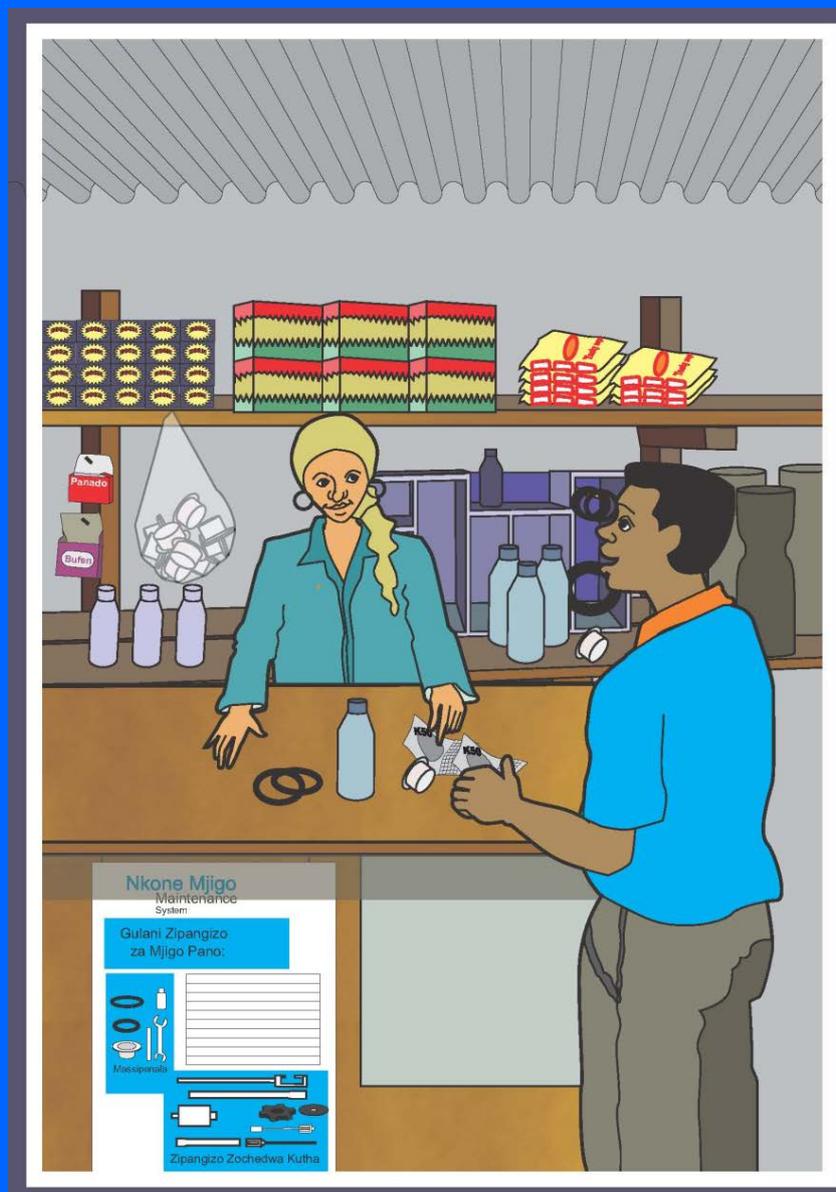




Government of Malawi

Rural Water Supply Operation and Maintenance Series 5

Guide Manual for the Establishment of an Afridev Hand Pump Spare Parts Supply Chain



Ministry of Agriculture, Irrigation and Water Development

March 2015



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Rural Water Supply Operation and Maintenance Series 5

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LIST OF ACRONYMS

ADC	Area Development Committee
AM	Area mechanic
CBM	Community based management
CCAP	Church of Central Africa Presbyterian
DC	District Commissioner
DCT	District Coordination Team
DP	Development Partner
DWDO	District Water Development Officer
EW	Extension worker
MOU	Memorandum of Understanding
MAIWD	Ministry of Agriculture, Irrigation, and Water Development
MRA	Malawi Revenue Authority
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
SPRS	Spare Parts Retail Shop
TA	Traditional Authority
VDC	Village Development Committee
VHWC	Village Health and Water Committee
W&S	Water and Sanitation
WES	Water and Environmental Sanitation
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 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).

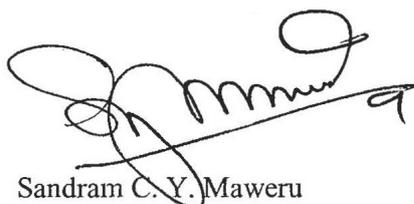
In the past, the Malawi government took full responsibility of the O&M of rural water facilities. However, this system was marred by numerous inefficiencies making it thoroughly unsustainable. Without a strong presence in communities, these water facilities would often fall into disrepair, but also experience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

One of the core elements in developing community ownership over its water point is for that community to have access to spare parts for their hand pump. Through usage, the parts of the hand pump are liable to wear out and require replacement. Currently though, accessibility to spare parts is sparse and infrequent. The establishment of a nation-wide hand pump spare parts supply chain which provides easily accessible spare parts for hand pumps in all communities is essential for achieving clean drinking water for all Malawians.

Building off of previous resources and current practices on the subject, this guide manual is intended to enable the creation of this nation-wide hand pump spare parts supply chain. It begins with a delineation of the roles and responsibilities that the various stakeholders in the Water, Sanitation and Hygiene (WASH) sector should play. It then proceeds with the methodology for establishing such a supply chain. It gives a step-by-step account of the administrative activities, the activities for the retail shop, and the activities related to the supply of spare parts.

It is hoped that this guide manual can guide the establishment of a nation-wide hand pump spare parts supply chain and that Malawi can move ahead in providing access to clean drinking water for all Malawians. Any substantive comments for improvement on the manual are welcome and should be directed to the secretary responsible for water development.



Sandram C. Y. Maweru

SECRETARY FOR IRRIGATION AND WATER DEVELOPMENT

ACKNOWLEDGEMENTS

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 guide manual

I. Introduction

This manual has been prepared as a guide to facilitate the establishment of a hand pump spare parts supply chain. This supply chain is essential for the sustainability of operation and maintenance of rural water supply in Malawi. The contents of the manual provide materials which can be utilized as guidelines for the stakeholders involved in water and sanitation projects seeking to establish or manage a spare parts supply chain. It also outlines roles that these stakeholders can play in hand pump operation and maintenance (O&M).

For a number of years, the main distributors of hand pump spare parts have been private supplier stores. Unfortunately private supplier stores are found mainly in large towns or major trading centers. This forces some communities to travel long distances to purchase hand pump spare parts. Currently, to reduce the distance WPCs need to travel to purchase spare parts, NGOs are establishing a system which sells spare parts to communities at retail shops in smaller trading centers. These efforts include the following activities:

- NGOs take on the hand pump spare parts wholesaler
- Establishment of hand pump spare parts retail shops
- Coordination of links between hand pump spare parts suppliers and spare parts retail shops
- Training of the retail shop owners
- Supply of the starter pack to the retail shops

However, currently in Malawi, there is no spare part supply chain that covers the whole country. For the sustainability of rural water supply facilities throughout the country, a supply chain must be established so that spare parts are readily available and reasonably priced.

This guide manual helps users in understanding the conceptual and institutional framework for a sustainable supply chain to be introduced in a district. It also provides clear and straightforward guidelines for district stakeholders.

The manual is built upon the good practices of NGOs who are establishing hand pump spare parts supply chains in Malawi.

Interviews have been conducted with several NGOs to collect good practices and challenges. The collected information was analyzed and a proposed ideal situation was drafted. In addition, the roles and responsibilities of various stakeholders were outlined through a group meeting with members of the Agriculture, Irrigation, and Water Development (MAIWD) and the Mchinji District Coordination Team (DCT).

II. Purpose of guide manual

This manual is intended to provide clear and straightforward instructions to stakeholders who currently or intend to introduce, facilitate, or maintain a hand pump spare parts supply chain. It provides a step-by-step guidance for the following undertakings:

- How the conceptual and institutional framework of a sustainable hand pump spare parts supply chain is established.
- How the sustainable supply chain is realistically planned, budgeted, introduced and established in a district
- How the operation and management of the supply chain is practically carried out.
- How the supply chain is maintained in a sustainable manner.

III. Contents of guide manual

In order to provide guidance on establishing and maintaining the hand pump spare parts supply chain, this guide manual includes the following;

- Concept of the hand pump spare parts supply chain
- Roles and responsibilities of key players in supporting and maintaining the hand pump spare parts supply chain
- Methodology for establishment of hand pump spare parts supply chain

a. Administrative activities

This activity includes establishing and managing the spare parts supply chain, such as planning, budgeting, authorization, advertisement, monitoring, and so on.

b. Activities for retail shop

This is the activity to establish the retail shops. Main tasks to be performed are solicitation and training of the retail shops.

c. Activities related to supply of spare parts

This activity involves the actual supply of spare parts, from purchasing spare parts, to stock and distribution, to price control.

