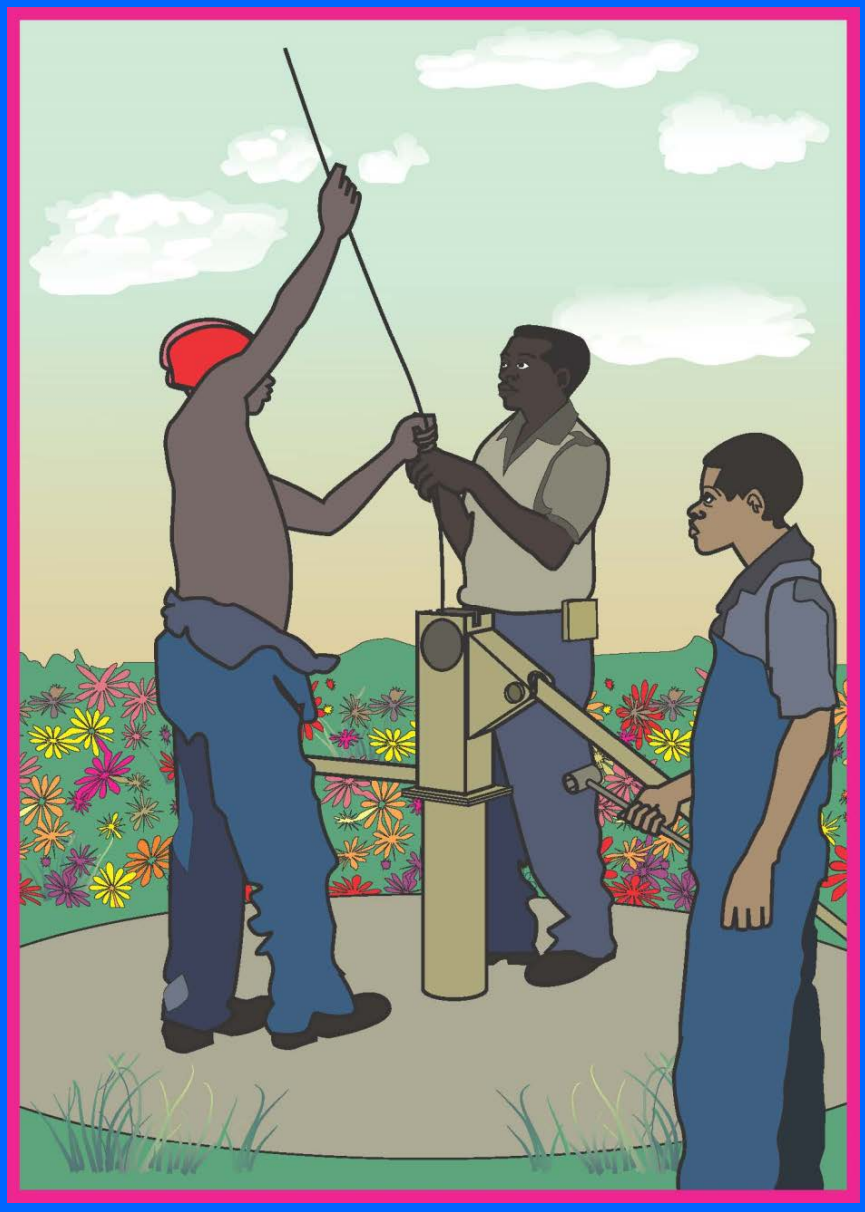
Government of Malawi

Rural Water Supply Operation and Maintenance Series 3

Guide Manual for the Establishment and Management of Area Mechanic System



Ministry of Agriculture, Irrigation and Water Development

March 2015

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Guide Manual for the Establishment and Management of an Area Mechanic System

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Rural Water Supply Operation and Maintenance Series 3

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LIST OF ACRONYMS

ADC	Area Development Committee
AM	Area Mechanic
BASEDA	Basic Services Development Agency
BMOs	Borehole Maintenance Overseers
CBM	Community Based Management
CCAP	Church of Central Africa Presbyterian
DC	District Commissioner
DCT	District Coordination Team
DEC	District Executive Committee
DP	Development Partner
DWDO	District Water Development Officer
EWB	Engineers without Borders
EWT	Extension Worker Team
GITEC	German Consulting Company
ID	Identity Card
KfW	Kreditanstalt fur Wiederaufban (Garman government-owned development bank)
MOU	Memorandum of understanding
MOAIWD	Ministry of Agriculture, Irrigation, and Water Development
NGO	Non-Governmental Organization
ORT	Other Recurrent Transaction
SPRS	Spare Parts Retail Shop
TA/STA	Traditional Authority/ Sub Traditional Authority
UNICEF	United Nations Children's Fund
VDC	Village Development Committee
VH/GVH	Village Headman/ Group Village Headman
VHWC	Village Health and Water Committee
WMA	Water Monitoring Assistant
WPC	Water Point Committee

PREFACE

Millions of Malawians, mostly rural, still lack access to clean water and are thus exposed to a number of water and sanitation diseases, such as diarrhea and/or cholera. Addressing this issue is a key component of the Malawi Growth and Development Strategy (MGDS). To ensure access to clean water in the country, Malawi must build not only the required infrastructure, but also the appropriate institutional systems which can effectively oversee, guide and manage the construction and ongoing operation and maintenance (O&M).

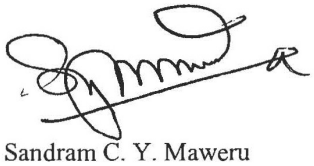
In the past, the Malawi government took full responsibility of the O&M of rural water facilities. However, this system was marred by numerous inefficiencies making it unsustainable. Without a strong presence in communities, these water facilities would often fall into disrepair, but also experience other issues such as catchment encroachment and vandalism.

In response, the national Decentralization Policy, instated in 1998 by the Malawi Government, emphasizes community empowerment through a transfer of power and responsibility to local authorities. Since then, there has been an increasing emphasis on developing community ownership through the adoption of practices like Community Based Management (CBM) trainings.

Though CBM trainings for Water Point Committees (WPC) endow water users with some basic repair skills, there is a need for more advanced repair services to correct more complicated technical problems. Given this, many districts in Malawi have established a network of hand pump mechanics with advanced repair skills. These mechanics are allocated a catchment area within the district and have thus been named Area Mechanics (AM).

In order to establish a well-functioning Area Mechanic network that will be sustained over time, there is much that is required both in the initial set-up of the network as well as the ongoing management of it. Building off of previous resources and practices on the subject, this guide provides a detailed account of what is needed in both of these crucial steps. It also clarifies the roles and responsibilities of the various stakeholders in the Water, Sanitation and Hygiene (WASH) sector so that each may know how it fits into the broader system.

It is hoped that with this guide manual, direction can be provided on one of the leading approaches to increasing access to safe drinking water through improved O&M of water points. Any substantive comments for improvement on the manual are welcome and should be directed to the secretary responsible for water development.



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SECRETARY FOR IRRIGATION AND WATER DEVELOPMENT

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This manual was produced by the “Project for Enhancement of Operation and Maintenance for Rural Water Supply in the Republic of Malawi” under the technical cooperation by Japan International Cooperation Agency (JICA).

A series of workshops were held in the project, and a lot of stakeholders in Malawi, development partners, and NGOs technically contributed in the formulation of the manual. The Ministry of Agriculture, Irrigation and Water Development therefore, extends special thanks to these stakeholders for allowing their staff to participate in the production of this manual.

