



Ministry of Water, Irrigation and Electricity
and
Japan International Cooperation Agency (JICA)

Strategies for Sustainable Operation and Maintenance of Rope Pumps for Family Wells

October 2016

WAS-RoPSS Project

Strategies for Sustainable Operation and Maintenance of Rope Pumps For Family Wells

1 Premises

The rope pump technology is a low cost technology, which is introduced in rural Ethiopia, in particular to improve water supply at household level. The government of Ethiopia has placed Self-supply as a sub-component of rural WASH and has been promoting low cost technologies in water supply, including rope pumps.

The technology was introduced more than ten year ago, and being improved by various stakeholders. In the meanwhile, the quality of rope pumps has been an issue, as some sub-standard quality rope pumps were found in the market, which often contributes to bad reputation of the technology itself.

Project for Rural Water Supply, Sanitation and Livelihood Improvement through Dissemination of Rope Pumps for Drinking water (WAS-RoPSS Project, which is a bilateral cooperation project of Japan International Cooperation Agency (JICA) and Ministry of Water, Irrigation and Electricity (MoWIE) has been working on promotion of the rope pump technology since 2013, and found through its ground experiences the importance of maintaining quality standards of rope pump units as well as the installation works, in order to further disseminate the technology in the country.

In order to maintain the good reputation of the rope pump technology, and encourage the market demands of rope pumps, it is very critical that the existing rope pumps in use continue functioning by proper operation and daily maintenance by users; and any technical problems should be attended by the users or the technicians in a timely manner. This paper therefore is prepared to provide useful information for upkeep the sustainable operation and maintenance of rope pumps fitted with family wells.

2 Intended Targets of this Paper

It is hoped that this strategy paper is used for the following targets;

- ✓ Government officers and development partners who are intending to disseminate the rope pump technology

- ✓ Rope pump manufacturers and installers
- ✓ Rope pump trainers and assessors of the rope pump technology (Centre of Competency)
- ✓ Individuals and organisations who are interested in the rope pump technology
- ✓ Rope pump users

3 Materials and Tools Introduced in this Paper

There are some key materials and tools, related to operation and maintenance of rope pumps.

3.1 Operation and Maintenance Sheets

A set of simple Operation and Maintenance (O&M) Sheets (A4 x 6 pages) were produced with illustrations and simple explanations to show essential techniques to operate and maintain a rope pump.

This was designed to be distributed to each user for them to use for their daily use and regular maintenance of the pump. It is expected that these simple techniques of O&M are taught to the users when a technician installs a rope pump on the users' well.

3.2 Village Technicians Service Menu

List of the technical services which can be attended by the Village Technicians with service prices was prepared as the Village Technicians Service Menu. Menus were prepared in area-basis, according to the prevailing market prices of the workload and materials, and in consideration of the accessibility to the areas. In the process of the preparation, a series of discussions was made among the Woreda Water Office, Village Technicians and rope pump users in each woreda.

The menus can be updated and improved through the discussion among the local actors, according to the market price changes and other socio-economic factors.

3.3 List of Manufacturers and Suppliers of Pipes and Fittings

A list of manufacturers and suppliers of pipes and fittings was prepared to

provide information for easy access to the rope pump related parts and materials to manufacturers, installers and users.

The list was made through the field study and visiting of each and every supplier and updated as of February 2016. However, the information should be updated and improved from time to time by the stakeholders concerned.

3.4 Self-supply Business Catalogue

This catalogue was developed first in March 2015 and updated in March 2016 by a group of Self-supply related organisations; Aqua for All, IRC International Water and Sanitation Centre, Millennium Water Alliances, WAS-RoPSS Project and other Self-supply partners.

This volume has three parts; 1) Information on Self-supply Business Partners, such as WASH products manufacturers and suppliers, service providers, etc., 2) Village Technician Catalogue and 3) Rope Pump Trainers Catalogue. The information on this volume shall be used by all Self-supply partners and business seekers for exchange of technical information as well as business partnership development.

It is also available on line:

<http://www.ircwash.org/blog/accelerating-self-supply-more-water-and-more-jobs>

3.5 Rope Pump Monitoring Sheet

A monitoring sheet was designed by WAS-RoPSS Project, to be used for periodical monitoring of the installed rope pumps by the project and the water sector government institutions, in particular to monitor the technical aspect of rope pumps for improvement of the rope pump designs and technical services.

The monitoring sheet should be updated, modified and improved, according to the purpose of the monitoring.

4 Strategies for Sustainable Operation and Maintenance of Rope Pumps for Family Wells

4.1 Proper Operation and Preventive Maintenance by Users

One of the most significant advantages of the rope pump technology is easiness and local maintainability. By proper operation and preventive maintenance of the pump by users would make the life of the pump significantly long. There are examples in Ethiopia to use and maintain rope pumps over 10 years.

It is critical that the users are trained on simple operation and maintenance, when they first have rope pumps at their family wells. The Village Technicians or manufacturers install rope pumps, it is essential to give training on O&M to the users.

Operation and Maintenance Sheets can be given to the user households and used for the training of users and for the reference to the daily operation and maintenance.

4.2 Strengthening Technical Services of Village Technicians

The Village Technicians are normally assigned at the village level to attend the needs of rope pump installation and well head construction, regular technical inspection of rope pump fitted wells and simple maintenance of the pumps at an easy access to the rope pump users in villages. It is very critical to maintain the business of these technicians to sustain with the continuous availability of the skilled manpower in the villages, while the Village Technicians should upkeep their skills and knowledge through experiences.

Village Technician Service Menus can be utilised to encourage a business-based service giving of the Village Technicians, while the continuous awareness raising is necessary among the rope pump users on the necessity of payment to their technical services.

