The Trainer's Guide to Flipchart

for the india mark II hand-pump caretaker training programme

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This Flipchart Training Kit has been designed for training India Mark II hand-pump caretakers.

The Caretaker Flipchart contains all the information necessary for training up caretakers to work effectively as the village-level link in the hand-pump maintenance system.

The hand-pump caretakers have a dual responsibility. Apart from looking after the hand-pump and reporting defects, they are also expected to work towards developing positive community attitudes towards safe drinking water.

The caretaker training programme has therefore to comprise of more than basic technical instructions to the caretakers; it must also train caretakers in helping people to understand the safe drinking water concept.

Introduction to the Flipchart Training Kit

for use in the india mark II hand-pump caretaker training programme

The Flipchart Training Kit has been designed to provide a basic and comprehensive guide for village-level caretakers. This training material allows for simple and effective communication with the trainees.

The Flipchart Training Kit is easy to use, with guidelines and step-by-step procedures for the trainer to follow.

The caretaker training programme comprises of a detailed page-wise explanation of the Caretaker Flipchart, and a practical session for trainees.

This programme is geared to the training of caretakers for India Mark II hand-pumps. Each training programme should have no more than 30 to 40 participants. A group this size will allow for individual attention and active trainee participation.

The Flipchart Training Kit consists of :

1. The **'Master Flipchart'**, which is of a large size. Some pages contain pictures, and some are blank. All these pages will have to be filled in with translated text. When it is ready, you will explain it to the caretakers in the training session. The 'Master Flipchart' will be hung on an easel, and you will explain its contents page by page to the trainees.
2. The **'Text for Flipchart'**—a small model Flipchart with both illustrations **and** the text in English. You will translate this text into the local language, and then fill it in onto the Master Flipchart. The 'Text for Flipchart' will be used as a model for filling in the Master Flipchart.
3. The **'Trainee Flipcharts'**. These are also small model Flipcharts, but they contain **only** pictures. The trainees will fill in the translated text into these, copying the text from the Master Flipchart, under your supervision during the training session. After the training programme, the trainees will take their copies of the 'Trainee Flipchart' away with them. Each trainee will therefore be provided with an individual copy.

   Since you will encourage the trainees to use their 'Trainee Flipchart' as a teaching aid in their village, they should preferably fill in the text with a bold pen. This will make for easy visibility when they display the pages of the Flipchart to small groups of people in their village. Each trainee could therefore be given one medium **felt pen** (black or blue) with which to fill in the 'Trainee Flipchart'. You will have to arrange for the felt pens, in accordance with the number of trainees. Do **not** use spirit based felt pens because they will print through the paper and blot. Use felt pens with a **water colour** base.
4. The **'Trainer's Guide to Flipchart'**. This is for your use when you are explaining the

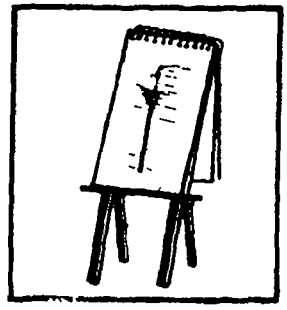
Master Flipchart to the trainees. It gives you a page by page explanation of the Flipchart. The corresponding pages of the Master Flipchart are reproduced opposite each page of the commentary. The 'Trainer's Guide' contains important information which must be presented to the trainees so that they fully understand the contents of the Flipchart.

In other words, the 'Trainer's Guide' enumerates the points you will have to make mention of when you are explaining the Master Flipchart page by page.

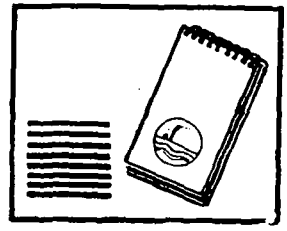
Each page of the 'Trainer's Guide' has a small blank space for your own notes which you may wish to add. Perhaps you may want to remind yourself of examples you would like to use.

A copy of the **'India Mark II Hand-pump Installation Manual'** has been included in the Flipchart Training Kit. Please refer to this manual for specific information when explaining the installation requirements of the India Mark II hand-pump.

Text for Flipchart



Master Flipchart



Trainee Flipcharts

Flipchart Training Kit

for use in the india mark II hand-pump caretaker training programme

These publications, as well as this Trainer's Guide to Flipchart and the India Mark II Hand-pump Installation Manual, are available from WESS UNICEF 73 Lodhi Estate New Delhi-110 003

How to use the Flipchart Training Kit

1. Translate the page by page text contained in the **TEXT FOR FLIP-CHART** into the local language.

   NOTE : When you are translating the text, please keep in mind that the text and commentary have been geared towards a maintenance structure for government-maintained hand-pumps, where the District Engineer *is responsible for repair.*

   The text and commentary for the hand-pump failure reporting system therefore refer to the District Engineer, the District Mobile Maintenance Team and the Block Mechanic.

   However, the reporting system may change when a **non-governmental organisation** undertakes to ensure repair. Therefore your translation of pages 2, 6, 7, 10 and 25 of the **Master Flipchart,** and your presentation of pages 2, 3, 5-7, 10-12, 20-25, 31 and 41 of this **Trainer's Guide** may need to be modified accordingly, indicating to whom the caretaker must report hand-pump malfunction.

2. Copy your translated text onto the **MASTER FLIPCHART,** using the model **Text for Flipchart** as a guide. Number each page of the Master Flipchart.

3. Distribute the **TRAINEE FLIPCHARTS** and felt pens to the trainees.

4. Referring to your **TRAINER'S GUIDE TO FLIPCHART,** explain the contents of each page of the **Master Flipchart** to the trainees.

