

NIRA AF-85 HANDPUMP MANUAL



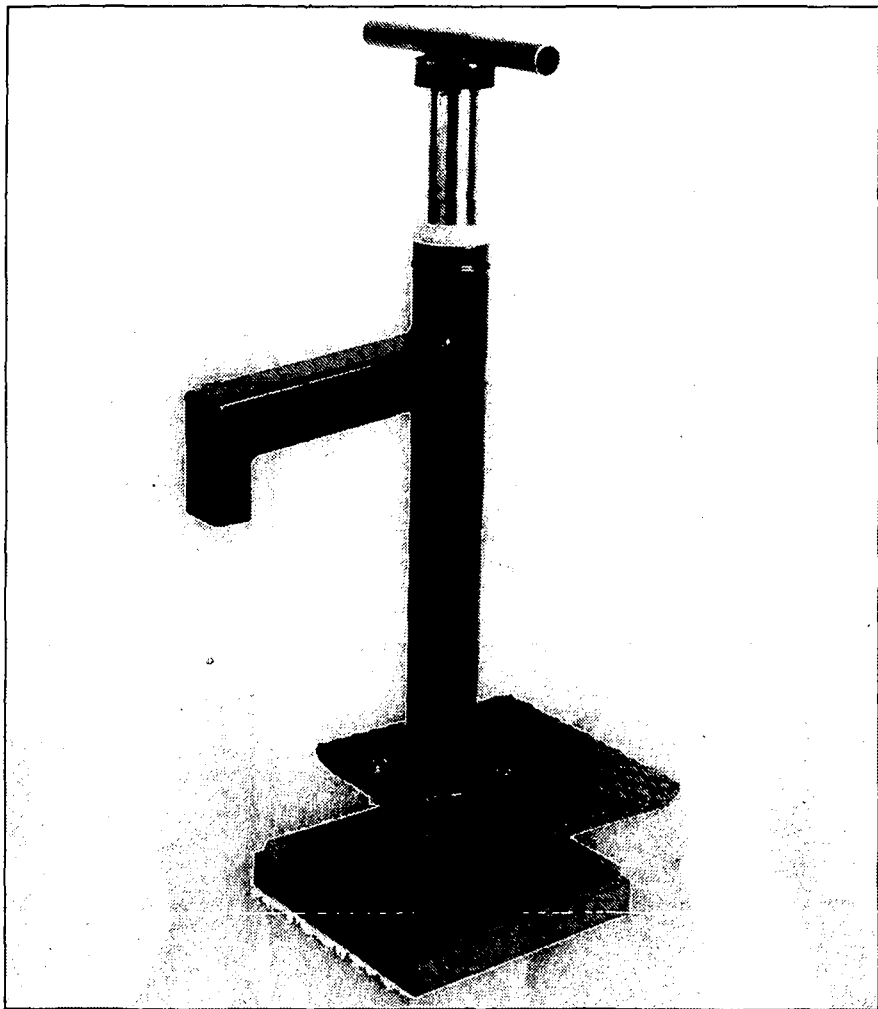
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ACKNOWLEDGEMENT

1. Acknowledgements go to Mohammed Mtinda of T.C.RS – Singida, Tanzania for his great idea of initiating such a valuable booklet. The involvement of the community in a project signifies it's success. Therefore women who are closely related to water use in this case should be involved, after training, in repairing of pumps.
2. Thanks go to Julia Kunguru, the Head of Training and community Department and Matti Leppaniemi, the Head of Operation and Maintenance Department for their encouragement and guidance during the preparation of this booklet.
3. Mention is also given to Asman Mohammed who could not forget his camera. He took all the pictures used in this booklet.
4. Thanks go to Luka Imbwaga for the effort he made – preparing repairers (pump-attendants) who demonstrated their skill and knowledge of removing desmantling, assembling and re-installation of the pump.

NIRA AF-85



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A WELL COMMITTEE

A well committee comprises of a chairman, a secretary, a treasurer and members who by number should not be less than seven and not more than fourteen. The majority of the officials and members of the committee should be women.

RESPONSIBILITIES OF A WELL COMMITTEE

1. To make sure that the water consumers have the responsibilities of taking care of their well, in this case every consumer should contribute towards the up keep of the well.
2. To look for spares and buy them whenever needed.
3. To assist the pump attendant in her duties.
4. To initiate and take care of developments at the well site.
5. To make sure that the consumers are well educated on the importance of cleanliness.

