

# WATER and SANITATION for Health



## A Handbook for U-TWO HANDPUMP MECHANICS

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Ministry of Water and Minerals Development  
(Water Development Department)  
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# WATER and SANITATION for Health

## A Handbook for U-TWO HANDPUMP MECHANICS

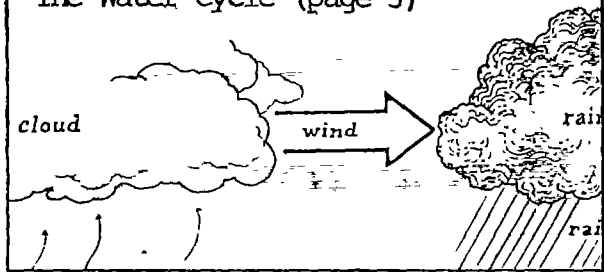
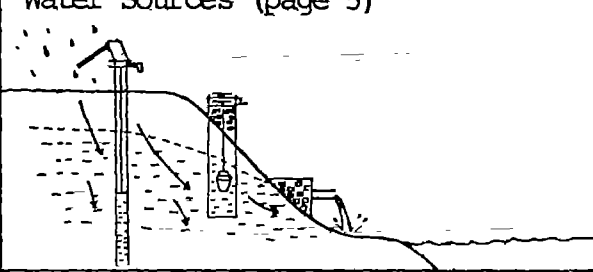
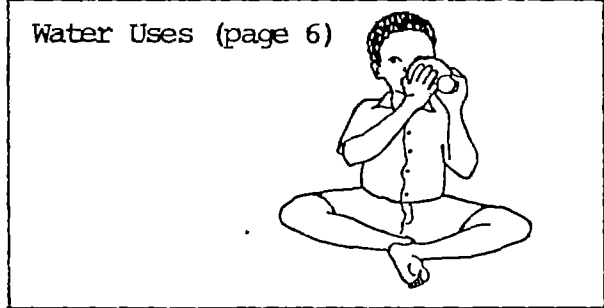
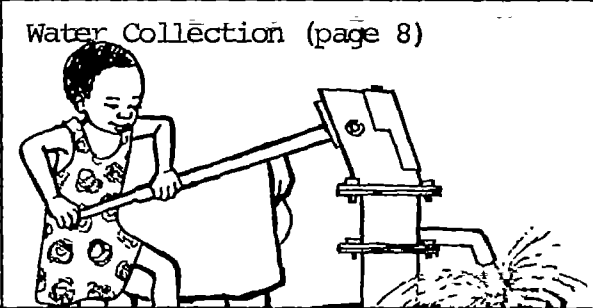
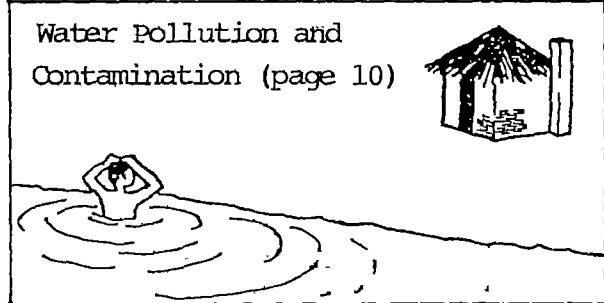
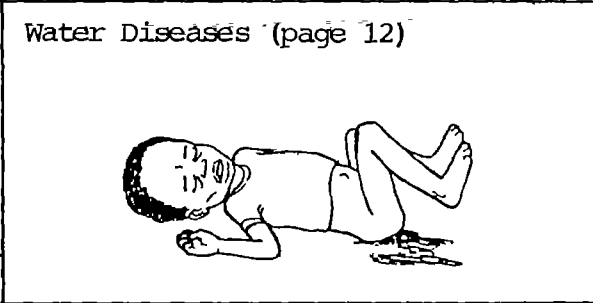
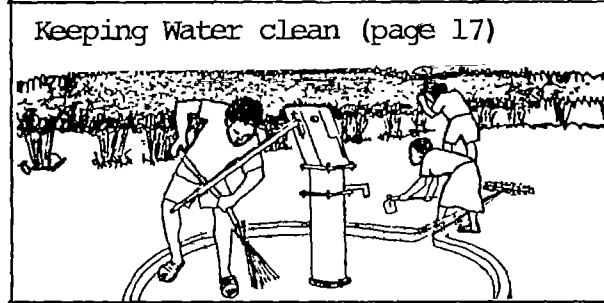
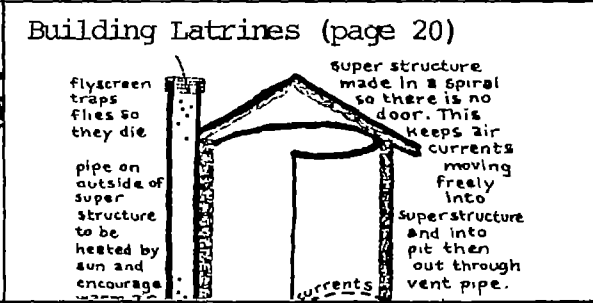

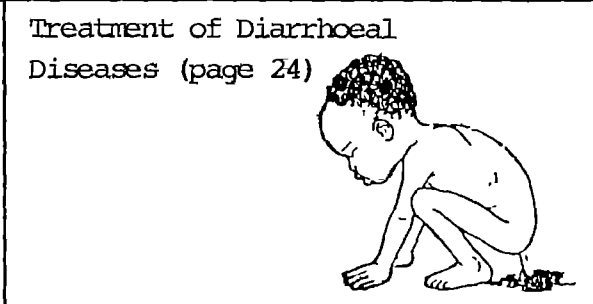
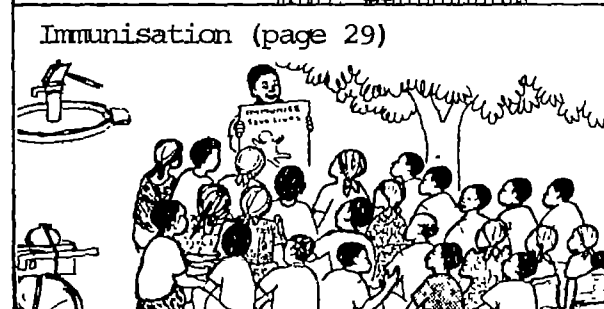

Congratulations, you have been chosen by your community to be its handpump mechanic. You will be providing a very important service to your people.



You will be meeting and talking with many of your people when you work on handpumps. This is a good time to talk to them about health and sanitation.

You are more than a U-Two Handpump Mechanic: You are an advisor to your people on how they can prevent sickness and death and improve their lives.

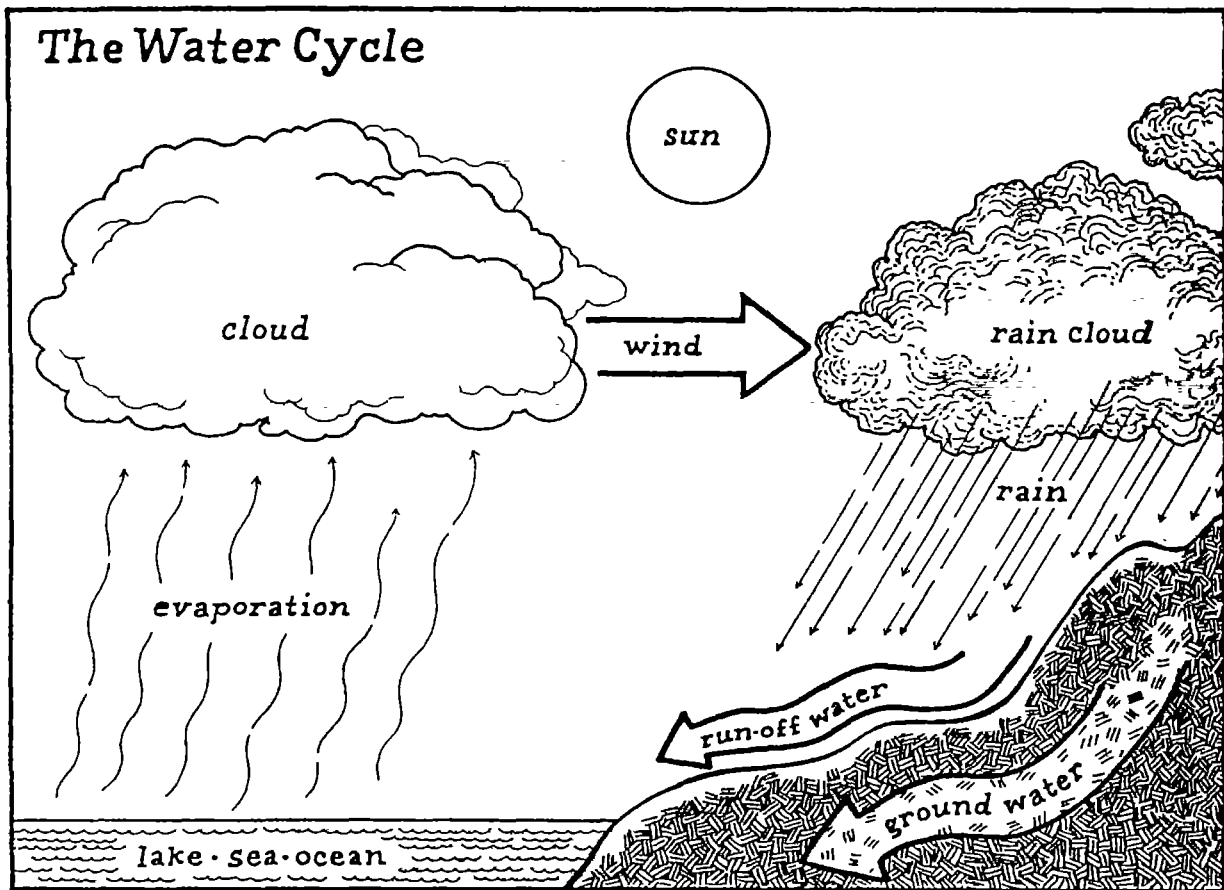
Your job as U-Two Handpump Mechanic naturally gives you the responsibility to protect water, especially from faeces and rubbish. This handbook will help you to answer your people's questions about:

<p>The Water Cycle (page 3)</p> 	<p>Water Sources (page 5)</p> 
<p>Water Uses (page 6)</p> 	<p>Water Collection (page 8)</p> 
<p>Water Pollution and Contamination (page 10)</p> 	<p>Water Diseases (page 12)</p> 
<p>Keeping Water clean (page 17)</p> 	<p>Building Latrines (page 20)</p>  <p>flyscreen traps flies so they die</p> <p>pipe on outside of super structure to be heated by sun and encourage currents</p> <p>super structure made in a spiral so there is no door. This keeps air currents moving freely into superstructure and into pit then out through vent pipe.</p>
<p>Rubbish Disposal (page 23)</p> 	<p>Treatment of Diarrhoeal Diseases (page 24)</p> 
<p>Immunisation (page 29)</p> 	<p>Working with people (page 36)</p> 

# The Water Cycle

Where Does Rain and Water Come From?

All water on the earth's surface is moved by the sun and the force of gravity. From the sea, lakes and land the sun evaporates the water, and forms clouds. Difference in temperatures, created by the sun, also create differences in pressure which make the wind blow clouds to other places where the evaporated water falls from the clouds as rain or hail.



There are three things which can happen to rain when it falls on land:

- 1) it runs to lower places and ends up in seas or lakes - a process called run-off;
- 2) it seeps into the ground and slowly moves towards the sea - a process called ground-water flow;
- 3) it is sucked up by plants and evaporates - a process called transpiration; or it evaporates directly from the surface.

In all cases, sooner or later the water will evaporate somewhere and the water cycle goes on again and again.

All water, even that being pumped up from boreholes by U-Two Pumps, starts out as rain. When rain falls from the sky it is clean water, but when it runs on the ground or seeps into it, water can become dirty if it is not protected.

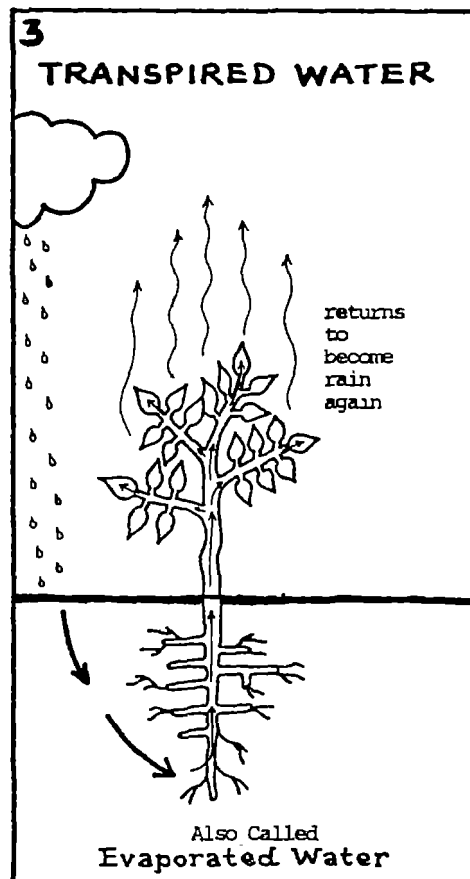
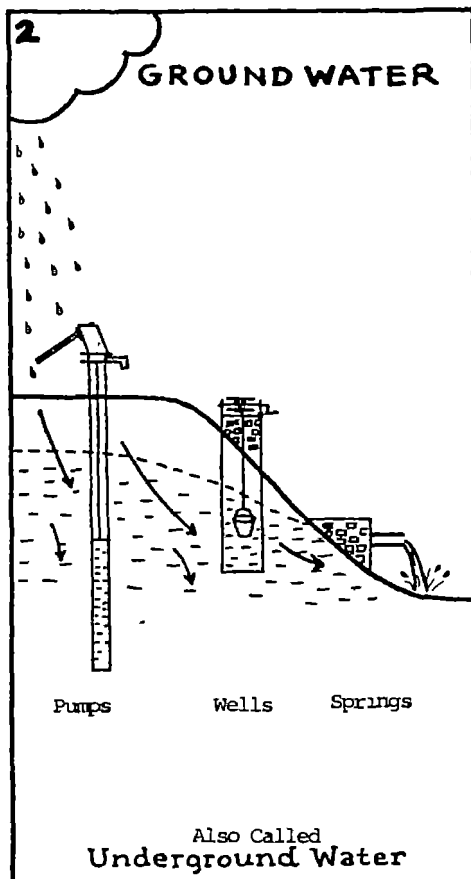
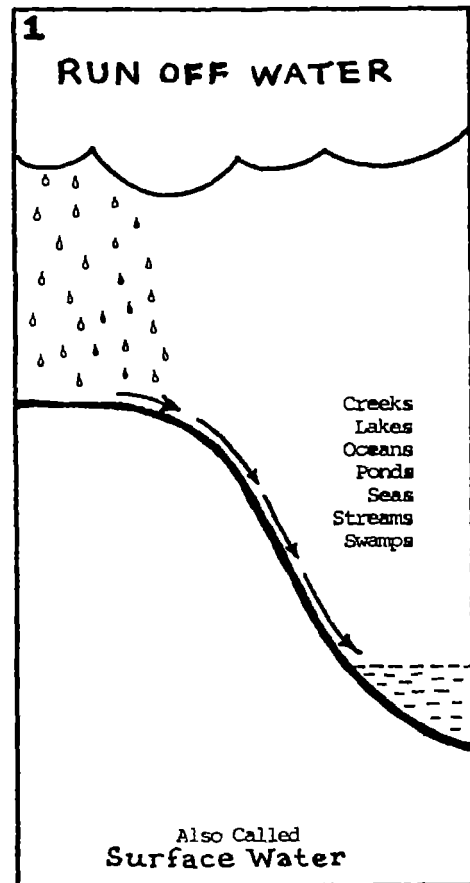
#### Water Cycle Vocabulary List

- BOREHOLE - a hole in the ground from which we get water, between 30 and 100 metres deep, made by a drilling rig.
- CYCLE - a thing that happens over and over again or goes around and comes back to the same place.
- EVAPORATE - when something solid or liquid turns into a vapour and seems to get lost or disappear.
- GRAVITY - the force which pulls everything to the earth.
- GROUND WATER FLOW - Water going into the ground and moving to where it collects in seas or lakes.
- HAIL - pieces of frozen rain.
- LAKE - a big body of water with land all around it.
- PRESSURE - the amount of force or pushing of one thing against another.
- RAIN - water from the sky falling in drops.
- RUN OFF - when rain runs on the ground and goes towards seas or lakes.
- SEA - a big body of salt water which covers most of the earth.
- SURFACE - the top or outside of anything.
- TRANSPIRATION - when rain is sucked up by plants and then evaporates.