IV. Relevant documents

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

1. Concept of the hand pump spare parts supply chain

The hand pump spare parts supply chain aims to increase the availability and accessibility of spare parts to communities.

I. Basic model of the supply chain

The supply system is founded upon the link between MAIWD and district governments in collaboration with DPs/NGOs.

The basic model of the supply chain is given below:

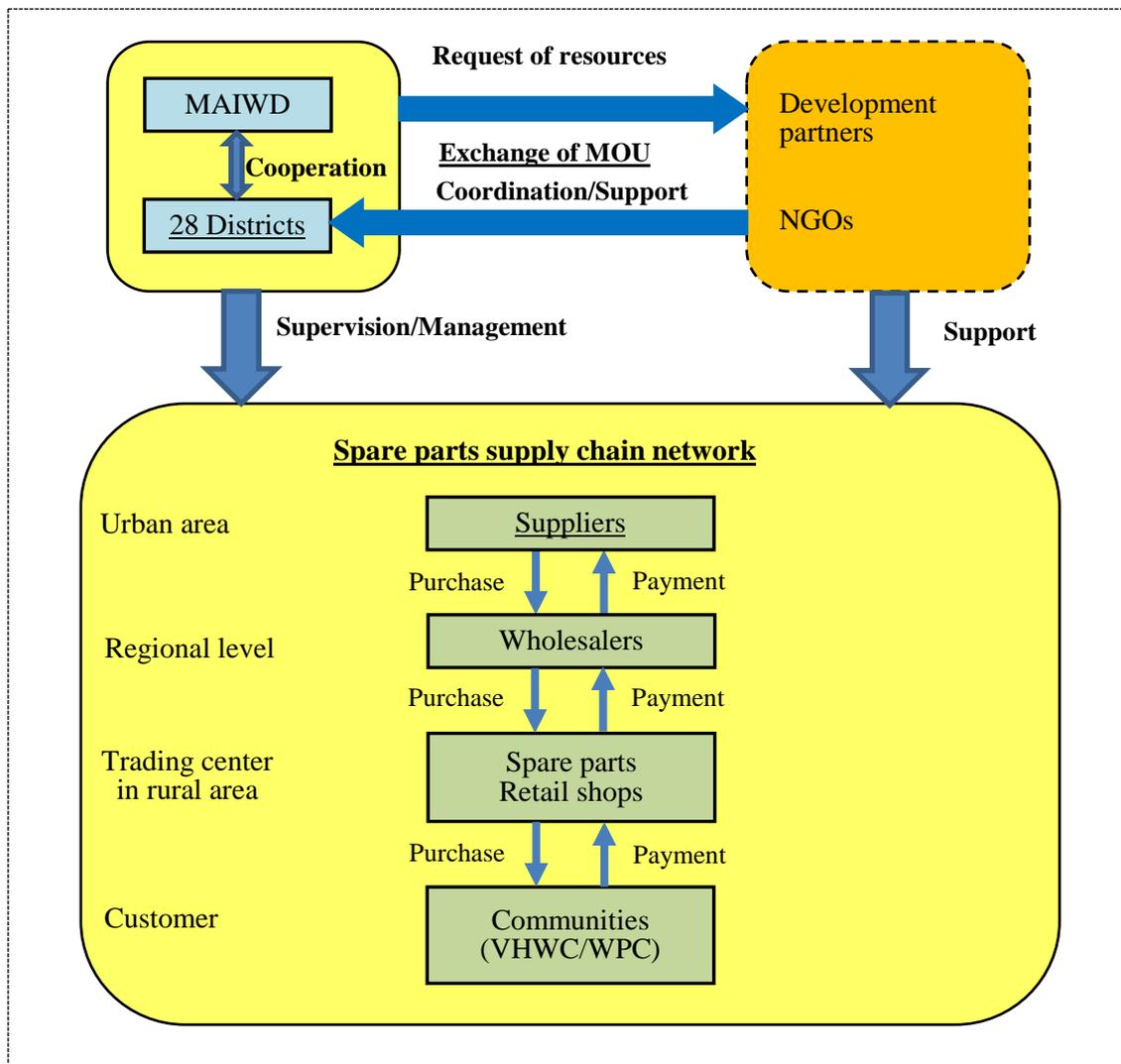


Figure 1 Basic model of the spare parts supply chain

II. Regional stock of spare parts

Spare parts are sold at prices that ensure the sustainability of the supply chain. Quantities of initial regional stock are determined to satisfy the “annual” demand in participating districts. Thus, the stock will need to be replenished on a yearly cycle, utilizing a revolving fund created through sales of spare parts. Moreover, all operation costs should also be incurred by the sales. One key component of successful management of the revolving fund is timely replenishment and periodical price revisions (in conjunction with replenishment) so as to avoid a disparity between market prices and selling prices at the spare parts retail shops.

III. Reasonable pricing of spare parts

With the view of supporting communities, spare parts shops should be run on a low-profit basis. The objective is to make safe water accessible to rural populations, so spare parts to be sold in a retail shop should be priced accordingly. Specifically, prices of spare parts should be minimized as long as the revolving fund is safely sustainable. Therefore, MAIWD should supervise the selling prices to be set by wholesalers.

2. Roles and responsibilities of key players to support and maintain the hand pump spare parts supply chain

A number of key players are involved in the management, operation and maintenance of rural water facilities. Each player has specific roles and responsibilities to support and maintain the hand pump spare parts supply chain, as outlined below;

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

MAIWD is in position to develop and review policies, prepare budgets, establish the roadmap for promoting the hand pump spare parts supply chain and provide leadership and coordination at a national level in collaboration with districts, NGOs and development partners.

MAIWD is responsible for the following;

- Revising the guide manual based on the findings of the monitoring and evaluation activities
- Planning, including, and identifying wholesalers in the hand pump spare parts supply chain
- Planning, and budgeting (i.e. purchase cost of regional stock, preparation cost of a warehouse facility for regional stock, operation and management cost of a wholesaler in the first year of operation) for the hand pump spare parts supply chain in collaboration with districts
- Advising districts to source necessary funding from other sources for purchase cost of starter packs for the retail shops, advertisement cost for retail shops and preparation cost of warehouse facility for district stock
- Applying for tax exemptions from Malawi Revenue Authority (MRA) in order to make the price of spare parts in communities affordable
- Assisting the districts, development partners and NGOs to support activities related to the hand pump spare parts supply chain
- Supervising the selling prices of hand pump spare parts
- Monitoring, stocking, and selling of hand pump spare parts and selling price at wholesaler

2.2 District Level

2.2.1 District Commissioner (DC)

The DC is in a position to authorize hand pump spare parts shops within their district. The DC is responsible for the following;

- Selecting a list of candidate hand pump spare parts shops in their district (shops recommended by an ADC)
- Issuing a certificate to hand pump spare parts retail shops that meet authorization criteria and are enthusiastic about selling hand pump spare parts
- Issuing a certificate to prove that a retailer has undergone training
- Creating a registry of authorized hand pump spare parts retail shops in their district

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 ministry, line ministries, NGOs development partners and the private sector
- Planning, coordinating and managing finances for supporting hand pump spare parts supply chain

2.2.3 District Water Development Officer (DWDO)

The DWDO is responsible for providing leadership and coordination for the support activities of the hand pump spare parts supply chain in collaboration with: Extension Workers (EW), ADCs, NGOs and Development Partners (DPs).

DWDO is responsible for the following;

- Planning for the establishment of hand pump spare parts retail shops in the district, as outlined in 3.1.1 Planning
- Planning and budgeting (i.e. purchase cost of starter packs for retail shops, preparation cost of warehouse facility for district stock, advertisement cost for retail shops) for supporting the hand pump spare parts supply chain
- Conducting confirmation of the willingness of retail shop owners to sell hand pump spare parts
- Planning training for retail shop owners

- Requesting the issuing of the certification from DC for the selected retail shops and the trained retailers
- Providing starter packs to the selected hand pump spare parts retail shops in collaboration with wholesaler(s)
- Providing the advertising materials and tools to the selected hand pump spare parts retail shops in collaboration with wholesaler(s)
- Advertising to the communities and area mechanics about the presence of a retail shop in the area
- Monitoring stocking and selling of hand pump spare parts and selling price at retail shops through Water Monitoring Assistants (WMA)

2.2.4 Water Monitoring Assistant (WMA)

The WMA trains the retail shop owners and monitors the shops and customers.