It is also important for the government sector to support the enabling environment whereas the Village Technicians continue working for the good of people in harmony.

4.3 Promoting Customer Services by Manufacturers

A rope pump is often a marketable product, exchanged with money payment by a customer. Customer satisfaction is therefore a very important factor for a good selling of products.

A manufacturer / retailer therefore should give good services to the customer, bringing his/her satisfaction as much as possible. For example by providing proper operation and maintenance training to the customer during installation. Good aftersales services also play a big role in customers' satisfaction, for example checking by phone the condition of the pump after it has been installed, offering warranty on the quality of manufacturing and offering maintenance services when needed.

It is also recommended for the manufacturers to maintain a good relationship with the Village Technicians, who are closest to the customers.

Self-supply Business Catalogue may give good entrance information for the manufacturers and the Village Technicians know with each other.

4.4 Rope Pump Monitoring

Monitoring of water supply facilities is a mandate of water sector governmental institutions. In particular, Woreda Water Offices are playing a critical role in monitoring and attending technical problems when necessary. In many cases rope pumps are belonging to individual families and are given lower attention by the government offices, however, as family wells are given more focused as a means to increase national water supply coverage, it is increasingly important for the government offices to monitor the rope pump wells as well.

Monitoring Sheet can be utilised with some modifications when necessary to grasp the situation of the rope pump schemes in the area, in particular to find out the common technical problems and to assess the effectiveness of the given technical services.

The results of the monitoring can be utilised for strategy development and planning for sustainable operation and maintenance of schemes as well as

for further dissemination of the technology.

List of Tools

- 1. Operation and Maintenance Sheets**
- 2. Village Technician Service Menu**
- 3. List of Manufacturer & Supplier of Pipes and Fittings**
- 4. Self-supply Business Catalogue**
- 5. Rope Pump Monitoring Sheet**

Other Useful Materials

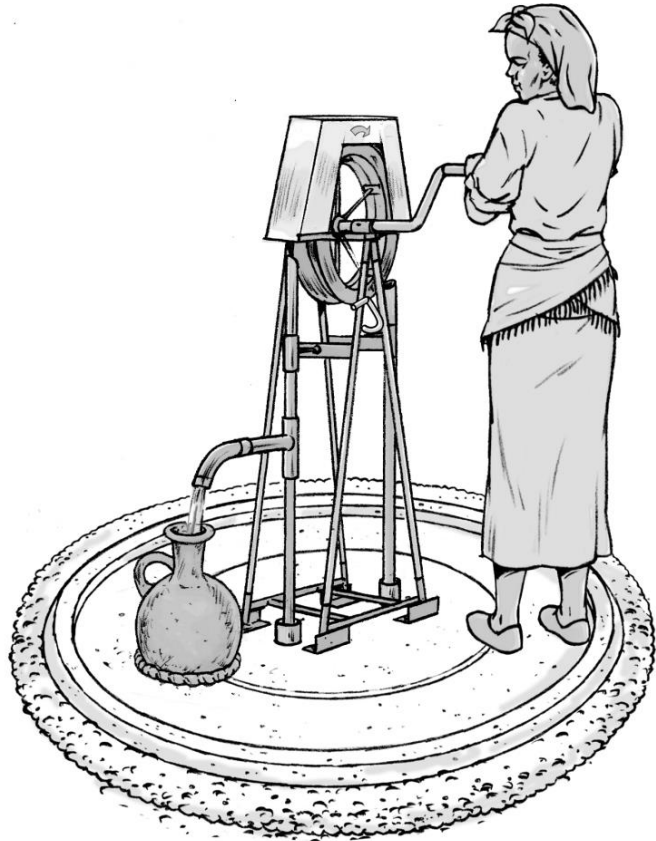
- 1. Rope Pump – A Manufacturing, Installation, Operation and Maintenance Manual**
- 2. Rope Pump Installation Checklist for Quality Control**

ገመድ ፓምፕን ሲጠቀሙ

ውሃን ከጉድጓድ ለማውጣት እጅጋውን ወደ ቀኝ ያሸከርክሩ።

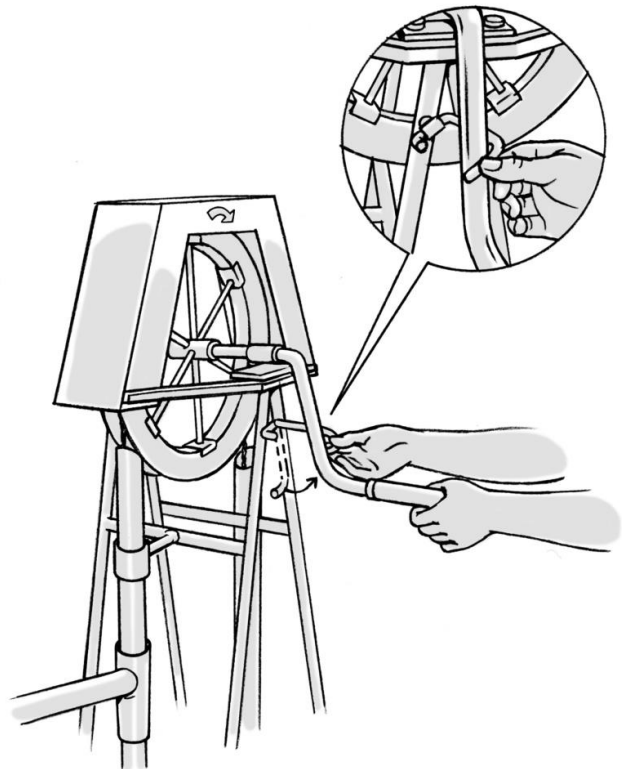
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እባክዎ ፓምፑ ስለሚጎዳ፣ ፓምፑን በተቃራኒ አቅጣጫ (ወደ ግራ) አያሸከርክሩ።



