i.e., regular reporting) provisions of their service contracts with water point committees.

IV. Ensuring ongoing data collection on water supply facility performance and maintenance and repair activities and linking collected data to corrective action.

V. Integrating into the arrangement guaranteed repairs within a set period (i.e., three days) to reduce downtimes and a community-level financing mechanism to increase WPC revenue generation.

Figure 1 does not detail an explicit role for facilitating organisations such as international and national NGOs and CSOs in the proposed arrangement. However, these organisations are envisioned to play a key role in supporting the functioning and operationalisation of the arrangements through assisting maintenance service providers and district councils to perform their new roles and responsibilities and documenting and sharing key learnings.

Figure 1: WPC Direct Provision with Maintenance and Repair Function Delegation – Schematic Overview



10.1. **CONTEXT**

Table 1 provides an overview of key points relating to the context where WPC direct provision will be applied, including the type of demographic setting, the service area of the arrangement and the infrastructure that the arrangement will be applied to.

Table 1: Context and Scale

Component	WPC Direct Provision with Maintenance and Repair Function Delegation
Demographic Setting	Principally more dispersed rural settings. However, the arrangement can be applied in a wide-ranging set of contexts under the broad categorisation of rural.
Infrastructure	The arrangement is principally designed for point water sources (i.e., hand pumps); however, where the maintenance service provider has the requisite capacities and there is demand from service providers managing piped water supply facilities, it can also be utilised for this technology option.
Service Area	Maintenance service providers enter into a memorandum of understanding with a district, which would define its area-based service area within the district. This would enable the maintenance service provider to offer services across the service area, which could be for the entire district, multiple traditional authorities, or individual traditional authorities. Area mechanics employed by the maintenance service provider would serve about 50 water points.

10.2. INSTITUTIONAL ARRANGEMENTS

Table 2 details the responsibilities of different actors under WPC direct provision with maintenance and repair function delegation in respect to several key functions. Overall, the responsibilities of the main actors in the arrangement can be summarised as follows:

I. **Ministry of Water and Sanitation.** MoWS is responsible for providing overall strategic direction to the management arrangement's application, supporting districts to perform their expansive new set of functions (i.e., through training, developing resources to guide the arrangement), and distilling key learnings. This should include the development of a model memorandum of understanding and approving model service contracts.

II. **District.** The district is a central actor under this arrangement. It remains the asset owner, and its principal responsibilities are entering into a memorandum of understanding with the maintenance service provider as well as monitoring the maintenance service provider and ensuring it adheres to the provisions of its service contracts with water point committees (i.e., in relation to service contract fee, frequency of preventive maintenance, time taken to conduct repairs). Beyond this headline responsibility, districts also remain responsible for providing support to WPCs for non-technical aspects (i.e., financial management, conflict resolution) and providing opportunities for user participation.

III. **Water Point Committee.** WPCs remain the primary service provider. However, the delegation of key technical functions that they have historically struggled to perform results in them being responsible for a more consolidated set of functions. These functions centre on representing users, performing day-to-day operations and management tasks, reporting on the performance of the water supply facility and WPC (i.e., revenue accrued, WPC surplus) to users, and elevating issues to their area mechanic, maintenance service provider, and district as needed.

IV. **Maintenance Service Provider.** The presence of maintenance service providers represents the primary change brought about by this arrangement. The maintenance service provider holds a series of critical functions, including:

a. Entering into a memorandum of understanding with the district council and reporting on their performance against agreed-upon KPIs.

b. Entering into service contracts with WPCs to perform key technical functions.

c. Employing and overseeing area mechanics to ensure their proper performance of technical functions. Under the maintenance service providers' oversight, area mechanics will perform key technical functions, including preventive maintenance every 3-4 months (based on standard operating procedures) and repairs when breakdowns occur.

d. Procuring spare parts and developing standard operating procedures.

V. **Water Users.** Water users are responsible for paying a tariff sufficient to enable the WPC to cover the costs of the service contract and participating in opportunities for user participation with the WPC and district.

Facilitating organisations such as international and national NGOs and CSOs are not included in the above bullet points or Table 2 below. While not a formal actor in the arrangement, these organisations are envisioned to play a key role in supporting the functioning and operationalisation of the arrangement through assisting maintenance service providers and district councils to perform their new roles and responsibilities and documenting and sharing key learnings.

Table 2: Institutional Arrangements

Component	WPC Direct Provision with Maintenance and Repair Function Delegation
Asset Ownership	District Council.
Contracting Mechanisms	Three sets of contractual mechanisms are employed to formalise roles and responsibilities: • Memorandum of understanding between the district council and maintenance service provider enabling the maintenance service provider to operate in the district, specifying roles and responsibilities between actors, outlining key performance indicators to be reported on by the maintenance service provider, and (if viable) costs of the arrangement to be covered by the district council. • Service contract between the maintenance service provider and WPC covering preventive maintenance, guaranteed repairs, and spare part procurement. • Employment contract between the maintenance service provider and area mechanics.