How to conduct the training session

Remember that before you begin each training session, you will need

- a blackboard and chalk
- a sample India Mark II hand-pump for use in the classroom
- an India Mark II hand-pump cylinder for demonstration purposes
- felt pens for the trainees, if you are providing them with these*.

Having set the Master Flipchart onto an easel,

first explain **Section I** of the Flipchart to the trainees, with the help of the **'Trainer's Guide'**.

Then ask the trainees to copy out Section 1 from the Master Flipchart onto their own Flipcharts.

Next, explain **Section 2**,
again referring to your **'Trainer's Guide'** for explanation.

Then let the trainees copy out Section 2 from the Master Flipchart.

Similarly, proceed with **Sections 3, 4 and 5.**

Note : The trainees **must not** copy down Sections while you are explaining the Flipchart. Make sure that they fill in their own copies only during the time you set aside for this **at the end of each Section.**

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*If a felt pen dries up, remove the stopper at the end of the pen and add 5 to 6 drops of water, and it will last a while longer. Remind trainees to keep pens **closed when not in use,** to prevent the ink from drying out.

At the end of **Section 4**, trainees should be asked to participate in a **practical session**, where they will apply the instructions they have received on servicing and operation of the hand-pump. Details on the practical session are included in the Section-wise contents of the 'Trainer's Guide'.

When you reach pages 12, 31 and 48 ('Notes'), summarise the previous Sections and encourage the trainees to fill up the page with additional notes based on your summary.

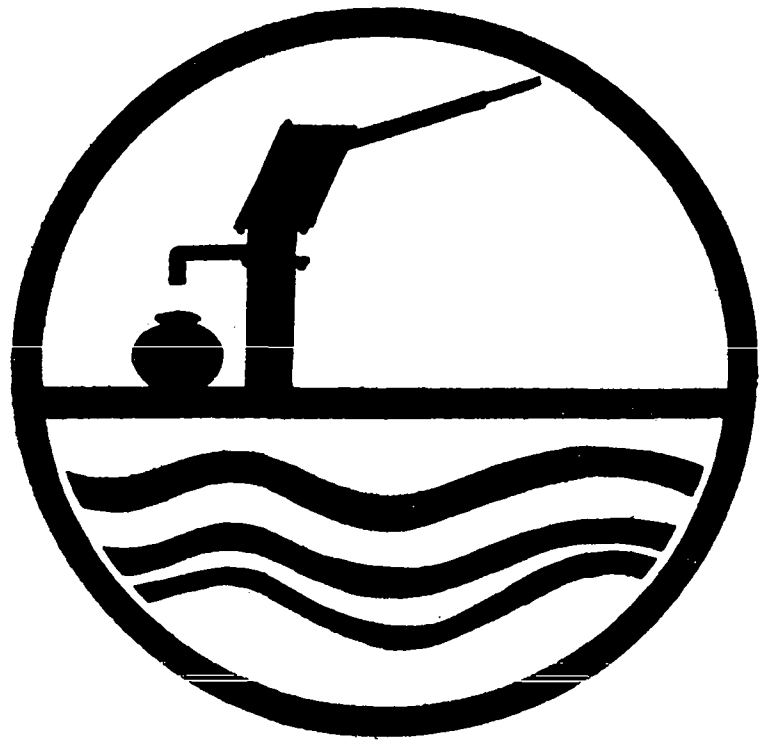
Finally, page 49 of the Flipchart contains a **questionnaire.** The questions should be copied down by the trainees onto their own Flipcharts, and their answers should also be written down on the 'Trainee Flipcharts'. Pages 49 and 50 of the 'Trainee Flipcharts' have been earmarked for this questionnaire and the trainees' answers. Refer to your 'Trainer's Guide' for suggested answers to the questionnaire, as well as for guidelines on how to conduct this exercise.

The last three pages of the 'Trainer's Guide' provide **practical suggestions for follow-up activities** that the caretakers can organise with their fellow villagers. The caretakers can participate in your practical demonstration of these activities.

For the page by page, Section-wise explanation of the Flipchart, as well as for guidelines on the practical session, questionnaire and follow-up activities, refer to this 'TRAINER'S GUIDE TO FLIPCHART'. All the information you will require for the commentary is presented on the following pages.

TEXT FOR FLIPCHART

FOR HAND-PUMP CARETAKER TRAINING



Explain the safe drinking water sign.

Caretakers should explain to family members, neighbours and their fellow villagers the meaning of this symbol; that the lines represent the **ground water** which the hand-pump will bring to the surface, and the hand-pump is a symbol of **safe drinking water.**

Since the caretakers are the persons in the village who are responsible for the care of hand-pumps, they can identify themselves by painting this hand-pump sign on the door or outer wall of their houses. Tell the trainees that they can also reproduce this sign in their village, next to the pump, in the school building, etc. They could also ask a local village artist to do it for them.

As a trainer, you will endeavour to impress upon the trainees, throughout the training programme, the importance of the hand-pump as a source of safe drinking water.