# Water Sources

When rain falls on land it ends up in three ways.

- 1) Run-off water (also called Surface Water because it runs on top of the ground)
  - Lakes
  - Rivers
  - Ponds
  - Swamps
  - Oceans
  - Seas
- 2) Ground Water (also called Underground Water because it runs under the ground)
  - Borehole Water
  - Spring Water
  - Well Water
- 3) Transpired or Evaporated Water
  - Sucked up as part of plants
  - Returns to the sky to become rain



# Water Uses

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1) Water is useful for us in many ways. Without water we could not live. How many uses do we make of water?

- Drinking
- Cooking
- Washing (clothes, ourselves, dishes, cars, bathing houses, etc.)
- Animals (drinking, washing)
- Agriculture (watering crops, houseplants, shrubs, trees etc.)
- Industry (production of electricity, making cement, manufacturing goods, fishing, etc.)
- Recreation (playing, swimming, boating)

## Drinking



## Washing

our selves  
clothes  
dishes and pots  
vehicles  
homes  
latrines  
flush toilets

## Cooking





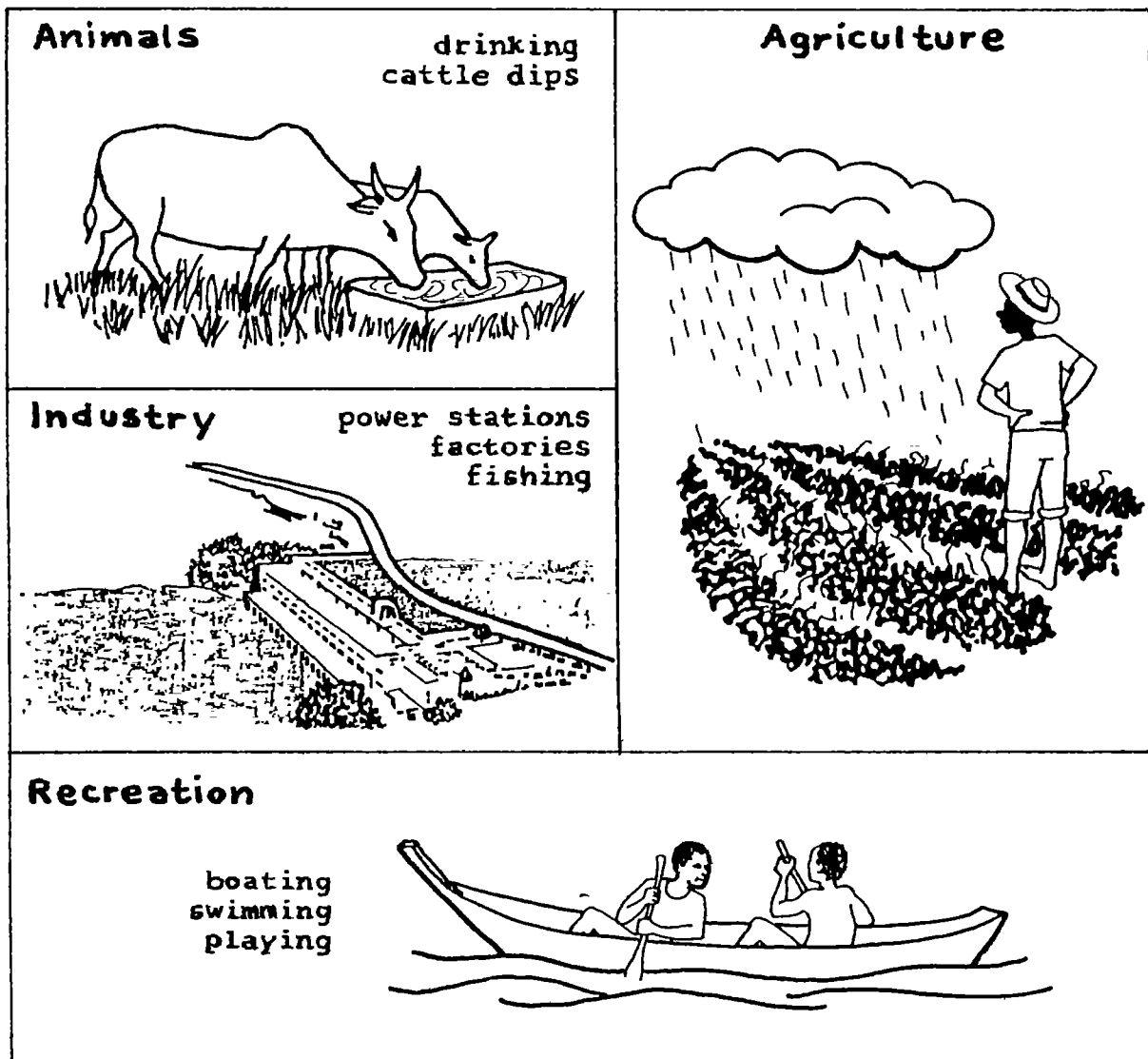
2) What is the most important use of water for us?

We need water to drink. Without water we will soon die. Water keeps us healthy. But some kind of water can make us sick.

3) What kind of water can make us sick?

Water that is not clean makes us sick.

4) Ask your people to think about how many ways they use water every day. Show them how a lot of clean water is important to their lives.

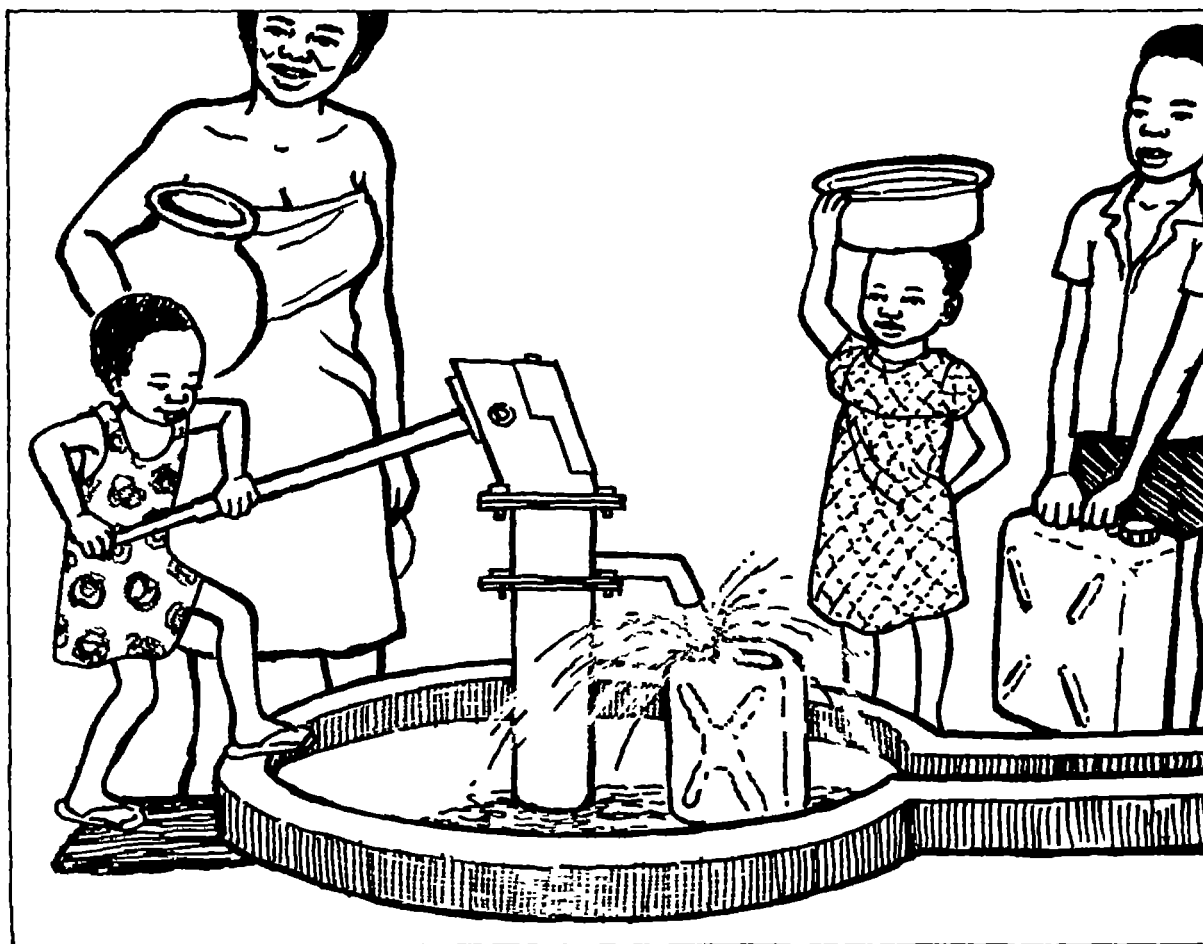


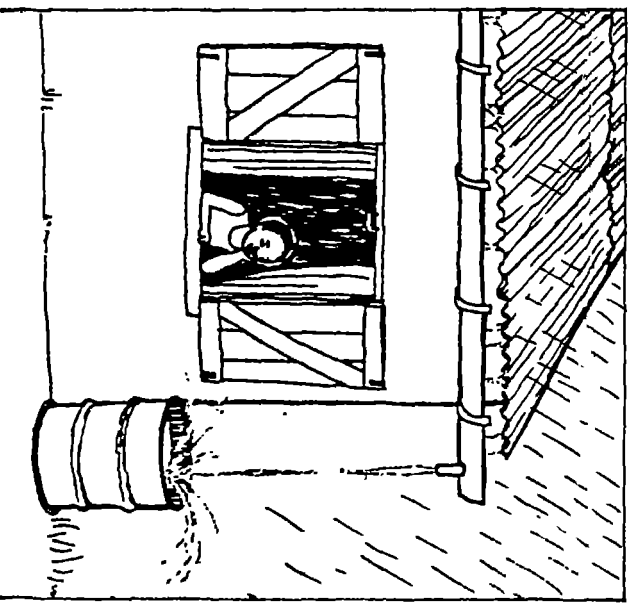
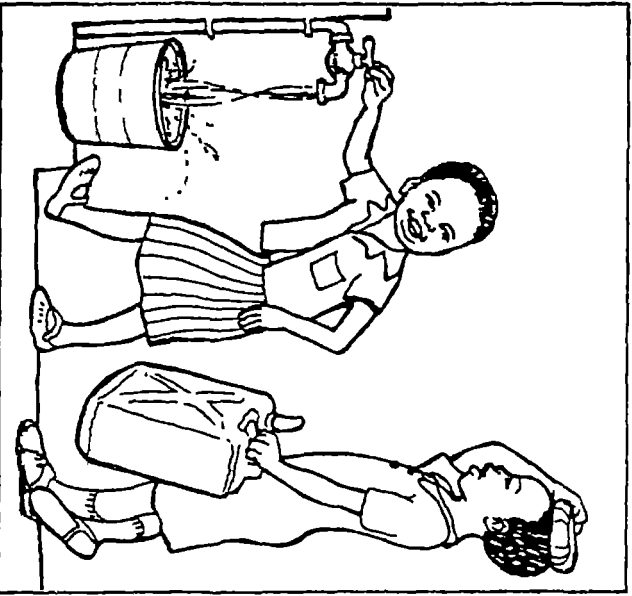
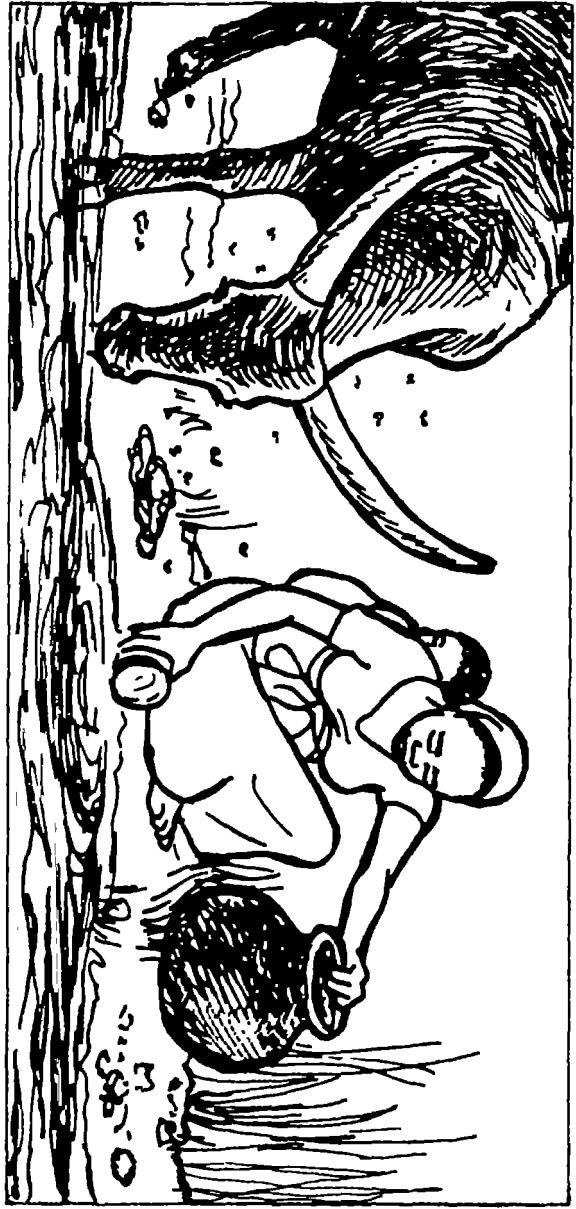
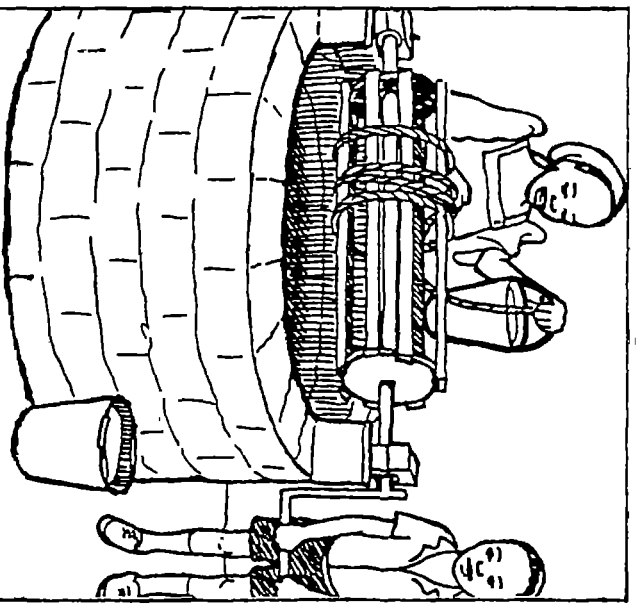
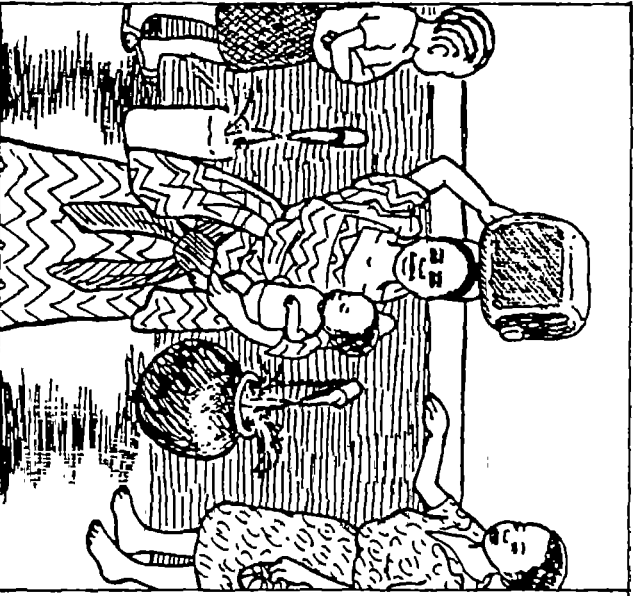
# Water Collection \_\_\_\_\_

1) Where do your people collect water?