Tariff Setting	WPCs in consultation with the Area Development Committee based on MoWS guidance as well as calculations made in tandem with the maintenance service provider and district council regarding the required tariff level to cover the fee to the maintenance service provider. Maintenance service providers' memorandum of understanding with district councils would stipulate the fee to be charged for maintenance and repair activities on a given water supply facility.
Revenue Collection	WPC but with implementing organisations utilising financial innovations or improvements such as borehole banking to promote enhanced revenue generation and safeguard their ability to cover required revenues for service contracts.
Day-to-Day Operations and Management	WPC.
Preventive Maintenance	Maintenance service provider performs maintenance every 3-4 months.
Repairs	Maintenance service provider performs repairs. Service contracts with WPCs will include a 'guarantee' concerning an amount of time within which repairs would need to be performed, and this KPI will be reported by the maintenance service provider to district councils.
Spare Parts Procurement	Maintenance service provider which utilises economies of scale to enable the more efficient sourcing and stockpiling of spare parts.
Area Mechanic Support	Maintenance service provider to provide initial training and ongoing support to the area mechanics it employs.
WPC Support	District Councils through the District Coordination Team by the District Water Development Office.
Service Provider Monitoring	District councils retain monitoring functions over WPCs and monitor the maintenance service providers, which are required to report on a series of pre-agreed indicators. Maintenance service providers develop formalised processes for monitoring area mechanic performance of functions as well as the quality of service provided and other key aspects such as levels of payment by WPCs and WPCs renewing service contracts.
User Participation	User participation is achieved through WPCs facilitated by the Area Development Committees as well as opportunities to inform decision-making at the district and national levels.

10.3. FINANCIAL RESPONSIBILITIES

Table 3 outlines the financial responsibilities per several of the life-cycle costs of water supply service provision for WPC Direct Provision with Maintenance and Repair Function Delegation during the initial piloting of the arrangement. As detailed later in this subsection, a crucial point to note is that to enable the arrangement's application at a larger scale, some of these responsibilities will change if MoWS decides to promote the arrangement for upscaling. Overall, the main financial responsibilities of different stakeholders during the arrangement's piloting are:

I. **Ministry of Water and Sanitation.** MoWS is responsible for covering the expenditure on indirect support required to support the arrangement's piloting, especially promoting and supporting the pilot organisation and ensuring district offices have a clear understanding of their responsibilities under the arrangement and sufficient capacity to fulfil these.

II. **Districts.** District councils are responsible for covering the costs of entering into memorandums of understanding with the maintenance service provider (expenditure on indirect support) as well as the expenditures on direct support required to ensure the arrangement's effective application (i.e., monitoring, conflict resolution, WPC sensitisation).

III. **Water Point Committee.** WPCs retain responsibility for revenue generation from water users and must ensure a tariff is set that enables it to generate sufficient revenue to cover the fee detailed in the service contract with the maintenance service provider.

IV. **Maintenance Service Provider.** The maintenance service provider will be responsible for employing area mechanics, covering the costs of key technical functions (i.e., preventive maintenance, repairs, spare parts procurement), and facilitating the application of the arrangement (i.e., covering its start-up costs, area mechanic training and oversight, and monitoring and reporting). The service contract fee paid by WPCs will cover part of the operational and capital maintenance expenditures incurred by the maintenance service provider. However, it is recognised that a subsidy (initially covered by development partners) will be required to help cover these expenditures and that development partner assistance will be vital to cover all the start-up costs of the arrangement.

V. **Water Users.** Water users are responsible for regularly paying a tariff that is sufficient for the WPC to cover the costs of the service contract with the maintenance service provider.

Table 3: Financial Responsibilities

Component	WPC Direct Provision with Maintenance and Repair Function Delegation
Capital Expenditure - Hardware	Implementing organisations (typically through overseas development assistance) will cover capital expenditures on hardware and will seek to link the instigation of the arrangement to capital improvements.
Capital Expenditure - Software	The maintenance service providers will be responsible for covering their start-up costs (i.e., developing standard operating procedures, training staff, and setting up monitoring systems). External assistance from development partners will be crucial in covering these 'start-up' costs, and these costs will not be expected to be recovered through the service contracts with WPCs or any future payments from the Government of Malawi.

Operational Expenditure	The main operational expenditures incurred by the maintenance service provider relate to the performance of regular preventive maintenance. WPCs are responsible for revenue generation from water users and pay the maintenance service provider based on the provisions of the service contract, which are, in turn, approved by district councils. A subsidy will be required to cover part of these operational expenditures. This will be expected to decrease over time but will be required in at least the medium-term. This subsidy will originally be covered by the maintenance service provider through development partners (overseas development assistance). However, following the pilot and depending on the costs of the arrangement and the levels of revenue that can be covered by WPCs, the Government of Malawi (through district councils) may need to subsidise operational expenditures).
Capital Maintenance Expenditure	Routine preventive maintenance will reduce the requirement for capital maintenance expenditure; however, breakdowns will still occur, and capital maintenance expenditures will need to be covered by the maintenance service provider. WPCs are responsible for revenue generation from water users and paying the maintenance service provider based on the provisions of the service contract. Similarly to operational expenditures, a subsidy will be required to cover part of these capital maintenance expenditures. This will be expected to decrease over time but will be required in at least the medium-term. This subsidy will originally be covered by the maintenance service provider through development partners (overseas development assistance). However, following the pilot and depending on the costs of the arrangement and the levels of revenue that can be covered by WPCs, the Government of Malawi (through district councils) may need to subsidise capital maintenance expenditures).
Expenditure on Direct Support	The Government of Malawi will continue to cover the expenditures on direct support costs related to supporting WPCs to perform their non-technical functions (i.e., those not covered by the maintenance service provider) and will also be responsible for covering costs related to ensuring maintenance service providers' adherence to contractual provisions.
Expenditure on Indirect Support	The Government of Malawi, through MoWS and district councils, will be responsible for the expenditures on indirect support that are required in relation to promoting the arrangement and building the capacity of government personnel in relation to their functions under this arrangement.