Trainer's notes

SECTION - 1

—The **INDIA MARK II** hand-pump

—3-tier maintenance system

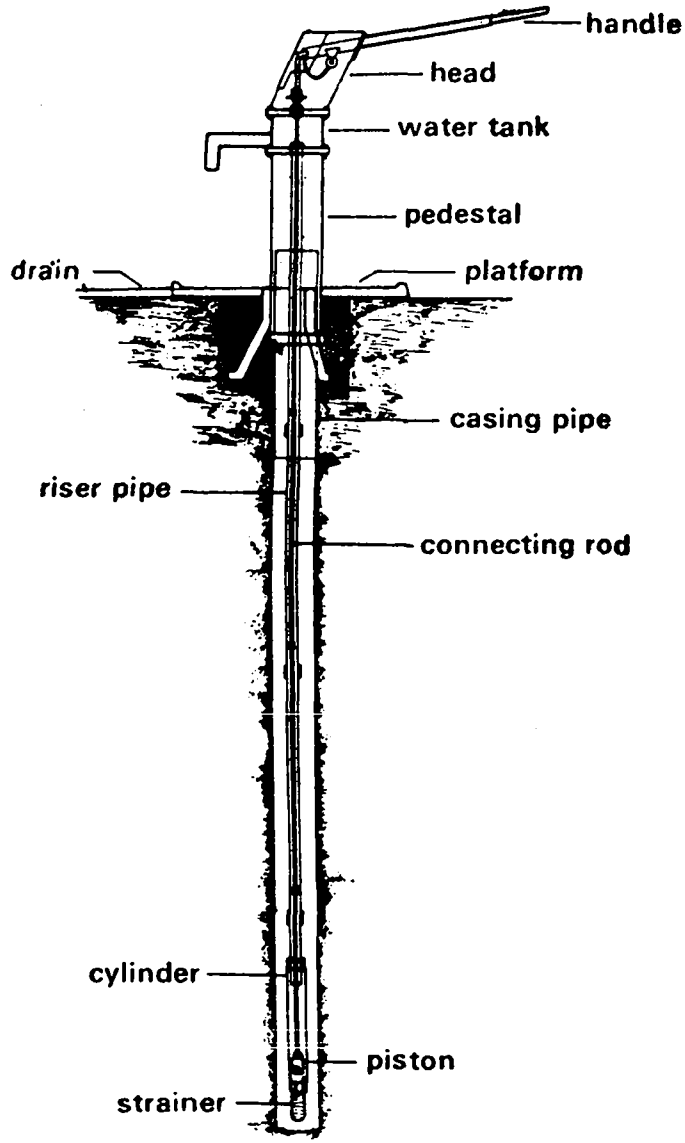
—duties of the caretaker

SECTION I

In this Section you will talk about the technical aspects of the hand-pump; how the hand-pump is being maintained through the 3-tier maintenance system; and how the caretaker fits into the system. This Section will also cover the role and duties of the caretaker.

Trainer's notes

THE INDIA MARK II DEEP WELL HAND-PUMP



Remember that you are not training up mechanics, but hand-pump caretakers. However, it will make the caretakers more confident when they have a basic understanding of the technical aspects of the hand-pump.

This page shows the complete hand-pump assembly — the above-ground and below-ground mechanism. Point out the various components of the hand-pump as indicated here. You can mention that the 'strainer' is an optional component; the rest of the components are standard.

Explain how the hand-pump works, i.e., by moving the handle down, the cylinder piston is lifted; the upward movement of the cylinder piston draws in water which opens up the foot valve of the cylinder.

The upward movement of the handle will close the cylinder foot valve and push the water into the rising main. This continuous action is repeated whenever the handle is moved up and down.

Show a cylinder and demonstrate how the water lifting action of the hand-pump and cylinder assembly happens. It is important to make sure that the trainees understand this.

When the trainees understand the basic mechanism of the pump, it will be easier to explain to them that this hand-pump needs to be **handled with care** and needs to be **operated properly**.

Explain to them that the deep-well hand-pump has to be constructed with a concrete platform and a 10-foot long drain.

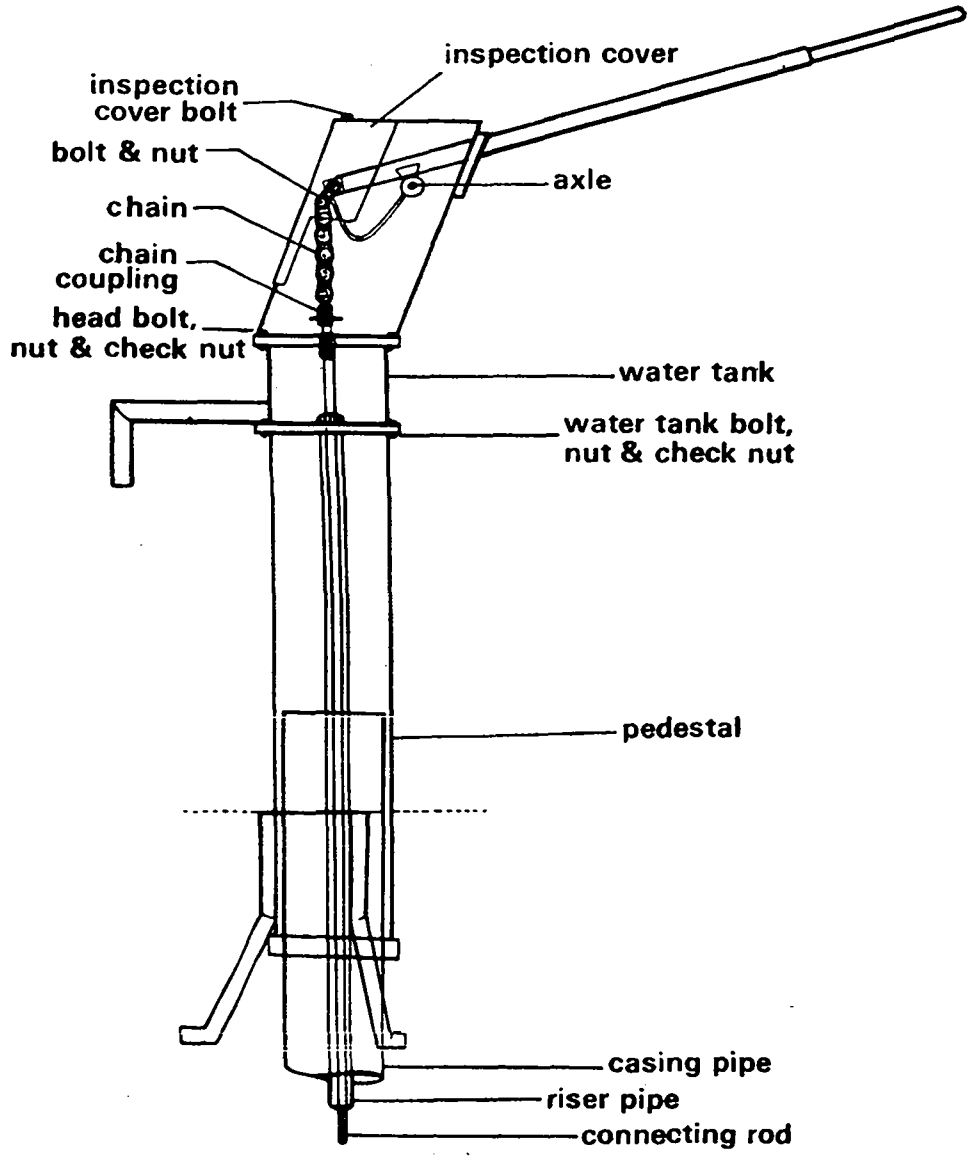
Point out that a firm foundation and platform are essential to prevent percolation of surface waste water down into the tube-well. A drain of sufficient length should also be provided with every hand-pump site. **This is very important, because if dirty surface water enters the tube-well, it contaminates the pure ground water source.** An area of at least 50 feet around the hand-pump should be kept free from refuse and stagnant water.