The Ministry is also indebted to JICA for assisting in the development of the manual, and many who have not been mentioned here but contributed in different ways.

Overview of the manual

This manual has been prepared as a guide to facilitate the establishment and support of Area Mechanics who are meant to work as entrepreneurs in the effort to increase the sustainable operation and maintenance (O&M) of hand pumps in Malawi. The contents of the manual include materials regarding the roles and responsibilities of different stakeholders of water and sanitation projects, as well as guidelines on how to:

- Plan for the introduction of AM networks in districts where there are none currently.
- Plan for the routine long-term management of AMs in districts where there are existing or emerging AM networks, and
- Establish an acceptable working relationship between District Councils and NGOs/DPs involved in AM network implementation.

The manual has been developed from good practices of models NGOs[1]and District Councils have adopted in establishing and sustaining AM networks in Malawi.

This manual shall be used alongside water and sanitation sector policies, strategy documents, guidelines and other manuals used in the sector.

[1]Engineers without Border Canada (EWB), InterAide, Concern Universal, World Vision, GITEC

History of Area Mechanics in Malawi

The Ministry of Agriculture, Irrigation and Water Development (MoAIWD) recognized the need to have higher levels of community based management (CBM) when they introduced CBM trainings in the late 1990s. This was because there was still a gap in the repairs that were being conducted. However, a higher level of training was also needed so as to empower a smaller number of local mechanics in conducting more complicated repairs beyond the capability of caretakers trained in the O & M Phase of CBM trainings[2]. These local mechanics became known as Area Mechanics (AMs), and have since become a focus for many organizations and District Councils alike as a strategy for improving rural water point O & M.

In Malawi, the first AMs were established by KfW in the Kalembo Integrated Groundwater project as early as 1993. Since then, NGOs have followed suit and established AMs and spare parts retail shops, innovating along the way to make the systems more sustainable.

One of the largest efforts to train AMs in Malawi to date was in 2007, when UNICEF trained 450 AMs in 12 districts through the "Establishment of Community Based O & M System in UNICEF Supported 12 Districts of Malawi" project.[3] The emerging challenge since then, aside from training more AMs in the rest of the country, has been to keep these AMs active so that they may contribute to increasing functionality rates.

In addition, if they are well-managed, the introduction of AMs can reduce the work load of Water Monitoring Assistants (WMAs), especially in regard to assisting the Water Point Committees (WPCs) with more difficult hand pump maintenance. In this way, the WMAs are able to concentrate on their main roles of monitoring water and sanitation initiatives in communities rather than using valuable resources and time to conduct repairs directly in all communities.

[2]; Trainer's Guide for WPC/VHWC Training (1999), Ministry of Water Development
[3]; Establishment of Community Based Operation and Maintenance System in UNICEF Supported 12 District of Malawi (August 2007)

1.0 Structure of the Area Mechanic System

The AM is a private technician who can repair major problems of hand pumps. They check the condition and/or repair water supply facilities based on the contract with the WPC.

The proposed ideal system of AMs is illustrated in the figure below;

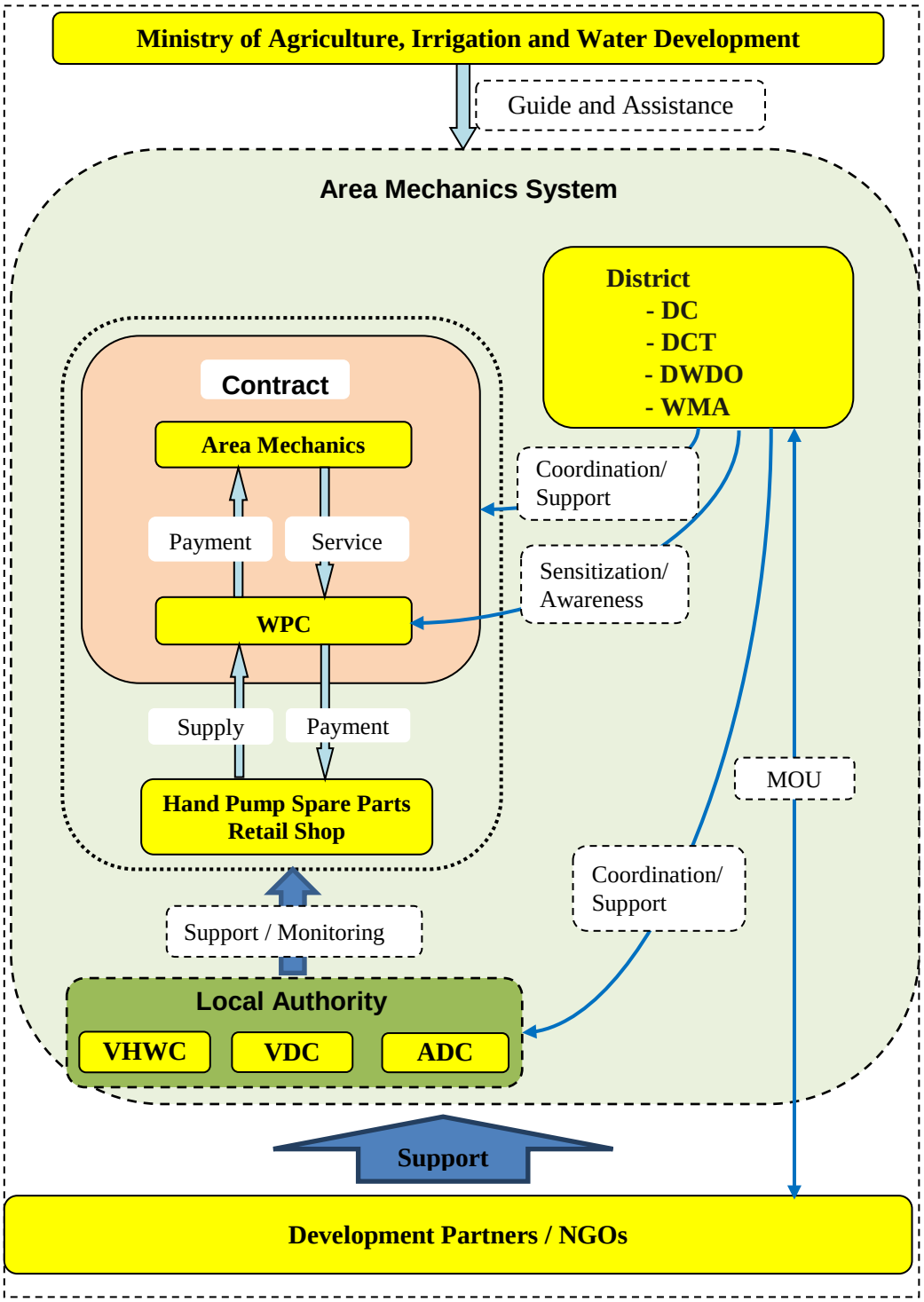

Figure 1 Proposed Ideal Area Mechanic System

2.0 Roles and Responsibilities of Key Players to Support and Maintain the Area Mechanic System

A number of key players are involved in the management and O&M of hand pumps. Each player has specific roles and responsibilities to support and maintain the AM System as outlined below;

2.1 Ministry of Agriculture, Irrigation, and Water Development (MoAIWD)

MoAIWD is in a position to develop/review policies, prepare overall budgets for Water Supply and O&M in particular, establish the roadmap for promoting the AM System at a national level, and guide the Districts, NGOs and External Development Partners in the AM System when clarification is needed.