- Lake (run-off water)
- Spring (ground water)
- Well (ground water)
- U-Two Pump (ground water)
- Taps (run-off or ground water which is pumped and stored)
- Swamp (run-off water)
- Pond (run-off water)
- Rain (roof catchment water)

2) Ask your people which of these water collection places has the best water for drinking. Remind them that some water looks clean but still may not be clean. Water that is not clean can make us sick.





# Water Contamination

1) How does clean water get dirty?

Run-off Water (lakes, ponds, rivers, swamps) can become dirty from:

- Humans
  - Defecating and urinating
  - Washing clothing etc. in or near
  - Bathing
  - Swimming
  - Disposing of rubbish improperly (which can attract flies, cockroaches, mice and rats).
- Animals - Grazing, defecating and urinating
- Industry - Polluting with rubbish and chemical wastes

Ground Water (U-Two Pumps, Wells, Springs, Tap Water) can become dirty from:

- Humans
  - Seepage from latrines installed closely above water source
  - Children playing on pipes, clogging them or causing cracks to walls.



- Clogging drainage and causing dirty water to accumulate around pumps and springs.
  - Throwing rubbish into water tanks.
  - Animals - Cracking platforms
    - Defecating and urinating near the seepage area.
  - Industry - Polluting with rubbish and chemical wastes
- 2) What kind of containers do people in your area use to collect and store water?
- Type of Containers - Clay pot - Bucket
  - Jerry can - Cup
  - Sufuriya - Water tank
  - Empty food tin
- 3) How can these containers become dirty?
- Container is left uncovered
  - Container is not cleaned before use
  - Dirty hands touch the container
- 4) Ask your people which water collection place can become dirty the easiest. Water underground is usually more protected than water above ground.

 <p><b>Washing</b> in or near water itself or pumps, wells, or springs (where it can soak into the ground) dirties water.</p>	<p><b>Dirty Containers</b> make any water put into it dirty.</p> 
 <p><b>Animals</b> urinate and defecate in or near water and can break or crack water pipes, taps, walls or floors and allow water to become dirty.</p>	 <p><b>Industry</b> can make water dirty when factories use water to wash or make things.</p>

# Water Diseases

This section of your handbook will give you information on types of sicknesses we can get from water which is not protected.

- 1) Water BORNE diseases are those which we get by DRINKING unprotected water.



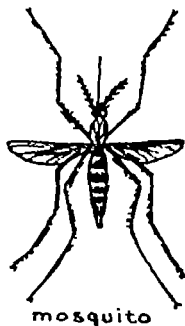
- 2) Water CLEANED diseases are those which we get if we fail to have ENOUGH WATER TO KEEP CLEAN.



- 3) Water CONTACT diseases are those which we get if we take a BATH in unprotected water.



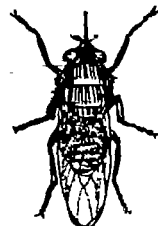
- 4) Water HABITAT diseases are those caused by INSECTS which LIVE IN or Near Unprotected water.



mosquito



snail



tse tse fly



black fly

Learn about these diseases so that you can help your people to prevent them.



# water BORNE diseases

Diseases we can get by DRINKING Unprotected Water

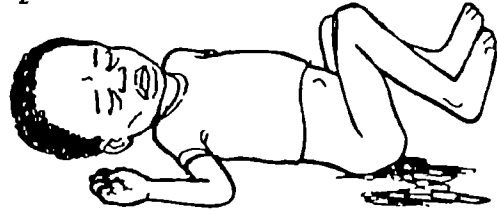
## Bilharzia

Bilharzia causes Blood in the Urine and Abdominal Pain.



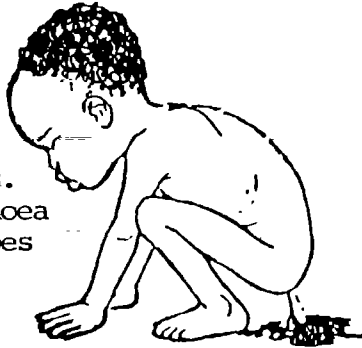
## Cholera

A lot of Watery Diarrhoea, Dehydration, Weakness and Collapse



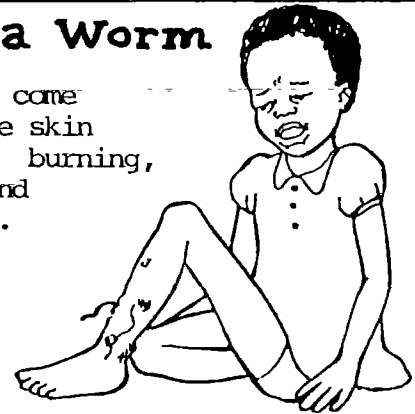
## Diarrhoea

Many Loose Watery Stools. We get Diarrhoea from many types of Diseases.



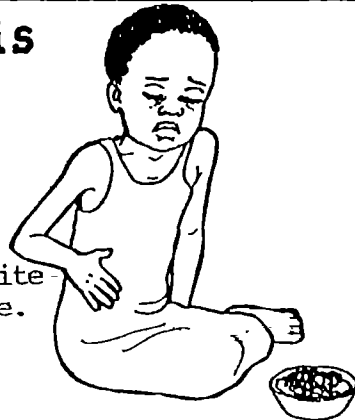
## Guinea Worm

The Worms come out of the skin and cause burning, Itching and Infection.



## Hepatitis

A long time Sickness with Pain in the Abdomen, Yellow Eyes, Loss of Appetite and Dark Urine.



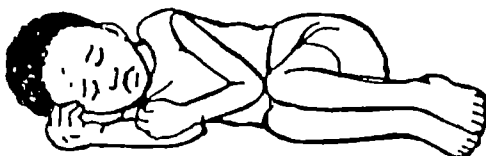
## Polio

Polio causes Permanent Lameness in the Arms or Legs.



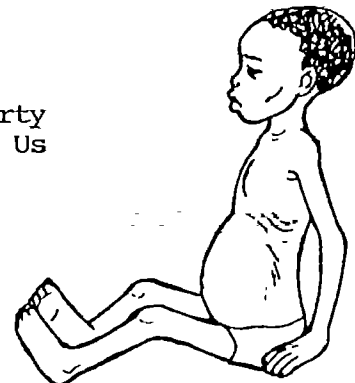
## Typhoid

A Fever with Headache, Abdominal Pain, Weakness, Confusion and Diarrhoea.



## Worms

Sometimes Drinking Dirty Water Gives Us Hookworm, Whipworm or Roundworm



# 2 water diseases

## water CLEANED diseases

Diseases we can get if we DO NOT  
have enough water to KEEP CLEAN

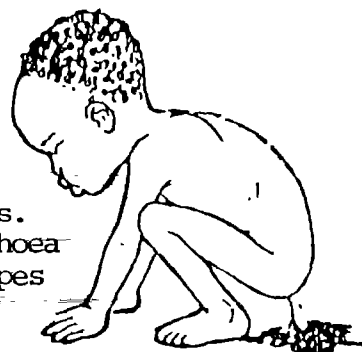
### Conjunctivitis

Red, Sore,  
Watering  
Eyes.



### Diarrhoea

Many Loose  
Watery Stools.  
We get Diarrhoea  
from many types  
of diseases.



### Eczema

An Itching,  
Red, Scaly  
Rash of  
The Body  
which can get  
worse if we do  
not keep clean.



### Impetigo

Wet, sore  
spots on the  
Face, Nose,  
Ears, Head  
and Buttocks.



### Lice

Small Insects  
which live on  
the Body or  
in the Hair  
and cause  
Itching.



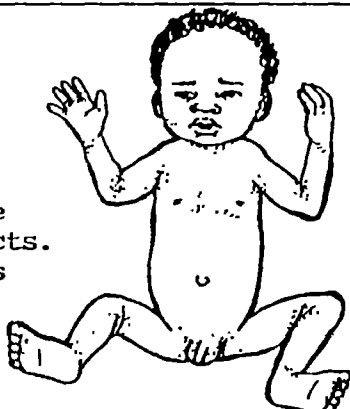
### Ringworm

Ringworm is not  
a "worm" but a  
Fungus on the  
Skin. It causes  
Dry Itching places  
on the Body  
and Head.



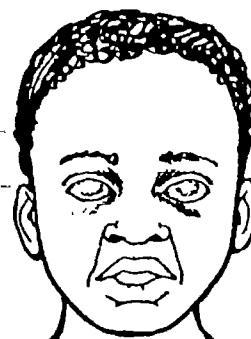
### Scabies

A skin itch  
Infection made  
by small Insects.  
The Itching is  
Worse at  
Night.



### Trachoma

Soreness of the  
Eyes which gets  
Worse and can  
make you Blind.







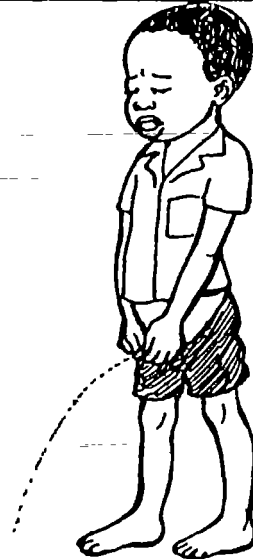
## water CONTACT diseases

Diseases we can get if we  
**BATHE** or **SWIM** in Unprotected Water

### Bilharzia

Bilharzia causes  
Blood in the Urine  
and Abdominal Pain.

We get Bilharzia  
when we Bathe or swim  
where people have  
been urinating.



### Ear, Eye and Nose Infections

We can get Sore Ears  
(Pain and Puss coming out),  
Sore Eyes (Pain, Redness  
and Watering), and Sore  
Noses (Pain and stuffiness)  
when we swim or Bathe  
in Dirty Water.



### Swimmer's Itch

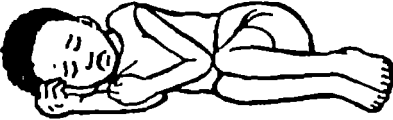
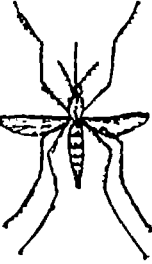

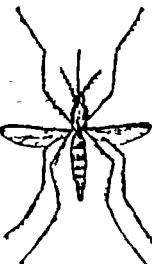
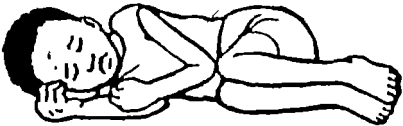
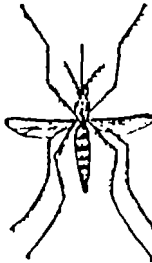


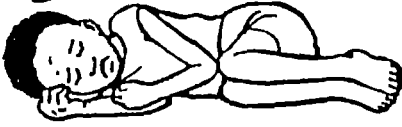
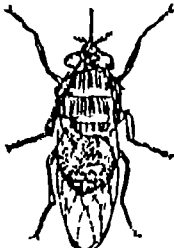
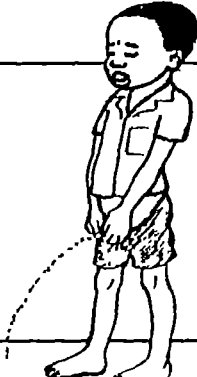

We can get Itching  
Skin all over our  
Bodies if we swim  
or Bathe in  
Dirty Water.



**4**  
water  
diseases

**water HABITAT diseases**

**Diseases we can get from INSECTS  
which LIVE IN or NEAR Unprotected Water**

<p><b>Malaria</b></p>		<p>Headache, Fever and Chills</p>		<p>Spread by Mosquitoes Which lay Their Eggs and Grow up In Water</p>
<p><b>Yellow Fever</b></p>		<p>Headache Fever Bleeding and Jaundice</p>		<p>Spread by Mosquitoes Which Lay Their Eggs and Grow Up In Water</p>
<p><b>Dengue Fever</b></p>		<p>Headache, Fever Muscle Pain and Rash</p>		<p>Spread by Mosquitoes Which Lay Their Eggs and Grow Up In Water</p>
<p><b>River Blindness</b></p>		<p>Sore Eyes and Total Blindness</p>		<p>Spread by Tiny Black Flies Which Lay Their Eggs and Grow up Near Water</p>
<p><b>Sleeping Sickness</b></p>		<p>Headache Sleepiness and Confusion</p>		<p>Spread by Tse Tse Flies Which Get Their Food From Water</p>
<p><b>Bilharzia</b></p>		<p>Blood in Urine and Abdominal Pain</p>		<p>Spread by Fresh Water Snails Which Live in Water</p>

# Keeping Water Clean

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We read how people can collect, store and use water and how dirty water can be harmful. What if the water your people collect is dirty? What can they do?

Your people should be shown the following four ways of keeping water clean. You can help them directly in your job by:

1) PROTECTING THE WATER

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and you can teach people how to:

COLLECT and STORE WATER SAFELY

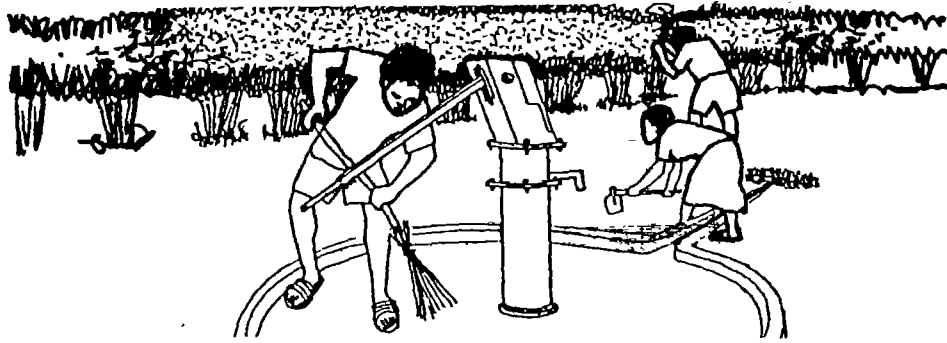
CLEAN DIRTY WATER and where to

TAKE WATER FROM THE CLEANEST PLACE.