You can refer to the India Mark II Hand-pump Installation Manual for further details on installation requirements.

Ask a few trainees what the hand-pump in their village looks like; whether the hand-pump has a platform, sits firm in its foundation; has a good drain wherein the waste water goes, etc. Where hand-pumps have not been properly installed, trainees should report this to the District Engineer.

Trainer's notes

INDIA MARK II HAND-PUMP



The trainees should pay careful attention to this detailed presentation of the India Mark II pump-head components. You will show them a life-size India Mark II hand-pump and you will be asking them questions on the various components. For these questions just select the more common components like the handle, chain, connecting rod, cylinder and so on.

Explain to them that the casing pipe sits in the hand-pump pedestal, and that the rising pipe is connected to the water chamber.

The connecting rod connects the handle chain with the cylinder piston, and by the handle movement moves the cylinder piston up and down.

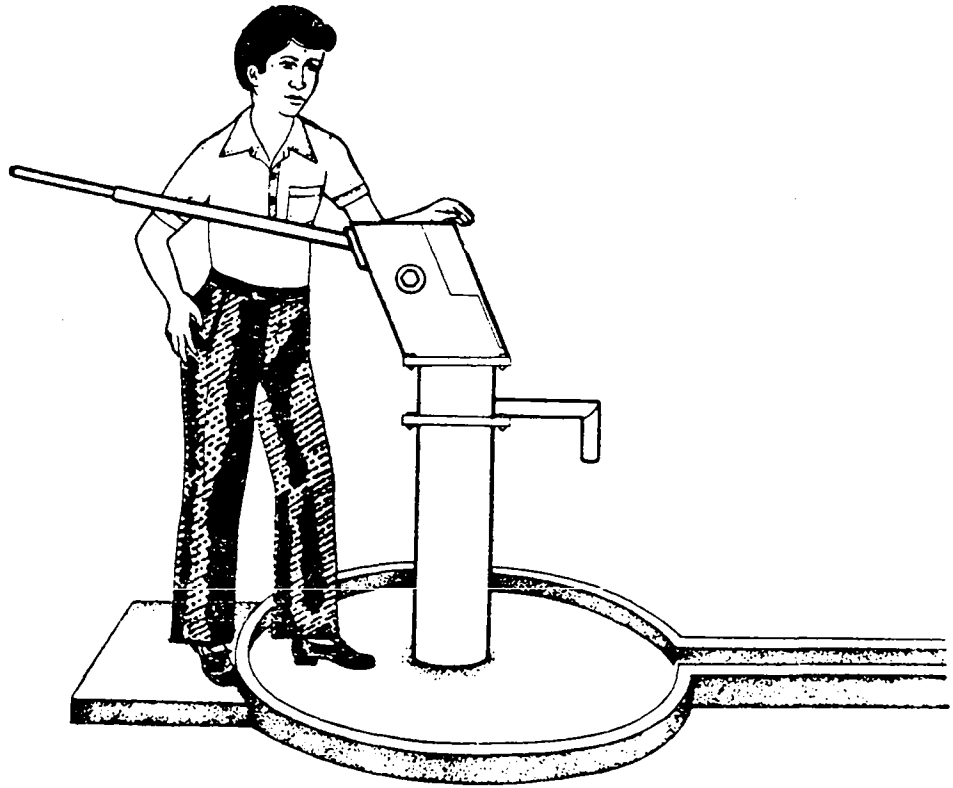
You could mention here to the trainees that this hand-pump is produced according to strict quality controlled specifications. It is specially built to make it a sturdy and long-lasting community hand-pump but, like any mechanical equipment, it needs regular **preventive maintenance.** The preventive maintenance consists mainly of tightening the nuts and bolts of the top-head, the water chamber and the pedestal flanges. Also, a few drops of oil on the chain is required every week. Any oil or grease that is generally available could be used for this purpose. The next section will deal with detailed procedures for preventing hand-pump breakdown.

