FERROCEMENT RAIN WATER HARVESTING TANK MINDERS
OPERATION AND MAINTAINANCE TRAINING MANUAL
2019

“Let the water flow....”
CONTENTS

1. Preface .................................................................................. 1
2. Introduction ............................................................................. 2
3. Sketches of rainwater harvesting systems ......................... 3
4. Step by step maintenance guidelines .................................... 4

   1. Catchment area (roof) ......................................................... 4
   2. Guttering system ............................................................... 5
   3. Ferrocement tank .............................................................. 8
   4. Drainage system ............................................................... 10

5. Items required for regular maintenance of the roof harvesting system ........................................ 13
6. Regular maintenance tips for caretakers ................................ 14
7. Prevention against contamination ........................................ 14
8. Fundi group contact details ................................................... 14
INTRODUCTION

This manual contains a lot of sketches which illustrate the various operations with step by step guidelines. These guidelines should be followed while carrying out the various maintenance exercises on the roof harvesting system. The manual also gives some tips for regular maintenance including correct behaviour in handling drawn water to avoid contamination.

Roof harvesting system / technique is a method employed in harvesting the rain using the roofs of buildings and the rain water is collected through the guttering system into a storage tank made using the locally available materials which is commonly known as ferrocement tank. This method has been employed for a number of years with a lot of success in providing clean safe drinking water to individual homes and various institutions.
1. Shows the sketch of a ferrocement tank, chamber and soak pit with all its parts labelled.

2. Guttering system sketch labelled.
STEP BY STEP MAINTENANCE GUIDELINES

The following outlines the major regular maintenance tasks that must be carried out for the roof harvesting system to be sustained.

1. CATCHMENT AREA.

This is the roof surface of the institutional building which collects the water (rainwater)

(a) Cut off the overhanging branches of the trees growing near the building. The dry leaves falling from branches of the tree collects on the gutter hence blocking the down pipes especially on the elbows.

(a) Corrugated iron sheets should not be rusty. Rusty roofs contribute to high concentration of iron in the drinking water. Rusty roofs should be cleaned with wire brush and painted with three coats of aluminium paint.
2. **GUTTERING SYSTEM** - Gutters collect the water from the Catchment area and direct it to the tank through down pipes.

(a) Gutters should always be clean off dry leaves that collect especially during the dry spell. They should be cleaned regularly especially before the rainy season starts.

(b) Down pipes should be checked regularly if they are blocked by the fallen dry leaves especially in the elbows.
(i) Dry leaves block the gutters and water cannot collect into the tank.

(ii) Dry leaves penetrate into the down pipes. A blocked downpipe results in no water reaching the tank.

(iii) How to clean/unblock the down pipes.
(C) If gutters and down pipes are leaking apply a coat of bituminous paint (Bondex) on the leaking joints.

(i) Leaking gutters and down pipes.

(ii) Sealing the joints with Bondex.
3. **FERROCEMENT TANK**

This is the structure that stores the runoff water from the catchment area (roof) through gutters and down pipes. It should be cleaned at least once per year to avoid accumulation of dirt and decaying leaves that may have found their way inside the tank.

**Steps to be followed when undertaking the cleaning exercise.**

a) Cleaning exercise should be done early in the morning to avoid high temperatures and humidity during the midday period.

a) Unscrew the drain plug and stir the water inside the tank so that sand mixes up with retained water. The water will drain out of the tank.
C) Unscrew the plug on the tapping station (chamber) to drain off the muddy water.

d) Splash inside the tank with clean water to remove completely the muddy water.

e) Replace the plug on the tapping station (chamber) and put fresh water.

f) Using detergent (Omo solution, Jik etc) scrub the floor and the wall clean with a plastic hard brush and remove the waste water.
g) Repeat the step (f) once more and using clean water flush the tank twice to remove the detergent ready for filling with clean water.

g) Replace the plug and the nipple and put clean water until it starts overflowing through open taps. The water seal keeps the tank wet all seasons.

(l) Replace the cover (manhole cover) and lock it.

(j) Always ensure that the gate valve, tap and the plug are secured properly.

(k) Remember always to replace the leaking and worn out taps to avoid loss of water.

(r) Always try to check the level of water in the tank when it is not in use especially the evening and morning to check if there are any unnoticed leaks.

(r) If there's any leak contact funding groups for repair for they have the experience and expertise on how to carry out the repair.

DRAINAGE SYSTEM
Any wastewater should flow into the soak pit. If the soak pit is clogged with mud it will function hence the water will stagnate in the chamber.

The chamber should be cleared of vegetation matters and silt. If it clogs, the following should be followed to rectify the problem.
(a) Remove the soil on the top of the pit.

(b) Remove polythene sheet.

(c) Remove ballast layer.
(d) Remove the hardcore

(e) Remove the slil and vegetation materials (scum) at the bottom of the soak pit.

(f) Repeat the above process in reverse order.
ITEMS REQUIRED FOR REGULAR MAINTENANCE OF THE TANK

1. Adjustable spanner for unscrewing the plug, tap and the nipple.

2. Hard brush (plastic type).

3. Ladder 2 nos., one for outside and the other for inside use.

4. Detergent
   (i) Omo
   (ii) Jik e.t.c

5. Bituminous paint for applying in leaking joints of gutters and down pipes e.g. Bondex.