The WMA's responsibilities are as follows;

- Conducting training of retail shop owners
- Checking quality and quantity of the spare parts at retail shops and customer levels
- Monitoring, stocking, and selling of hand pump spare parts and selling price at retail shops
- Advertising to the communities and area mechanics about the presence of a retail shop in the area

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 ADC is to plan and support the water and sanitation initiative within the TA's area. The District Council, ADC and VDC members assist to identify W&S development needs, which they present to the council for assistance and monitor its implementation.

ADC is expected to play the following roles:

- At the request from DWDO, identify suitable retail shop owners at the trading center in the TA

- Advertising the selected hand pump spare parts retail shops to the communities through ADC meetings

2.4 Village Level

2.4.1 Village Health and Water Committee (VHWC)

The VHWC is a sub-committee of the Village Development Committee (VDC) responsible for promoting water and sanitation activities at the village level. It is elected by and accountable to the users of the water points. 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 water point is overseen by a separate WPC.

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
- Organizing maintenance and repairs carried out by caretakers and AMs
- Monitoring and evaluating of activities to improve management
- Sensitizing regarding the purchase of the hand pump spare parts for repair to the WPC
- Purchasing hand pump spare parts from selected spare parts retail shops

2.4.2 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.

WPC’s responsibilities are as follows;

- Conducting community meetings to brief them on plans or problems
- Organizing maintenance and repairs to be carried out by caretakers and area mechanics
- Monitoring and evaluating of activities to improve management
- Purchasing hand pump spare parts from selected spare parts retail shops

2.4.3 User community

The user community comprises those using the water point.

The user community responsibilities are as follows:

- Paying for the water tariffs for the O&M of the water point, construction of W&S facilities (e.g., fence, soak away pit, latrines)
- Maintaining sanitary conditions at the water point and its surroundings

2.5 Wholesaler

The wholesaler plays an important role in purchasing hand pump spare parts from suppliers in urban areas to sell hand pump spare parts to retail shops.

The wholesaler is selected by MAIWD in collaboration with districts, NGOs and DPs

The wholesaler's roles and responsibilities are as follows:

- Collecting quotations from various suppliers to select suppliers
- Negotiating with suppliers to get reasonable price
- Controlling the quality of the hand pump spare parts
- Preparing the warehouse to stock the spare parts for regional stock and district stock in collaboration with MAIWD and districts
- Controlling the quantity of the stock at the warehouses
- Delivering the hand pump spare parts to the district level
- Selling the hand pump spare parts to the retail shop at standard prices

2.6 Private Sector

2.6.1 Area Mechanic

This is an established position of artisan for community based repair that has been given AM 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
- Reporting their activities to a WMA on a monthly and quarterly basis
- Communicating information of the AM activity between AM and the retail shop owner
- Advertising to the communities about the presence of a retail shop in the catchment area

2.6.2 Spare Parts Retail Shop (SPRS)

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

The SPRS's roles and responsibilities are as follows:

- Purchasing hand pump spare parts from wholesalers
- Stocking enough quantity of hand pump spare parts
- Selling the hand pump spare parts at standardized prices
- Procuring good quality hand pump spare parts
- Working hand-in-hand with AMs to ensure access to relevant spares, and to cross promote the services of both AMs and SPRSs in the same area

2.7 Development Partners (DPs) / NGOs

They provide support on a project-by-project basis taking into consideration that after the phase-out of the project the District/Government should be able to continue with the activities for a sustainable hand pump spare parts supply chain. Support to the hand pump spare parts supply chain shall be provided in accordance with this guide manual and through a Memorandum of Understanding (MOU) with the MAIWD and the District Council.

3. Methodology for the establishment of an Afridev hand pump spare parts supply chain

The following table is based on the analysis of the current status of the hand pump spare parts supply chain that was collected from the NGOs who are establishing the supply chain.

Common flow used to ensure action is taken by stakeholders is as follows:

Table 1 Flow chart for the establishment of Afridev hand pump spare parts supply chain

Administrative Activity			Activities for Retail Shop			Activities related to Supply of Spare Parts		
Flow	Current actor	Ideal Actor	Flow	Current actor	Ideal Actor	Flow	Current actor	Ideal Actor
Planning	NGO	MAIWD DWDO	Solicitation	NGO	DWDO ADC	Purchasing	NGO	Wholesaler
								
Budgeting	NGO	MAIWD DCT DWDO	Retail Shop Owner Training	NGO WMA	DWDO WMA	Stock	NGO	Wholesaler DWDO
								
Authorization	NGO	DC DWDO	Starter Pack Distribution	NGO	DWDO	Distribution	NGO	Wholesaler
								
Advertizement	NGO	DWDO ADC	Stock Management & Sales	Retail Shop	Retail Shop	Price control	NGO	Wholesaler
								
Monitoring	NGO	DWDO WMA	Monitoring	NGO WMA	DWDO WMA	Monitoring	NGO	DWDO WMA

NGO : Non Governmental Organization
 MAIWD : Ministry of Agriculture, Irrigation and Water Development
 DWDO : District Water Development Officer
 WMA : Water Monitoring Assistant
 DC : District Commissioner
 DCT : District Coordination Team
 ADC : Area Development Committee

3.1 Administrative Activity

3.1.1 Planning

The hand pump spare parts supply chain shall be planned by the Government of the Republic of Malawi through the MAIWD in collaboration with the district.

For the sustainability of rural water supply facilities, there must be appropriate hand pump spare parts that are readily available and reasonably priced.

I. Institutional setting

At first, MAIWD should recognize a supporting organization (i.e. DPs/NGOs) and wholesaler for spare parts supply chain.

MAIWD shall carryout lobbying to incite interest and support for the spare part supply chain activity from DPs/NGOs when the chance arises such as a donor meeting or through the WES-network. After having gained agreement from DP/NGO, an MOU defining the undertakings of both parties is exchanged.

A sample of MOU is shown in **Appendix 1**.

The wholesaler becomes a focal point for supply chain. The overall role and responsibility of the wholesaler shall be to ensure that spare parts are readily available to the user communities through the retail shops. It is ideal that the wholesalers cover all districts throughout the country.

An example of the management structure is shown below.

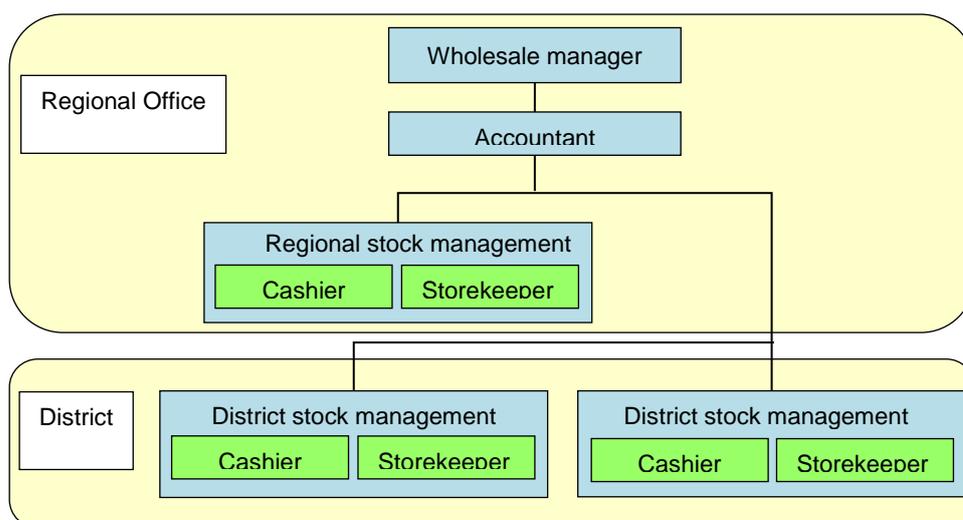


Figure 2 Basic model of the spare parts supply chain

Table 2: Tasks and responsibilities of staff concerned of the wholesaler (as an example)

Job Titles	Tasks and responsibilities
Wholesale manager	Take full responsibility of wholesaler
Accountant	Monitor cash, sales, expenditure, inventory, and perform replenishment and price revision in collaboration with MAIWD
Cashier	Handle cash, keep records and report on sales and expenditure
Storekeeper	Handle spare parts, keep records and report on inventory

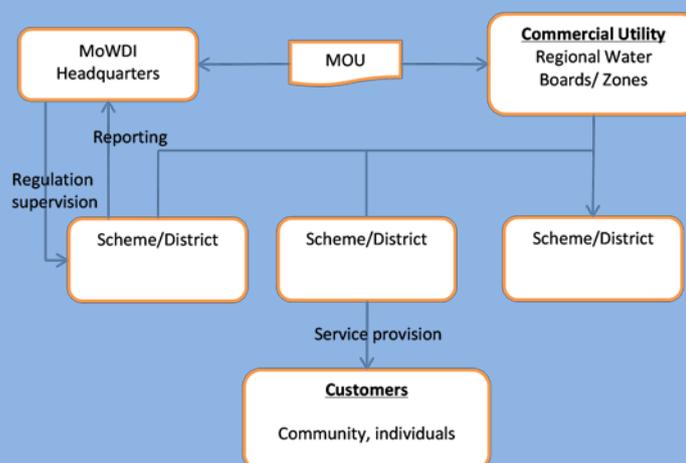
The following are options for establishing wholesalers for spare parts supply chain.