MoAIWD is responsible for the following:

- Revising the guide manuals based on the findings of national monitoring and evaluation activities
- Where possible, supporting the Districts in sourcing more funding necessary for the implementation of AM activities
- Providing guidance to the Districts, NGOs and DPs to support AM activities

2.2 District Level

2.2.1 District Commissioner (DC)

The DC is in a position to authorize the activities of AMs in the District.

The DC is responsible for the following:

- Registering all trained AMs in the District
- Issuing an identity card (ID) including certificate of attendance signed by the DC to all trained AMs

2.2.2 District Coordination Team (DCT)

The District Coordination Team (DCT) is a technical arm of the District Executive Committee (DEC) on matters of water and sanitation (W&S) in the District.

The DCT is responsible for providing the day-to-day leadership and coordination for W&S activities in the District.

The DCT is responsible for the following:

- Coordinating and liaising with parent ministries, line ministries, NGOs, DPs and the private sector
- Taking into consideration plans for supporting the AM system when budgeting for use of district funds

2.2.3 District Water Development Officer (DWDO)

The DWDO is responsible for providing leadership and coordination for the support of AM activities in collaboration with: Extension Workers (EWs), Area Development Committees (ADC), Village Development Committees (VDC), Village Health and Water Committees (VHWC), Water Point Committees (WPC), NGOs, DPs and Private Sector actors.

The DWDO is responsible for the following:

- Planning for the establishment of the AMs in the District, as outlined in the flow chart above (See **Figure 1**)
- Planning and budgeting for the ongoing support and monitoring AM
- Requesting the issuing of ID cards from the DC for trained AMs
- Providing the standard contract form to the AMs
- Setting, recommending, and reviewing the standard price for the contract between the AM and the WPC
- Sensitizing communities, VDCs, ADCs, and other relevant stakeholders on the need of signing contracts between the AMs and the WPCs
- Planning meetings with the AMs on a monthly or quarterly basis

2.2.4 Water Monitoring Assistant (WMA)

WMAs work directly with the AMs for effective promotion of O&M in collaboration with relevant stakeholders

The WMA's responsibilities are as follows:

- Assisting in the establishment of the AM system where required, e.g. during training
- Conducting field visits to monitor AMs
- Conducting meetings with AMs on a monthly or quarterly basis
- Sensitizing communities regarding the role of the AM so as to increase community willingness to both use and pay
- Keeping records of AM activities

- Reporting on AM activities to DWDO
- Where possible, introducing AMs to their fellow Spare Parts Retail Shops (SPRS)

2.3 Traditional Authority (TA) Level

2.3.1 Area Development Committee (ADC)

The ADC is a forum of elected members at TA's level who play a role as a link between the village and the District Council. The role of the ADC is to plan and support the W&S initiatives within the TA's area. The ADC, council and VDC member assist to identify the W&S development needs, which they present to the council for assistance and monitor its implementation.

The ADC is expected to play the following roles.

- At the request of the DWDO, identifying suitable AMs through the list of candidates provided by the VDC
- Knowing the AMs in the area and promote their use to WPCs and communities
- Inviting local AMs to ADC meetings

2.4 Village Level

2.4.1 Village Development Committee (VDC)

VDC members, like the ADC, play an important link between the beneficiary communities and the council. The VDC plans, monitors, and supports the W&S initiatives at community level.

The VDC is expected to play the following roles:

- At the request of a WMA, identifying suitable AMs through the list of candidates provided by the Village Headman (VH)
- Monitoring the activities of the AMs with the assistance of WMA
- Knowing the AMs in the area and promote their use to WPCs and communities
- Inviting local AMs to ADC meetings

2.4.2 Village Health and Water Committee (VHWC)

The VHWC is a sub-committee of the VDC responsible for promoting W&S activities at village level. It is elected by and accountable to the users of the water point. The VHWC works with the

"user" community to plan and build the new facility and once it is built to maintain and operate it, using funds raised from the users themselves.

In a village with more than one water point, each WPC oversees a particular water point.

The VHWC's responsibilities are as follows:

- Conducting community meetings to brief them on plans or problems
- Taking responsibility to operate and maintain existing facilities
- Signing contracts with AMs, supervising and monitoring their activities and signing off on completed work
- Organizing maintenance and repairs carried out by caretakers and AMs
- Monitoring and evaluating of activities to improve management
- Assisting in the identification of the candidates to be trained as AMs
- Monitoring the signing of contracts between the WPCs and the AMs and supervising their work

2.4.3 Water Point Committee (WPC)

The WPC is a sub-committee of VHWC responsible for managing a single water point. It is elected by and accountable to the users of the water point – the "user" community. The WPC works with the "user" community to plan and build the new facility and once it is built to maintain and operate it, using funds raised from the users themselves.

The WPC's responsibilities are as follows:

- Signing contracts with AMs, supervising and monitoring their activities and signing off on completed work
- Organizing maintenance and repairs carried out by caretakers and AMs
- Assisting in the identification of the candidates to be trained as AMs
- Monitoring and evaluating of activities to improve management

2.5 User community

The user communities are those using the water point.

The user community responsibilities are as follows:

- Paying the water tariffs for the O&M of the water point

- Paying for or doing themselves the construction and subsequent maintenance of other W&S facilities (i.e., fence, soak away pit, latrines)
- Maintaining sanitary conditions at the water point and its surroundings

2.6 Private Sector

2.6.1 Area Mechanic (AM)

This is an established position of artisan for community based repair that has been given area mechanic training with the sole purpose of providing technical service to the WPC on a payment basis. The technical services include the repair works of hand pumps. AMs should provide services that are sustainable and at a fee. The fee should be charged in agreement with WPC. The AM needs to be linked to the WMA for technical support.

AM's roles and responsibilities are as follows:

- Maintaining trust with the WPC
- Providing technical service to the WPC at a fee based on assigned contract
- Contacting a supervising WMA when in need of technical assistance to perform a repair
- Maintaining skill through self-study
- Maintaining all tools, transportation and communication methods to be used in providing repair services
- Reporting their activities to a supervising WMA on monthly or quarterly basis
- Communicating information of the AM activity between AM and WPC

2.6.2 Hand Pump Spare Parts Retail Shop (SPRS)

These are shops identified in the busy trading centers and are provided with a starter pack of hand pump spare parts to sell to the WPC.

The hand pump SPRS's roles and responsibilities are as follows:

- Stocking enough quantity of hand pump spare parts
- Selling the hand pump spare parts at a standardized price
- Procuring good quality hand pump spare parts
- Work hand in hand with AMs to ensure access to relevant spares, and to promote the services of both AMs and SPRSs in the same area

2.7 Development Partners (DPs)/Non-Governmental Organizations (NGOs)

They provide support on a project basis taking into consideration that after the phase-out of the project, the District/Government would be able to continue with the activities for a sustainable AM System. Support to the AM system shall be provided in accordance with this guide manual and through a Memorandum of Understanding (MOU) with the District Council.

3.0 Methodology for Establishment and Ongoing Management and Support of Area Mechanic Systems

Based on the analysis of the existing documents and the good practices and challenges that were collected from the DPs/NGOs who are establishing and supporting AM networks in Malawi, the following are common steps used to ensure appropriate action by stakeholders.