የፓምፕ መዝጊያን መጠቀም

ውሃ ቀድቶ ሲያበቁ ፓምፑ በተቃራኒ አቅጣጫ እንዳይሸከረከር የፓምፑን መዝጊያ ይጠቀሙ።



የገመድ ፓምፕን ዘይት ማጠጣት

በየሳምንቱ ወይም በሽንጉ የመድረቅ ሁኔታ ሲያሳይ የፓምፑን በሽንግ ዘይት ማጠጣት አለብን። የፓምፑ በሽንግ ዘይት በሚፈልግበት ጊዜ የተለየ ድምፅ(ብረት ከብረት ጋር ሲፋተግ የሚሰማ ድምፅ) ያሰማል።

ዘይት ሲጨመር በሽንጉ ላይ ባለው ቀዳዳ የተወሰኑ አዲስ የሞተር ዘይት ጠብታዎችን ይጫምሩ።

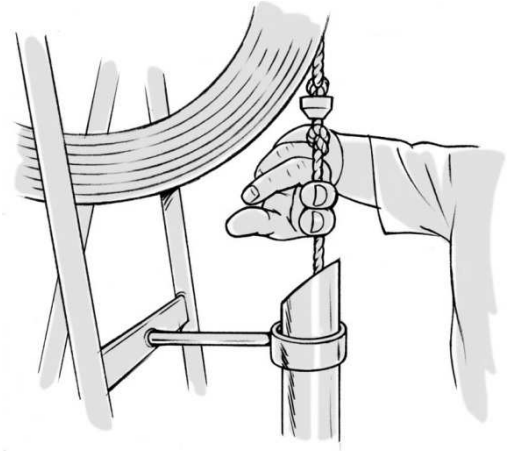


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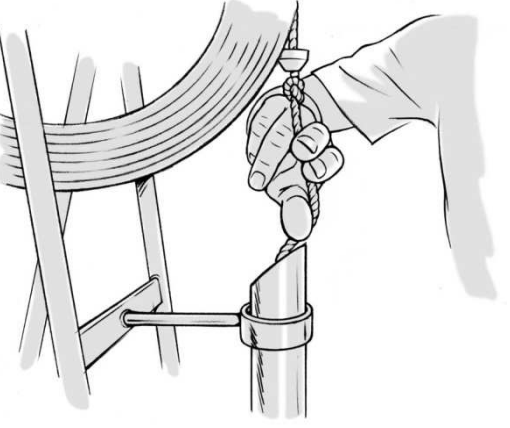
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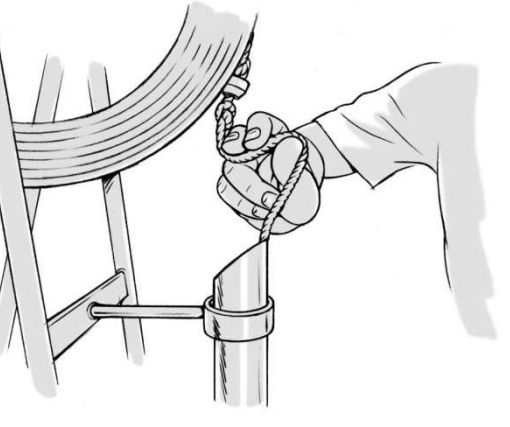
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በምስሉ ላይ እንደተመለከተው ገመዱን በሁለት ጣቶች መያዝ



ከዚያ አውራ ጣትን በገመዱ አቅጣጫ ማዞር....



....ቀጥሎ እጅዎን ያዙሩ። ዙሩ በ90 እና በ180 ዲግሪ መካከል ካለቀ የገመዱ ውጥረት ደረጃ ትክክለኛ መሆኑን ያሳያል።

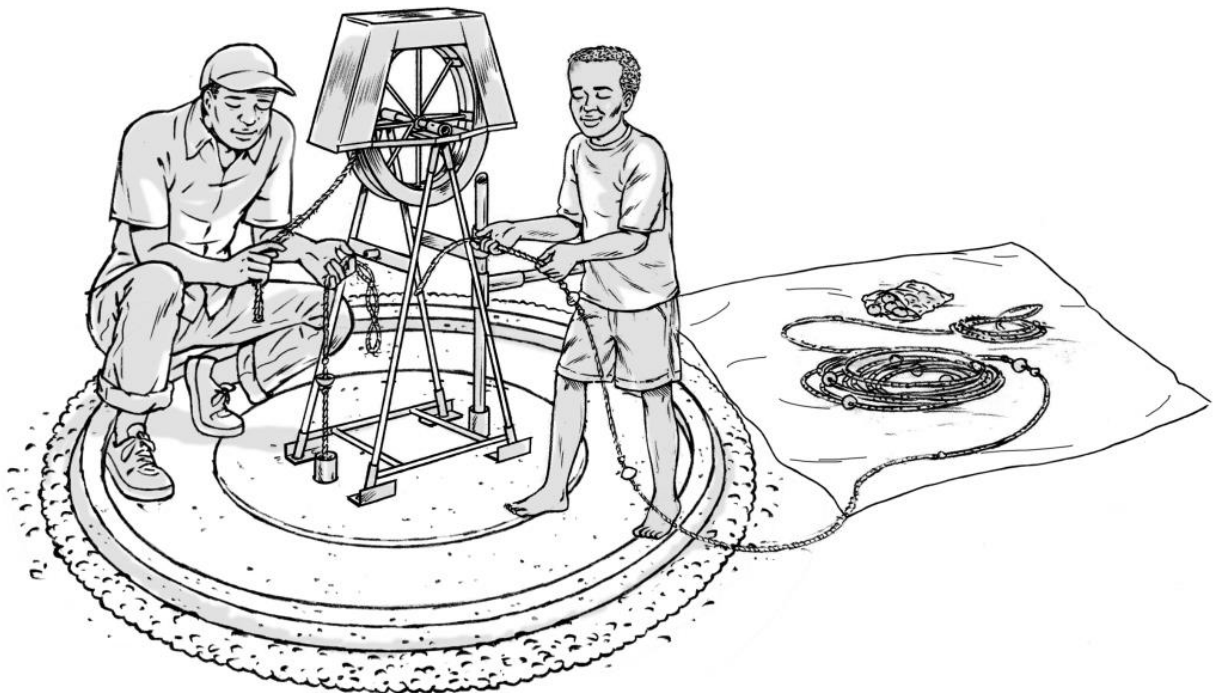
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2. አሮጌውን ገመድ ማላቀቅ
3. አዲሱን ገመድ የአሮጌው ገመድ ጫፍ ላይ ማሰር
4. ከዚያ አዲሱን ገመድ በገመድ መመለሻ ያህል በኩል እያስገቡ ዊሉን ማሸከርከር
5. በውሃ መሳቢያ ያህል በኩል የሚመጣውን አሮጌ ገመድ አላቆ መጣል
6. በመጨረሻም አዲሱ ገመድ ሙሉ በሙሉ መግባቱን ሲረጋግጥ አሮጌውን ገመድ አላቆ የአዲሱን ገመድ ሁለቱን ጫፎች አንድ ላይ ማሰር