Additionally, the following financial considerations should be noted and inform the precise design of the arrangement:

I. **WPC Revenue Generation and the Importance of Integrating a Community-Level Financing Mechanism.** Under the current arrangement 'WPC direct provision with maintenance function delegation', the average revenue generation by WPCs was only MWK 86,033. This is markedly below the level that will be required to cover the maintenance and repair arrangement.[21] Significantly, where the community-level financing mechanisms termed borehole banking has been

21 For example, the average range for annual service fee for Whave in Uganda was US$70-125 and US$60-120 for FundiFix in Kenya (USAID, 2019).

applied, average annual WPC revenue generation increased significantly, and average reserves increased to US$79.29 (compared to US$7.57 to WPCs without borehole banking) (Mbewe, 2018). The piloting of the arrangement should pair the establishment of the maintenance and repair arrangement with a community-level financing mechanism. This is preferable to raise the levels of revenue generated by WPCs to increase the proportion of the costs of the arrangement that WPCs cover and reduce the level of subsidy required.

I. **User Willingness to Pay and the Importance of a Subsidy.** In other Sub-Saharan African countries, revenue from water committees has been found capable of covering a vital proportion of the operational costs of providing maintenance and repair service and can be increased over time, as reliable services are guaranteed.[22] However, it has consistently proven very difficult to cover all direct operational costs of maintenance and repair activities from tariff revenue alone (USAID, 2019). While concerted efforts will be taken to cover most of the various costs incurred by the maintenance service provider under the arrangement through the service contract (see Table 3), it must also be acknowledged that a subsidy will be required. This size of this subsidy should be reduced over time; however, evidence from comparable arrangements shows that a form of subsidy remains required in at least the medium-term.

II. **Scale.** The scale of a maintenance service provider's operations influences the financial viability of the arrangement. The larger the scale of operations, the greater the opportunities are to leverage economies of scale in key aspects such as spare part procurement, formulating standard operating procedures, developing internal systems and processes for monitoring and reporting, and entering into memorandums of understanding with district councils. Each pilot should focus on one district and seek to serve at least 200 water supply facilities (principally hand pumps) by the end of the pilot. See Section 6 for further information on this.

III. **Capital Expenditure**. The status of infrastructure at the point of the maintenance service provider entering into the service contract naturally has a bearing on the costs incurred by the maintenance service provider (i.e., the likelihood breakdowns will occur, and the costs of repairs are incurred). Accordingly, if the organisation supporting the arrangement's pilot can secure funding for an initial set of improvements to bring the water point up to a better level of technical performance, future costs incurred by the maintenance service provider will be reduced (USAID, 2019). Moreover, linking the arrangement to infrastructure improvements can increase WPCs and users' willingness to enter into the service contract and pay the higher levels of tariffs required.

Overall, the financial roles and responsibilities specified in Table 3 are unsustainable. They place a degree of reliance on development partners (principally funded through overseas development assistance) that it is not viable to sustain over time and would impede the application of the proposed arrangement at the desired scale. Based on this, and the above points, the responsibilities for covering the life cycle costs of providing sustainable water supply services will evolve over time in two key areas:

I. **User Payment.** The level of user payment will increase over time as 'willingness-to-pay' is increased as a result of the evidence of the arrangement's efficacy on

22 For example, Whave in Uganda reports that since starting the PMCRAs in 2013, willingness to pay has risen in communities from less than UGX 200,000 ($54.40) to over UGX 450,000 ($122.40) per year by 2018.

service delivery. This will enable WPCs to cover a greater proportion of operational expenditures and capital maintenance expenditures. Nevertheless, it is recognised that a form of subsidy will continue to be required, in at least the medium-term, to cover part of the cost of the arrangement's application.

II. **Government of Malawi Payment.** During the piloting of the arrangement, start-up costs for maintenance service providers and a subsidy for operational and capital maintenance expenditures will originally be covered by development partners piloting the arrangement through overseas development assistance. However, if MoWS decides to upscale the arrangement, it is recognised that the Government of Malawi must cover a progressively increasing proportion of this subsidy.