IMPORTANT THINGS TO DO

- Fence the well and repaired whenever the need arises.
- Clean the slab and the channel often.
- People should not wash, bath or clean their utensils onto the slab or near the well.
- Make sure that bolts and nuts are all tightened.
- Pot holes around the well should be properly filled and the tall grass trimmed to good height. (One to two inches above the ground is desirable).
- Use the full aptitude of the handle, but avoid hitting the stand or forcing the handle out of the pump.
- The pump attendant should open up the pump and check all the parts (clean the parts with a lot of clean water) at every three months' interval.

NIRA AF-85

LIST OF SPARES

No	CODE	DESCRIPTION	MATERIAL
1.	A6102	Handle	St. steel
2.	R22075	Shock absorber	Nitrile rubber
3.	A8104	Sleeve bearing	Plastic
4.	M1101B	Handle nipple	HDPE
5.	A8101T	Pump stand	Plastic coated steel
6.	R32826	Socket-head hex screw	M12 × 35
7.	A6108	Base plate	Steel plate, painted
8.	R22005	Gasket	Nitrile rubber
9.	R22070	Rod plug	Natural rubber
10.	M2332B	Pump rod	HDPE
11.	S9104B	Plunger nipple	HDPE
12.	R22229	Plunger/bottom valve	Urethane rubber
13.	S0302B	Plunger body	Plastics
14.	S0303	Plunger ring	Plastics
15.	M2331	Cylinder pipe	HDPE
16.	S0203K	Bottom valve limiter	Plastics
17.	S0301K	Bottom valve body	Plastics HDPE
18.		Pump rod	
	M2130B	0,75 m	
	M2332B	1,50 m	
	M2432B	2,00 m	
	M2532B	3,00 m	
19.	M1301B	Rod nipple	HDPE
20.		Rising main	HDPE
	M2130	0,75 m	
	M2331	1,50 m	
	M2431	2,00 m	
	M2531	3,00 m	
21.	M3301B	Riser coupling	HDPE
22.	A6107	Cast-in pedestal (opt.)	Steel
23.	A6107	Standing plate	Steel
24.	R37175	Nut	M12
25.	R36095	Spring cotter	M12