Point out that the caretaker's regular attention to preventive maintenance for this community hand-pump will definitely contribute to the long-lasting functioning of the hand-pump.

You will make reference to these points a few more times while going through this Flipchart, but do not forget that there is no harm in repetition. At present, your caretaker trainees may not know much about the hand-pump and the various requirements for its correct installation and proper operation. It will definitely help the caretakers to acquaint them fully with the hand-pump.

Trainer's notes

THREE-TIER MAINTENANCE SYSTEM :



1. At <u>village level</u>

   the hand-pump caretaker reports

   if hand-pump needs repairs

The 3-tier maintenance system

Explain why maintenance is important. If a hand-pump does not work, the village community cannot be expected to rely upon it. Community health is largely influenced by the provision of a safe water source ; and a safe water supply depends upon a hand-pump that **works**.

Explain that the maintenance system works at three levels which are related to each other. Each level—village, block, district—depends upon the other, and co-ordination/interaction is essential.

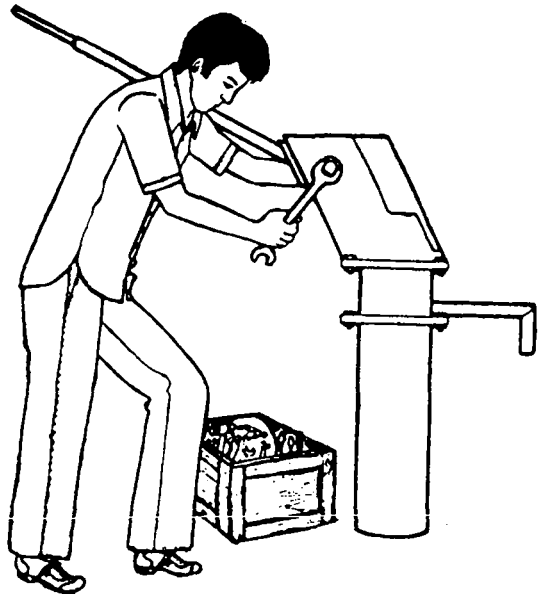
The caretaker is the village-level link of the hand-pump maintenance system. His most important responsibility is to report hand-pump defects or hand-pump failure to the District Engineer. The District Engineer will then send either a block mechanic or his mobile maintenance team to attend to the repair. With the caretaker's regular attention and prompt reporting, the hand-pump can thus stay in good working order, providing a continuous safe water supply.

You could mention here that during the early days of the hand-pump programme, the people in the village did not know whom to contact whenever something went wrong with their hand-pump. **Now** the caretaker knows the District Engineer and the block mechanic by name, and knows his address and how to contact him.

At this stage or later, introduce the District Engineer in charge of the hand-pump maintenance as well as the block mechanics. The block mechanics can state here which part of the block or which villages they look after.

Explain here briefly the failure reporting system by use of the pre-stamped and pre-addressed post cards. Tell the caretakers that the reporting system will be explained in detail on page 25.

Trainer's notes



2. At block level

an inspector-mechanic

checks pumps regularly

Explain to the caretakers that the State Government department which is in charge of the Rural Water Supply Programme has posted block mechanics at the block headquarters. These mechanics are inspector-cum-mechanics. Their job consists of visiting all the hand-pumps in their jurisdiction on a regular basis, usually once a month, and assessing the working condition of every hand-pump.

One block mechanic looks after not more than 50 hand-pumps ; hence there can be more than one mechanic per block, depending on the number of hand-pumps.

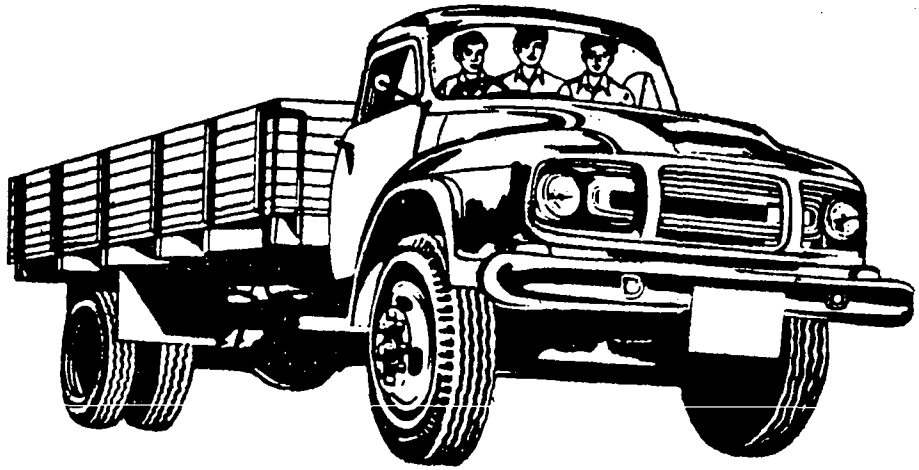
The block mechanic will carry out minor repairs to the above-ground mechanism, and will inform the District Engineer whenever a major repair is anticipated or is needed.

The mechanic will also help the caretaker to keep the hand-pump site clean and dry, and check that the platform and drain are in good condition.

Whenever the block mechanic visits a village to inspect a hand-pump, he has to contact the caretaker and ask for the **hand-pump log sheet,** in which repairs must be noted down and signed.