11. NECESSARY INVESTMENTS

Precise investment needs for the management arrangement will vary based on the scale of its application (see Sub-Section 6) as well as the specificities of the arrangement (i.e., frequency of maintenance, whether a community-level financing mechanism is integrated). Nevertheless, Table 4 details the headline expected necessary investments to ensure the proper functioning of the arrangement required for each of the main stakeholder groups under the arrangement. Organisations looking to pilot the arrangement will need to produce detailed estimations, and this is recognised as a key 'unknown' that the pilot will seek to capture detailed information on.[23]

Table 4: Necessary Investments

Actor	Key Necessary Investments to Ensure the Proper Functioning of the Arrangement
Ministry of Water and Sanitation	• Establishment of model memorandum of understanding. • Establishment of arrangements for reviewing the effectiveness of the arrangement and consolidating and validating learnings.
District Councils	• Support to understand the new arrangement and the role of the district council in the arrangement. • Support to enter into a memorandum of understanding with the maintenance service provider. • Support to perform key functions under the arrangement, including support to WPCs, conflict resolution, maintenance service provider monitoring and data review and analysis.

23 Indeed, available data from comparable arrangements in other Sub-Saharan African countries highlights highly variable costs between different arrangements to ensure the performance of regular maintenance in different contexts (USAID, 2019).

Maintenance Service Provider	• Registering the maintenance service provider. • Supporting the maintenance service provider to enter into a memorandum of understanding with the district council. • Supporting the maintenance service provider to sensitise and enter into service contracts with WPCs. • Developing standard operating procedures and required processes and systems. • Providing refresher training to area mechanics. • Purchasing equipment.
Water Point Committee and Water Users	• Sensitisation on the value of the arrangement and, where needed, support to understand and enter into service contracts with the maintenance service provider.

12. SCALE

The pilot's scale will be influenced by the funding that can be secured by the organisation's supporting the arrangement's application. It is envisioned that at least 4-5 organisations will be supported to access funding for applying the proposed arrangement. This will be done across Malawi's three predominantly rural regions (Northern, Central, Southern), with each organisation operating in a separate district.

The scale of a maintenance service provider's operations can positively influence the financial viability of the arrangement. The larger the scale of operations, the greater the opportunities are to leverage economies of scale in key aspects such as spare part procurement, formulating standard operating procedures, developing internal systems and processes for monitoring and reporting, and entering into memorandums of understanding with district councils. The scale of each organisation's individual pilot of the arrangement will also naturally be influenced by the level of funding they secure and constrained by the time and resources required to support the start-up of the maintenance service provider and increase the scale of their operations. Nevertheless, it is envisioned that each organisation supports the application of the arrangement within at least multiple traditional authorities within a given district and that each pilot should seek to serve at least 200 water supply facilities (principally hand pumps) by the end of the pilot (see Section 7).

13. ROADMAP

Improving the overall management of Malawi's rural water services and achieving the Government of Malawi's target of 100% access to an improved water source requires the coordinated and collective action of a wide-ranging set of actors operating in the rural water supply sub-sector. A detailed approach for improving the management of rural water supply services must be developed and effectively rolled out by a range of organisations. While there is a common understanding of the weaknesses of WPC direct provision, there is not yet sufficient evidence or consensus in Malawi's rural

water supply sub-sector to select a more professionalised management arrangement principally designed for point water sources from Malawi (or elsewhere in sub-Saharan Africa) for roll-out at a considerable scale. Therefore, the piloting of 'WPC Direct Provision with Maintenance and Repair Function Delegation' is required to distil key lessons and enable MoWS to determine its suitability for promotion and application at scale. To guide this process, the following five-year roadmap for piloting 'WPC Direct Provision with Maintenance and Repair Function Delegation' in several rural geographies across Malawi will be followed before, based on the pilots' results, hopefully institutionalising the arrangement for wider application at scale. The four steps of this roadmap are:

- **Step One: Design and Fund.** The first stage of the roadmap centres on several organisations working with MoWS to design projects for piloting the proposed management arrangement and to subsequently secure funding for their application or divert existing funds. A couple of key points need to be considered during this stage:
    - It is MoWS's desire for several organisations to pilot the arrangement to gain a comprehensive set of insights on the proposed arrangement.
    - Organisations piloting the WPC Direct Provision with Maintenance and Report Function Delegation are required to follow the broad institutional arrangements and financial responsibilities detailed above. However, a degree of flexibility in how these are applied is promoted by MoWS to enable the future determination of the most effective means of structuring and performing key functions under the arrangement (i.e., frequency of preventive maintenance, the form of employment for area mechanics).
    - The arrangement should be targeted in different geographies and socio-economic and demographic settings across Malawi to ensure insights are obtained on its efficacy and suitability for a range of different contexts.
    - MoWS will actively promote the piloting of the arrangement and work with organisations to help secure funding for its application. The need for flexibility when securing funding is recognised, and it is understood that a range of funding durations and a mixture of soliciting new funding, continuing existing work, and refining existing programmes will be required.

  At this initial stage, MoWS will also define a set of topics and indicators for data to be captured against throughout the roadmap.