To keep water clean, it is important that people in every community PROTECT their water, whether a spring, underground water, stream or lake. Have the Health Inspector, Resistance Committees, Health Care Workers, Teachers, Community Leaders and others help you get the people interested in planning and working on the following ways to protect water.

- Build Pit Latrines down hill and 30 m away from water sources
- Defecate and urinate away from water and bury it if there are no latrines
- Dispose of rubbish in pits at least 30 m away from water
- Build Spring Boxes around Springs



## 2) Collect and Store Water Safely

- Wash hands before handling buckets, dippers, cups
- Clean containers
- Cover Water that is stored



## 3) To clean dirty water

- Let water settle before drinking it using the two pot method

### The Two Pot Method of Settling Water

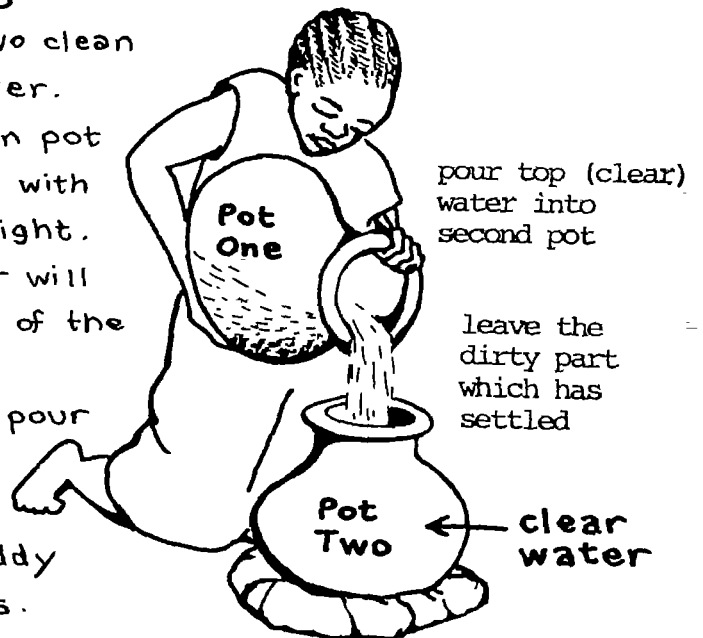
Bring two clean pots (or two clean water containers) and a cover.

#### First Day

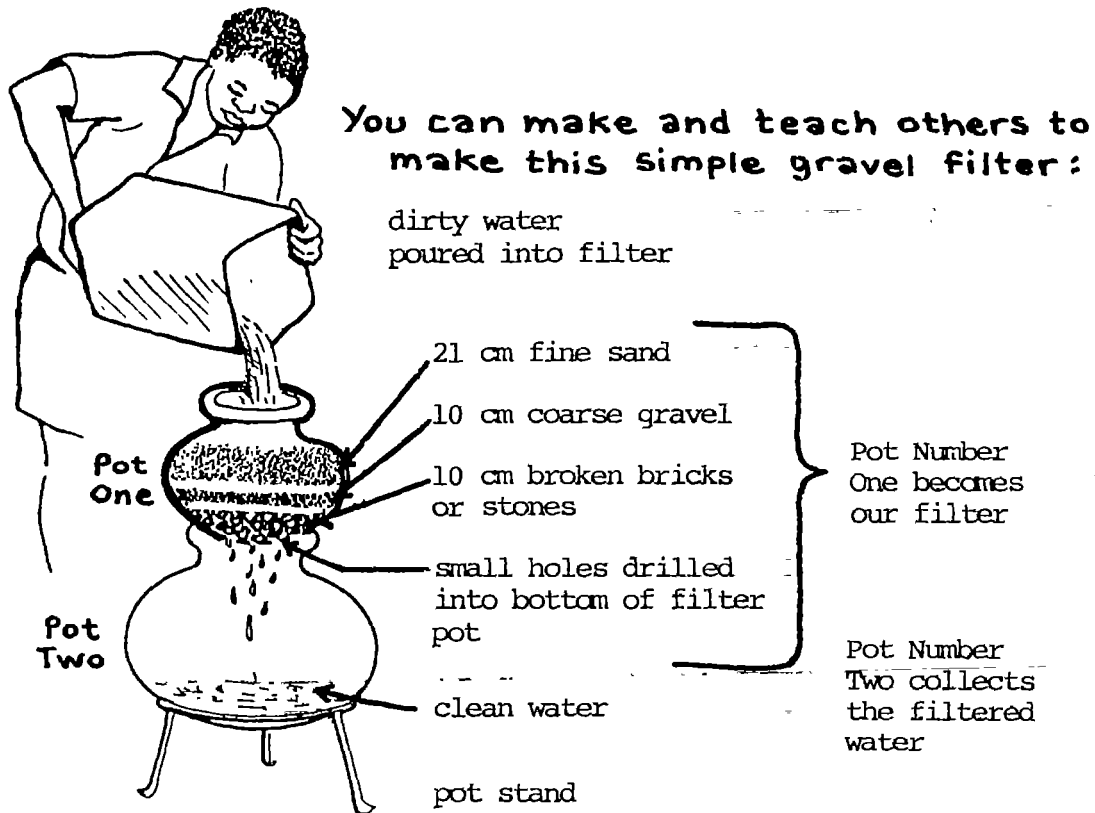


1. Collect water in pot one. Let it stand with a cover for one night. Dirt in the water will go to the bottom of the pot.
2. The next day, pour the clear water from pot one into pot two. Use muddy water for plants.

#### Second Day



- Filter water using a gravel filter

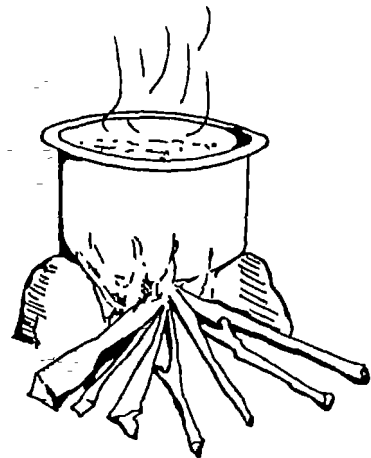


- Boil water for 20 minutes to kill germs

Boiled water helps to keep sickness from spreading because it kills all the germs in the water. Although settled water and filtered water is cleaner than when it is taken from the dirty source, it can still have germs which cause sickness.

Always boil and cool water for:

- Small babies
  - When many people in the area are sick at the same time, especially with diarrhoea.
1. Boil water in a sufuriya or pot for 10 minutes
  2. Put it in a clean container with a lid to cool.
  3. Use a clean cup or gourd to take water from this container whenever you need it.



#### 4) Take Water from the Cleanest Place

- If you have a choice, take water from where it is protected to drink.

**REMEMBER: Water from U-Two Handpumps is clean and ready to drink. It does NOT need settling, filtering or boiling!**

# Building Latrines

As you have read, water can easily be contaminated by human faeces and urine which can spread dangerous sicknesses. To protect water, it is important to build latrines so that faeces and urine are passed away from water and flies.

1) What type of latrine is best for our area?

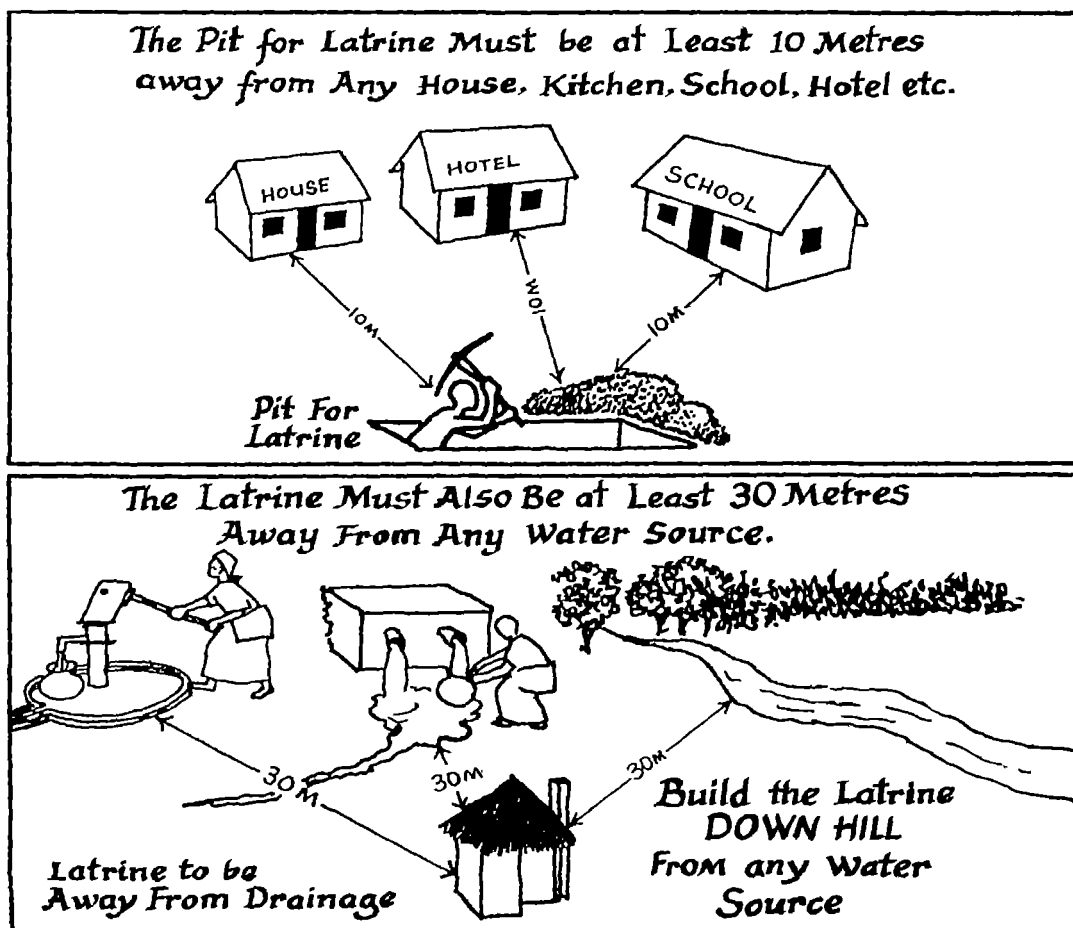
The Ventilated Improved Pit (VIP) Latrine is a simple, effective way to protect your community water source. It is designed to cut down problems of flies and odours which ordinary latrines have.

VIP Latrines can also be made in different shapes and from different building materials, so that your people can use what they have in their area.

The VIP Latrine encourages safe use even for small children and can be kept clean easily with regular maintenance.

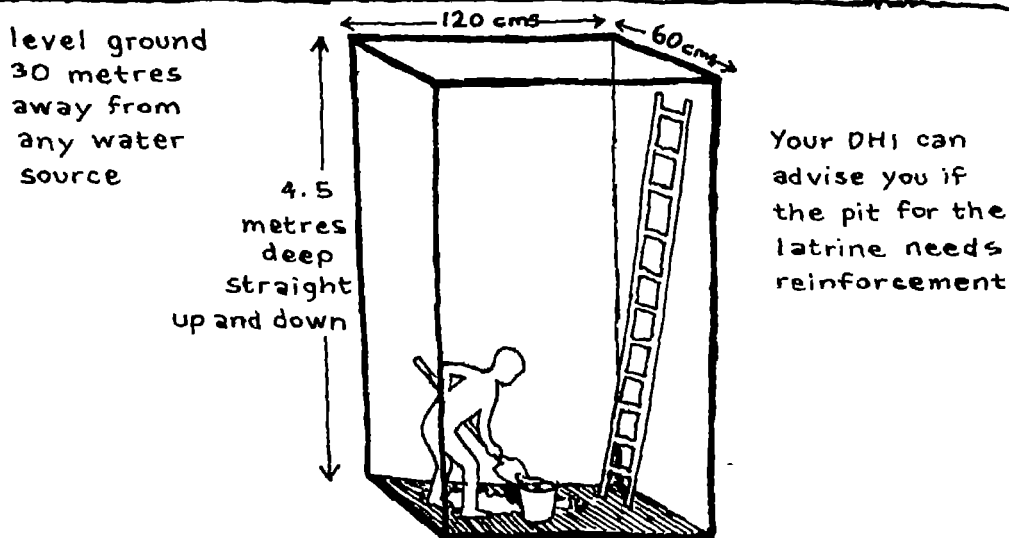
2) How do we choose the place for a VIP Latrine?

- The place for any latrine must be at least 10 metres away from any house, kitchen, school, hotel or other building.
- The place for a latrine must also be at least 30 metres away from any U-20 Pump, Spring, Well, Stream or any other water source or water drainage.



3) How do we dig a proper pit for a VIP Latrine?

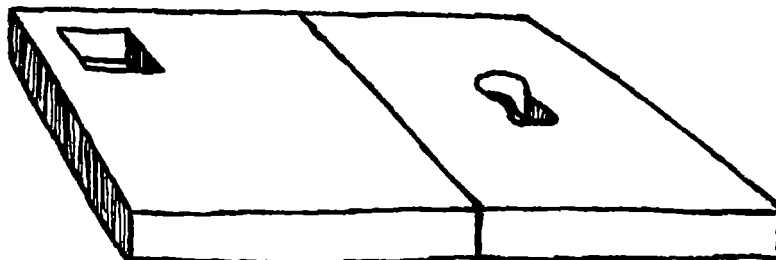
- Clear the ground of any bush, grass and stones where the latrine and its path will be.
- Use a tape measure, metre scale or foot ruler to mark the ground with a pit size of 120 cm (4 feet) by 60 cm (2 feet).  
Be very careful about the size of your pit! If it is too big, the slab floor of the latrine will not fit. If it is too small the pit will become filled up too quickly!
- Select a flat or level area to dig the pit. If the place is on a slope or hill, level the area.



- Dig the pit 4.5 metres (15 feet) deep. Make sure that the sides of the pit are straight up and down (vertical). Use a plumb bob if you have one.
- It is important that the latrine slab be placed on solid ground. If the ground you are digging is loose and falls apart easily, you may need to line the pit or reinforce the foundations. Your District Health Inspector can advise you about these things and inspect that the pit has been properly dug.