In order to come up with an AM system that is sustainable in the district, there is need to first assess the current situation of the AM activities such as:

- Is there currently an NGO implementing an AM system in the district? If so, are there opportunities to collaborate with them in order to monitor AM activities as a district and to look for long-term solutions for supporting of the network.

- The current number of AMs and their skill level. This could be for districts where there is currently an NGO implementing, or where there were AMs previously trained.

In the following two sections there are guides for establishing a new AM system (where large scale recruitment and training is required), and for planning routine long-term management of AMs in districts where there are existing or emerging AM networks. Included in these sections is an outline of which activities should be planned and budgeted for on an ongoing basis, and additional activities the district can undertake to support AM networks if funding is available.

Table 1: Flow chart for the establishment of the Area Mechanic System

Step	Actors	Example Activities	NGO/DP Support Role
Planning	District Water Development Office (DWDO)	Identify already existing Area Mechanics (AMs), if any Catchment Area demarcation Review standard contract prices Identify and approach NGOs/DPs who may be interested in implementing AMs Assist sign a MOU with NGOs/DPs when entering into partnership Decide roles for DWDO staff in routine monitoring of AMs	Can provide feedback on plans
Preparation of the Budget	DWDO in consultation with possible funders (NGOs/DPs)	Prepare a budget for all activities related to establishment of the AM system(e.g. recruitment, training, provision of tools as a starter package) Provide the budget to possible funders for review and approval	Should review plans and budgets and identify areas for collaboration or funding is possible
Recruitment of the Area Mechanics	DWDO ADCs VDCs VHWCs"	Review AM selection criteria Approach ADCs, VDCs and VHWCs to identify suitable AM candidates in their areas based on the criteria Hold interviews to select AMs	NGOs/DPs primarily serve funding role Can choose to participate in selection process, as long as it is clear to all that AMs are independent entrepreneurs (not associated with the NGO)
Initial Training	DWDO EWTs	Determine current skill level of selected AMs so as to tailor the training accordingly Include both soft skills and technical skills in the training Invite newly trained AMs to other relevant field work in the area, such as CBM trainings for WPCs, or rehabilitation works Try to plan other activities like CBM trainings closely following the initial AM training, so that the AMs can get practice	Costs related to conducting initial training will most likely be dependent on NGO or DP funding Provide technical support on the content of the initial training"
Certification and Identification	DWDO District Commissioner (DC)"	DWDO requests ID cards for AMs District Commissioner (DC) issues ID cards	ID cards should not bear the logo of NGOs, as this can undermine community willingness to pay Area Mechanics as

Step	Actors	Example Activities	NGO/DP Support Role
			independent entrepreneurs
Provide tools and other equipment	DWDO with support from NGO or DPs	Provision of basic tools is a bare minimum Additional tools or equipment will be dependent on funding Provide initial copies of the contract forms 'Establishment of AMs	Provision of tools and any additional equipment will most likely be dependent on NGO or DP funding
Community Sensitization	DWDO Extension Workers (EWs) ADCs Community Police"	Communities, WPCs, and other community structures should be informed of the AM in their area and what their role is Link other field activities of the DWDO or other sectors so that awareness about AMs is spread Community police should be made aware of the AMs operating in their areas to avoid misunderstandings"	Provision of funds to hold awareness activities
Plan for On-going Management and Support of Area Mechanic	DWDO	See section 3.2- Ongoing Management and Support of the AM system	Any involvement of NGOs/DPs in the ongoing management and support of AMs must be carefully considered NGO/DP involvement in ongoing management activities must have a plan for how the DWDO will be responsible for monitoring the AM system NGOs/DPs should consider funding capacity development for DWDO to conduct basic monitoring and support of AMs

3.1 Establishment of an Area Mechanic System

3.1.1 Planning and Budgeting

i. Identify AMs already trained in the district

- Where there are already AMs trained in the district, it is necessary to find out where they are and whether they are active.
- Avoid training new AMs in areas where there are already AMs recognized by the communities. Doing so could undermine the system and is a waste of resources. An exception to this would be if an existing AM is not trusted by communities.
- AMs retained from previous systems should still attend training for new AMs if possible, as mentors but also to refresh their own skills.

ii. Catchment Areas (AM's business area)

The AM is an entrepreneur who provides the hand pump repair service to the community through the WPC on a payment basis. It is necessary to secure a minimum income for business to be established as an entrepreneur. If there are more than two AMs in same catchment area, it can lead to competition, which can result in decreasing the motivation of the AM due to the low income from the work. On the other hand, travelling a long distances to reach the WPC to secure a minimum income makes transportation expensive (either by public transport or vehicle) and a waste of time.

When establishing an AM system, setting appropriate catchment areas is an important factor in maintaining the motivation of the AM, and therefore impacts the sustainability of the system. AM catchment areas in the district should be evenly demarcated to motivate the AMs in consideration of geographical conditions.

The following factors are important when considering their demarcation in the District:

a. Number of water points in charge per AM

b. Radius of AM activity (maximum 20km)

As a first step for determining the demarcation of catchment areas for AMs, the number of water point shall be identified in the district. Then, proceed with the distribution of AMs taking in to consideration the number of water points.

The number of the water points per AM and the radius of the catchment area should be considered at district level, because the density of water points varies from district to district.

Box.1: An example of calculation for the appropriate number of AM in a district

At first, based on the database of the district, identify the total number of water points in the district. Then determine the number of water points each AM is in charge of in consideration of geographical conditions (e.g. density of water points, traffic conditions) in the district.

As an example of the following is a calculation of the necessary number of AM s in a district:

(A) Number of water points in the district: 1,300 WP
(B) Average number of water points per catchment area per AM: 50 WP
(C) Appropriate number of AMs
(C) = (A) / (B) = 1,300 / 50 = 26 AMs

Then, divide the district into 26 catchment areas, and assign one AM to each.

When the radiuses of a set catchment area, a geographical condition, exceed 20km, the number of WP in the catchment area should be reduced to recalculate the number of AM.

iii. Review standard contract prices

In general, there are two types of standard contracts, maintenance contracts and repair contracts. The contracts should include the following information, which should be reviewed and revised according to the current market environment:

a. Maintenance contract

This type of contract is for one year and the AM should visit the water point at least once every three months in a year for maintenance of the hand pump.

A standard price of the fee of the contract is MK4,500 (as of 2014 in Mchinji District).

The fee should be revised in consideration with current inflation rates and each district.

The Area Mechanic should do assessments during every supervisory visit to a borehole under contract. The following monitoring checklist/card could be used as a guide for conducting minimum checks for each monitoring visit to a borehole.

Sample of the AM monitoring checklist (See Appendix 1)

Borehole number:	No.1					
Village Name :	Nzangawo					
T/A	Zulu					
District:	Mchinji					
Monitoring Data	1/1/2015					
Hand pump is working	Good	✓	Fair		Bad	

Grouting of pedestal or pump stand	Firm	✓	Loose			
No of strokes to fill 20L bucket (Appx. 40 to 50 strokes for well-functioning borehole)		Strokes 41 strokes				
Corrosion of pump stand and head	None	✓	Slight		Bad	
Corrosion of handle parts	None	✓	Slight		Bad	
Condition of plunger set-up	Good	✓	Fair		Bad	
Condition of foot valve set-up	Good	✓	Fair		Bad	
Worn out sealing parts	Bobbin	✓	O-ring		U-seal	✓
Worn out pump rods	None		Slight	✓	Bad	
Worn out rod centralizers	None		Slight	✓	Bad	
Worn out bush bearings	None		Slight	✓	Bad	
Wear on cylinder liner	None	✓	Slight		Bad	
Why poor performance/ breakdown	No spares		No funds	✓	No skill	
Name of Area mechanic	Mr. Pili					
Date	1/1/2015					
Signature	Pili					
Water point committee representative	Mr. Zimba					
Signature	Zimba					
Date	1/1/2015					

Source: Adopted from SKAT-RWSN 2007: Installation and Maintenance Manual for Afridev Hand pump

b. Repair contract

This type of contract is signed whenever there is a breakdown of the hand pump and the WPC has not signed the maintenance contract with the AM.