Box 1: Suggestions for establishing wholesalers

The following are proposed options for establishing wholesalers.

Option 1: Government institution and/or structure

Option 2: Water Boards¹



Option 3: Private companies

As an example, show the spare part supply system by Hardware Stores in the following figures



¹ For example: in Zambia, there is the option that a commercial utility company (i.e. Water and Sewerage Company) operates a spare parts shop

II. Plan for arrangements of the retail shop in the district

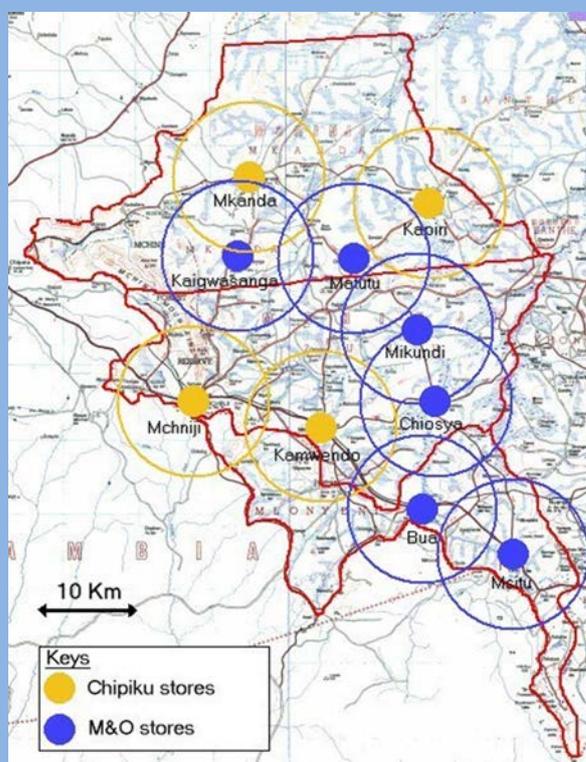
This activity should be performed by a district council in collaboration with a wholesaler.

The number of retail shops necessary for each district is calculated based on various factors including topographic conditions and hand pump density.

It is ideal to arrange the business area of each retail shop so that their commercial domains do not overlap.

Box 2: As an example

In Mchinji, InterAide who is developing the support activity of the spare parts supply chain arranges a retail shop in consideration of geographical conditions.



After arrangement of the retail shops in a district, it should be summarized in the list of Spare Parts Retail Shops for advertisement purpose.

III. Estimate the volume and costs of starter pack for retail shops

This activity should be performed by district in collaboration with a wholesaler.

A starter pack is the initial stock for a spare parts retail shop to start the business and raise a revolving fund for the costs of shop operation and replenishment. Therefore, the volume of the starter pack assumes quantity equivalency consumed in two months after the start of the business.

Ideal item of spare parts as starter pack is shown in the below table;

Table 3: Item of starter pack¹

No.	Item
A-1	Fulcrum pin assembly
A-4	Bearing bush outer
A-5	Bearing bush inner
A-6	Pump rod assembly
A-7	Rod Centralizer
A-8	Rising pipe
A-14	Valve body assembly (Plastic)
A-15	Bobbin
A-16	Cup-seal
A-17	O-ring
A-18	U-seal
A-21	Double end socket
A-22	Solvent cement
A-24	Bolts and Nuts 12x40
-	Standard display shelf

The volume of starter pack is as many spare parts as are expected to be sold in two months. The volume is calculated based on;

- i. Number of hand pumps in a catchment area which a retail shop covers (in other words, number of hand pumps in a commercial domain of the retail shop)
- ii. Sales ratio of each spare part, and
- iii. Buffer rate

a. Number of hand pumps in a catchment area which a retail shop covers

The number of hand pumps in a catchment area which a retail shop covers is the number of hand pumps in a district divided by the number of planned retail shops.

¹These items were listed based upon experiences of InterAide’s activities in Mchinji District.

$$\begin{array}{ccc} \text{(i)} & & \text{(ii)} & & \text{(iii)} \\ \boxed{\text{Number of hand pumps in a district}} & / & \boxed{\text{Number of planned retail shops}} & = & \boxed{\text{Number of hand pumps in a catchment area which the retail shop covers}} \end{array}$$

✚ Example: how to calculate the number of hand pumps in a catchment area which the retail shop covers

Conditions:

- i. Number of hand pumps in a district : 1000
- ii. Number of planned retail shops : 10

Answer:

- iii. Number of hand pumps in a catchment area which the retail shop covers
(i) 1000 / (ii) 10 = (iii) 100 hand pumps

b. Sales ratio of each spare part for starter pack

Convert an annual selling rate (see table 4) into the sales ratio of the starter pack for two months.

Table 4: Sales ratio of the starter pack

No.	Item	SKAT No. ²	Replacement interval ³		Annual sales ratio of each item (i)	Sales ratio for starter pack (i)=(ii)/6*
			Approximate lifetime	Recommended replacement interval		
A-1	Fulcrum pin assembly	B2024	5 to 8 years	replace as required	0.2	0.2/6=0.03
A-4	Bearing bush outer	C2044	1 to 2 years	every year	1.0	1.0/6=0.17
A-5	Bearing bush inner	C2045	1 to 2 years	every year	1.0	1.0/6=0.17
A-6	Pump rod assembly	B2114	3 to 5 years	replace as required	0.3	0.3/6=0.05
A-7	Rod centraliser	C2019	2 to 3 years	every second year	0.5	0.5/6=0.08
A-8	Rising pipe	C2046	3 to 5 years	replace as required	0.3	0.3/6=0.05
A-14	Valve body assembly (plunger and foot valve; Plastic)	B2025	3 to 5 years	replace as required	0.3	0.3/6=0.05
A-15	Bobbin	C2088	2 to 3 years	every second year	0.5	0.5/6=0.08
A-16	Cup-seal	C2751	2 to 3 years	every second year	0.5	0.5/6=0.08
A-17	O-ring	C1021	2 to 3 years	every second year	0.5	0.5/6=0.08
A-18	U-seal		1 to 2 years	every year	1.0	1.0/6=0.17
A-21	Double end socket		3 to 5 years	replace as required	0.3	0.3/6=0.05
A-22	Solvent cement		3 to 5 years	replace as required	0.3	0.3/6=0.05

*Two months= (2/12) year= (1/6) year, For two months sales ratio=Annual sales ratio x (1/6)

²SKAT No. means the number of drawings shown in Afridev Hand pump Specifications, Revision 5-2007, SKAT/RWSN

³ Annex III of Installation and Maintenance Manual for the Afridev Handpump Revision 2-2007, SKAT

IV. Plan of the warehouse for wholesaler

This activity should be performed by a wholesaler in collaboration with MAIWD and the district.

There must be a store room to keep spare parts safely and in a well-organized manner. The ideal warehouse must be fit for the purpose and quickly prepared at a low-budget.

There should be a warehouse for regional stock and a warehouse for district stock in order for a supply chain to provide a spare part in several districts.

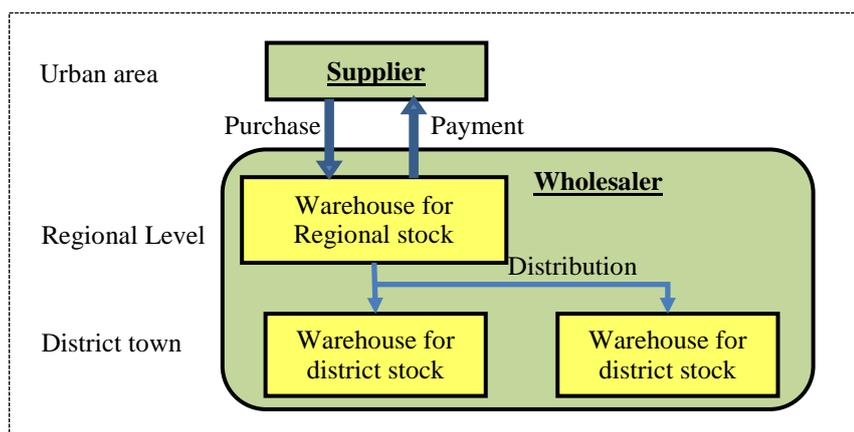


Figure 3: Arrangement of the warehouse

The following are options to establish a warehouse for spare parts. After selecting one option, its cost should be estimated accordingly.

a. Functions and specifications of facility

In order to keep spare parts safely and appropriately, the following are minimal specifications of warehouse for spare parts, regardless of whether it is an existing facility or newly constructed building.