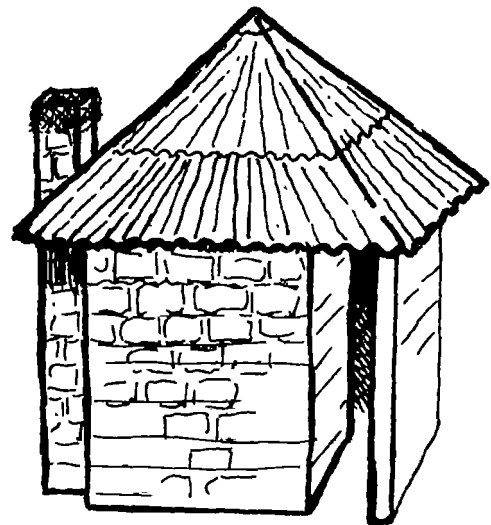
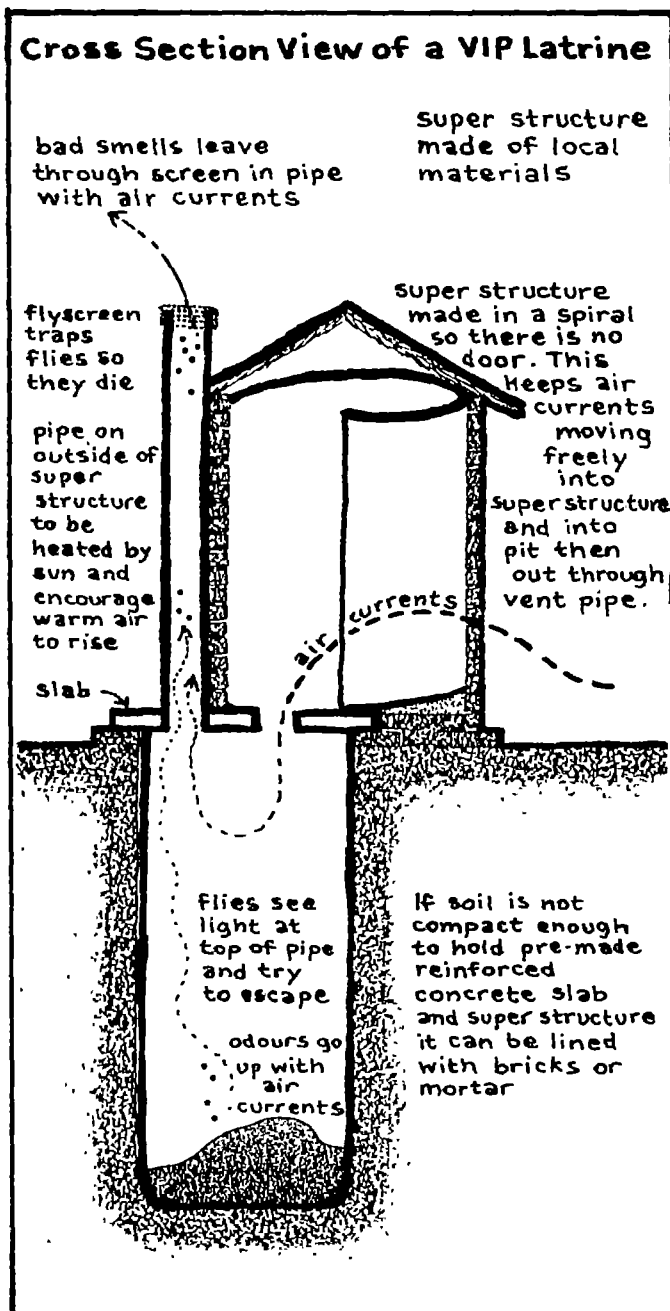
4) How do we install the slab floor or a VIP Pit Latrine?

- Pre-made reinforced concrete slab floors are available through your DHI's office. These are especially made to be strong, safe and easily cleaned.



- Because your DHI knows the correct way to install these slab floors, you should encourage your people to go to the DHI for assistance in installing the slab floor.

- 5) How do we build a proper super structure ("house" above the pit) for a VIP Latrine?



VIP Latrines can look very different from each other on the outside because they are made from local materials and made by local builders.



- VIP Latrines are almost like ordinary latrines but they have a special ventilation pipe in them. This pipe makes an air current or draught in the pit which carries away bad odours. It also traps flies which cannot leave because the pipe is covered with fly screen. The flies die in the pipe and never leave to spread diseases.
- VIP Latrines can be built in many ways.
- Latrine superstructures can be made of mud bricks, cement, reeds, wood, matting, grass or corrugated metal.
- Your DHI can show the people in your area different ways to make the superstructure and install the vent pipe. Work with your DHI to show people the proper way to build VIP Latrines.



# Rubbish Disposal

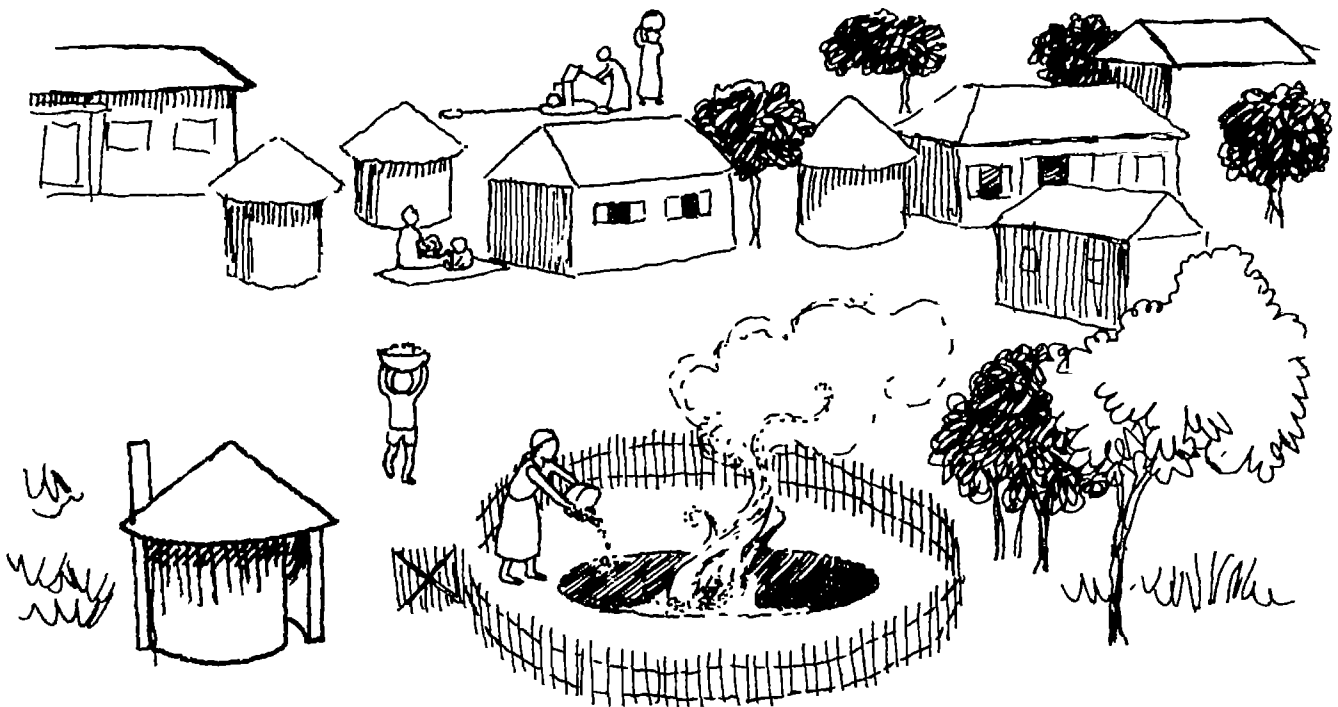
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(What is the proper way to dispose of Rubbish?)

Rubbish can contaminate water if it is thrown near or in water. Rubbish is food and home for flies and animals which spread disease to our water and food. Rubbish also smells badly, looks unattractive and can be dangerous (broken bottles and tins). For our people's health and safety therefore, teach them to dispose of rubbish into a proper pit.

1) How do we choose the place for a Rubbish Pit?

- The place for a rubbish pit must be at least 100 metres away from any water source and any building. It is best to put rubbish pits outside your village or town if possible.



2) How do we dig a proper Rubbish Pit?

- Dig a round or square hole 5 metres (15 feet) wide and 5 metres (15 feet) deep.
- Build a fence from thorny branches around the pit to prevent animals from getting in.

3) How do we use the Rubbish Pit?

- Every foot or so of rubbish should be covered with 2 to 3 centimetres of soil to discourage flies and reduce odours.
- If possible, burn the rubbish in the pit every few days to also discourage flies and reduce odours.
- When the Rubbish pit is almost full, cover it up with soil and dig a new pit.

Your District Health Inspector can give you and your people more information about Rubbish Pits.

# Treatment of Diarrhoeal Diseases \_\_\_\_\_

As you have read in this book, dirty water and poor sanitation can cause diarrhoeal diseases. As you help your people to improve their water and their sanitary conditions you should also advise them how to treat diarrhoeal diseases in their own homes.

It is important to prevent diarrhoeal diseases through your work but just as important to treat them, especially in small children. This is because diarrhoea in small children can cause DEATH.

Read the following information about diarrhoea, dehydration and its treatment, so that you can talk to your people about it.

## How to Prevent Dehydration

**C**hildren with DIARRHOEA lose a lot of WATER from their bodies. If the lost water is not replaced, the child becomes WEAK, LIMP and LOSES WEIGHT (becomes DEHYDRATED).

**C**hildren with diarrhoea are like plants without rain.



Plant with Water



Child with Water



Plant Without Water



Child Losing Water

### A Dehydrated Child has:

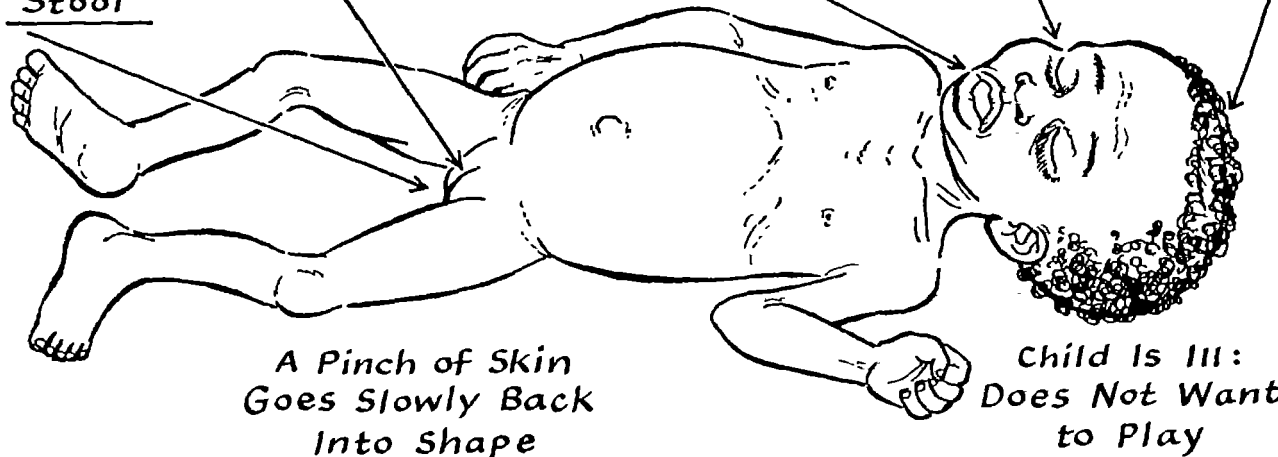
Watery Stool

Little or No Urine

Dry Mouth  
More Thirsty Than Usual

Sunken Eyes  
Child Has No Tears

Sunken Soft Spot



A Pinch of Skin Goes Slowly Back Into Shape

Child Is Ill: Does Not Want to Play

If your child has diarrhoea, keep her from drying up by doing these things quickly:



- 1** Give Your Child More to Drink. Give fluids (watery things) like clean water, milk, tea or juice along with ORS. Mix ORS from the packet or from salt and sugar in the way you were taught at the health centre.

- 2** Breastfeed. If your baby is still on the breast, keep breastfeeding as much as possible while the baby has diarrhoea. Breastfeeding gives your baby both GOOD FOOD and FLUID.



- 3** Keep Feeding Your Child. Give food that is easy to eat, and give as much as the child wants.

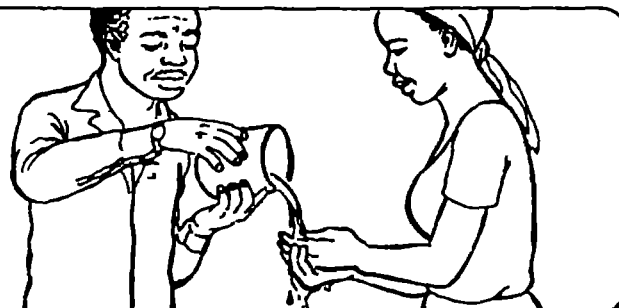
- 4** Take Your Child to a Health Centre if your child still has signs of DEHYDRATION after one day of giving more things to eat and drink.



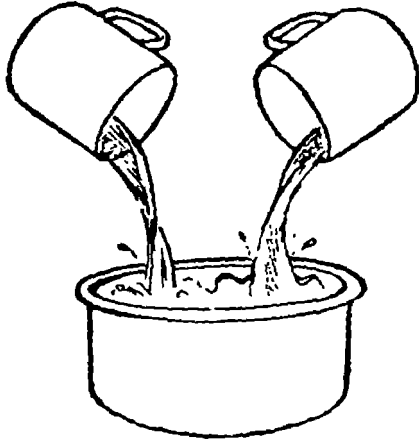
## How to Make Oral Rehydration Solution from Salt and Sugar

Teach mothers how to mix ORS from salt and sugar so that they can begin rehydration when premixed ORS packets are not available.

- 1.** Wash Your Hands.



**2.** Measure One Litre of Drinking Water into a Clean Container.



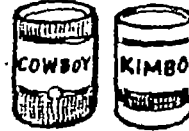
## One Litre of Water is :

the amount of water in two Large Tumpeco Mugs



or

the amount of water in two 500g Cowboy or Kimbo tins



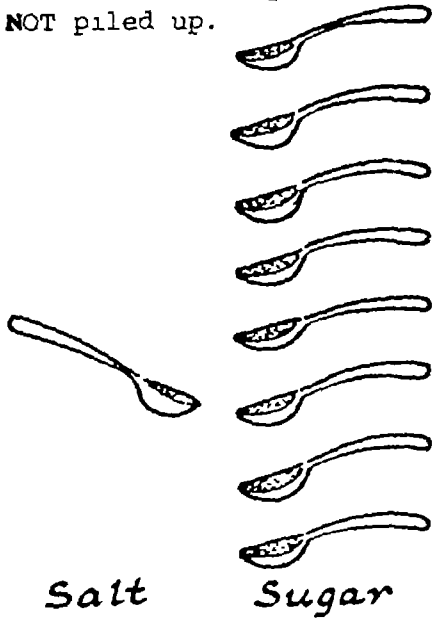
or

the amount of water in two Uganda Breweries beer bottles.



**3.** Measure ONE levelled teaspoon of SALT and EIGHT levelled teaspoons of SUGAR into the water.

A levelled teaspoon is where the salt or sugar is flat in the spoon, NOT piled up.



**4.** Mix the salt and sugar into the water well (until you can not see the salt or sugar at the bottom of the container).



**5.** Taste the solution.  
It should never taste very salty.

DO NOT boil up this solution once it is made up.



**6.** Give the drink to the person with diarrhoea.

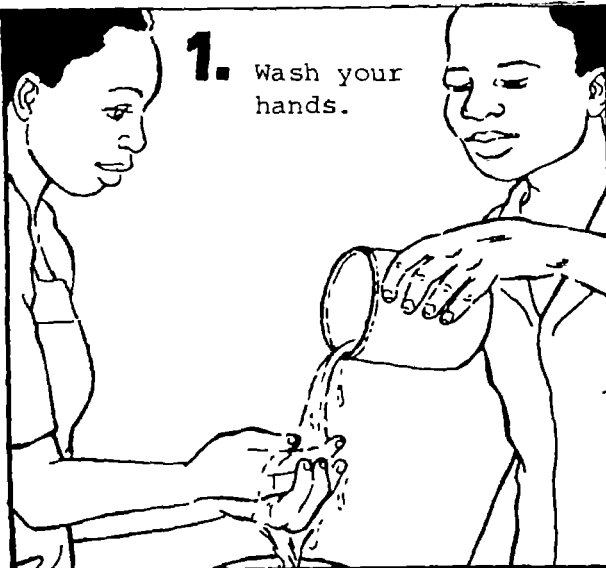
A small child should drink at least one quarter of a Tumpeco after each stool.

A large child or adult should drink at least one half of a Tumpeco after each stool.