The fee of contract should be set at a standard price according to the type of repair.

AM should explain information and quotation of the technical service before signing a contract with a community

See **Appendix 2**: Sample of Contract form and **Appendix 3**: Information and quotation form.

iv. Identify possible funders

There are high costs associated with starting a new AM system, which makes it difficult for DWDO to fund without external support. Namely, costs of conducting initial recruitment and training of AMs, and providing them with tools, are two main areas where NGOs/DPs are often relied upon for funding.

- Identify and approach NGOs/DPs who may be interested in implementing AMs

v. Sign a Memorandum of Understanding (MOU) with NGO/DPs

NGOs and DPs are meant to work in close partnership with government to compliment government efforts to provide services to communities. In this light, it is important that an MOU between the two is discussed so that NGOs/DPs may complement rather than undermine District Councils.

- Discuss with the implementing or funding NGO/DP what the working relationship between the District Council and the NGO/DP will be.
- Where possible, ongoing management responsibility of the AM system should fall to the district, while the initial costs of establishing an AM system (e.g. recruitment, training and tool provision) is a natural gap that the NGO/DP can fill.
- If the NGO/DP already has AM projects in the district, discuss how the district can be involved in the monitoring of the AM system, how information will flow between the district and the implementing NGO/DP, and what plans will be put in place to ensure sustainability of the system and a strong connection to the DWDO.

See **Appendix 4**: Sample of an MOU signed between district levels and NGO/Development partners.

vi. Decide roles for DWDO staff in routine monitoring of AMs

- Decide how the DWDO will plan and budget for regular interactions with AMs in the field
- Ensure that DWDO staff (DWDO, WMAs, Borehole Maintenance Overseers (BMOs), etc.) know what their responsibilities will be in monitoring and supporting AMs
- Refer to section 3.2 for more in-depth planning for ongoing management and support of the A M system

vii. Preparation of the budget

- Prepare a budget for all activities related to the establishment of the AM system (e.g. recruitment, training, provision of tools as a starter package)
- Provide the budget to possible funders (NGOs/DPs) for review and approval
- If you are getting routine resources, add it on the budget

3.1.2 Recruitment

i. Criteria to select AM candidates

Recommendations to the DWDO from ADCs/VDCs on the selection of suitable AM candidates should consider the following:

- Have great interest in community development work
- Trustworthy and honest
- At least 30 years of age, or otherwise permanently established in the community
- Able to read and write

- Consider both men and women for the position (gender)
- Have attended the O&M Phase of a CBM training
- Have another source of income (not expecting to rely on AM activities as a sole source of income)

ii. Identification of suitable AM candidates

The proposed procedure to identify the suitable AM candidates is as follows:

- DWDO requests suitable AM candidates from the ADC according to the criteria.
- VH/GVH to recommend at least one candidate of AM who should be a caretaker trained in CBM training O&M Phase to ADC through VDC based on the criteria outlined below. The candidate should have experience in repair works of hand pumps.

iii. Selection of AM

- DWD office selects from the list of candidates.
- Selection of AM is conducted through oral and written interviews.
- Interviews should give priority to oral rather than written content.
- Candidates with high motivation in social services with low technical skills shall also be considered.

See **Appendix 5**: Sample of oral interview format.

3.1.3 Initial training required for Area Mechanics

As for the training, there are 2 phases. The first phase is an initial training to conduct for establishing AMs and the other phase is a refresher training for AMs which have been already active.

The initial training for AMs should generally be conducted as follows.

Type of training	Days	Trainer	Trainee
Initial training	5 days	EWT (WMA, HSA and CDA)	AM candidates

The initial training for AMs will cover both the software and hardware components including the following:

i. Software skills

a. Building trust with the community

b. Conflict management and problem solving

c. Business management

d. Understanding contract conditions

e. Water point sanitation

ii. Technical skills

a. Afridev hand pump parts and function

b. Dismantling and reassembling pump

c. Trouble shooting and diagnosis on Afridev hand pumps

d. Repairing rising main

e. Regular preventive maintenance checks

The training manual for AMs shall be referred to the Supplement Document to this guide manual.

3.1.4 Certification and identification

- Each trained area mechanic should be issued an ID card by the DC.
- The ID card should have an expiry date of ideally two years.
- The ID card should be reissued after any refresher training.

See **Appendix 6**: Sample of ID card template.

3.1.5 Tools and materials to be provided to Area Mechanics as a starter package

After initial training of the AMs, it is recommended to provide with starter package to launch their business.

At a minimum, the package should include:

- Socket spanner and flat spanner
- Fishing tool
- Standard contract form
- Standard quotation form
- Price list of hand pump spare parts
- List of AMs and their contact information
- List of hand pump spare parts retail shops

If additional funds are available, the package might include:

- Hacksaw handle and blades
- Push bike to ease transportation problems
- Mobile phone to ease communication problems

Repair, replacement, maintenance and running cost of provided starter package is the responsibility of the AMs, as any entrepreneur would be responsible for his or her business equipment. This expectation should be clearly explained to the AMs.

Box.2

The following are suggested ways that AMs could secure funds for repair and replacement of starter package materials:

・Save funds necessary for repair and replacement from their income
・Use microfinance for the repair and replacement

3.1.6 Promotion activities for Area Mechanics

Awareness campaigns should be conducted by the District. The promotion of the new AM can be done through regular forums such as ADCs, or through additional promotion activities such as drama, etc.

At a minimum, awareness of AMs and their roles should be promoted by:

- Informing communities, WPCs, and other community structures (e.g. community police) of the AM in their area and what their role is
- Spreading awareness of AMs through other field activities of the DWDO or through other sectors such as health or education
- Inviting AMs to CBM trainings and HSA staff meetings

Optional promotion tools might include the following, if additional funds are available;

- Business cards (see **Appendix 7**: Sample of AM business card template)
- Sign posts
- T-shirts

- Newsletters
- Fliers
- Radio
- Drama productions
- Map of catchment area with photos of AMs

3.2 Ongoing Management and Support of the Area Mechanics System

Just as water points require operation and maintenance to stay functional, AMs require support to stay active. Routine management and support of AMs requires an ongoing process of planning, budgeting, and monitoring, with periods of additional support, refresher training, replacement, and community sensitization.

DWDOs with support from the DCT are responsible for providing this ongoing management and support of AMs.

Some of these different types of management and support are outlined below.