Trainer's notes

3. At district level



a mobile maintenance team does major repairs.

The State Government has posted a district mobile maintenance team at the district level. This team is in charge of hand-pump installation, maintenance and repairs, and normally consists of one Junior Engineer with one driver, one mechanic, two helpers and a mason.

Whenever a pump requires repairs, the caretaker will mail the 'hand-pump failure' postcard to the District Engineer. The District Engineer will then send either the mobile team or a block mechanic to carry out repairs. Later on in this training session, the caretakers will be given specific information on the failure reporting card.

These two pages have introduced the caretakers to the two other levels of the maintenance system.

Trainer's notes

DUTIES OF THE CARETAKER :

1. See that the villagers operate the hand-pump properly so that it will have a long life . . .

Duties of the Caretaker

You will now mention to the caretaker trainees their five principal responsibilities. These duties are also elaborated upon in other sections.

1. Explain to the caretakers that the hand-pump, like any mechanical equipment, needs to be looked after properly. You can draw the parallel here with other common mechanical devices, such as bicycles, etc.

   Similarly, the hand-pump needs to be used by the villagers correctly. Children can use the hand-pump, but they should not play with it. It is not a toy; it is a public service utility.

   Further reference will be made to correct operation of the hand-pump on pages 33 and 34.

Trainer's notes

2. Service
the hand-pump
once a week.

3. Make sure
excess water
is
channelled
into
a garden
or
a soakage pit.

2. The caretakers have to service the hand-pump once a week. This means tightening all the nuts and bolts and the chain anchor bolt. They have to make sure that the lock nuts are on the bolts, and that they are tight.

   Servicing the hand-pump includes making sure the hand-pump platform is clean, and also keeping the drain clean so that waste water can run off freely. In Section 2, you will give them detailed instructions on the servicing of the hand-pump. At the end of Section 4, there will be a practical session for the trainees to work on a hand-pump.

3. The waste water must not be allowed to accumulate around the hand-pump, but should be channelled away into a garden or soak pit. The caretakers can put pebbles and gravel over a layer of sand around the hand-pump platform to soak up excess water in the immediate vicinity of the pump.

Trainer's notes

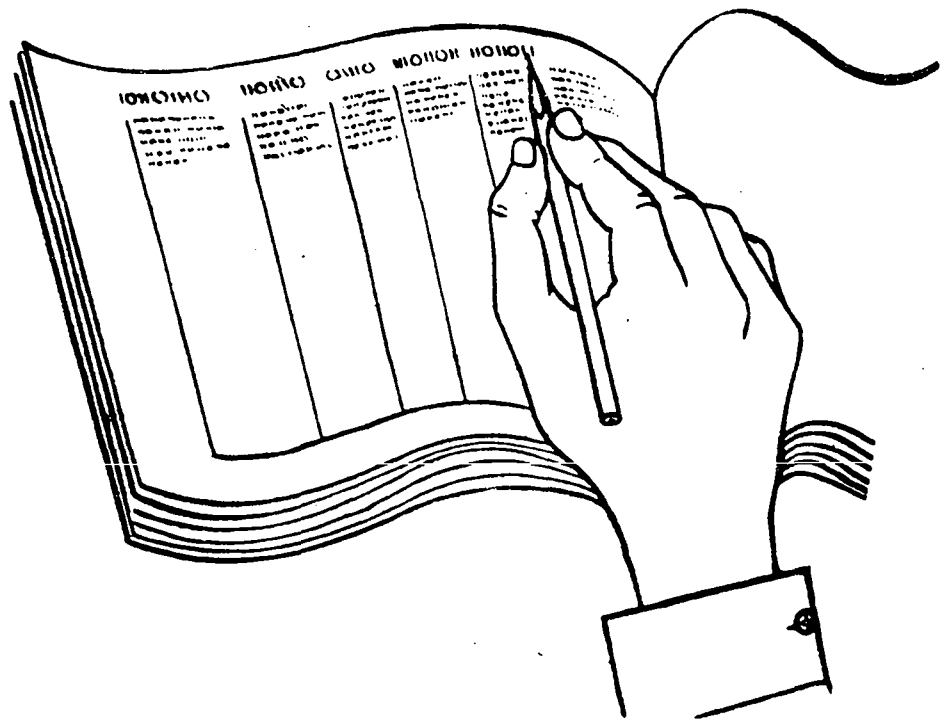
4. If the hand-pump breaks down, report it to the District Engineer.

4. The most important duty of the caretaker is to report any hand-pump failure to the District Engineer.

   The detection of faults in the hand-pump will be explained later on from page 19 onwards.

Trainer's notes

5. **Maintain the hand-pump log sheet.**



5. The caretakers have to maintain the log sheet which is given to them. They must always keep their log sheets up-to-date.

   The log sheet gives the basic details of the hand-pump and keeps an account of how soon defects have been rectified. Whenever the mobile team or the block mechanic comes to repair the hand-pump, the caretaker must ensure that the details of such repair are filled in on the hand-pump repair log sheet.

   The trainees will be shown how to fill in the log sheet at the end of Section 5.

Trainer's notes

NOTES

1. The INDIA MARK-II is a strong hand-pump. The caretaker has to provide it with
   —community care
   —clean surroundings
   —maintenance

2. Reproduce the hand-pump sign wherever possible in the village and explain its meaning.

NOTES

Summarise the aspects that have been covered in Section 1. Your summary should touch upon the need for trainees to

—understand the working of the hand-pump

—keep the hand-pump in good working order and keep its surroundings clean

—inform the District Engineer promptly whenever there is a problem with the hand-pump.