- To keep stock safely:

Lockable system and burglar bars with doors and windows.

- To organize stock well:

Steel/wooden racks for pipes and rods, wooden selves for other spare parts and plastic buckets for small spare parts.

Box 3: Good Practice:

InterAide who is supporting spare parts supply chain through their project has a warehouse which is about 4 m by 2 m at a project office and lockable wooden box of about 1.2 m long at a maintenance office. The project office which is managing 5 districts (Dowa, Mchinji, Ntchisi, Kasungu, and Salima) is located in Mponela, Dowa District. They have a maintenance office located in each district.

The spare parts purchased from a supplier are kept by the warehouse of the project office and is distributed to the maintenance office of each district from there.

InterAide doesn't stock large amounts to avoid theft. They order spare parts from the supplier every month. After ordering, the spare parts are delivered quickly. (The spare parts arrive after ordering in around two days). For the transportation of the spare parts from Blantyre to Mponela they spend from MK15,000 to MK30,000.



Warehouse at InterAide project office



Lockable wooden box at InterAide maintenance office

V. Plan advertising tools

This activity should be performed by a district in collaboration with a wholesaler(s).

Advertisement of a spare parts retail shop is very important. If customers do not know that spare parts are available at the newly opened retail shop, they cannot visit the retail shop to buy spare parts.

Advertisement of the spare parts retail shop is one of the water supply and sanitation responsibilities of the district.

a. Proposed methods and tools of advertisement

The following are ideal tools to advertise a spare parts retail shop.

Table 5: List of ideal advertising tools (as an example)

Items	Specification	Q'ty	Methods to use
Sign post	1 x 1.5 m, steel sheet, color painted (See Appendix-2)	1 set	It should be placed outside the retail shop to show it to all visitors
Fliers	A4 size, color printed (See Appendix-3)	The number of WPC in a catchment area + 30	It should be distributed to WPC in a catchment area, AMs, health centers, WMAs and DWDO
Price list	A4 size, monotone photocopied (See Appendix-4)	30 copies	It should be distributed to AMs, health centers, WMAs and DWDO
Business cards	Card size	100 copies	It should be distributed to visitors of the shop
Radio	National and community radio stations	Twice a day ideally	Commercial message should be broadcast for a certain period of time until the message surely reaches the communities

3.1.2 Budgeting

The costs for establishing a spare parts supply chain and operating the retail shop for the first year shall include at least the following factors.

- Purchase cost of regional stock
- Preparation cost of a warehouse facility for regional stock and district stock
- Purchase cost of a single starter pack

- Advertisement cost of a spare parts retail shop
- Operation and management cost of a wholesaler

These costs will be borne by MAIWD and the district in collaboration with DPs/NGOs.

The cost to cover various districts is borne by MAIWD (i.e. purchase cost of seed stock, preparation cost of warehouse facility for seed stock, operation and management cost of a wholesaler in the first year of operation). The cost of activities to support in each district is born by the district (i.e. purchase cost of starter pack for retail shops, preparation cost of warehouse facility for district stock, advertisement cost of a retail shop).

3.1.3 Authorization

I. Issue of Certification for handling the hand pump spare parts

Once the district has confirmed that the retail shop meets the above mentioned criteria set by the district and is compatible with the requirements of the supply chain, the district council will then issue the retail shop a certificate to show that it is registered to stock and sell hand pump spare parts.

II. Issue of Certification for trained retail shop owner

After the training the retail shop owner receives a certificate to show that he or she has acquired the necessary skills for handling hand pump spare parts.

3.1.4 Advertisement

Advertisement of the spare parts retail shop is one of the water supply and sanitation activities responsibilities of the district.

The primary targets of advertisement are communities, and AMs in the district. They are the people who find hand pump faults, replace spare parts and fix the hand pump. The stakeholders described at “**2.0 Roles and responsibilities of key players to support and maintain the hand pump spare parts supply chain**” should transfer the information on the shop to communities and AMs according to the flow diagram shown below.

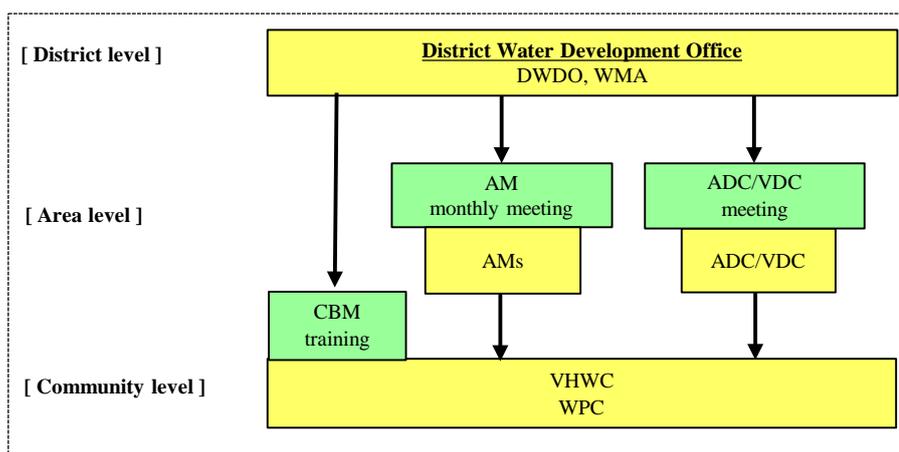


Figure 4: Information flow among stakeholders for advertising a retail shop(s)

3.1.5 Monitoring

I. Wholesaler

Monitor the stock levels, selling of spare parts and selling price at the wholesaler by such as “Monthly sales and expenditure report (see **Appendix-5**)” and “Monthly inventory report (see **Appendix-6**)” submitted from wholesale manager to MAIWD.

II. Retail shop

Monitoring of the stock levels, selling of spare parts and selling price at retail shops is to be done using documents such as the “Monthly sales record (see **Appendix-7**)” and “Bin cards (see **Appendix-8**)” prepared by retail shops. Monitoring should be conducted by the WMA visiting the retail shops.

Thereafter, the WMA submits the monitoring results to DWDO.

III. Frequency

Monitoring should be conducted on a quarterly basis.

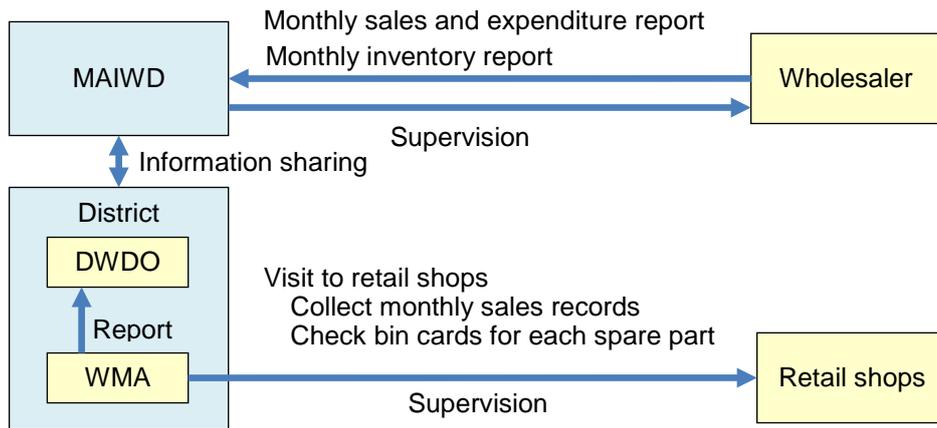


Figure 5: Monitoring flow

3.2 Activities for Retail Shop

3.2.1 Identification and Selection

I. Criteria for selecting retail shop for stocking and selling of spare parts

The criteria for selecting retail shops for stocking and selling of hand pump spare parts is detailed below:

- Look for a busy trading center where many members of the community buy commodities.
- In the absence of a busy trading center look for a shop close to a health center or other busy public places.
- Hardware shops should have preference.
- The background of the owner and his and her customer care should be good.
- The shop should be open most of the week.
- The owner should be able to read and write or otherwise prove that they can keep accurate records.
- Look for an owner who is trusted by the community members.
- Retail shop should be well established financially.

II. Procedure for identification of retail shop owners

The identification of retail shop owners for stocking and selling hand pump spare parts is detailed below:

- DWDO in consultation with DCT to request the ADC to select the candidate retail shop owners at the trading center in the TA, in accordance with the criteria described.
- Confirmation of the willingness of the retail shop owners to sell hand pump spare parts by DWDO.

3.2.2 Shop Owners Training

The purpose of the training is to provide the selected shop owners with adequate skills in management of pump spare parts and relevant entrepreneurial skills so as to enable them to manage the spare parts business.