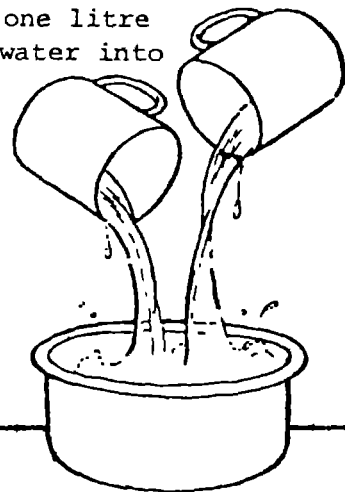


## How to Mix Oral Rehydration Salts from Packets

**1.** Wash your hands.

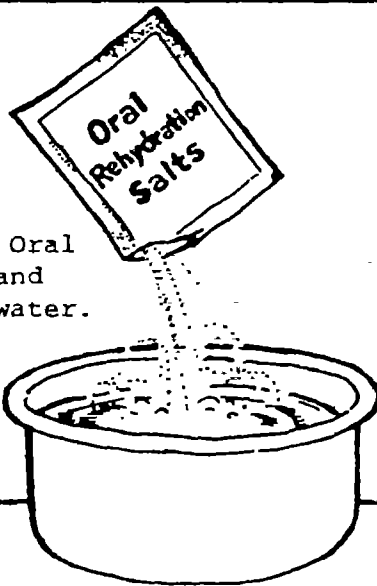


**2.** Measure one litre of drinking water into a clean container.

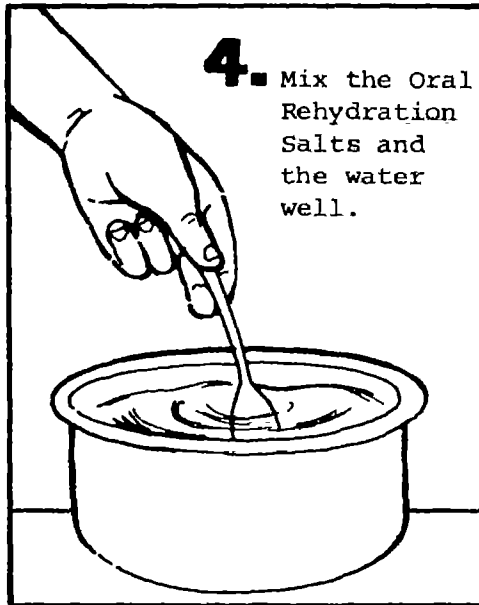


**3.**

Open the packet of Oral Rehydration Salts and empty it into the water.



**4.** Mix the Oral Rehydration Salts and the water well.



**5.**

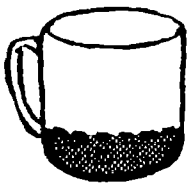
Taste the mixture. It should never taste very salty.

Do not boil this mixture once it is made up.



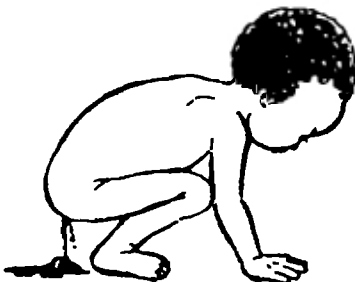
**6.**

Give the drink to the person with diarrhoea.



Fill Mug Up To Here

For a Small Child:  
At least one quarter mug for each stool.



Fill Mug Up To Here

For an Older Child or an Adult: At least one half mug for each stool.



**REMEMBER:**

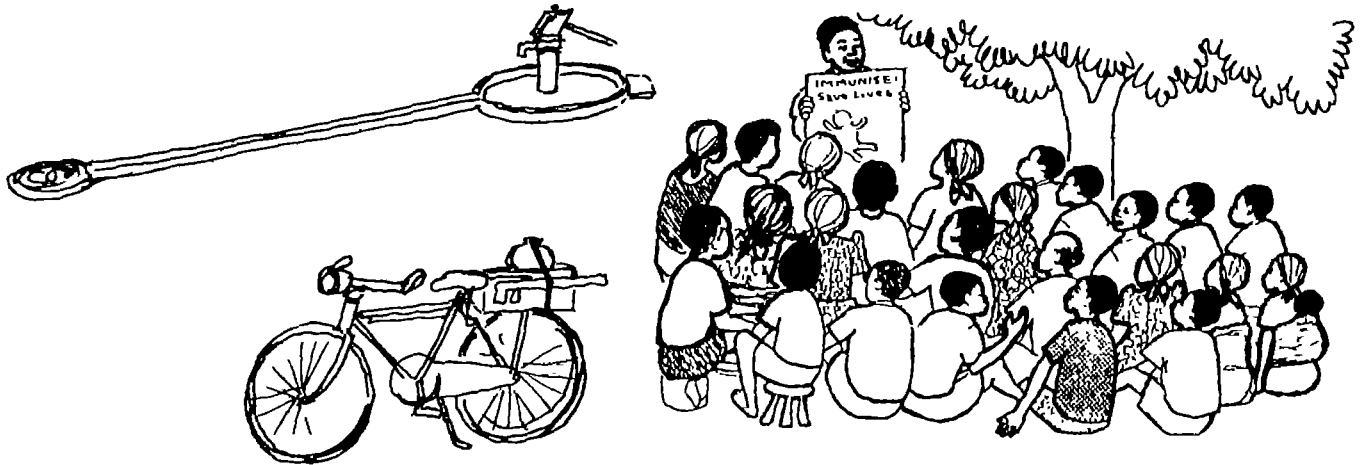
In order for ORS to work against dehydration it must be mixed correctly as shown. Use the ORS fresh the same day as it is mixed. Use clean containers, clean spoons and most important: **CLEAN WATER!**

# Immunisation

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Why should a U-Two Handpump Mechanic know about Immunisation? Because one out of every ten children born in Uganda never lives to enjoy its first birthday. Our children are dying from diarrhoeal diseases, measles, TB, polio, whooping cough, diphtheria and tetanus -- all PREVENTABLE diseases!

As a U-Two Handpump Mechanic you meet hundreds of parents with small children. You are a leader of progress and have the duty to help our nation grow strong. You can actively assist in the Uganda National Expanded Programme on Immunisation (UNEPI) these ways:



- 1) Advocate Immunisation at all times
  - Learn all you can about immunisation from your local Health Workers or UNEPI Team members and TALK to your people.
  - TALK about Immunisation when you have a group of workers together to repair or maintain a U-Two Handpump. Remind people that U-Two pumps are progress towards health but that there are other ways to prevent killer diseases.
- 2) Provide Access to Immunisation
  - FIND OUT where the nearest Immunisation clinics are to your people. Tell the people the places to take their children. Write the names and places and immunisation clinic times on a paper and carry it with you with your tools.
  - INVITE Health Workers to come with you when you go to maintain or repair a pump so that they can talk about Immunisation as you work.
  - SPEAK to your District Medical Officer or Health Worker to make sure that Immunisation is provided in every community.
- 3) Set a Good Example
  - Are your own children fully Immunised? Does your family know about Immunisation? Are all females of child-bearing age in your household immunised against Tetanus?

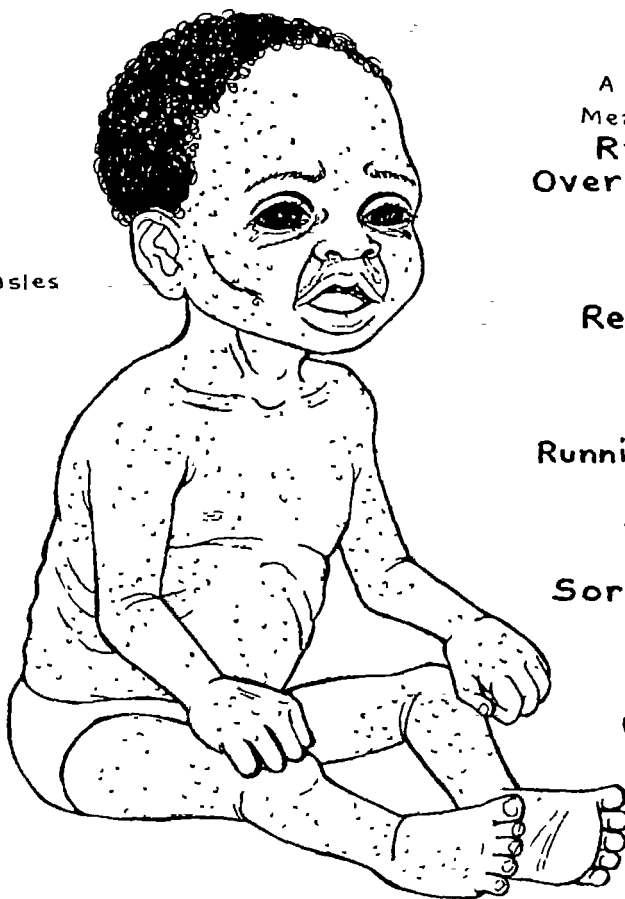
Use the following information to learn and teach about the importance of Immunisation.

# Measles

Measles is a disease which we usually see as a rash on the body with high fever, cough and red eyes. Sometimes a child with Measles also has a sore mouth, diarrhoea and vomiting. Measles is caused by a virus. Viruses cannot be treated by any drugs. That is, measles cannot be cured by any drugs once a child has got it. But measles can be prevented by immunisation.

Children catch measles from other children with measles. When an infected child coughs, small droplets go into the air with measles virus in them. When a child who is not immunised or has not had the disease breathes in these droplets, he may get measles two or three weeks later.

A Child With Measles  
Has A  
Fever



A Child With  
Measles Has A  
Rash All  
Over the Body

and

Red Eyes

and a

Running Nose

and a

Sore Mouth

and a

Cough

After getting measles, a child will often lose weight or fail to gain weight (become under nourished). This is caused by loss of appetite, difficulty in absorbing foods, and by diarrhoea which often comes with measles. The bad practice of not giving certain foods to children while they are sick also stops weight gain.

Undernourished children are more likely to develop severe measles and die, than are well-nourished children.

Almost all children in Uganda will get measles by age five unless they have been immunized. Two to seven percent of these children will die of measles and its complications.

**One Dose of Measles Vaccine  
at 9 Months or soon after  
PREVENTS MEASLES!**

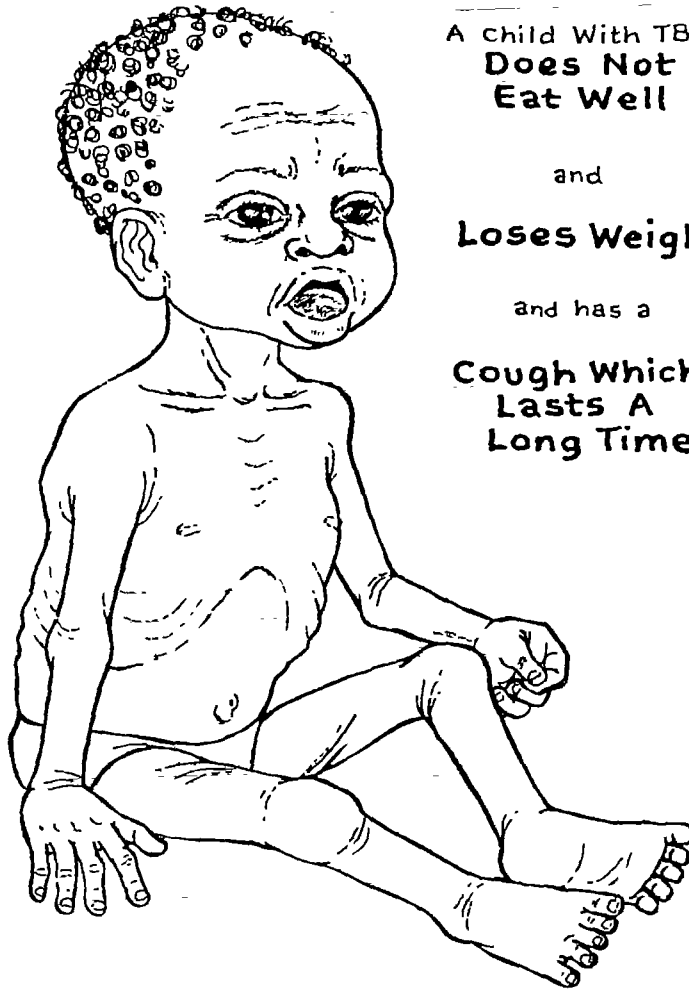


# Tuberculosis (Also Called "T.B.")

Tuberculosis (TB) is a disease which we usually see in children as a cough which goes on for a long time with a loss of weight.

It is easier for a child to get TB if:

- a child has many contacts with an untreated person in the family who has TB;
- the child is weak from Malaria, Measles, or Whooping Cough, or
- the child is malnourished.



A child With TB  
**Does Not  
Eat Well**

and

**Loses Weight**

and has a

**Cough Which  
Lasts A  
Long Time**

Children catch TB from a person who is sick with TB. The adult who is sick with TB (usually someone in the child's family) coughs, and droplets of his sputum go in the air. This sputum has TB bacilli; the child who is unimmunised and breathes in these droplets may slowly develop TB.

**One Dose of BCG Vaccine  
at Birth or soon after  
PREVENTS TUBERCULOSIS!**

# Polio (Also Called "Poliomyelitis")

Polio is a disease which we usually see as a weakness or paralysis of the limbs but especially of the legs. Almost all children in Uganda who have not been immunized will get Polio by the time they are five years.

Only a very small number of these children will become permanently paralysed. However, most of the children who are paralysed are usually under 3 years old and the disability is usually very serious, so it is important for us to prevent Polio.



Polio Is A Sickness  
Which Begins Like A  
**Mild Cold**

but then the  
**Arms or Legs**  
**Become Lame**

The Lame Legs or  
Arms Become  
**Thin and**  
**Wasted**  
as the Person  
Gets Older

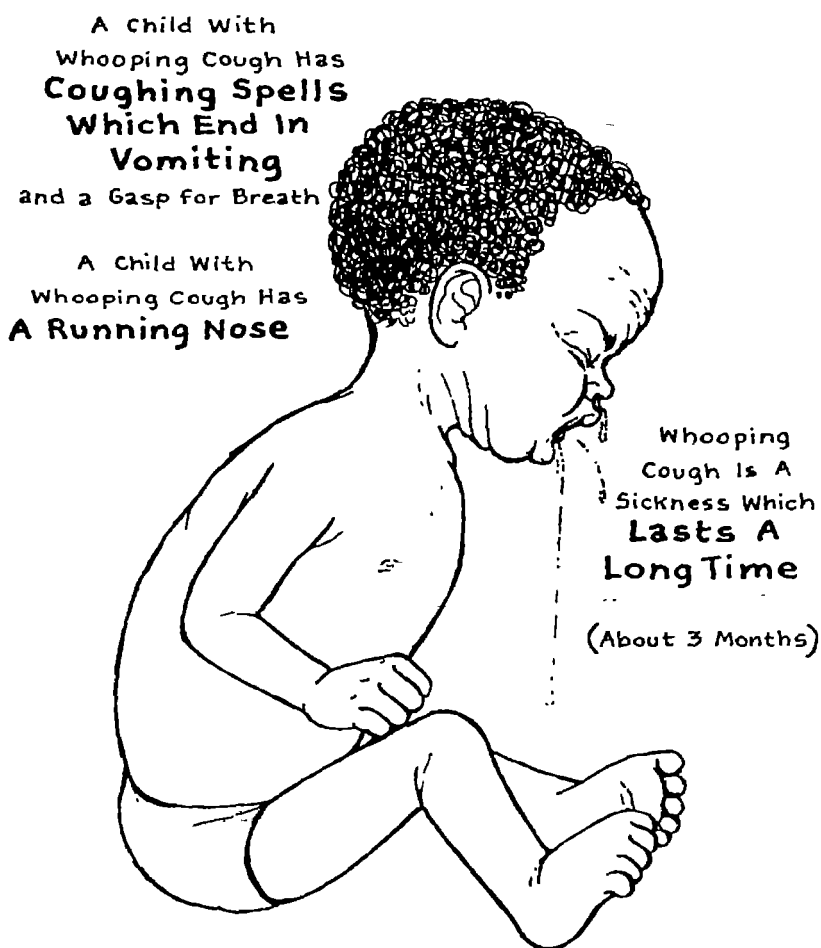
An infected person passes the Polio virus in stools and it spreads from child to child through contaminated water, food, utensils, hands, etc. After being swallowed the virus multiplies in the intestine and then passes into the blood stream from where it may spread to the child's nerves and injures them.