Explain that the 'Notes' comprise of particularly important points that the caretakers have to keep in mind. Two points have already been mentioned in the Flipchart. Emphasise that they are welcome to ask questions and make additional notes on any other points they would especially like to remember.

Having finished with Section 1, **tell the trainees to copy out the text from pages 1 to 12 of the Master Flipchart onto the corresponding pages in their own Flipcharts.**

Display each page in Section 1 for a sufficient length of time.

You will have to pay special attention to **pages 3 and 4,** which point out the components of the hand-pump—the above-ground assembly, the below-ground assembly and the hand-pump site. When the trainees are filling in pages 3 and 4:

—trainees could use an ordinary pen or a pencil to fill in the components, for greater clarity; and

—you should ensure that trainees fill in the correct word for the correct component.

Check out a few notebooks of the trainees while they are filling them in.

Trainer's notes

SECTION - 2

—Preventive maintenance

—Defects

—Reporting of defects

SECTION 2

Preventive maintenance increases the life of the hand-pump.

Apart from servicing the pump, the care-takers check for defects. When they locate a problem, they immediately report it by posting the 'failure reporting card'.

Regular and timely attention is important if the hand-pump is to be kept in good working order.

Trainer's notes

TO KEEP

THE HAND-PUMP

IN GOOD WORKING

ORDER—

PREVENTIVE

MAINTENANCE

IS ESSENTIAL !

THEREFORE . . .

Preventive maintenance means regular checking and care of the hand-pump in order to prevent breakdown.

In effect, the caretakers must ensure that the hand-pump is kept in good working condition. In this way, it will require minimal repair.

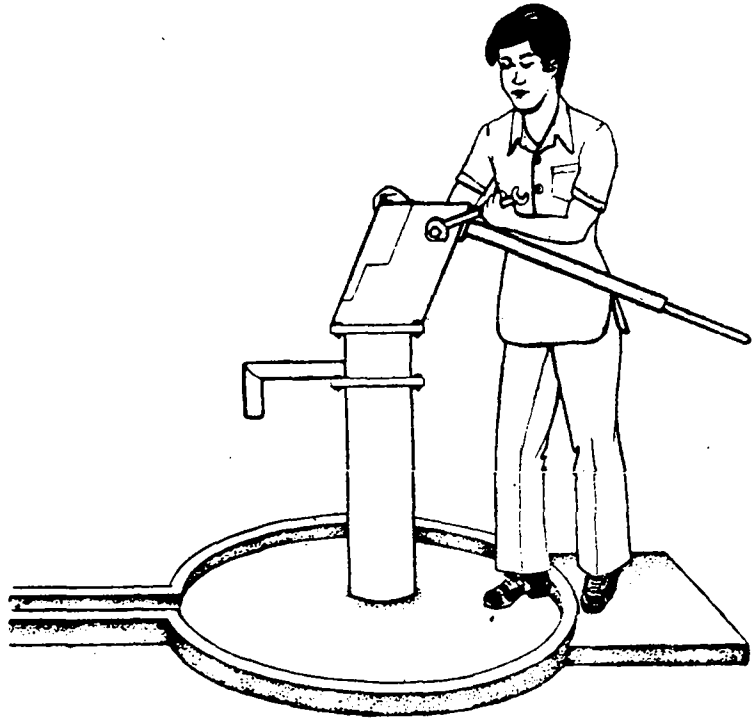
They have therefore to carry out some precautionary measures, which are explained on the following pages.

Trainer's notes

ONCE A WEEK

CHECK

THE FOLLOWING . . .



1. Are axle bolt and lock-nut tight ?

Once a week, the caretakers should visit the hand-pump and service it. During this training programme the caretakers will be given two open-ended spanners. The size of these open-ended spanners is 17 x 19 mm, and with these they can tighten all the exterior nuts and bolts of the India Mark-II hand-pump.

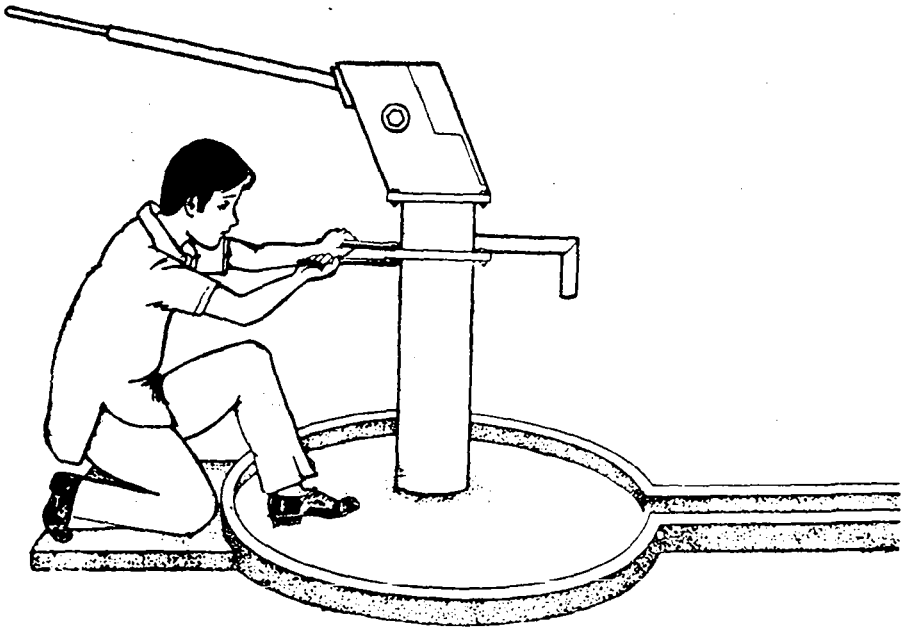
Sometimes, hand-pumps with different sizes of nuts and bolts may be used. In such cases, they should make arrangements with a bicycle shop owner or with whoever has tools in the village to tighten these nuts. An adjustable spanner or small size pipe wrench can also be used for this purpose.