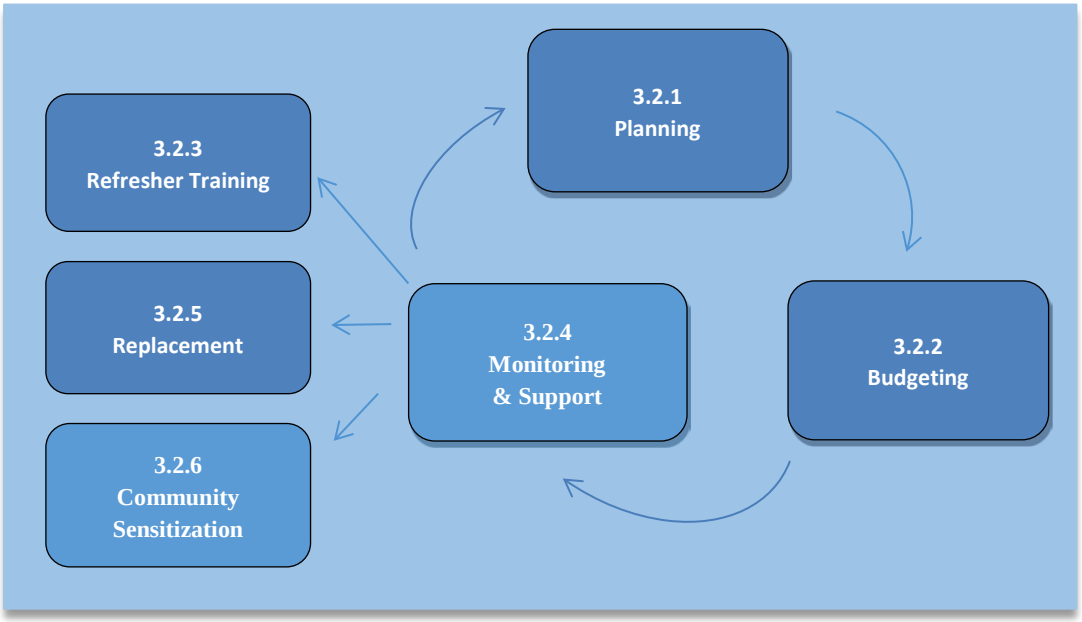

Figure 2: Diagram for the ongoing management of the AMs system

3.2.1 Planning

- Plan for monthly or quarterly supervision of AMs
- Develop WMA work plans for AM supervision strategies
- Link field visits (for any purpose) to supervision of AMs as much as possible

- Review AM monitoring information to see if there is a need for any specific activity or intervention related to AMs (e.g. specific refresher training, etc.)
- Plan to involve/invite AMs in other current field activities such as CBM trainings or Borehole rehabilitation projects
- If there is an NGO-managed AM system in the district, plan together with the NGO for a transition to become a DCT-managed AM system

3.2.2 Budgeting

- Include specific line item for fuel for AM supervision in every monthly/quarterly ORT budget
- For specific activities other than monthly/quarterly supervision (e.g. requiring additional funds), either budget when funds become available or lobby for funds from an appropriate source
- Look for opportunities to fund AM activities through DCT, DEC, or other forums

3.2.3 Refresher training

The refresher training is conducted after initial training, ideally every two years. Some topics of discussion in the refresher training will include any new developments that have emerged in the field.

The refresher training for AMs should generally be conducted as follows.

Type of training	Days	Trainer	Trainee
Refresher training	3 days	EWT (WMAs, HSAs and CDAs)	AMs

Generally it is recommended to include the following:

i. Software skills

Firstly, review the basic skills that were trained at the initial training as a refresher.

Then, the following topics should also be applied:

a. Community approach refreshed

- How do they enter the community
- Who do they contract
- What words do they exactly use in the community

b. Topics that community faces currently

ii. Technical skills

Firstly, review the basic skills that were trained at the initial training as a refresher.

Then, the following topics should also be applied:

a. Technical refreshment on the Afridev hand pump

- How to identify problems on the rising main
- How to resolve the problems

b. New technology on the Afridev hand pumps

c. Repair techniques of other types of hand pump

The manual of the refresher training will basically be the same as the initial training.

In the absence of funding for refresher training, it is expected that monitoring/supervision visits between WMAs and AMs will result in a mentoring relationship whereby the AM will gain new insights and skills from the WMA and other AMs on an ongoing basis. This ensures that AMs are constantly improving their skills rather than waiting for refresher training to be conducted.

3.2.4 Monitoring and support of Area Mechanics

With the proposed institutional arrangement, the monitoring of AMs will be done by WMAs.

- Monitoring is done through field visits and AM meetings where possible.
- Field visits are carried out on monthly basis by WMAs, and are budgeted for under ORT (fuel should be the only cost).
- AM meetings are planned by the DWDO, facilitated by WMAs, and are done on a monthly and/or quarterly basis depending on available funding either through ORT or lobbied funds from NGOs or elsewhere.
- Monitoring should include the following details:
  - ✧ Number of contracts signed between AMs and WPCs
  - ✧ Condition of hand pump of each water point checked by AMs / number of functional and non-functional
  - ✧ Number of active and inactive AMs
  - ✧ Challenges the AM is facing in his/her work
  - ✧ Areas in need of a new AM to be selected and trained
  - ✧ Number of new water facilities

As a result of evaluation of the monitoring, conduct support of AM if it found some issues in AM activity.

See **Appendix 8**: Sample of monthly reporting form and **Appendix 9**: quarterly monitoring form for AM respectively.

- WMAs provide support to the system by:
    - ✧ Mentoring individual AMs on areas for improvement and challenges they face in their work (See **Appendix 10**: Sample of AM supervision form for WMAs)
    - ✧ Providing technical assistance to AMs when they are unable to complete a difficult repair
    - ✧ Assisting in resolving contract disputes with community members
    - ✧ Sensitizing communities on the role of AMs, and linking communities to the AM in their area

3.2.5 Replacement of Area Mechanics

It is a known fact that the number of AMs will be reduced as time goes by due to a number of factors like death, old age and migration to cities or other villages. It is through monitoring that the need to replace or add the AMs can be assessed.

- WMAs should be aware of inactive AMs or of unsatisfactory performance
- In areas where problems persist or vacancies arise, a new AM must be selected and trained

3.2.6 Community Sensitization Regarding Area Mechanics

AMs face challenges in securing contracts and receiving payment from communities when they are not well known or well trusted in their areas. Regular messaging on the role of AMs and advertising an AM in his or her area can help increase communities' willingness to sign and pay contracts with AMs.

- Whenever WMAs or other staff attend ADC/VDC meetings, or visit WPCs for any reason, they can address the topic of the AM in the area
- Community police should be made aware of the AMs operating in their areas to avoid misunderstandings

APPENDICES

Appendix 1: AM Monitoring Checklist[4]

Borehole number:						
Village Name :						
T/A						
District:						
Monitoring Data						
Hand pump is working	Good		Fair		Bad	
Grouting of pedestal or pump stand	Firm		Loose			
No of strokes to fill 20L bucket (Appx. 40 to 50 strokes for well-functioning borehole)			Strokes			
Corrosion of pump stand and head	None		Slight		Bad	
Corrosion of handle parts	None		Slight		Bad	
Condition of plunger set-up	Good		Fair		Bad	
Condition of foot valve set-up	Good		Fair		Bad	
Worn out sealing parts	Bobbin		O-ring		U-seal	
Worn out pump rods	None		Slight		Bad	
Worn out rod centralizers	None		Slight		Bad	
Worn out bush bearings	None		Slight		Bad	
Wear on cylinder liner	None		Slight		Bad	
Why poor performance/ breakdown	No spares		No funds		No skill	
Name of Area mechanic						
Date						
Signature						
Water point committee representative						
Signature						
Date						

[4]SKAT-RWSN 2007: Installation and Maintenance Manual for Afridev Hand pump

Appendix 2: Sample form for contract[5]

MGWILIZANO

pakati pa

Numbering

Tsiku: _____

Mudzi / Mfumu yayikulu :_____

Mukonzi wa Dela : _____

Zoneyera kuchita (chongani mu kabokosi): Mgwirizano wapamwezi ☐ Mgwirizano wapachaka ☐ Zina ☐

Mtundu wa ntchito: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Malipiro a wokonza wa Dela : K

Zipangizo komwe zagulidwa :

Zipangizo zomwe	Mtengo wa zinthu	Zonse
	K	**K**
	K	**K**
	K	**K**
	K	**K**
	K	**K**
	Zonse pa modzi	**K**

Wokonzawa Dela
Dzina:
Saini:

Oimira Mudzi
Dzina:
Saini:

[5]Note: This example was provided by InterAide.