ያስተውሉ

በዚህኛው ዘዴ የፒሺሲ ያህል ገመዶችን ከጉድጓድ ማውጣት አያስፈልግም።



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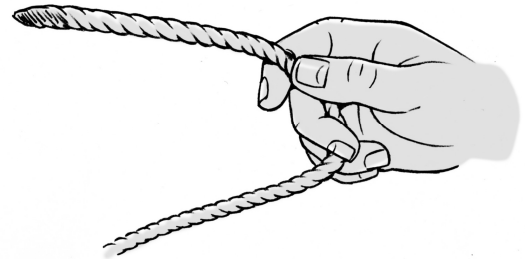
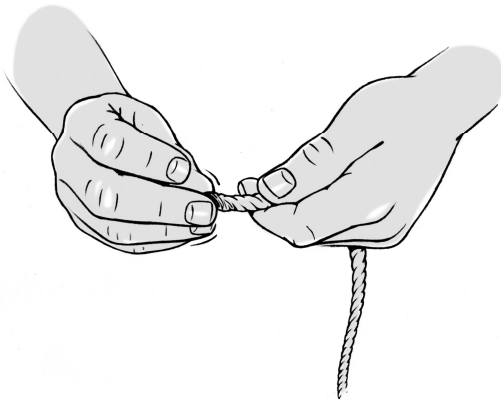
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ገመድን መልሶ ማገናኘት

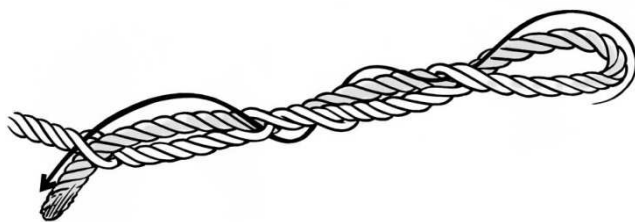
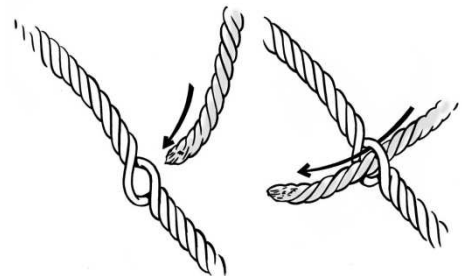
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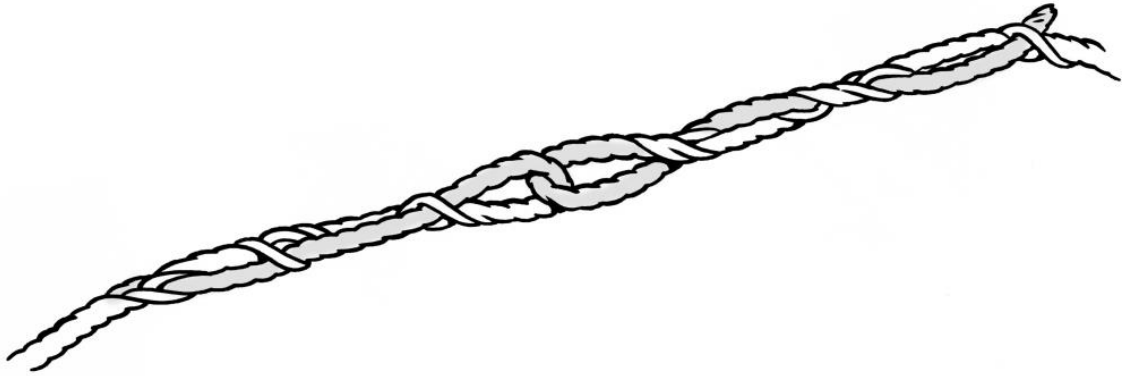
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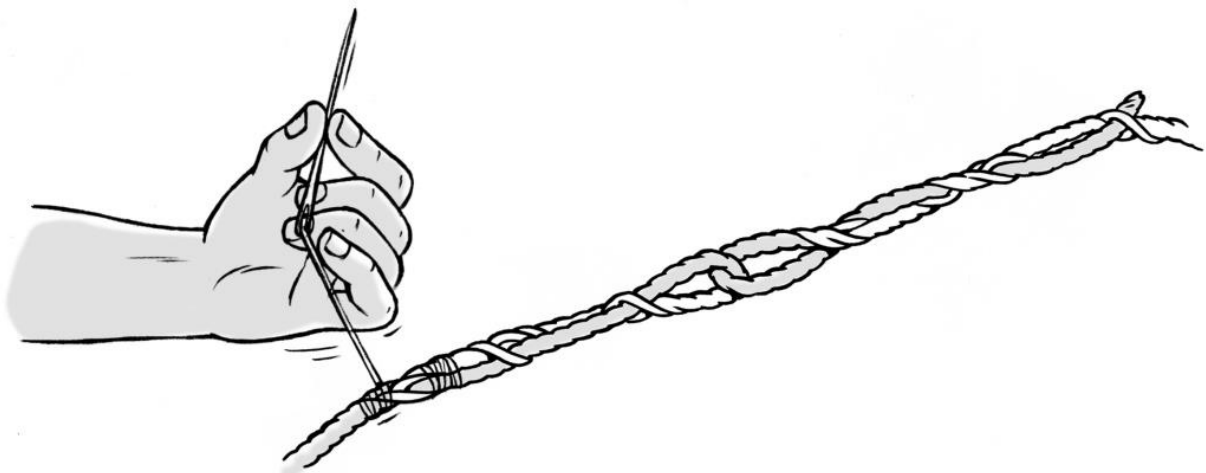
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በመጨረሻም የገመዱን ጫፍ በተዘጋጀው ቀለበት (ሉፕ) ውስጥ በማጠላለፍ ሌላ ሁለተኛ ቀለበት በመስራት ሁለቱን የገመድ ጫፎች ማገናኘት