- **Step Two – Implementation.** The second stage of the roadmap involves implementing the pilot arrangement. This is the longest component and is expected to last four years. During this stage, organisations experienced in the provision of maintenance and repair services in Malawi will support the pilot application of WPC direct provision with maintenance and repair function delegation. Each organisation will employ slightly different approaches across a range of areas (i.e., community-level financing mechanism, contractual arrangement for employing area mechanics and extent of incentives, initial infrastructure upgrading, the extent of maintenance and repair activities included, ongoing data collection and use of remote data collection technologies). Organisations supporting the piloting of the arrangement will primarily focus their efforts on the respective maintenance service provider; however, support will also be required to district councils to perform their new functions (see sections 3 and 4). MoWS will actively support and oversee this envisioned 48-month process.

- **Step Three – Learning Consolidation, Validation, and Consensus Building.** Towards the end of Step Two, MoWS will consolidate learnings from the pilot across a range of pre-defined criteria into a short learning note. A national workshop will then be held to disseminate and validate key findings and build a consensus concerning the suitability of WPC direct provision with maintenance and repair function delegation for upscaling as well as specific features that should be emphasised in the arrangement moving forward.
- **Step Four – Institutionalisation and Upscaling.** If relevant, based on the results achieved by the pilots, MoWS will take the crucial steps required to institutionalise and promote the upscaling of the arrangement. At a minimum, this is expected to include:
    - Formulating a dedicated strategy specifying the roles and responsibilities of different actors under the arrangement, targets for the arrangement's upscaling, and how its application will be financed and monitored.
    - Developing resources required to support the application of the arrangement, including training materials.
    - Sensitising district offices to the arrangement and providing training on their roles and responsibilities under the arrangement.
    - Helping organisations to design programmes and secure funding to support the application of the arrangement at scale.

Throughout these four stages, substantial emphasis will be placed on ensuring learnings are captured on an ongoing basis based on insights and evidence from the organisations supporting the arrangements piloting. In the first instance, a range of learning topics and criteria will be defined at the end of Step One (Design and Fund) of the pilot. At a minimum, these should cover:

I. Functionality rate and average downtime duration when breakdowns occur.

II. Overall cost incurred by the maintenance service provider per water point in performing key technical functions and the impact of the scale of operations on these per water point costs.

III. Levels of payment by WPCs and compliance with service contract provisions.

IV. WPCs' renewal of service contracts.

V. Area mechanic incentivisation and means of employment.

VI. District's ability to perform new functions and support requirements.

Subsequently, MoWS will lead meetings with the organisations supporting the piloting of the arrangement every six months to share and capture learnings on these pre-agreed topics and discuss necessary adaptions to the pilots to maximise their efficacy. Step 3 (Learning Consolidation, Validation, and Consensus Building) will represent the culmination of these activities, hopefully resulting in explicit, evidence-based and informative learnings as well as a consensus amongst stakeholders in the sector concerning the best way forward.

14. SUMMARY BUSINESS CASE

The following core rationale for piloting WPC direct provision with maintenance and repair function delegation should be noted:

II. **Improving Services.** Across Sub-Saharan Africa, comparable arrangements to the one set out in this concept note delivering regular preventive maintenance and guaranteed repair services have resulted in functionality rates well-exceeding 95% and also reduced downtimes (USAID, 2019).

III. **Delivering Value for Money.** The cost of ensuring regular preventive maintenance represents 'value for money', with "professionally maintaining all handpumps costing less overall than letting them fail and replacing them" (Smith, Ongom, & Davis, 2023).

IV. **Increasing User Willingness to Pay and WPC Revenue Generation.** Comparable arrangements in other Sub-Saharan African countries have proven capable of covering a vital proportion of the operational costs of providing maintenance and repair service and the proportion of costs covered can be increased over time, as reliable services are guaranteed. For example, Whave in Uganda reports that since starting operations in 2013, willingness to pay has risen in communities from less than UGX 200,000 ($54.40) to over UGX 450,000 ($122.40) per year by 2018. While a form of subsidy remains important, this provides vital additional financial resources from a sustainable source.

V. **Providing Area-Based Services.** By consolidating area-wide service areas for maintenance and repair services, the arrangement seeks to ensure that maintenance and repair services reach service providers (predominantly WPCs) in a given area (i.e., that poorer, more sparsely populated areas and worse-performing WPCs are not neglected)

VI. **Leveraging Economies of Scale.** The arrangement will increase the scale of a maintenance service provider's operations, positively influencing the financial viability of the arrangement. The larger the scale of operations, the greater the opportunities are to leverage economies of scale in key aspects such as spare part procurement, formulating standard operating procedures, developing internal systems and processes for monitoring and reporting, and entering into memorandums of understanding with district councils.

VII. **Creating a Pathway for Reduced Dependencies on External Actors**. The arrangement offers a pathway for progressively reducing dependencies on external actors such as development partners and NGOs through strengthening maintenance service providers as permanent local actors.

VIII. **Improving the Evidence-Base and Promoting Evidence-Based Decision-Making.** The proposed arrangement, and the roadmap for its piloting, place considerable emphasis on improving the evidence base on managing rural water supply services and distilling key learnings on the specificities of the improvements required and their cost. This will enable the Ministry of Water and Sanitation to determine the applicability of the arrangements upscaling and consider key actions required to enable its effective application at scale.