Appendix 3: Information and quotation[6]

Tsiku loyendera: ……
Dzina la mudzi: ……
Dzina la Mfumu yayikulu: ……
Dzina la Mkonzi wa dera: …….... Foni ya m'manja: ……

Komiti yamadzi (WPC) likugwira ntchito?	Eya / Ayi*	*Kodi ndi anthu angati ali mu komitiyi WPC?*	

* Ngati palibe Komiti (WPC) mukumane ndi a Mfumu olo a komiti ya VDC

Cholinga choyendera:	Mtundu wa pampu? Unasiya liti Mjigo/Pompikugwira ntchito? Vuto ndichani? Ntchito yoyenera kugwiridwa? Ndi zina zotero……. …… …… ……
Mtundu wa ntchito yotiigwilidwe: ☐☐ Mgwirizano wa pa mwezi Mgwirizano wa pa chaka	

Zipangizo kuti mjigo ukonzedwe zofunika			*Mtengo*
			K
			K
			K
			K
Komwe zingapezeke		Zonse Pamodzi	K

Mkonziwaderayusamalipidwandi a TikonzeMjigokomansoBoma, ndiye pa nchitoyomweamagwirakuderayiayenerakulipidwa:

Mtengo wogwilira ntchito	*Mtengo*
Ntchito yonse	K
Mayendedwe ake (Ndalama yokonzetsera) Nambala ya ma Kilometres (KM) ☐ X Mtengo pa Km (10 K)	K
Zonse Pamodzi	K

Mawu owonjezera: ……
……
…

Tsiku lina loyendera/lokumana ndimkonzi wa dera kumudzi	*Tsiku:*

Mkonziwadera	**Akomiti yamadzi (WPC)**	**V. D. C**	**Mfumu**
Saini	Saini	Saini	Saini

[6]Note: This example was provided by InterAide.

Appendix 4: Memorandum of understanding[7]

Example
MEMORANDUM OF UNDERSTANDING
Between
NGO/DP: [Name *of DP/NGO*]
And
District Council: [Name *of District Council*]

This Memorandum of understanding (hereinafter referred to as "MOU") is entered into on the (*date*) of (*month*), (*year*) BETWEEN (*Name of NGO/DP*) on one side and (*Name of District*) District Council on the other side.
This MOU will cover the period from (*date*) of (*month*), (*year*) to (*date*) of (*month*), (*year*). The MOU will be renewed or not depending on performance, achievement, impact of the project to the beneficiaries and availability of funding. The project is planned to last ( ) years from (*year*) to (*year*).

1. Background

[Outline *of the Project*]

2. Undertaken by (*Name of NGO/DP*)

(*Name of NGO/DP*) through (*name of Project*) will implement the following activities in (*name of District*).

2.1 Ensure that spare parts are available and accessible to Water Point Committees through a network of spare parts retail shops.

- Identify the retail shops in very busy trading centers in (*name of District*).
- Conduct training of the retail shop owners on basic pump maintenance and on stock management in (*name of District*).
- Organize spare parts supply system in (*name of District*).
- Provide starter packs to new retailers in (*name of District*).
- Provide technical support and spare parts to the shop owners.
- Monitoring the effectiveness of spare parts network in the district and its impact on the maintenance system on the working pump rate.
- Fixing of prices for boreholes spare parts in collaboration with the District Water Development Office and the selling points.

2.2 Strengthen maintenance services for the Water Point Committees through a network of Area Mechanics.

- Identify Area Mechanics in collaboration with the (*name of District*) District Water Development Office.
- Conduct appropriate and adequate training for Area Mechanics in collaboration with the District Water Development Office.
- Collaborate with the District Water Development Office to provide technical support to Area Mechanics.
- Conduct awareness meetings to inform the communities on the establishment of

[7]Note: This example was provided by the Mulanje District Water Development Office.

Area Mechanic network.

- Strengthen work relationship between Area Mechanics and Spare Parts Retail Shops for better operation of the maintenance system.
- Conduct regular capacity needs assessment for Area Mechanics and Spare Parts Retail Shops, and develop mechanisms for addressing them.
- Monitor and evaluate activities of Area Mechanics and Spare Parts Retail Shops in collaboration with the District Water Development Office.

2.3 Promote security system of the pumps to reduce theft and vandalism

- Conduct orientation of the Area Mechanics on security system of the pumps.
- Conduct awareness meetings on the benefits of establishing a security system.
- Provide technical assistance to communities that have shown commitment to secure their pumps.
- Promote the awareness of Area Mechanics& Spare Parts Retail Shop services by designing appropriate Information Education Communication materials and mediums.

2.4 Consolidate the management procedures of the maintenance systems

- Develop annual and monthly action plans for project activities in collaboration with the District Water Development Office.
- In collaboration with the District Water Development Office, develop a comprehensive monitoring and supervision system for Area Mechanics and Spare Parts Retail Shops - contracts, service quality and spare parts sales records and inventories.
- Establish a knowledge and experience sharing mechanism with all actors in water and sanitation at all levels, on the maintenance system and available services through different meetings and networks.
- Work with the District Water Development Office staff to execute an overall evaluation of the project activities based on the project's success indicators.
- Provide free access to information on the activities implemented under this MOU to the District Council.
- Support in the strengthening of District Water Development Office capacity through the provision of operational resources as may be deemed possible by (*name of NGO/DP*) for the purpose of monitoring and supervising the Area Mechanics and Spare Parts Retail Shops activities in the district.
- Compile reports and submit them to the District Water Development Office and donors.

3. Undertaken by (*Name of District Council*)

- Provide direction and support to (*name of Project*) in the implementation of the project activities.
- Collaborate with (*name of Project*) in planning, monitoring and evaluation of maintenance system activities and ensure plans are in line with the District Plans and the National Water Policy.
- Provide information to (*name of project*) on the updated number of water points in the District, new drilled and rehabilitated boreholes, number of committees trained, number of selling points and area mechanics trained in the project area.
- Share experience with (*name of Project*). Form and conduct training of Water Point Committees.
- Involve Area Mechanics in the drilling and installation of new water points and

rehabilitation of boreholes.

- Provide technical support to Area Mechanics in collaboration with (*name of Project*).
- Receive reports on usage of the water points and spare parts stocking levels from Water Point Committees, Area Mechanics and advise accordingly.
- Assess the quality of implemented activities and provide written comments and advice accordingly.
- Compile reports on maintenance activities done by the District Water Development Office and share them with (*name of Project*).
- Monitor the effectives of Area Mechanics network and its impact on the functionality rate of the boreholes in the district.