The main objective of the training is to impart shop owners with the skills to manage Afridev spare parts, increase the knowledge base of the pump and how it functions and to improve their entrepreneurial skills.

The shop owner training should be conducted for the following days as a standard.

Type of training	Days	Trainer	Trainee
Initial training	2 days	WMA, CDA	Selected shop owners

The training for shop owners will cover aspects of business management skills and the details, specifications and function of the various hand pump spare parts to be sold.

The training should include the following topics:

- Afridev hand pump parts and function
- Dismantling and reassembling pumps
- Entrepreneurship and record keeping

The training manual for shop owners is attached to this guide manual as the Supplement document: Training manual for hand pump spare parts retail shop owners.

3.2.3 Starter pack distribution

A starter pack is initial stock for a spare parts retail shop to start its business and raise a revolving fund for the costs of shop operation and replenishment. The starter pack is provided from the district to selected retail shops if funds are available.

Ideal items of the starter pack are shown below:

- Fulcrum pin assembly
- Outer bush bearing
- Inner bush bearing
- Pump rod assembly
- Rod centralizer
- Rising pipe
- Valve body assembly (plastic)
- Bobbin

- Cup-seal
- O-ring
- U-seal
- Double end socket
- Solvent cement
- Bolts and nuts 12 x 40
- Standard display shelf

Volume and costs of starter pack are described in section 3. Estimate of the volume and costs of starter packs for retail shops is given in 3.1.1 Planning.

Box 4: As an example

InterAide that conducted support activities to spare parts supply chain provides a display shelf as a starter pack to the retail shop which they support.



Display shelf

3.2.4 Stock management and Sales Operation

Stock management and sales operation are focal activities for retail shops. ⁴Standard procedures for stock management and sales operation are summarized below:

I. Stock management

The existing stock of spare parts is a physical asset of the spare parts retail shop. It must be appropriately managed using the principles below.

a. Stock should always be available.

b. Appropriate stock organization

- Put your goods in groups
- Use display shelves
- Label your products well
- Show the prices clearly

II. Sales operation

Sales operation of spare parts shall be performed as the following activities.

a. Confirmation of spare parts

- Confirmation of type of spare parts
- Confirmation of stock availability

b. Receiving payment and issuing receipt

- Confirmation of prices
- Receiving payment and issued receipt
- Depositing money to the bank

⁴“Supply Chain Management Manual 2nd Edition 2012” issued by the government of Zambia as one of National Guidelines for National Rural Water Supply and Sanitation Programme (NRWSSP).

c. Issuing of spare parts

- Issuing the items
- Updating bin cards
- Records

Details of these procedures are mentioned in Training Manual for Afridev Hand Pump Spare Parts Retail Shop Owners.

3.2.5 Monitoring

Monitoring of the stock levels, selling of spare parts and selling price at retail shop is to be done through checking documents such as the “Monthly sales record (see **Appendix-7**)” and “Bin cards (see **Appendix-8**)” prepared by retail shops. Monitoring should be conducted by the WMA visiting the retail shops.

WMA submits the monitoring results to DWDO.

Monitoring should be conducted on a quarterly basis.

3.3 Activities related to Supply of Spare Parts

3.3.1 Procurement at regional level (based on option 2: Water Board)

Quotations of the unit price for each spare part should be obtained from at least three suppliers.

Then request the supplier that is overall the cheapest and most reliable to provide an estimate for purchase price of the required spare parts.

Apply for a tax exemption from Malawi Revenue Authority through the MAIWD when purchasing the spare parts from the supplier.

In general, order procedures are as follows:

I. Prepare short list of spare parts supplier

A Short List of Suppliers for procurement of spare parts of hand pumps shall be prepared based on information collected and evaluation of the suppliers. The list shall be updated at least once a year. Current short list of suppliers in Malawi (as of 2013) given in **Appendix-9** (List of spare parts suppliers)

II. Prepare and submit purchase requisition

The purchase requisition contains a description of the required items, quantities and delivery times.

III. Prepare and send letter of inquiry/tender, requests for quotation

The purchasing section sends a letter of inquiry to various suppliers mentioned in the Short List of Suppliers mentioned above. The main purpose of this inquiry is to find out the prices and qualities of items that can be supplied by different suppliers. This document is accompanied by some additional documents, such as drawings, specifications and so on to enable the submission of quotations if required.

IV. Obtain quotations from suppliers

At least three (3) quotations are received from different suppliers in response to the letter of inquiry. It is an offer to supply items according to the terms and conditions given. The quotation must provide at least the following items and conditions: details of prices, quality, delivery, total costs.

V. Selection of supplier

After receipt of the quotations, the selection process takes place and the most suitable supplier is selected based on the selection criteria, which must include price, quality, delivery time, etc.

VI. Prepare and send purchase order

It is a formal expression of desire to buy items from a particular supplier who gave the selected quotation, amended where necessary by subsequent negotiations on the stated terms. The purchase order is raised and approved by the relevant authorities. A copy of the order must be retained in the purchasing section.

VII. Receive order acknowledgement

An order acknowledgement should be requested from the supplier. On receipt, the acknowledgement should be examined to ensure that the order has been accepted on the terms and conditions defined by the purchase order mentioned above.

3.3.2 Stock

The wholesaler should manage properly the stock of spare parts to deliver to several districts, and to sell to the retail shops within each district.

The stock management for the wholesalers is the same as the retail shops. Refer to the section 3.2.4 Stock management and Sales Operation.

3.3.3 Distribution of spare parts

The spare parts are delivered to district warehouses from regional stock, to sell it to the communities through spare parts retail shops.

The basic flow of the spare parts is given below.

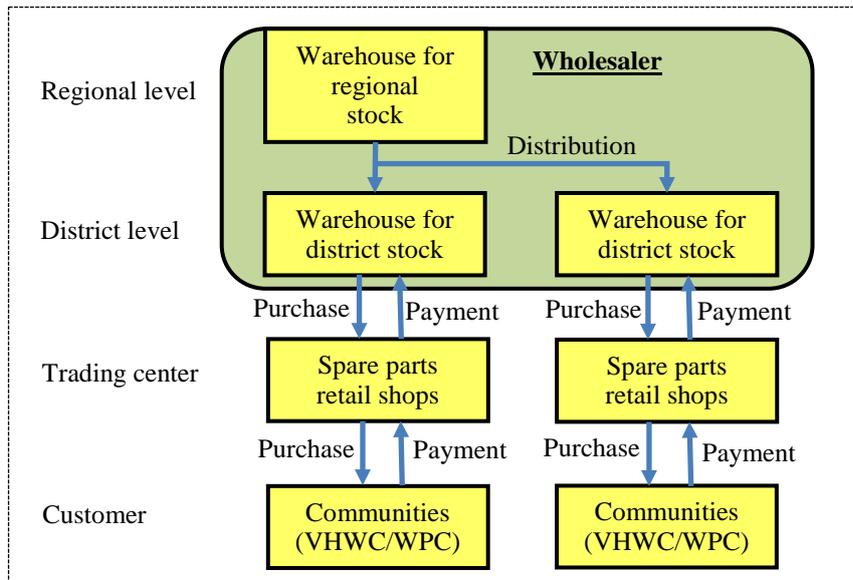


Figure 6: Basic flow of the spare parts

I. General procedure of order and delivery in the wholesaler

- Once the warehouse at the district town is available, storekeeper in the district warehouse shall order to the accountant to deliver the spare parts. Spare parts order card can be used for the order.
- Order card shall be made in triplicate. An original and a duplicate shall be sent to the accountant, and a triplicate is to be left in order card book.
- The accountant shall be sent a duplicate of the order card for arrangement of the spare parts delivery to district warehouse to the regional stock storekeeper, and an original is to be kept by him/her.
- After receiving a duplicate of the order card from the accountant, the regional stock storekeeper shall arrange spare parts in accordance with the order card, and deliver to the warehouse in the district town with delivery note.
- Also delivery note shall be made in triplicate. An original and a duplicate shall be sent to the storekeeper of district warehouse, and a triplicate is to be kept at the regional stock warehouse. Moreover, the delivery note needs the signature of the transporter.
- When the spare parts are received from the regional stock warehouse, the storekeeper of the district warehouse shall check the items. Then after the storekeeper has signed the original of the delivery note to certify that everything is in order, he/she shall send the original delivery note to the accountant, and a duplicate is to be kept at the district warehouse.