ቀለበቶቹ እንዳይላሉ ሲባል የቀለበቹን ጫፎች በመርፌ መስፋት፣ ምክንያቱም የናይሉን ገመድ የመንሸራተት ባህሪ ስለለው።



ያስተውሉ!

ገመዱ ዊል ላይ እንዳይሸራተት የሁለቱ ቀለበቶች ጠቅላላ ርዝመት 30 ሳ.ሜ ወይም ከዚያ ያነሰ መሆኑን ያረጋግጡ።

Common Technical Problems which can be Maintained by
Trained Village Technician and Cost for Maintenance (DALE WOREDA)

Part no.	Description of work list	Cost Q/pump	Material and tools for maintenance
1	General Maintenance and Services	50 Birr	Requires spanner number 17 & number 10
1.1	Setting proper tension of the rope (to fix too tight or too loose rope tension)		
1.2	Adjusting Center and/or solving any alignment problems like: centering of piston/ rope in to the pipe		
1.3	Check and fix all bolts and nuts connections		
1.4	Check lubrication		
2	Rejoining of uPVC pipes separate or loosen due to use of inappropriate glue for joining or because of not keeping the bonding time	80 Birr	P.V.C glue and sand pepper
3	In case, if any break happened in the rising P.V.C pipe, to make new female part and to gluing & fixing.	80 Birr	Belling tool & P.V.C glue
4	Replacing new rope when rope wear out totally or snapped because of touching the edges to change and to fix new rope again	80Birr	Rope
5	Elongating of the rising P.V.C pipe b/c of the draw down of static water level	100Birr	Rope, Piston, Baling, P.V.C glue

Note:

- First discussion was made with the village technician, some of RP users and candidate RP users on the above items and their respective prices.
- The aforementioned prices do not include materials (pipe, fitting etc. prices except that of sand paper and PVC glue)

Common Technical Problems which can be Maintained by
Trained Village Technician and Cost for Maintenance (DAMOT PULASA WOREDA)

Part no.	Description of work list	Cost Q/pump	Material and tools for maintenance
1	General Maintenance and Services		
1.1	Setting proper tension of the rope (to fix too tight or too loose rope tension)	50 Birr	Requires spanner number 17 & number 10
1.2	Adjusting Center and/or solving any alignment problems like: centering of piston/ rope in to the pipe		
1.3	Check and fix all bolts and nuts connections		
1.4	Check lubrication		
2	Rejoining of uPVC pipes separate or loosen due to use of inappropriate glue for joining or because of not keeping the bonding time	80 Birr	P.V.C glue and sand pepper
3	In case, if any break happened in the rising P.V.C pipe, to make new female part and to gluing & fixing.	80 Birr	Belling tool & P.V.C glue
4	Replacing new rope when rope wear out totally or snapped because of touching the edges to change and to fix new rope again	80Birr	Rope
5	Elongating of the rising P.V.C pipe b/c of the draw down of static water level	100Birr	Rope, Piston, Baling, P.V.C glue

Note:

- First discussion was made with the village technician, some of RP users and candidate RP users on the above items and their respective prices.
- The aforementioned prices do not include materials (pipe, fitting etc. prices except that of sand paper and PVC glue)

Common Technical Problems which can be Maintained by
Trained Village Technician and Cost for Maintenance (MESKAN WOREDA)

Part no.	Description of work list	Cost Q/pump	Material and tools for maintenance
1	General Maintenance and Services	50 Birr	Requires spanner number 17 & number 10
1.1	Setting proper tension of the rope (to fix too tight or too loose rope tension)		
1.2	Adjusting Center and/or solving any alignment problems like: centering of piston/ rope in to the pipe		
1.3	Check and fix all bolts and nuts connections		
1.4	Check lubrication		
2	Rejoining of uPVC pipes separate or loosen due to use of inappropriate glue for joining or because of not keeping the bonding time	100 Birr	P.V.C glue and sand pepper
3	In case, if any break happened in the rising P.V.C pipe, to make new female part and to gluing & fixing.	100 Birr	Belling tool & P.V.C glue
4	Replacing new rope when rope wear out totally or snapped because of touching the edges to change and to fix new rope again	100Birr	Rope
5	Elongating of the rising P.V.C pipe b/c of the draw down of static water level	120Birr	Rope, Piston, Baling, P.V.C glue