**Three Doses of Polio Drops**  
**at 3 Months, 4 Months and 5 Months**  
**PREVENTS POLIO !**

# Whooping Cough (Also Called "Pertussis")

Whooping Cough (also called Pertussis) is a disease which we usually see as long coughing spells sometimes followed by vomiting.

During Whooping Cough a child will often lose weight or fail to gain weight (become undernourished). This is caused by decreased appetite and vomiting.



Out of all the children in Uganda who have not been immunised, many will catch Whooping Cough, and some of these children will die.

Children catch Whooping Cough from other children who have Whooping Cough. The bacteria causing Whooping Cough spreads by droplet infection like measles infection.

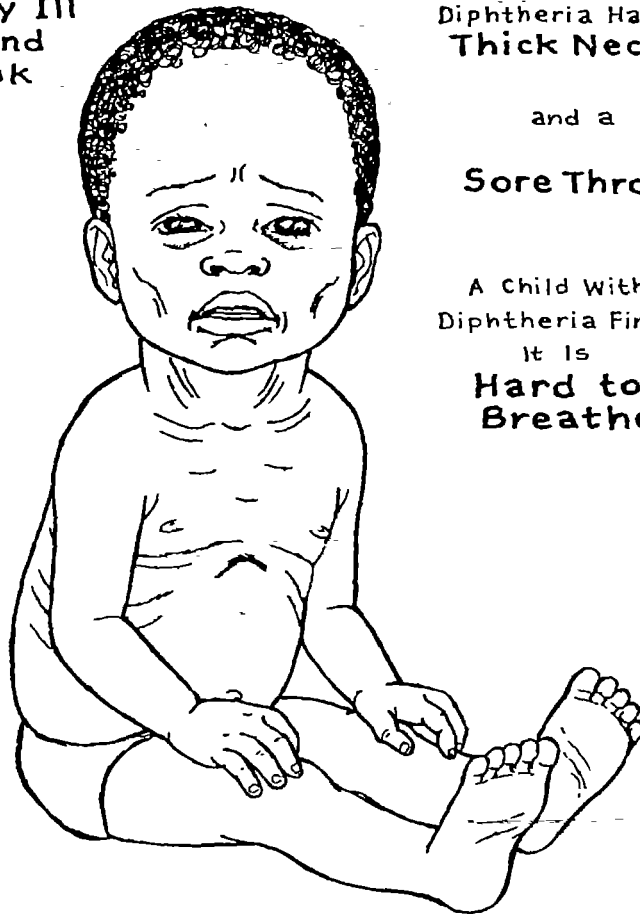
**Three Doses of DPT Vaccine  
at 3 Months, 4 Months and 5 Months  
PREVENTS WHOOPING COUGH!**

# Diphtheria

Diphtheria is usually seen when a child is very ill with severe sore throat and mild fever.

Diphtheria is a rare disease in Uganda. It is however important to know about it because it is a severe disease and immunisation against Diphtheria can be very easily given together with Whooping Cough and Tetanus (in DPT vaccine).

A child with  
Diphtheria is  
**Very Ill**  
and  
**Weak**



A child with  
Diphtheria Has A  
**Thick Neck**

and a

**Sore Throat**

A child with  
Diphtheria Finds  
It Is  
**Hard to**  
**Breathe**

Children catch Diphtheria from other children who have Diphtheria, but contaminated dust and milk can also carry the disease.

**Three Doses of DPT Vaccine  
at 3 Months, 4 Months and 5 Months,  
PREVENTS DIPHTHERIA !**

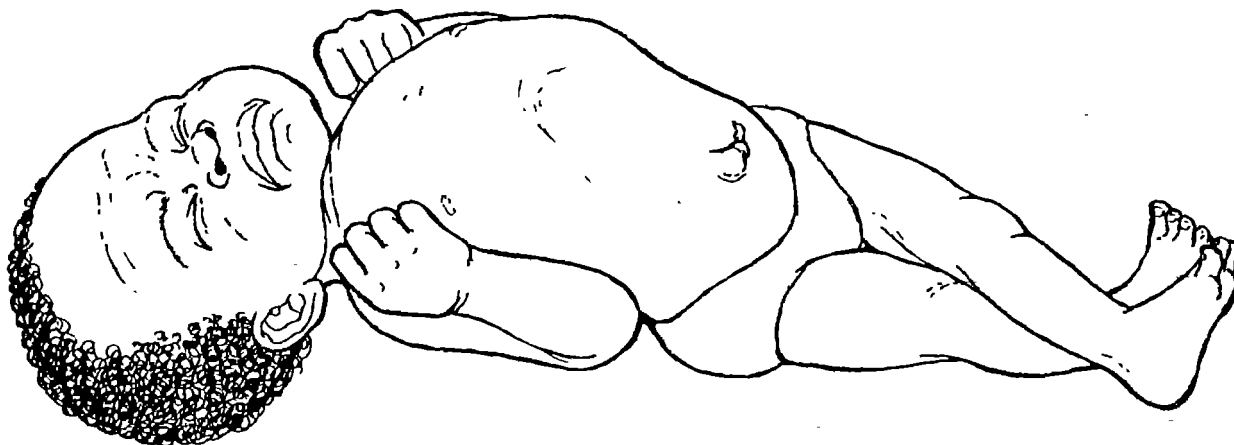
# Tetanus

Tetanus is a disease which we see as muscle spasms and a failure to breastfeed in a baby who was born healthy. Tetanus kills many newborn babies in Uganda. Tetanus is caused by bacteria that enter the body through infection of the umbilical stump, circumcision site, pierced ear, or through other cuts. Nearly all Tetanus infection happens when the baby is four to twenty-one days old.

Of all the newborns who get Tetanus, most of them die. Tetanus is therefore a highly dangerous disease.

A Newborn Baby  
With Tetanus  
**Stops Sucking  
the Breast**

A Person With  
Tetanus Has  
**Spasms  
When Touched**



Tetanus Causes  
**Stiff Muscles  
All Over The  
Body**

Tetanus bacteria live in the intestines of grass-eating animals such as cattle, sheep and goats. The ground on which they pass their faeces becomes heavily infected for a long time. In Uganda the umbilical cord is the commonest point of entry of bacteria in the newborn. This occurs when the cord is either cut with a contaminated instrument such as knife or a razorblade, or the cord is fixed with a contaminated string or piece of cloth. In older children bacteria enter the body mainly through cuts, scratches, decayed teeth, wounds or ulcers.

**Three Doses of DPT Vaccine  
at 3 Months, 4 Months and 5 Months  
PREVENTS TETANUS !**

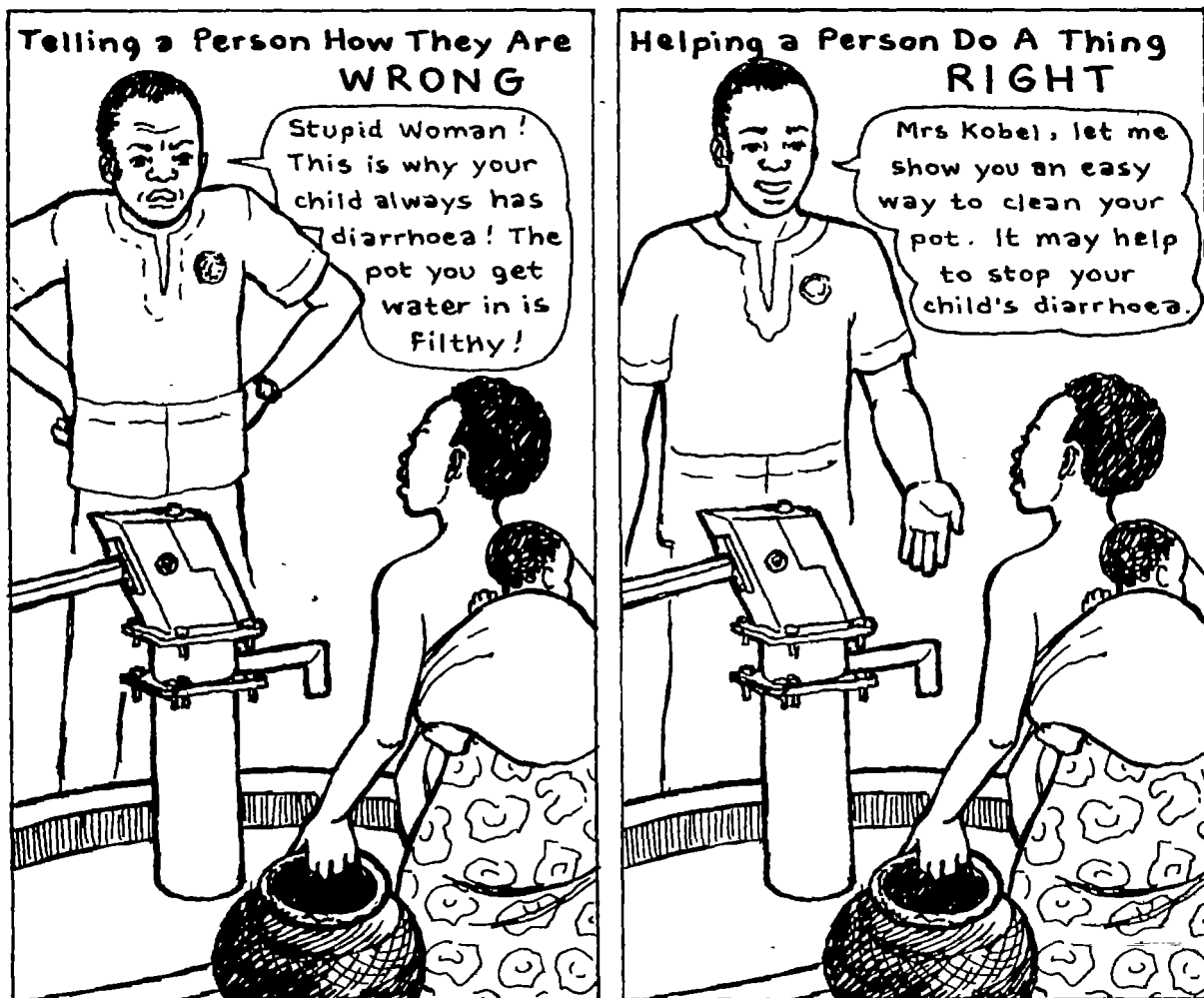
Two Doses of TT Immunisation prevents Tetanus in the unborn child of pregnant women and women of child-bearing age (15 to 49 years old).

# Working With People \_\_\_\_\_

You know many ways in which you can protect the health of your family and community. Your job as U-Two Handpump Mechanic helps provide clean water, a very important way to prevent disease. You have read about water, latrines, rubbish disposal, diarrhoeal diseases and immunisation. This knowledge is useful IF YOU SHARE IT.

In sharing your knowledge with people, you must remember that HOW you teach something or advise someone, is as important as WHAT is taught, or what advice is given. And the most important part of how something is taught is the caring and respect that go into it.

In working with people, the goal is often to change habits and attitudes. Unfortunately, such a goal sometimes shows what people do WRONG, rather than building what they do RIGHT!



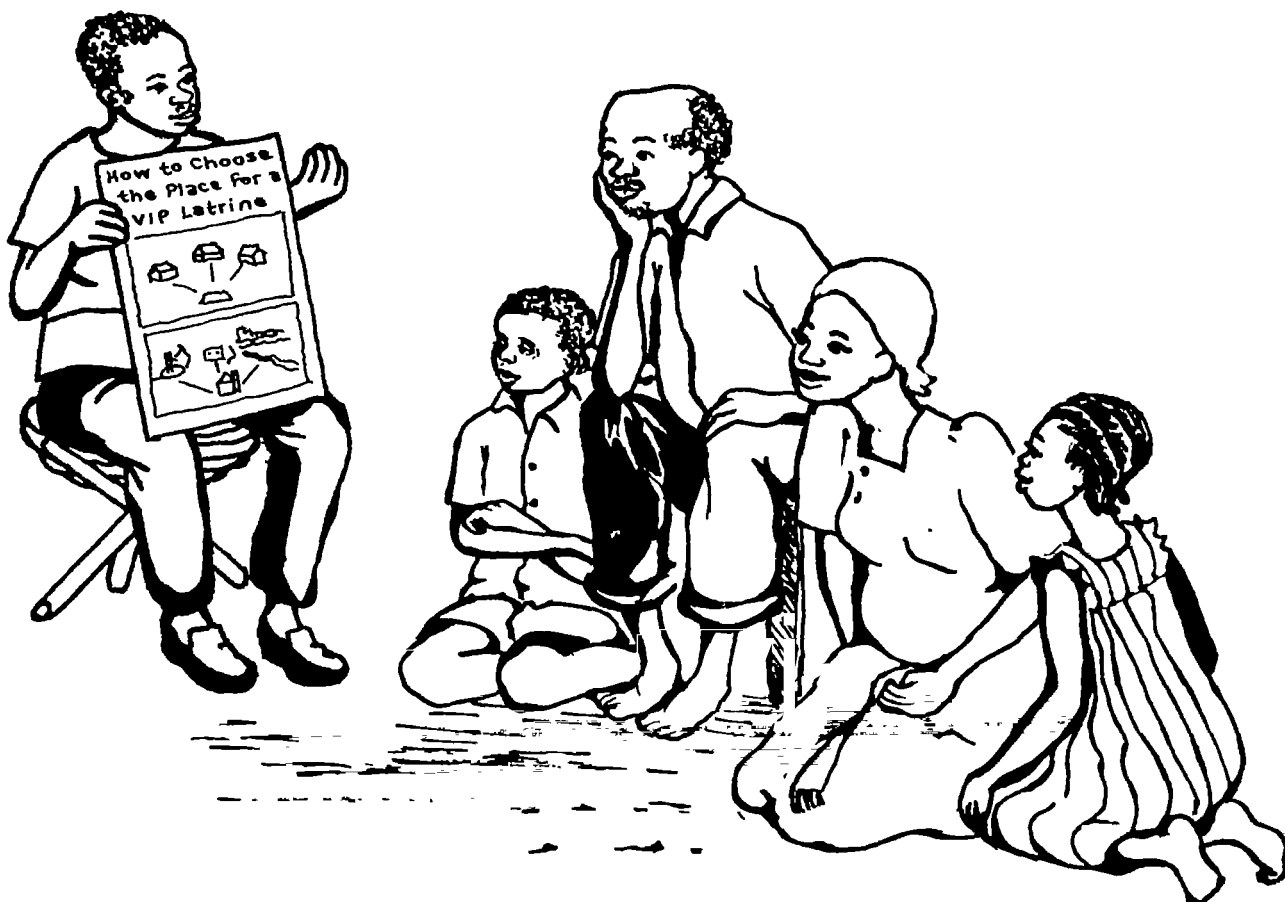
Which Way Would YOU Like to be Spoken To ?

It is better if we can help people to understand what they need to do to correct their health problems.

You are a very important person in your community. You are working with people who, like yourself, deserve to be treated with respect and compassion.