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ANNEX ONE: STAKEHOLDERS CONSULTED

Table 10 details the stakeholders consulted throughout this assignment.

Table 10: Consulted Stakeholders

Name	Organisation
Elias Chimulamba	Ministry of Water and Sanitation
Emma Mbalame	Ministry of Water and Sanitation
Phideria Moyo	Ministry of Water and Sanitation
Charles Yatina	Ministry of Water and Sanitation
Chripine Songola	Ministry of Water and Sanitation / RWDOS
Thanasias Sitole	Ministry of Water and Sanitation
Edith Malemba	Ministry of Water and Sanitation
Jacob Mkandawire	M Mbelwa District Council
Vincent Horowanya	Rumphi District
Timothy Banda	Dowa District
Rester Msuza	Chikwawa District
Macpherson Kuseli	Chiradzulu District Water Development Office
Tamala Zembeni	Blantyre District Water Development Office
Roxy Hanchi	Mangochi District Water Development Office
Onancas Nyirenda	Ntcheu District Water Development Officer
Charles Mwenda	Kasungu District Water Development Office
Steve Meja	Machinga District Water Development Office
Rudoplh Zinkanda	Kasungu District Health Office
Macford Nzengo	Thyolo District Water Development Office
Asumani Ungwe	Northern Region Water Board
John Makwenda	Central Region Water Board
Jaqueline Dais	Southern Region Water Board
Mussa Ching'ama	Southern Region Water Board
Lazarus Botomani Phiri	African Development Bank
Michele Paba	UNICEF
Lucy Mungoni	USAID
Nyirenda	NU-Water
Willies Chanozga Mwandira	WESNET
Angella Phiri	WESNET
Kate Harawa	Water for People
Cate Nimanya	Water for People

Nick Burn	Water for People
Joseph Magoya	Water for People
Wellington Mitole	Water for People
Omega Maganga	Water for People
Ulemu Chiluzi	Water for People
Lloyd Ntalimanja	WaterAid
Peter Phiri	WaterAid
Renata Krzywon-Schramm	Welthungerhilfe
Harold Guelm	Welthungerhilfe
Chikondi Chiumia	Welthungerhilfe
Nixon Sinyiza	Water Mission
Wongani Msiska	Water Mission
Lara Lambert	Water Mission
Nathan Schneider	Water Mission
Smorden Tomoka	United Purpose
Dalitso Mandanda	United Purpose
Muthi Nhlema	BASE Flow
Xavier Rat	InterAide
Macmillan Chikhoza	InterAide
Ephraim Munyala	BASEDA
Davis Makhoza	BASEDA
Simon Msukwa	Pump Aid
Chikondi Kaomba	Pump Aid
Duncan Marsh	Pump Aid
Henderson Kadammanja	Beyond Water
Harlod Zaunda	Fishermans Rest
Wiktor	Fishermans Rest
John Norman	Fishermans Rest

ANNEX TWO: DETAILED DATA FOR FINANCING AND COSTING ANALYSIS

Table 11, Table 12, Table 13 and Table 14 present the detailed annual data on operational costs, revenues and reserves that were collected for each of the water supply facilities. The data for WPC direct provision and WPC Direct Provision with Maintenance Function Delegation is presented per facility, while the data for WUA Direct Provision and Public Water Board Direct Provision is presented per household.

Table 11: Detailed Financial Data for WPC Direct Provision – Per Facility

Name	Year of Rehabilitation or Construction	Households	OpEx								Revenue			Reserves
			Staffing Costs	Materials and Supplies	Fuel or Energy Costs	Bulk Water	Routine Maintenance	Running costs	Miscellaneous	Total	Tariffs	Other	Total	
William WPC	2021	62	MWK 0	MWK 46,000	MWK 0	MWK 0	MWK 12,000	MWK 0	MWK 0	**MWK 58,000**	MWK 90,210	MWK 0	**MWK 90,210**	MWK 30,000
Sezu WPC	2021	112	MWK 0	MWK 26,600	MWK 0	MWK 0	MWK 0	MWK 16,000	MWK 0	**MWK 42,600**	MWK 55,000	MWK 0	**MWK 55,000**	MWK 8,000
Kalema WPC	2020	37	MWK 0	MWK 17,800	MWK 0	MWK 0	MWK 36,800	MWK 6,000	MWK 0	**MWK 60,600**	MWK 88,800	MWK 0	**MWK 88,800**	MWK 12,000
Mamulili WPC	2021	32	MWK 0	MWK 83,400	MWK 0	MWK 0	MWK 0	MWK 6,000	MWK 0	**MWK 89,400**	MWK 80,000	MWK 0	**MWK 80,000**	MWK 0
Average		**60.75**	**MWK 0**	**MWK 43,450**	**MWK 0**	**MWK 0**	**MWK 12,200**	**MWK 7,000**	**MWK 0**	**MWK 62,650**	**MWK 78,503**	**MWK 0**	**MWK 78,503**	**MWK 12,500**

Table 12: Detailed Financial Data for WPC Direct Provision with Maintenance Function Delegation through Service Contracts – Per Facility