Note:

- First discussion was made with the village technician, some of RP users and candidate RP users on the above items and their respective prices.
- The aforementioned prices do not include materials (pipe, fitting etc. prices except that of sand paper and PVC glue)

Common Technical Problems which can be Maintained by
Trained Village Technician and Cost for Maintenance (YIRGA CHEFE WOREDA)

Part no.	Description of work list	Cost Q/pump	Material and tools for maintenance
1	General Maintenance and Services	50 Birr	Requires spanner number 17 & number 10
1.1	Setting proper tension of the rope (to fix too tight or too loose rope tension)		
1.2	Adjusting Center and/or solving any alignment problems like: centering of piston/ rope in to the pipe		
1.3	Check and fix all bolts and nuts connections		
1.4	Check lubrication		
2	Rejoining of uPVC pipes separate or loosen due to use of inappropriate glue for joining or because of not keeping the bonding time	80 Birr	P.V.C glue and sand pepper
3	In case, if any break happened in the rising P.V.C pipe, to make new female part and to gluing & fixing.	80 Birr	Belling tool & P.V.C glue
4	Replacing new rope when rope wear out totally or snapped because of touching the edges to change and to fix new rope again	80Birr	Rope
5	Elongating of the rising P.V.C pipe b/c of the draw down of static water level	100Birr	Rope, Piston, Baling, P.V.C glue

Note:

- First discussion was made with the village technician, some of RP users and candidate RP users on the above items and their respective prices.
- The aforementioned prices do not include materials (pipe, fitting etc. prices except that of sand paper and PVC glue)

**List of Manufacturer & Supplier of Pipes and Fittings
Pipes (As of March 2016)**

Manufacturer/Supplier	Address & Tel	Contact Person	Remarks
Ethiopolymers PLC	Akaki Kality Sub-city, Woreda 4, House No. C-003, PO Box 20084/1000, Addis Ababa Tel: 251-114-340974 Fax: 251-114-347845 E-mail: ethiopolymers@ethionet.et	Ato Daniel Tefera/ Operation Director Mobile: 091-1408012 Office tel: 011-5534546	<ul style="list-style-type: none"> Ethiopolymers is producing PVC and uPVC pipes (plastic shoes). Ethiopolymers is producing both of ISO and DIN pipes. Majority is ISO pipe. Available small diameter depends on molds. (Ask them) Pommy International is a sister company of Ethiopolymers.
Modern Pipe Manufacturing PLC (MPF)	Oromia Region, Sebata city, Kebele 04 Tel: 251-0113-870100/600 E-mail: modernplc@gmail.com	Ms. Tigist Mobile: 091-2502739	<ul style="list-style-type: none"> MPF is producing only ISO pipes. Available diameter is from 63mm. Waterfit is sister company of MPF.
Family Modern Trading PLC (Family Modern Plastic Factory)	PO Box 51051, Addis Ababa Tel: 15658601/859 FAX: 1566002 Email: fmt@ethionet.et	Mr. Behailu Tilahun General Manger	<ul style="list-style-type: none"> FMPF is producing PVC and uPVC pipes. FMPF is producing only ISO. FMPF is importing fittings, too.
Excel Plastic PLC	Bole Kifel Ketema, Woreda 14, House No. 437 PO Box 15036, Addis Ababa Tel: 251-0111-6292196/99 -6299172 Fax: 251-0111-6293428 E-mail: Excel.plastics@ethionet.et		<ul style="list-style-type: none"> Excel is producing PVC and HDPE pipes. BS and DIN PVC pipes are available. ISO based pipe can be produced. (Ask condition) Minimum bulk for pipe order is from 200 pcs. in case of 1-1/4" dia. (Ask another diameters.) Excel is selling fittings (BS, DIN). BS based product is expensive than DIN based product.
Lica PLC.	PO Box 641, Addis Ababa Tel: 251-011-4401469/70/71 Fax: 251-011-4401468 E-mail: lica@ethionet.et		<ul style="list-style-type: none"> LICA is importing and supplying pipes and fittings, not producing pipes. LICA is supplying mainly DIN standard pipes.

Manufacturer/Supplier	Address & Tel	Contact Person	Remarks
Oromia Pipe Factory PLC (OPF)	Akaki-kality Subcity Tel: 251-0114-395911/5748 Fax: 251-0114-392373 E-mail: oromiapipefactory@ethionet.et		<ul style="list-style-type: none"> OPF is in the compound of Oromia water bureau. OPF is producing both of ISO and DIN pipes. Majority is ISO pipe. Small diameter is not produced. (Especially, the diameters to be used for RPs are not produced.) OPF does not sell fittings. OPF does not have sister company.
Brush Tesfa Irrigation & Water technology PLC		Mr. Hagos Gebne/ branch manager Tel: 091-4095355 E-mail: hagos_gehne2000@yahoo.com	<ul style="list-style-type: none"> Brush can produce up to 400mm dia. More than 400mm, PVC product is applicable. Detail of PVC shall be asked.
Habtamu Sila Plastic Factory	Factory: Hawassa Tel: 116-455516 Fax: 116-460687 E-mail: info@aletalandcoffee.com Head office of Aleta Land Group: Addis Ababa	Mr. Muluken Asrat/ Corporate Finance Manager Tel: 091-1137066 E-mail: mulukenasrat1@gmail.com	<ul style="list-style-type: none"> Own factory and showroom are in Hawassa. Small amount order is acceptable at retail shop in Hawassa. Bulk order is available, too. He has a plan for producing fittings.