4. Termination

Both parties have read, understood and agreed with the content and objectives of this MOU. Both parties remain in a position to breach the agreement made under this MOU, as long as one or both parties do not fulfill one of its conditions. While all parties to this agreement shall do everything possible to fulfill the terms and intent of this agreement, circumstances or conditions beyond the control of the parties may arise that render it necessary to terminate the agreement prior to the scheduled expiration date. Failure to deliver on the targets can constitute reason for termination. This situation should be notified within 30 days in advance by written letter, duly received by the other party letter explaining the reasons inducing the breach of contract.

The prolongation of this MOU will be effective after signature of a new confirmation document.

Both parties have read, understood and agreed with the content and objectives of this MOU. These signatories below agreed to bind in full force with loyalty and to implement, monitor and evaluate the project covered by this MOU.

5. Notice

Any notice to the District Council and (*name of NGO/DP*) partnership or either party with respect to this MOU shall be effectively given in writing and if delivered or sent by registered mail, or by facsimile must be addressed to the District Council or (*name of NGO/DP*) and the communication is forwarded to the addresses given in this agreement as below, or to such other address designated from time to time in writing by either party. If hand delivered, a signature of the receiving person shall be obtained.

[Address of NGO/DP]

[Address of District Council]

6. Whole Agreement

This agreement as part of the MOU shall only be valid if first reduced to written and signed document by both parties.

THUS DONE AND SIGNED ON THIS (*DATE*) OF (*MONTH*), (*YEAR*)
FOR: (*NAME OF DISTRICT*) DISTRICT COUNCIL:
NAME: ……
SIGNATURE: ……

FOR: (*NAME OF NGO/DP*):
NAME: ……..
SIGNATURE: ……
.

Appendix 5: Interview format[8]

ORAL INTERVIEW – Area Mechanics Selection

Personal Particulars
Name: _____
Age:_____
Phone Number: _____
Village:_____
GVH:_____
TA/ADC: _____
Education Qualification: _____

1. Have you ever been convicted of a crime? **Fail interview** if yes

2. Why do you want to be an Area Mechanic?

3. What do you think the roles of an Area Mechanic are in the community?

4. As an Area Mechanic, what would you do if a community refused to pay you for a repair?

5. Talk about a situation where you have had to introduce yourself to VHs/Communities
   - How did you do this?

   - What challenges did you face?

[8]Note: This example was provided by EWB.

6. What are the most important factors for building good relationships with WPCs?

7. If you were selected, how would you promote your work as an AM?

8. Describe current maintenance activities in your area (0-1 WPC: 0 points. 1-5 contracts a year, more than one WPC: 1 point. 5-10 contracts a year: 2 points. 10-20 contracts a year: 3 points. 20+ contracts a year: 5 points.) **Needs** to be verified if more than 10 contracts a year:

9. Describe other development activities that you take part in your community (5 points for other community leadership or health activities):

10. Do you have another business (es)? Please explain. (10 points for existing business)

11. What other work experience do you have?

Appendix6: Identity card (ID)[9]

Example Area Mechanic Identification Card

(Front part/ Face of ID)

(Name of District) COUNCIL
Private Bag ( ), (Name of District)

Photo

Name :
T/A :
ID No. :
Position : Area Mechanic
Date of issue:
Holder's signature
District Commissioner's signature:

(Back part of ID)

Official Stamp depicting:
(Name of District) COUNCIL
Private Bag ( ), (Name of District)

Include words saying that if this ID is lost, please return it to the address indicated on the official stamp

[9]Note: This example was provided by InterAide.

Appendix 7: Sample of AM business card template[10]

 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. MECHANIC NAME (0)xxxxxxxxx	 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. **MECHANIC NAME** (0)xxxxxxxxx
 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. MECHANIC NAME (0)xxxxxxxxx	 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. **MECHANIC NAME** (0)xxxxxxxxx
 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. MECHANIC NAME (0)xxxxxxxxx	 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. **MECHANIC NAME** (0)xxxxxxxxx
 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. MECHANIC NAME (0)xxxxxxxxx	 **AREA MECHANIC** DISTRICT NAME TA Name If your borehole's broken, call your area mechanic. **MECHANIC NAME** (0)xxxxxxxxx

10 Note: This example was provided by EWB.

MONTHLY REPORTING FORM FOR AREA MECHANIC (AM)

FOR ..... DISTRICT

FOR THE MONTH OF ..... / 20.....

1. Name of Area Mechanic : .....
2. Catchment Area : .....
3. Village : .....
4. TA/STA : .....
5. Number of hand pumps in Catchment Area : .....
6. Number of contracts in this month : .....
7. Number of hand pumps repaired : .....

No.	Type of Hand pump	Village	Location	BH No.	Repair Done	Spare parts replaced	Comment by AM
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

No.	Type of Hand pump	Village	Location	BH No.	Repair Done	Spare parts replaced	Comment by AM
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

8. Condition of repair tools : .....

9. Functionality of WPC :

Name	Available (Number of Members)	Is it active?	Was it trained in CBM	Challenges faced by the WPC	Comments

Signature of Area Mechanic ..... Date .....

DISTRICT QUARTERLY MONITORING FORM FOR AREA MECHANICS

QUARTER 1

NAME OF AREA MECHANIC: ..... AREA MECHANIC NO.: .....

DISTRICT: ..... TA : .....

CATCHMENT AREA: .....

No.	Village	Pump type	BH NO.	Borehole		WPC			Remarks
				Functional	Not functional	Active	Not active	Non-existent	

No.	Village	Pump type	BH NO.	Borehole		WPC			Remarks
				Functional	Not functional	Active	Not active	Non-exis tent	

Appendix 10: AM supervision form for WMA[11]

Area Mechanic Supervision Form Date: _____

WMA: _____ AM: _____ ADC: _____

This form is meant to help you support your Area Mechanic. However, you should note important issues to follow up on at monthly staff meetings, such as unresolved issues, important challenges faced by AM that should be shared, things to discuss with other WMAs or bring to District Water Development Officer's attention, comments on AM performance, etc.

Questions for Area Mechanics (for problem-solving)

1. What has been your biggest work challenge this month?

2. Are there any specific tasks you did not feel qualified to deal with this month? (e.g., specific type of repair, conflict management with a WPC, etc.)

3. Have you had any problems in receiving payment from WPCs this month? How have you been working with others to overcome this challenge?

4. Have you worked with the SPR in your area this month? Please provide details.

5. What part of your job have you enjoyed the most in the past month?

6. New question this month, decided at staff meeting: _____
   _____

Supervision Checklist

☐Collect Repair/Special Contracts
☐ Complete questions 1-6 above
☐ Record # of repairs conducted by the AM this month: _____
☐Catchment Area Population: _____
☐ No. of cases of vandalism/theft reported by the AM this month: _____
☐Any other activities the AM participated in this month (NGO, DWDO, etc.):

☐ Collect water point data:

No. Boreholes	**No. Functional**
No. Non-Functional (repairable)	No. Non-Functional (un-repairable)

[11]Note: This example was provided by EWB.

Rural Water Supply Operation and Maintenance Series were developed for planners, managers and practitioners for the practices of operation and maintenance of boreholes fitted with Afridev hand pumps in rural Malawi.