Name	Year of Rehabilitation or Construction	Households	OpEx								Revenue			Reserves
			Staffing Costs	Materials and Supplies	Fuel or Energy Costs	Bulk Water	Routine Maintenance	Running costs	Miscellaneous	Total	Tariffs	Other	Total	
Madzi Ada WPC	2019	83	MWK 0	MWK 43,750	MWK 0	MWK 0	MWK 12,500	MWK 3,000	MWK 0	**MWK 59,250**	MWK 40,000	MWK 30,000	**MWK 70,000**	MWK 19,000
Makalani WPC	2020	150	MWK 0	MWK 13,350	MWK 0	MWK 0	MWK 15,000	MWK 0	MWK 0	**MWK 28,350**	MWK 45,000	MWK 0	**MWK 45,000**	MWK 43,000
Changula WPC	2020	158	MWK 0	MWK 10,550	MWK 0	MWK 0	MWK 15,000	MWK 0	MWK 0	**MWK 25,550**	MWK 12,000	MWK 0	**MWK 12,000**	MWK 5,000
Mtipulula WPC	2022	325	MWK 0	MWK 11,275	MWK 0	MWK 0	MWK 12,500	MWK 18,000	MWK 0	**MWK 41,775**	MWK 48,000	MWK 0	**MWK 48,000**	MWK 9,000
Chisanja WPC	2021	120	MWK 0	MWK 66,200	MWK 0	MWK 0	MWK 15,000	MWK 11,600	MWK 0	**MWK 92,800**	MWK 115,000	MWK 0	**MWK 115,000**	MWK 60,000
Kangulo WPC	2013	377	MWK 0	MWK 27,075	MWK 0	MWK 0	MWK 12,500	MWK 0	MWK 0	**MWK 39,575**	MWK 226,200	MWK 0	**MWK 226,200**	MWK 6,500
Average		**202.17**	**MWK 0**	**MWK 28,700**	**MWK 0**	**MWK 0**	**MWK 13,750**	**MWK 5,433**	**MWK 0**	**MWK 47,883**	**MWK 81,033**	**MWK 5,000**	**MWK 86,033**	**MWK 23,750**

Table 13: Detailed Financial Data for Water User Association Direct Provision – Per Household Per Facility

Name	Year of Rehab-il-itation or Const-ruc-tion	Techn-ol-ogy	House-holds	OpEx / HH							Revenue / HH				Reserves / HH
				Staffing Costs	Materials and Sup-plies	Fuel or Energy Costs	Routine Mainte-nance	Running Costs	Mis-cell-aneous	Total	Tariffs	Con-nec-tion Fees	Other	Total	
Rumphi-Henga Phoka WUA	2020	Gravity	16500	MWK 974.55	MWK 993	MWK 0	MWK 196	MWK 318	MWK 47	**MWK 2,530**	MWK 2,405	MWK 0	MWK 91	**MWK 2,497**	MWK 54
Zomba East WUA	2012	Gravity	9877	MWK 1,546.18	MWK 1,254	MWK 0	MWK 556	MWK 1,027	MWK 293	**MWK 4,678**	MWK 2,080	MWK 2,500	MWK 241	**MWK 4,821**	MWK 337
Nkha-manga WUA	2010	Gravity	4250	MWK 4,094.12	MWK 1,201	MWK 0	MWK 105	MWK 1,174	MWK 21	**MWK 6,596**	MWK 6,708	MWK 0	MWK 375	**MWK 7,084**	MWK 376
Miseu Folo WUA	2012	Con-ven-tional	2152	MWK 3,075.94	MWK 2,928	MWK 566.91	MWK 64	MWK 1,921	MWK 1,635	**MWK 10,192**	MWK 8,758	MWK 1,418	MWK 1,392	**MWK 11,570**	MWK 777
Tengani WUA	2013	Con-ven-tional	2115	MWK 4,534.28	MWK 820	MWK 2,553	MWK 0	MWK 1,690	MWK 283	**MWK 9,881**	MWK 8,983	MWK 709	MWK 330	**MWK 10,023**	MWK 21
Hewe WUA	2020	Gravity	1400	MWK 4,313.57	MWK 2,879	MWK 0	MWK 287	MWK 6,389	MWK 0	**MWK 13,869**	MWK 10,549	MWK 1,215	MWK 2,321	**MWK 14,086**	MWK 512
Lim-phangwi WUA	2001	Gravity	1225	MWK 1,469.39	MWK 1,573	MWK 0	MWK 117	MWK 321	MWK 0	**MWK 3,482**	MWK 3,521	MWK 0	MWK 176	**MWK 3,698**	MWK 408
Msakam-bewa WUA	2021	Solar	247	MWK 680.16	MWK 510	MWK 0	MWK 60	MWK 489	MWK 40	**MWK 1,780**	MWK 4,591	MWK 0	MWK 461	**MWK 5,052**	MWK 728
Average			**5360**	**MWK 2,586.02**	**MWK 1,520**	**MWK 390**	**MWK 173**	**MWK 1,666**	**MWK 290**	**MWK 6,626**	**MWK 5,949**	**MWK 730**	**MWK 673**	**MWK 7,354**	**MWK 402**