Fittings (As of October 2016)

Supplier	Address & Tel	Contact Person	Remarks
Waterfit	Addis Ababa Urael to Bole Mechanialem, near to Atlas Hotel Tel: 251-11-6613539 Fax: 251-11-6613546 E-mail: watfit38@yahoo.com	Mr. Amanuel Tesfaye/ General Manager Mobile: 0911-516249	Waterfit is : <ul style="list-style-type: none"> A sister company of MPF, Importing and selling ISO Fittings, GIP, PVC pipes, other plastic pipes.
Pommy International	Near Ras Hotel Tel: 251-0111-5534546/4542	Mis. Alem Wasie Mobile: 0911-120487	<ul style="list-style-type: none"> Pommy is selling only fittings for HDPE.

Supplier	Address & Tel	Contact Person	Remarks
Excel	Bole Kifel Ketema, Woreda 14, House No.437 PO Box 15036, Addis Ababa Tel: 251-0111-6292196/99 -6299172 Fax: 251-0111-6293428 E-mail: Excel.plastics@ethionet.et		See category of pipes
Lica PLC.	PO Box641, Addis Ababa Tel: 251-011-4401469/70/71 Fax: 251-011-4401468 E-mail: lica@ethionet.et		Ditto
Dolphin Trading	Kirkos Subcity, Around Urael Church, Mulugeta Commercial Ground Floor Tel: 251-911-871869 / 251-11-5153915		<ul style="list-style-type: none"> Dealing with PVC cups and PVC glue.

Metal Product (As of May 2014)

Supplier	Address & Tel	Contact Person	Remarks
Mame Steel Mill PLC.	PO Box 18993, Addis Ababa Tel: 251-11 4390896/1587 Fax: 251-11-4393585 E-mail:mamesteel@ethionet.et		<ul style="list-style-type: none"> Mame is producing steel products of as hollow pipe and, circular pipe, etc.
Kaliti Metal Product Factory	Tel: 011-4342409/10	Ato Getahum Tilahun Mobile: 091-3008756 E-mail: Engingetahum@gmail.com	<ul style="list-style-type: none"> Steel plate, angle iron, etc.
Akaki Metal Product Factory			<ul style="list-style-type: none"> Akaki Metal Factory is the only one company that produced GIP in Ethiopia. Factory is not in operation due to raw

Supplier	Address & Tel	Contact Person	Remarks
			material.
Ethiopian Iron & Steel Factory (EISF)	Tel: 011-4342514 Fax: 011-4340261/1333 E-mail: eisfcom@ethionet.et etirstfa@ethionet.et	Mr. Fanuel Beyne/ Commercial Manager Mobile:093-0011890	<ul style="list-style-type: none"> EISF is producing Re-bar, based on ASTM. EISF has connection with regional supplier. Price range Dia. 8mm: 105Birr Dia.10mm: 145Bir Dia.12mm: 206Birr Dia.14mm: 300Birr Dia.16mm: 400Birr L=12m
Wallior Steel PLC			<ul style="list-style-type: none"> EISF is producing Steel sheet, Flat Iron, Angle Iron. Minimum order is not required.
Abyssinia Integrated Steel PLC	Bole Road, Dabi Bldg. 4 th FL PO BOX 22091/1000, Addis Ababa Tel: 6639755 Fax: 6639756 E-mail: abysteel@ethionet.et etirstfa@ethionet.et		<ul style="list-style-type: none"> Abyssinia is only producing re-bar. Grade 40, 60
Steely RMI PUT Ltd.. Co.	Tel:11-4394295		<ul style="list-style-type: none"> CES101 or ASTM Grade 40, 60

Piston for RPs (As of May 2014)

Supplier	Address & Tel	Contact Person	Remarks
Amio Engineering PLC.	PO Box 25946 Tel: 251-11-4168266 Fax: 251-11-4168212 E-mail: amioeng@ethionet.et	Ibrahim Yassin/ General Manager Mobile:0911-222641	<ul style="list-style-type: none"> 1/2" 3.45Birr/pc. 3/4" 3.60Birr/pc. 1" 6.50Birr/pc. Minimum order is from 1,000 pcs. Order from 10,000 pcs., price is negotiable.(November 2013) 6.9 Birr/pc.(June 2014) Information

Supplier	Address & Tel	Contact Person	Remarks
			1/2" 20-25 SWL Rope L=56m Dia.4mm 3/4" 10-20 SWL Rope L=46m Dia.6mm 1" 0-10 SWL Rope L=26m Dia.6mm
Ethio-Gambia Business PLC.	Kirkos sub city, Woreda 05 House No.305, Addis Ababa Tel: 251-11-4166161 Fax: 251-11-4166161 E-mail: ethiogam2003@gmail.com	Sales Dep: Mobile: 093-0101164/ 0911124074	<ul style="list-style-type: none"> 1.25 Birr/pc.