PUMP BODY

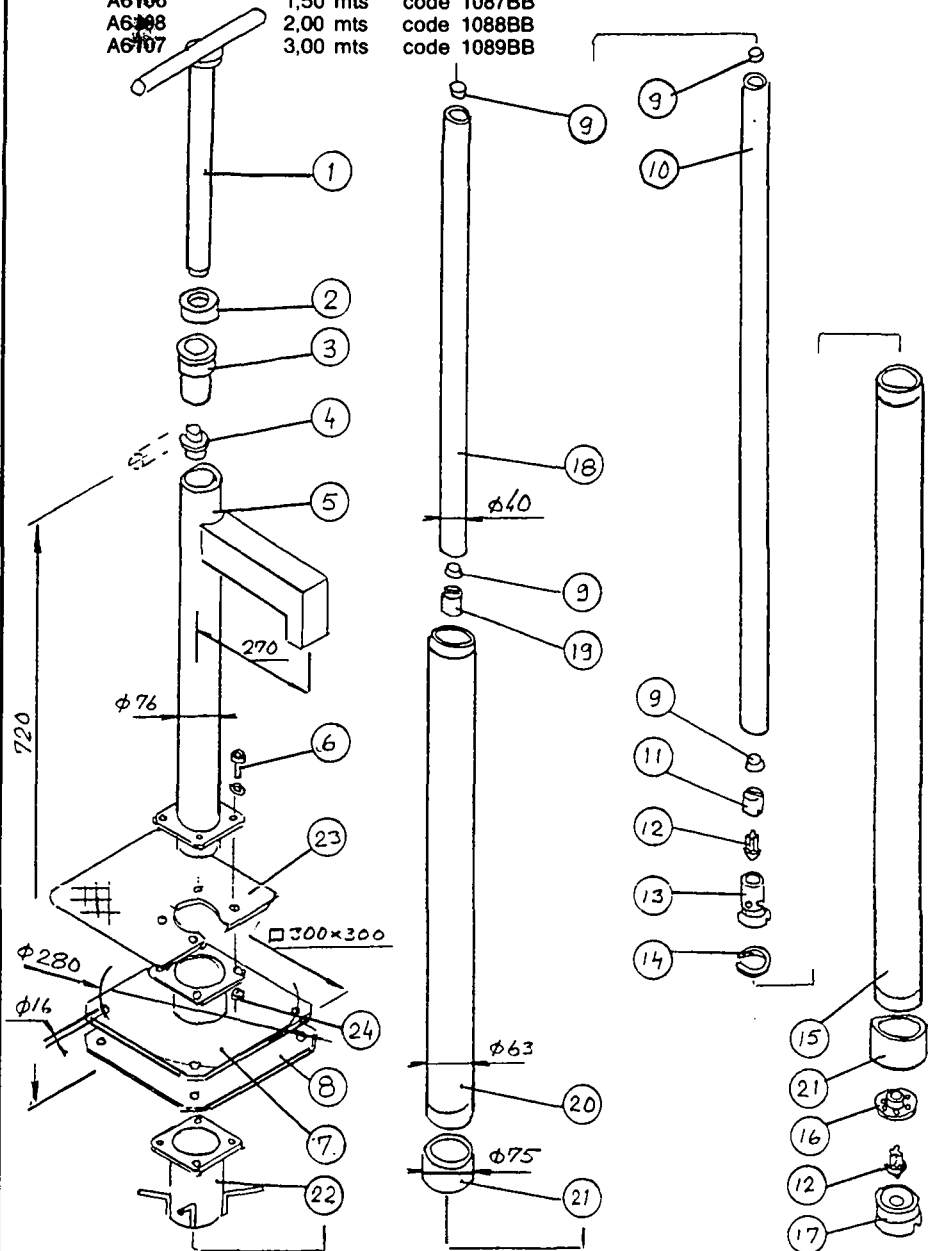
code 1025T
A6106
A6108
A6107

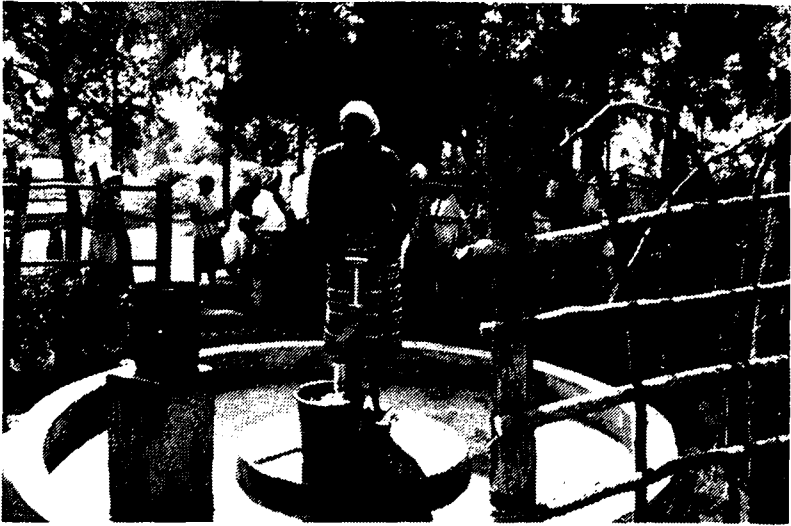
RISING MAIN MODULES

0,75 mts code 1084BB
1,50 mts code 1087BB
2,00 mts code 1088BB
3,00 mts code 1089BB

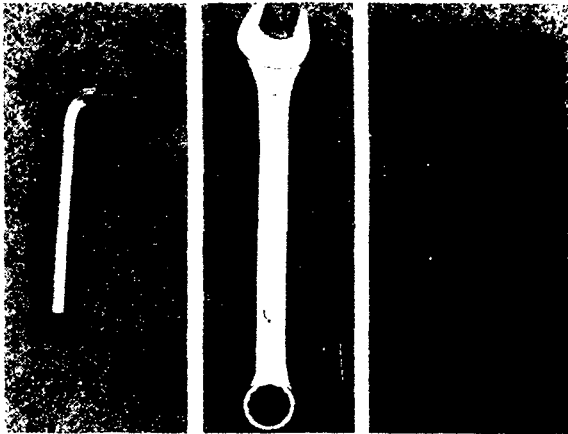
CYLINDER

code 1051K





xvii) Pump out the water several times until it is clean enough for use.