Table 14: Detailed Data of Facilities managed by Public Water Board Direct Provision

Name	Year of re-habilitation or construc-tion	Technology	House-holds	OpEx / HH						Revenue / HH				Reserves / HH
				Staffing Costs	Materials and Sup-plies	Fuel or Energy Costs	Routine Main-ten-ance	Running Costs	Total	Tariffs	Connec-tion Fees	Other	Total	
Chintheche Scheme	2014	Conven-tional	2700	MWK 20,578	MWK 12,776	MWK 4,444	MWK 1,333	MWK 10,467	**MWK 49,599**	MWK 40,581	MWK 3,111	MWK 17,236	**MWK 60,928**	MWK -
Rumphi Scheme	2003	Conven-tional	4350	MWK 24,855	MWK 8,215	MWK 2,207	MWK 4,428	MWK 5,536	**MWK 45,240**	MWK 81,241	MWK 1,255	MWK 4,276	**MWK 86,772**	MWK -
Mponela Scheme	2000	Conven-tional	4000	MWK 18,142	MWK 2,259	MWK 25,487	MWK -	MWK 9,766	**MWK 55,654**	MWK 43,562	MWK 3,900	MWK 6,433	**MWK 53,895**	MWK -
Zomba Scheme	1998	Conven-tional	24540	MWK 6,112	MWK 20,329	MWK 2,883	MWK 1,455	MWK 6,573	**MWK 37,352**	MWK 55,534	MWK 2,311	MWK 158,060	**MWK 215,905**	MWK -
Ngabu Scheme	1970	Conven-tional	2705	MWK 11,234	MWK 14,191	MWK 6,387	MWK -	MWK 6,196	**MWK 38,009**	MWK 32,897	MWK -	MWK 2,861	**MWK 35,757**	MWK -
Average			**7659**	**MWK 16,184**	**MWK 11,554**	**MWK 8,282**	**MWK 1,443**	**MWK 7,708**	**MWK 45,171**	**MWK 50,763**	**MWK 2,115**	**MWK 37,773**	**MWK 90,652**	**MWK -**

GLOSSARY

Term	Definition
Management Arrangement	The set-up for water services, which goes beyond an individual service provider and relates to the adoption and performance of a series of practices at three levels: (i) the service provider; (ii) the service authority and (iii) the national level.
Service Providers	The actors such as water committees, private operators, units or departments of local government, or national and sub-national utilities responsible for the day-to-day operation, maintenance, and administration of water supply services.
Service Authorities	The institution(s) with the legal mandate to ensure that water services are planned and delivered. Service authorities are usually, but not always, equated with local government, and not necessarily involved in direct service delivery themselves.
Life-Cycle Costs	The costs of ensuring delivery of adequate water, sanitation, and hygiene (WASH) services to a specific population in a determined geographical area, not just for a few years, but indefinitely. The following six life-cycle costs are utilised: (i) capital expenditure; (ii) operational expenditure; (iii) capital maintenance expenditure; (iv) expenditure on direct support; (v) expenditure on indirect support; and (vi) cost of capital.
Capital Expenditure	The initial investment in establishing or extending water services. It includes hardware costs (that is technical design, construction, purchasing of fixed assets) and software costs (one-off work with stakeholders such as community engagement, capacity building, or setting up customer service structures).
Operational Expenditure	The regular ongoing expenditure required for operation and maintenance. This includes staff costs, fuel or energy costs, materials and supplies, and routine maintenance tasks. It does not cover large, one-off repair or replacement costs.
Capital Maintenance Expenditure	The cost of maintaining the service provided by the water supply system at the original level. It includes the renewal, replacement and repair of assets and infrastructure, for example replacing a pump or rehabilitating a borehole. These costs are typically one-off or periodic items.
Expenditure on Direct Support	The cost of supporting water service providers, communities and users. This can be technical support and advice, field monitoring and follow up and dispute resolution. These costs are typically borne by the local service authority.
Rural Area	Classified urban areas are the four major metropolitan areas of Lilongwe, Blantyre, Mzuzu, and Zomba, plus secondary cities (i.e., townships, district centres), while all other areas in the country are designated as rural (Ministry of Water Development and Irrigation, 2014).

Functional	A water point is considered functional if it is providing water at the minimum appropriate flow rate at the time of a spot check, and if components of the water extraction system are in good working order.
Partially Functional	A water point is considered partially functional if it is providing water at a rate below acceptable flow rate (0.25 litres/second for groundwater points, 0.076 litres/second for taps) at the time of a spot check.
Non-Functional	A water point is considered non-functional if it is not providing water at the time of a spot check. There are several possible reasons for non-functionality: (i) broken; (ii) disconnected (non-payment); (iii) vandalised; and (iv) abandoned.
Service Area	A service area refers to the area that is served, or is defined as supposed to be served, with water supply services by a given service provider under a given management arrangement. Service areas may correspond to existing administrative boundaries at a range of scales (i.e., an individual small-town, a district, multiple districts, a region, a country) or simply be defined by the population (intended to be) served by the water supply facility.