RP's manufacturer (As of November 2013)

Manufacturer	Address & Tel	Contact Person	Remarks
Butru & Friend's Association	Gonder, Amhara	Butru Tefera (Vice President) Mobile: 091-8350745	
One-man companies	Tigray	Michael Mobile: 091-4300274	
	ditto	Solomon Mobile: 091-4012487	<ul style="list-style-type: none"> Mekel
	ditto	Tadasse Mobile: 091-4724656	<ul style="list-style-type: none"> NGO
	Oromia	Ato Adane Weliso Tel: 091-1879164	

Others (As of November 2013)

Manufacturer	Address & Tel	Contact Person	Remarks
AB Plastic PLC	Addis Ababa Tel: 011-6293494	Ato Abraham Getachew	<ul style="list-style-type: none"> Plastic well liner rings

*Any changes in the contact information above, please contact WAS-RoPSS Project (Afra or Akino): 011-6613380 / 0935-353212

TECHNICAL MONITORING SHEET FOR ROPE PUMPS (OBSERVATION SHEET)

For Monitoring By a Technical (Project/WWO/WRB) Person

Name of woreda person: _____ Sector: _____

Name of technician: _____ Monitoring date: ____/____/2015

LOCATION

Woreda		Kebele	
Gott		Pump Model/no	
Owner's full name		Mobile no	

CURRENT WELL INFORMATION

	Question	Answer	Detail answer
1	Is the well currently functional?	YES / NO	If "NO" >> ① Well problem / ② Pump problem / ③ Other, specify;
2	Static Water Level	m	

TECHNICAL OBSERVATION CHECKS (Yes/No, Please explain when needed)

	Question	Answer	Detail answer
3	Is the rope tension is still correct?	YES / NO	if "NO" >> ① too loose / ② too tight / ③ broken
4	Is the rope still centered in the uPVC pipe?	YES / NO	
5	Are there any wear on the rope?	YES / NO	
6	Are there any wear on the Piston?	YES / NO	
7	Are there any wear on the uPVC pipe?	YES / NO	
8	Are the bolts and nuts are present and tight?	YES / NO	
9	Are there any broken weld?	YES / NO	
10	Are there any corrosion on pump parts?	YES / NO	
11	Are there any wear on the bushings?	YES / NO	
12	Are there any wear on the Axle?	YES / NO	
13	Is there any play between axle and bushings?	YES / NO	

	Question	Answer	Detail answer
14	Is there well collapse?	YES / NO	if "YES", >>① loose soil formation / ② flood / ③ other, specify;
15	Is pump still tightly connected to well cover?	YES / NO	
16	What is the condition of bolts in well cover?	①in good condition / ②crack / ③placement problem	
17	What is the condition of the well cover?	①in good condition / ②crack / ③placement problem	
18	What is the condition of the Apron?	①in good condition / ②crack / ③placement problem	
19	Can water leak back into the well?	YES / NO	
20	What is the condition of drainage?	①in good condition / ②crack / ③placement problem	
21	Are the bushings well lubricated (oiled)?	YES / NO	
22	Are there any fence around RP well?	YES / NO	if "YES", ①Lock YES / NO ②Spine YES / NO
23	Are there grass surrounding the well?	YES / NO	if "YES", how many meter diameter? m
24	How many meter to animal dung?	m	
25	How many meter to animal dung?	m	
26	How far is their animal kept?	m	
27	How far is their kitchen?	m	
28	How far is the nearest toilet?	m	

ANY OTHER OBSERVATION

TECHNICAL MONITORING SHEET FOR ROPE PUMPS (INTERVIEW SHEET)

Name of technician: _____ Monitoring date: _____ / _____ / 2015

LOCATION

Woreda		Kebele	
Owner's full name		Mobile no	

INTERVIEW QUESTIONS (TECHNICAL AND SOCIAL) TO USERS

	Question	Answer	Detail answer
29	Who does the maintenance of the pump?	①Adult male / ②Adult female / ③Boy / ④Girl	
30	Is he/she a trained person?	YES / NO	
31	Were there any problem since installation? (Choose answer from the maintenance cost list)	YES / NO	if "YES", specify the problem:
32	If yes, who solve the problem and how?	Who? How?	
33	Do you think the O&M training has been fully understood?	YES / NO	If "NO", what is not understood?
34	Is it easy or heavy to operate the pump?	①Easy / ②Heavy / ③other >>specify:	
35	Have you and/or your family receive any water related hygiene and sanitation awareness raising activities (services) by any health service providers?	YES / NO	If "YES", who? ①Adult male / ②Adult female / ③Boy / ④Girl What was the activity? ①Community MT ¹ / ②Potatest WQT ² / ③Petrifilm WQT / ④HHWT ³ / ⑤hygiene awareness raising sessions at health post or kebele admin office / ⑥health club at school ⑦others, specify;

¹ MT: meeting

² WQT: water quality test

³ HHWT: household water treatment (hygiene awareness raising sessions)

	Question	Answer	Detail answer
36	Have you changed any practice related to water and hygiene?	YES / NO	If "YES", what is the change?
37	Do you treat water before drinking?	YES / NO	If "YES", what is the method? Why can you continuously treat water?
38	Have you started repayment to OMFI?	YES / NO	If "NO" what is the reason?
39	Where do you do washing?		Measure the distance from the RP well: m

SATISFACTION ON RP USE (Yes/No, Select option)

	Question	Answer	Detail answer
40	For what purpose is the pump used?	(Select answer, multiple)	①Drinking; ②Cooking, ③Washing ④Bathing ⑤Animal Drinking, ⑥Vegetable, Fruit tree
41	Do you find your livelihood is improved through RP use?	YES / NO	
42	The reason why livelihood is improved :	(Select answer, multiple)	①No need to go far to fetch water ② Feeling happy because my own HDW is changed (fitted with RP, well cover, etc) ③Danger reduced because of the well cover and/or fence ④No turbid water ⑤Adequate quantity of water (easy to fetch water) ⑥Well is deepened ⑦Well is cleaned ⑧Well is treated with chlorine ⑨Water borne disease is decreased (less diarrhea in the family) ⑩Work load decreased ⑪Water fetching time shortened ⑫ Water fetching time for home garden is shortened
43	Recommendable to be Good Practice? (Technical person's observation through interview)	Select 1 option	①Very much / ②Good / ③Neutral / ④not good / ⑤Bad

IN GENERAL, HOW DO YOU FIND THE ROPE PUMP?