Repair Kit

from left to right

(i) Allen Key

(ii) Combination spanner

(iii) F-Key



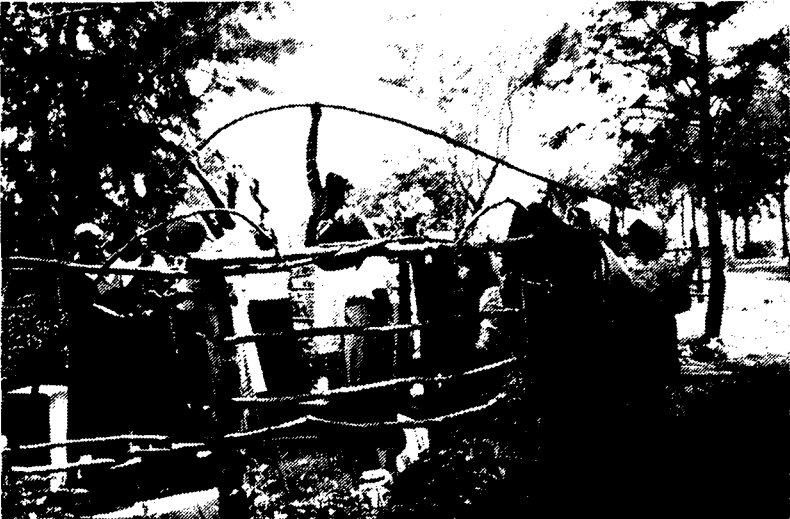
- xv) *Fix the handle onto the rod (The handle should be fitted with the sleeve bearing and the handle nipple).*



- xvi) *Connect the sleeve bearing onto the pump stand by hand and then tighten it by F-key.*



xiii) Lift the rod and enter it into the pump, the plunger first.



xiv) Continue pushing in the rod the way the picture shows.



xi) Connect the plunger Piston onto the rod-use F-Key.



xii) Continue connecting the rods until the same length with the pipes is acquired.



ix) Tighten the stand onto the plate with head hex screws and nuts. Don't forget to put washers.



x) Tighten the nuts and screws, using Allen Key 10 mm and Fix/ring spanner No. 19 mm.



vii) Connect the pump stand onto the last pipe.

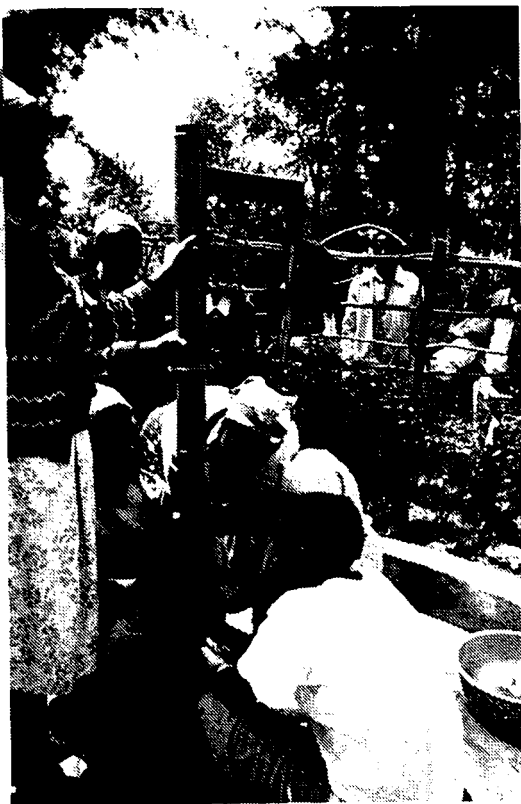


viii) Fix the step plate.



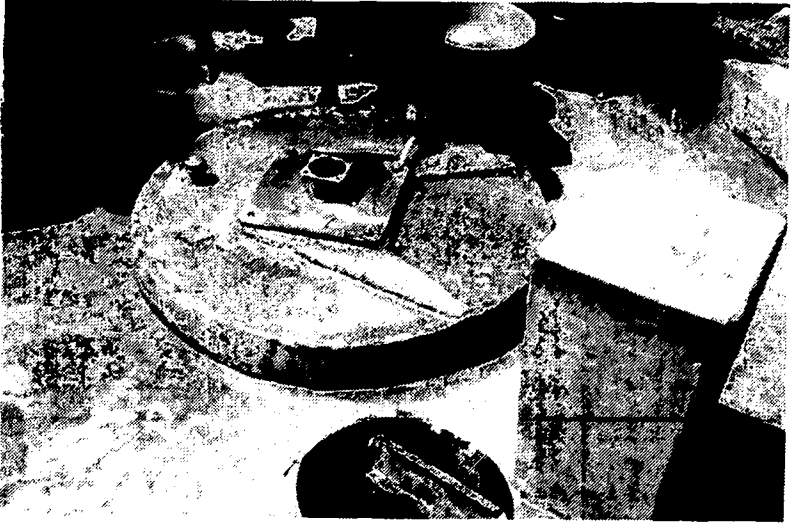
v)

Enter the connected cylinder and pipe into the well by first starting with the cylinder.