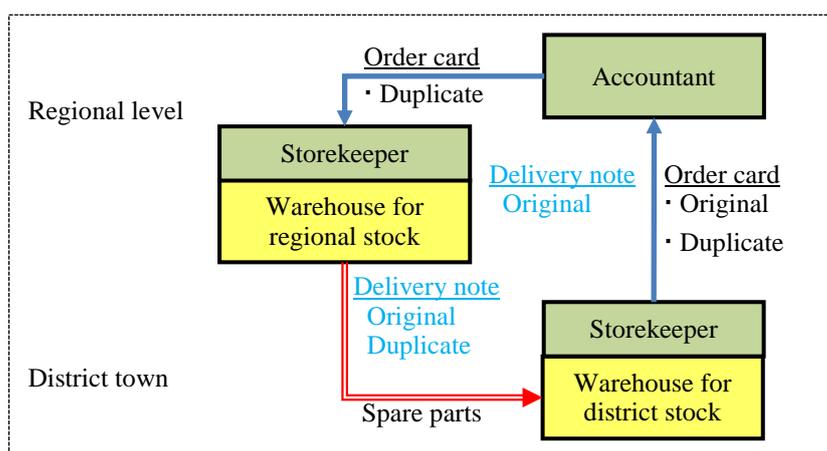


Figure 7: Basic flow of order and delivery in the wholesaler

II. Record keeping

Information of the spare parts delivery should be appropriately recorded and kept as explained below.

a. Order card and delivery note.

- Accountant shall keep an original order card and an original delivery note.
- Regional stock warehouse shall keep a duplicate order card and a triplicate delivery note.
- District warehouse shall keep a triplicate order card and a duplicate delivery note.

b. Updating bin cards

Storekeeper updates the bin cards while issuing stock(see **Appendix-8**).

c. Monthly sales records

Sales records such as parts name, unit price and quantity should be described on monthly sales record form as shown in **Appendix-6**.

3.3.4 Price Control

Sales price for each spare part shall be set at an amount of full purchase cost with an added margin or mark-up. Full purchase cost means purchase price of spare parts plus transport cost. Margin or mark-up is estimated not only to cover sales and management cost of the shop, but also price increase caused by inflation and foreign exchange rate fluctuation. Show price setting by wholesaler in the following figures:

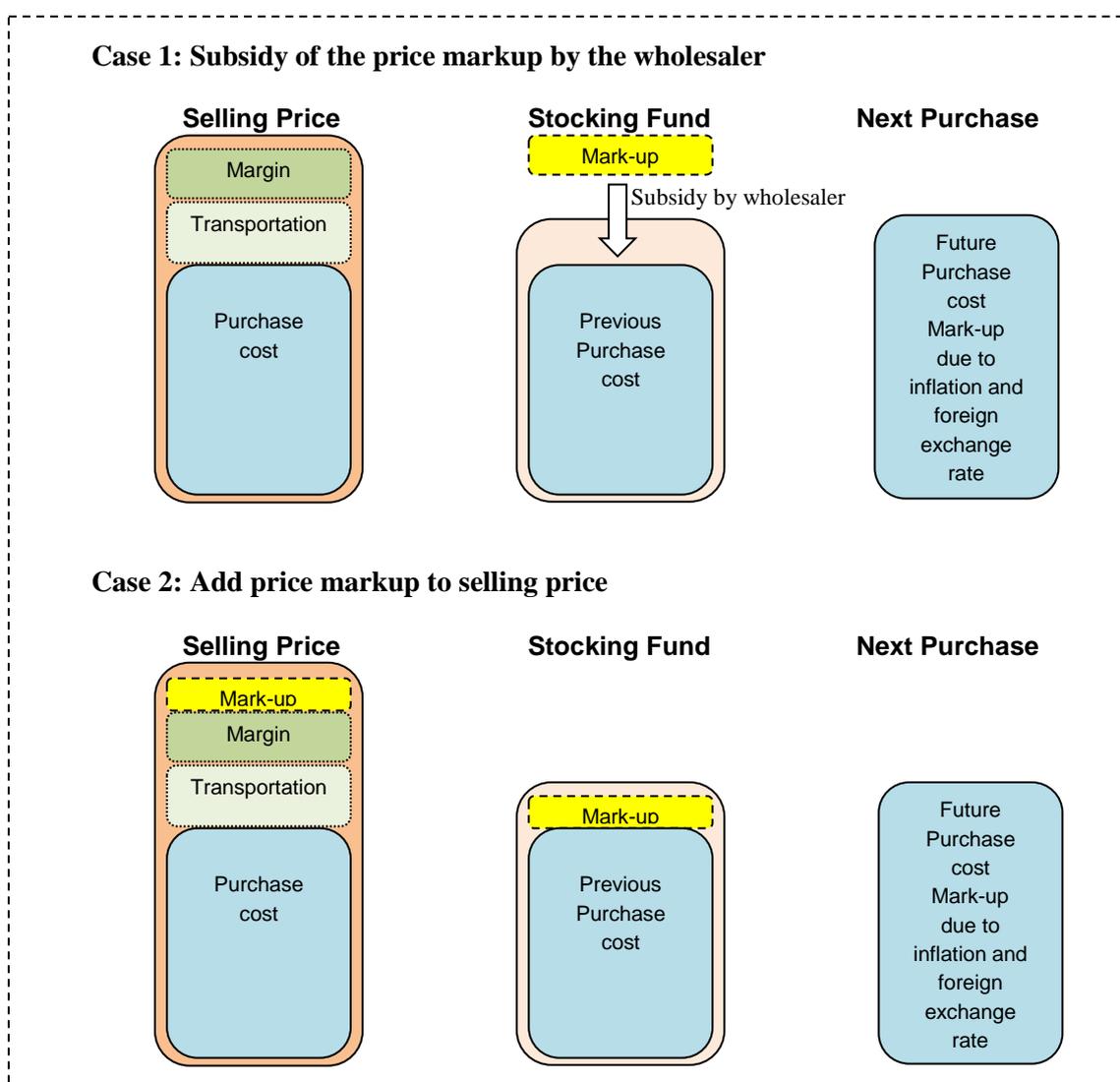


Figure 8: Case of the price setting

- **Case 1;**
Can keep the sales price by the retail shop lower, but the subsidy by the wholesaler is necessary at the time of the next purchase
- **Case 2;**
Sales price at the retail shop is higher taking into account the next purchase price, which is envisaged to increase due to inflation or foreign exchange rate fluctuations

3.3.5 Monitoring

Monitoring should be conducted to control the stock levels, selling of spare parts and selling price at the wholesaler through documentation such as the “Monthly sales and expenditure report (see **Appendix-5**)” and the “Monthly inventory report (see **Appendix-6**)” that should be submitted from the wholesale manager to the MAIWD.

Monitoring should be conducted on a quarterly basis.

APPENDICES



Appendix-1: Sample of MOU⁵

Sample
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.

⁵This example was provided by the Mulanje District Water Development Office.

- Fixing of prices for borehole 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 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 effectiveness 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, 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-2: Sample advertising poster ⁶



⁶This example was provided by InterAide.

Appendix-3: Sample flier⁷

Pakadalipano, amisiri 21 akonza mijigo yokwana 765 m'boma la Dowa

Pitirizani kudalila amisiriwa anzeru zakuya pa mtengo otsika omwe ali ku fupi ndi inu

Amisiriwa ndi awa:

Dzina	Mudzi	Selufoni
Noel Makhaza	Chisepo	
Matiyas Chagwira	Nambuma	0999 466 848
Neston Chidandale	Mlengwe	0884 620 317
Paul Steven Mbewe	Chizolowondo	0995 866 584

Kuti mumve zambili lankhulani:
Spencer MAZEMBERO
Maintenance Assistant
DOWA boma – 0 999 241 940



Mjigo wokonzedwa bwino umapulumsa ndalama

⁷This example was provided by InterAide.

Appendix-4: Afridev price list ⁸

AFRIDEV		August 2012 Prices		
		Prices for shops when spares part are taken away from the office		
		Item	Prices for grocery	Prices to community
Bobbin	180	220	40	22,2
Bolt and nut (10x35)	120	150	30	25,0
Bolt and nut (12x40)	120	150	30	25,0
Bush bearing	350	450	100	28,6
Cup seal	195	250	55	28,2
Cylinder naked	17200	21 000	3 800	22,1
Cylinder complete	25200	27 800	2 600	10,3
Double end socket	520	630	110	21,2
Fishing tool	2220	2 700	480	21,6
Flat spanner	465	620	155	33,3
Fulcrum pin	2510	3 000	490	19,5
Hanger assembly	3260	3 900	640	19,6
Hanger pin	1930	2 400	470	24,4
Hook for foot valve	1000	1 250	250	25,0
O-ring	120	150	30	25,0
Pipe centraliser	370	500	130	35,1
Plunger body plastic	1100	1 340	240	21,8
Plunger body brass	2920	3 600	680	23,3
Pump handle	17420	21 500	4 080	23,4
Pump head	19230	23 500	4 270	22,2
Pump head cover	5130	6 250	1 120	21,8
Pump pedestal	20390	24 500	4 110	20,2
PVC raising main pipe	2800	3 500	700	25,0
Rod centraliser	270	340	70	25,9
Rod stainless steel	5470	6 920	1 450	26,5
Rod plunger stainless steel	2980	3 800	820	27,5
Rope	2800	3 300	500	17,9
Rubber cone	880	1 100	220	25,0
Rubber flapper	250	300	50	20,0
Socket spanner	2050	2 600	550	26,8
Solvent cement 100ml	280	340	60	21,4
Solvent cement 200ml	550	650	100	18,2
Steel cone plate	2580	3 250	670	26,0
U-seal	200	240	40	20,0

24,2

⁸This example was provided by InterAide.