Think of how you would help people with these problems:

- 1) One of your people would like to dig a pit latrine, but does not know how to go about it, or where to build it. What can you do and say?
- 2) A community member has dug a latrine incorrectly very close to a U-Two Handpump. What do you do about it to protect the water without insulting the latrine owner?



- 3) On a certain day, when you go to repair a U-Two Handpump you are told that a child in the area has had diarrhoea for several days and has grown very weak. What can you do?
- 4) You have heard that several children in a community have come down with measles. What can you do?
- 5) Your people would like to improve sanitation at a seasonal spring. How would you work with them to improve the water source?

Keep this handbook with you to study. Talk with other U-Two Handpump Mechanics and find out how they are advising their people. With your help we can build a strong, healthy Uganda.

# U-Two Pump Mechanic Job Duties

---

As a U-Two Pump Mechanic trained and certified by WDD you have a very important job to do. Our people cannot stay healthy without CLEAN WATER. They need U-Two Pumps to give them clean water.

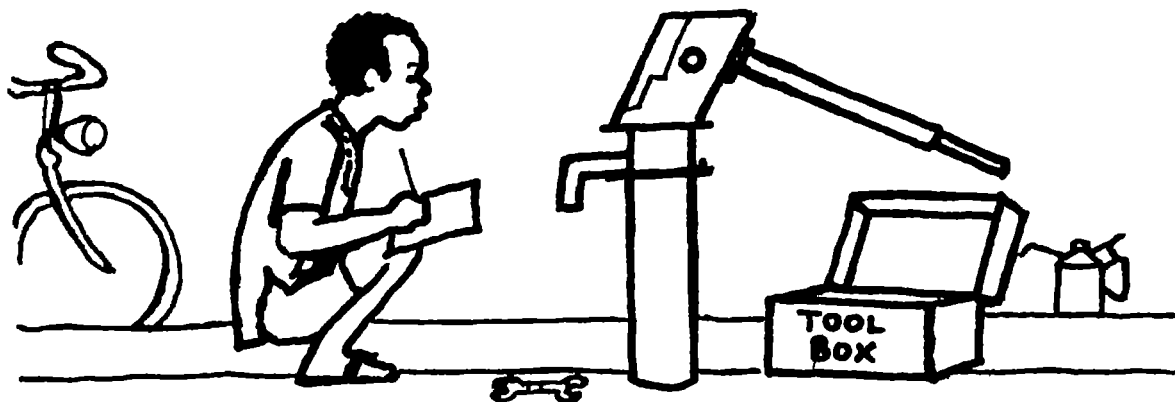
You must make sure that every U-Two Pump assigned to your care is working properly so that Our Children Grow Healthy and Our Nation Grows Strong.

These are Your DUTIES and RESPONSIBILITIES:

## Your U-Two Pumps

---

- Maintain and Repair all U-Two Pumps assigned to you by your Resistance Committee 3. Make all repairs just as you were taught in your WDD Training and as written in your U-Two Pump Repair and Maintenance Manual.
- Report to your RC 3 as much as possible to see if there are any broken down pumps for you to repair.

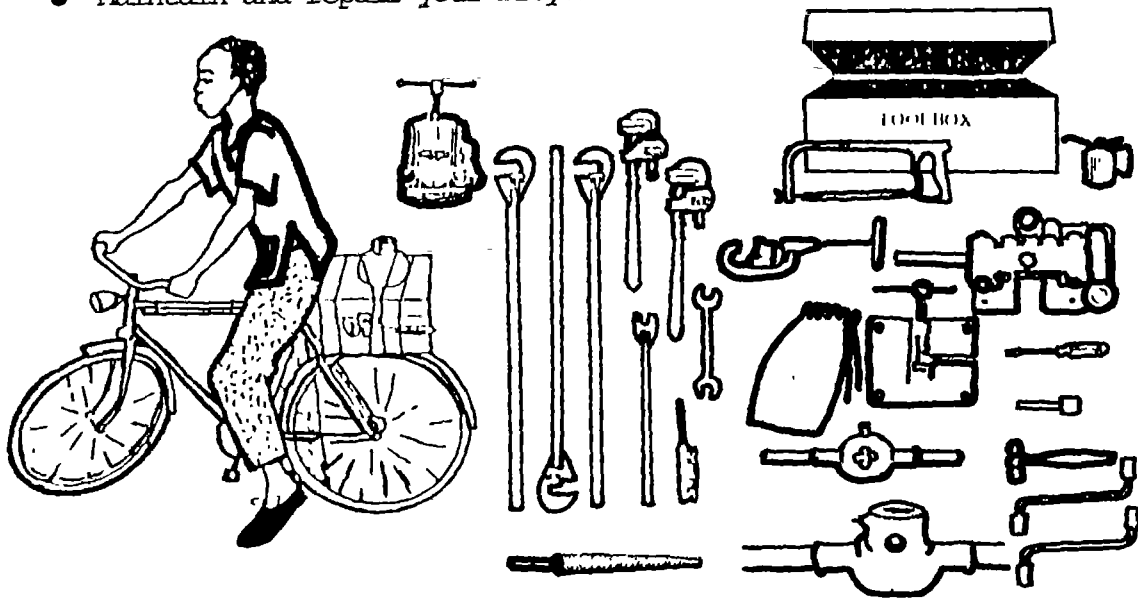


- Collect U-Two Pump spare parts from the RC 3, and keep a record of what you take.
- It is your JOB to tell the RC 3 which spare parts are being used up quickly.
- It is YOUR JOB to tell the RC 3 which spare parts are being used up quickly.
- It is YOUR JOB to work with the RC 3 and make sure that there are always enough spare parts in the store to repair all of the U-Two Pumps in the area. DO NOT let spare parts get finished before ordering more!



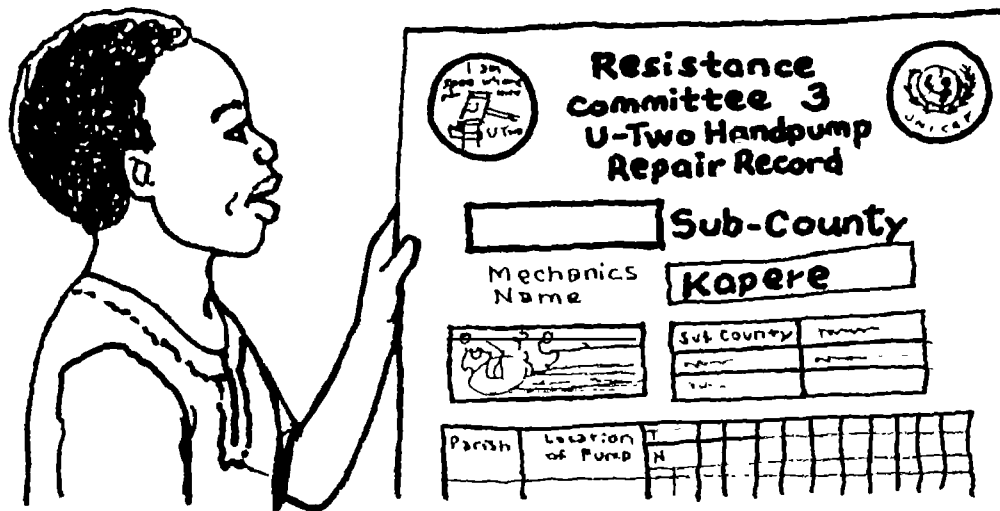
# Your Bicycle

- Maintain and repair your bicycle.



# Your Tools

- Keep your tools safe and in good condition.



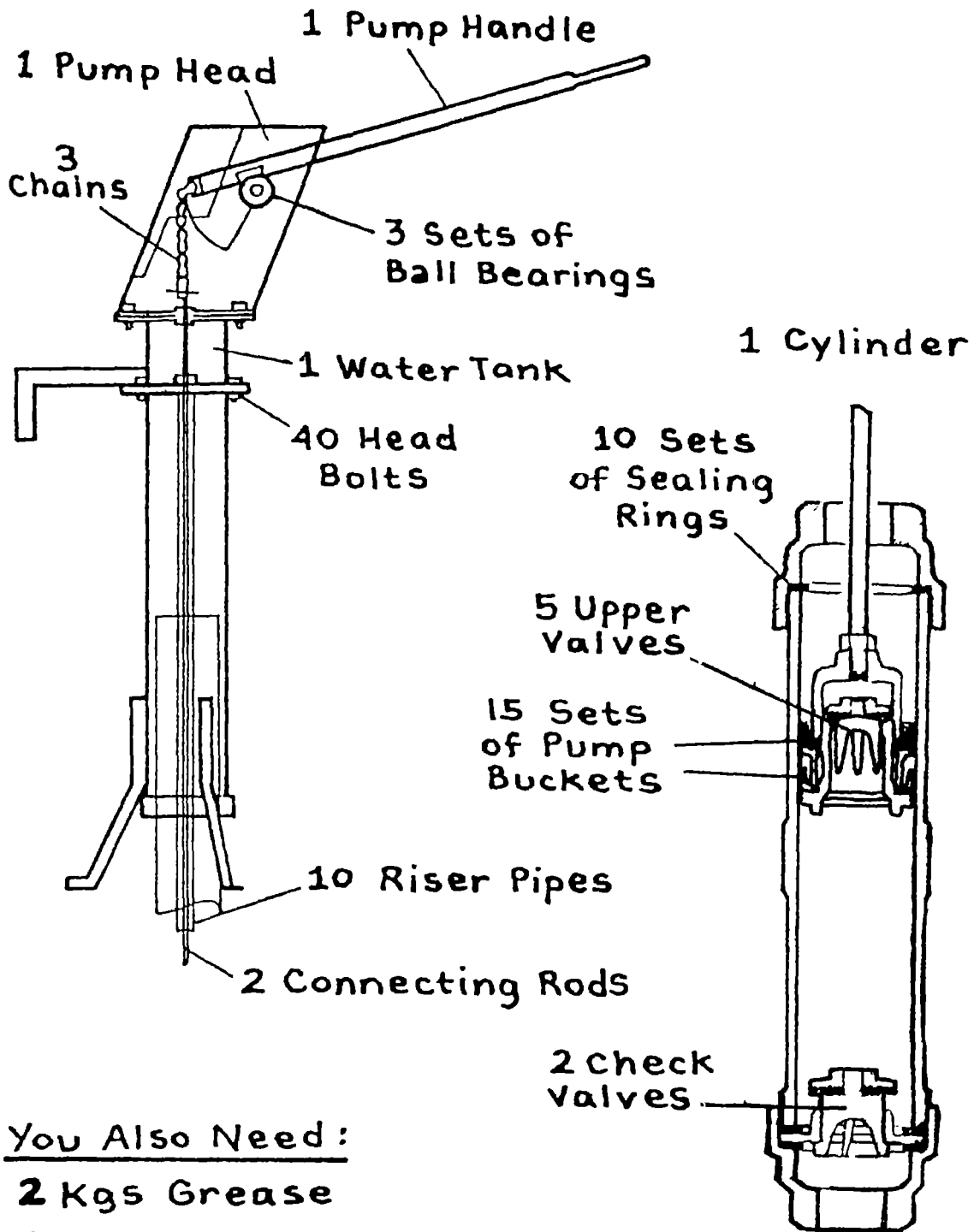
# Reporting Monthly to Your RC 3

- Tell the RC 3 the number of U-Two Pumps you have repaired for the month.
- List spare parts used for each repaired pump.
- Report on the condition of all of your U-Two Pumps.

# U-Two Pump Spare Parts List

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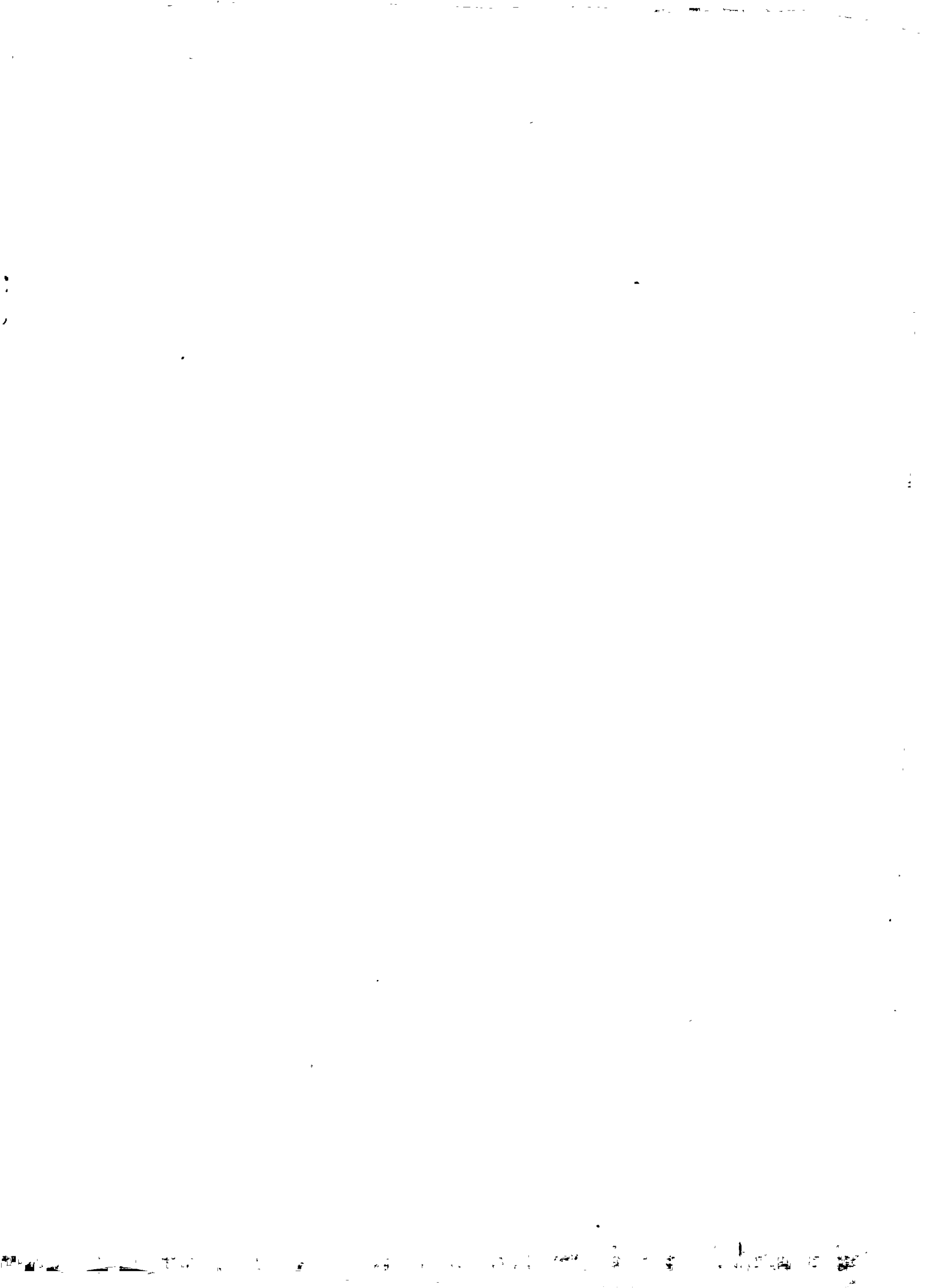
You will probably need these U-Two pump spare parts in One Year for EVERY TEN U-Two Pumps You Maintain.



You Also Need:

**2 Kgs Grease**

**1 Kgs Pipe Jointing Compound**



Produced by the Republic of Uganda



THE REPUBLIC OF UGANDA



unicef

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Ministry of Health (Public Health Inspectorate)  
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