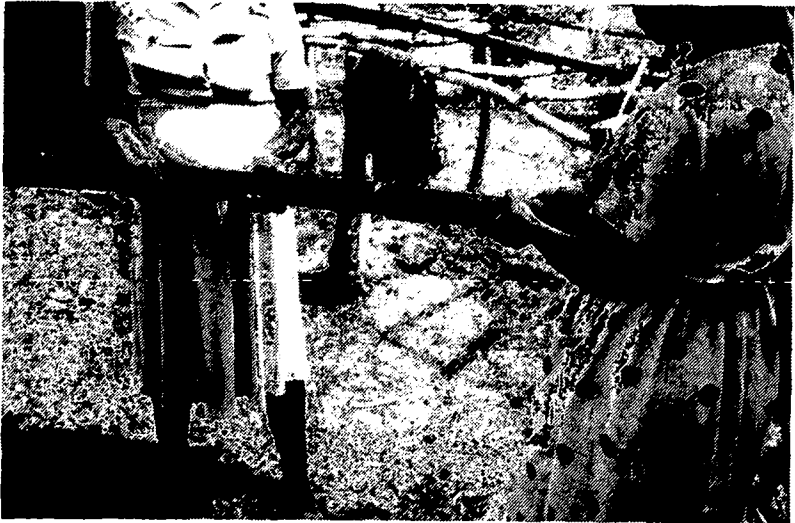


vi)

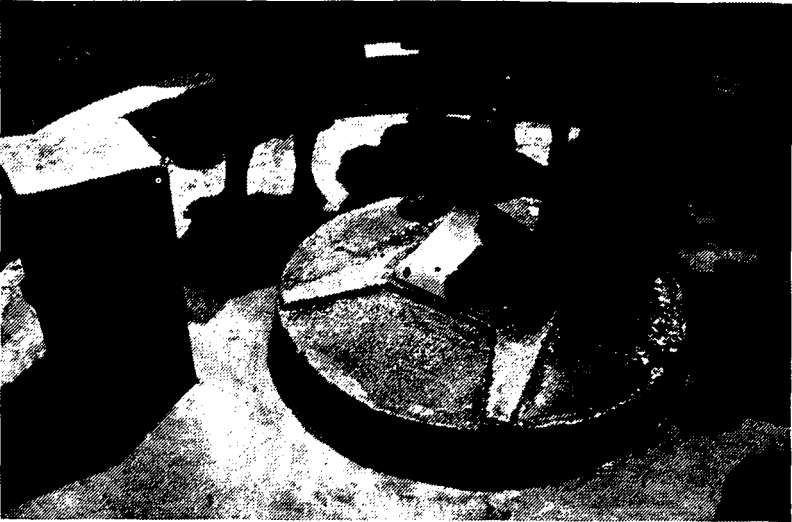
Continue connecting the pipes to each other to the desired depth.



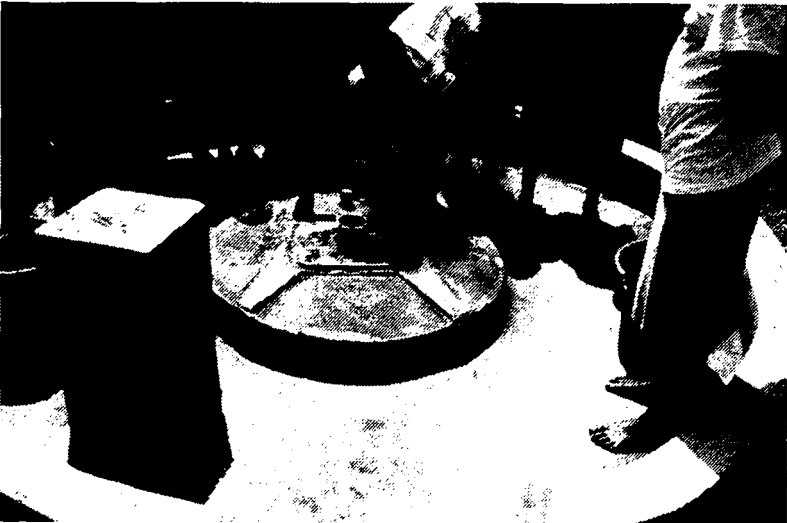
iii) Then fasten the base plate onto the cover with nuts using fix/ring spanner no. 19 mm.



iv) Connect the pipe on the cylinder-tighten it by hands.