Appendix-5: Sample of monthly sales and expenditure report⁹

MONTHLY SALES AND EXPENDITURE REPORT

1. Balance of Payment for quarterly

From (Month and Year).....Until (Month and Year).....

Categories	Description	Sales (MK)	Expenditure (MK)	Balance (MK)
Sales	Spare parts of Afridev pump			
Expenditure	Bank charge			
	Hiring vehicle			
	Fuel			
	Accommodation			
	Allowance			
	Re-ordered spare parts			
	Others			
Total				

*All sales and expenditure data in this table is collected from monthly sales and expenditure reports (latest three months).

⁹This format is extracted from the document of “Supply Chain Management Manual 2nd Edition 2012, National Rural Water Supply and Sanitation Programme, Government of Zambia” and modified for the Project.

Categories	Amount (MK)
Carry over from previous quarter (Refer “carry over from the last month” in the first monthly sale and expenditure report of this quarter)	
Balance of payment for this quarter (from the above table)	
Total (Balance of payment since the inauguration of a wholesaler)	
Bank balance of end of this quarter	

Prepared by:

Date:

Appendix-6: Sample of monthly inventory report ¹⁰

MONTHLY INVENTORY REPORT

Month and Year:

S/No.	Spare parts item	Re-order level*1	Stock		Balance	Adjusted Balance*2	Necessity of Re-order*3
			IN	OUT			
A-1	Fulcrum pin assembly						
A-2	Hanger pin assembly						
A-3	Rod hanger assembly						
A-4	Bearing bush outer						
A-5	Bearing bush inner						
A-6	Pump rod assembly						
A-7	Rod centraliser						
A-8	Rising pipe						
A-9	Top sleeve						
A-10	Flapper						
A-11	Pipe centraliser						

¹⁰This format is extracted from the document of “Supply Chain Management Manual 2nd Edition 2012, National Rural Water Supply and Sanitation Programme, Government of Zambia” and modified for the Project.

S/No.	Spare parts item	Re-order level*1	Stock		Balance	Adjusted Balance*2	Necessity of Re-order*3
			IN	OUT			
A-12	Cylinder assembly						
A-13	Cylinder naked						
A-14	Valve body assembly (plunger and foot valve; Plastic)						
A-15	Bobbin						
A-16	Cup-seal						
A-17	O-ring						
A-18	U-seal						
A-19	Gasket (for stand)						
A-20	Compression cone (Rubber cone)						
A-21	Double end socket						
A-22	Solvent cement						
A-23	Bolt and nut (10x35)						
A-24	Bolt and nut (12x40)						
A-25	Pump handle						
A-26	Pump head						

S/No.	Spare parts item	Re-order level*1	Stock		Balance	Adjusted Balance*2	Necessity of Re-order*3
			IN	OUT			
A-27	Pump head cover						
A-28	Pump pedestal						
A-29	Eye assembly for foot valve						
A-30	Plunger body brass						
A-31	Plunger rod assy.						
A-32	Steel cone assy.						
A-33	Rope (6mm plastic)						
T-1	Fishing tool						
T-2	Socket spanner						
T-3	Flat spanner						

*1: Re-order level = 25% of initial stock volume. Initial stock volume is the volume of seed stock or stock after replenishment.

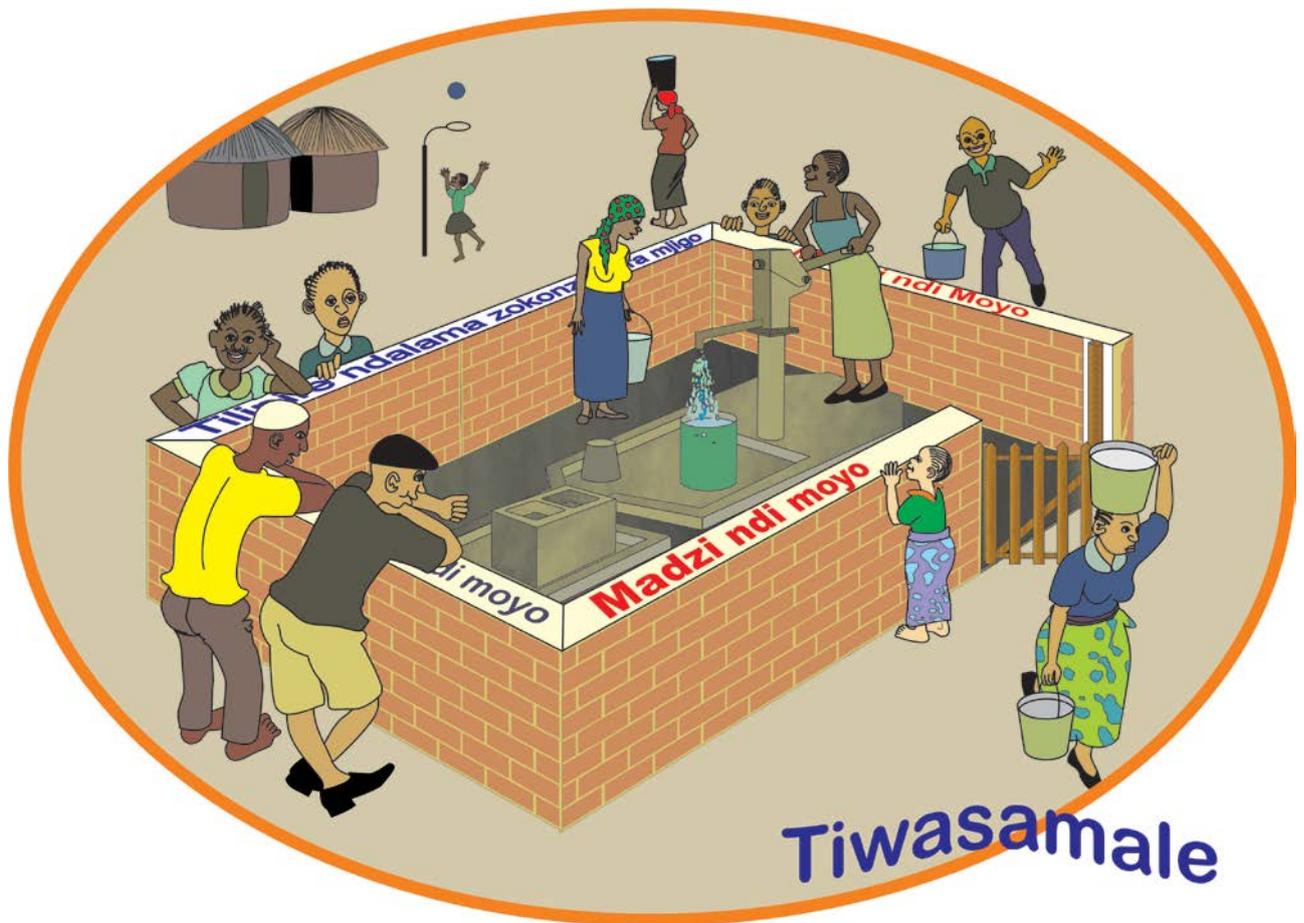
*2: This column is filled in if balance is adjusted as result of stocking.

*3: Check if replenishment is necessary.

Appendix-9: List of spare parts supplies

LIST OF SPARE PARTS SUPPLIERS IN MALAWI as of 2013

No	Name	Address	Telephone	Fax	E-Mail
1	Chipiku Stores Head Office	Private Bag 296, Lilongwe	01-758-501		
2	Kalaria Hardware Centre	P.O. Box 824 Lilongwe	01-727-083 01-725-201		
3	Nkhalamu Contractors	Private Bag 202, Lilongwe	0999-422-258 0111-731-910		
4	Chitsime Drilling Contractors	Private Bag 764 Lilongwe	01-754-951		
5	Universal Trading Company	Next to Entyre, Ex-Nzeru radio Building Blantyre P.O. Box 51102 Limbe	01-870-999 01-870-888 01-640-441 01-645-251		universal@globemw.net www.utcmalawi.com
6	Promat Limited	P.O. Box 31735 Chichiri	01-912-673 0888-835-395		promatmw@promatpipes.com



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.