- i) *Put gasket onto the anchor bolts of the well cover.*



- ii) *Put the base plate onto the anchor bolts on top of the gasket.*

**INSTRUCTIONS AND
ILLUSTRATIONS TO NIRA AF 85
HAND PUMP INSTALLATION**



PROPER USE OF A WELL

The picture above shows the benefits of a properly maintained well.

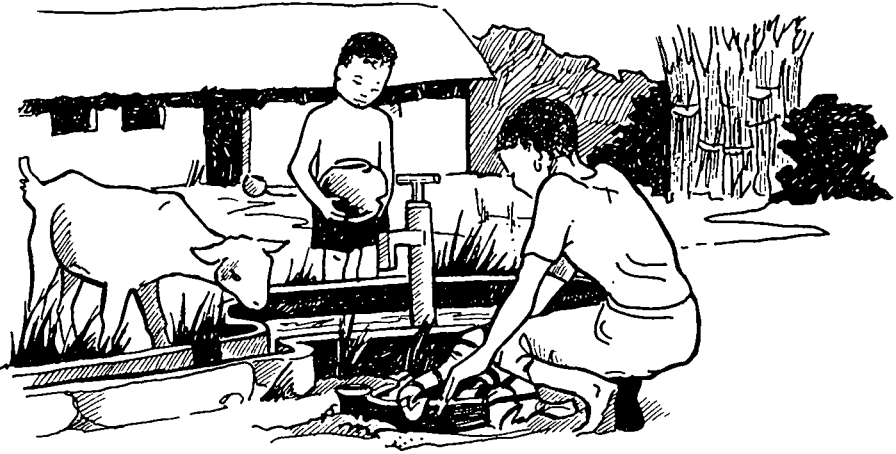
A cattle trough can be constructed about or more than fifteen metres (15) away from the well – to avoid animals from damaging the slab or the pump and dirtying the well site.

The well water could be used to irrigate the kitchen garden which should also not be close to the well.



PROPER MAINTENANCE OF A WELL

Care is very important because of the sustainability of the water point. The channel to be cleared for the run off and a catch water trench to be dug upstream to avoid storm water running over the well or being absorbed in well water. The well should be properly fenced. Pot-holes at the well-site should be filled and tall grass cut short.



BAD BEHAVIOURS AT THE WELL SITE

The above picture shows some of the bad maintenance/usage of a well. Livestock should be barred off the well site. It is not good for people to wash their laundry, bath or wash their utensils on the slab or very close to the well. The pit latrines should not be constructed upstream and the well should be more than twenty (20) metres away from a house. Children and birds should not be allowed at the well.



WATER AND LIFE

The above picture shows some of the living creatures which without water can not live.

Water plays a very important role in life. Human beings, animals, plants, insects and birds of the air – all owe their lives to water. Apart from drinking, washing, bathing and cooking, a human being still needs water for his industrial input and output. A man is slave to water. It is very important to use clean and safe water wherever you are.

SUMMARY OF THE CONTENTS OF THIS BOOKLET

- (i) Objectives of the booklet/guidelines
- (ii) The benefits of a properly maintained well
- (iii) Repairing of a hand pump /essential tools
- (iv) Hygiene considerations for a well (fence, environment and toilet)
- (v) The role and tasks of a well committee

This booklet has been prepared by Mohammed and Luka of Operations and Maintenance Department in:

Kenya–Finland Western Water Supply Programme (KEFINCO) Kakamega, Kenya.

INTRODUCTION

The aim of this booklet is to serve as a guide for proper use and maintenance of Nira AF 85 pumps, so that in case of breakages, the users shall independently carry out repairs without looking for assistance anywhere else.

THE OBJECTIVES AND GOALS OF KFWWSP

- The Programme provides water through systems that are simple to be run by consumers.
- The water to be clean and safe.
- The water points to be as close as possible to consumers.
- Spare parts to be made and sold to consumers by local people.
- Hand pumps to be durable with maximum endurance to breakages. Pumps to have low repair costs.
- Pumps which are easily maintained by the users.
- Develop a sense of maximum utilization of water.

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