The caretakers must learn the basic procedures for servicing the India Mark II hand-pump.

As part of their regular duties, they must tighten :

—the **handle axle**, which has one washer, one nut and one check-nut.

Trainer's notes



2. Are flange-bolts tight ?

During the weekly servicing of the hand-pump, the caretakers must also tighten :

—**the flange bolts**. On the outside of the India Mark II hand-pump, there are

—four bolts in the bottom flange, and

—four bolts in the top flange.

Each bolt has one nut, one lock-nut and two washers.

—the **chain** has one anchor-bolt and lock-nut, and

—**the top of the front cover** has one lock-bolt.

All these have to be checked upon once a week. All bolts, nuts and lock-nuts have to be tightened. If nuts are missing, they have to be replaced.

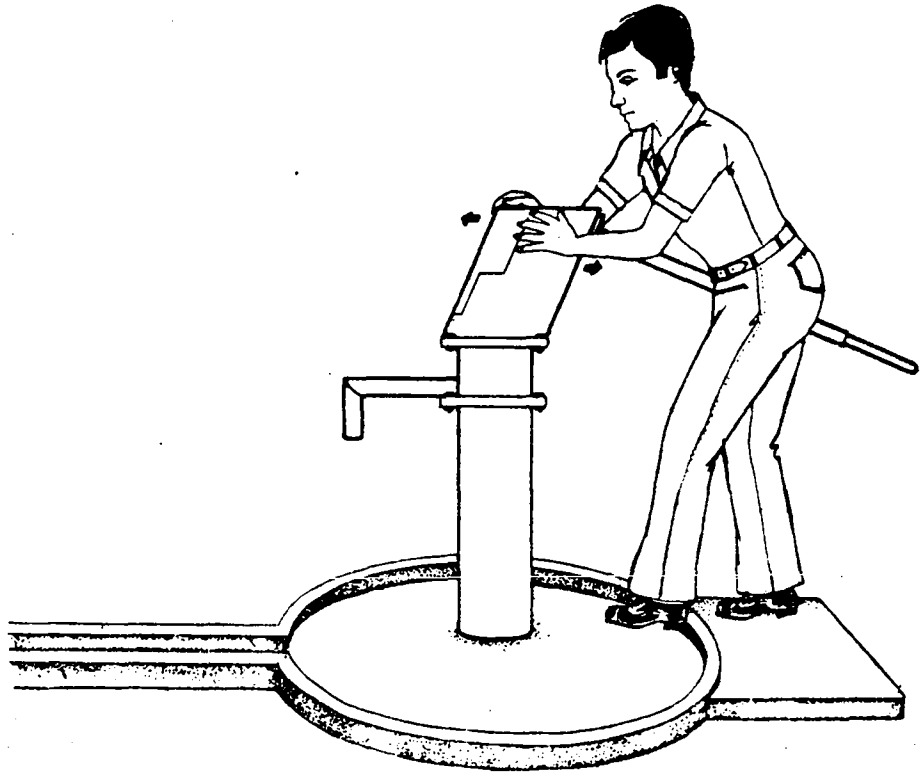
Explain to the caretakers that this is very important, because if nuts and bolts loosen, as they may over a period of time, they will get lost unless the caretaker regularly tightens them. It has happened so often in the past that because of nuts and bolts missing, unnecessary damage was caused to the hand-pump, eventually resulting in the hand-pump breaking down. This has to be prevented under all circumstances.

Explain to the caretakers that although this may look a simple job, it is a very crucial one. It is the caretaker's responsibility to tighten all the nuts and bolts of the above-ground assembly of the India Mark II hand-pump once a week. In doing this once-a-week service, they will contribute considerably to the work life of the India Mark II hand-pump.

Sometimes, hand-pumps are used very frequently, and by many people. Then, this calls for **two** visits per week to service the hand-pump.

Tell the caretakers that they could even collect some nominal financial contribution from the villagers—if need be—to buy nuts and bolts to replace those which have worn out, disappeared or broken.

Trainer's notes

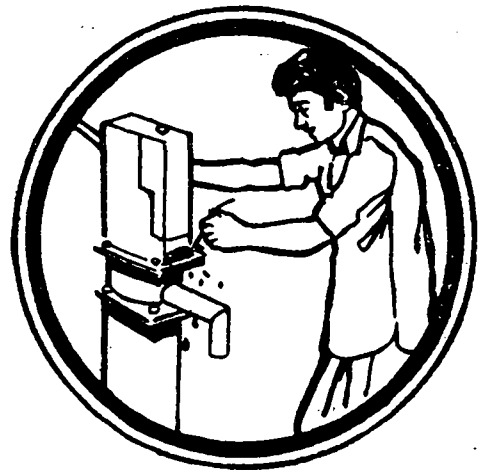


3. Is the hand-pump firm in its base ?

The caretakers should check whether the hand-pump sits firmly in its foundation base. They can check this in the manner shown in the picture—by trying to move the pump backwards, forwards and sideways.

The reason is that every India Mark II hand-pump should be installed in such a way that there can be no movement in the above-ground assembly. If the above-ground assembly is loose in its base, the below-ground assembly of pipes and connecting rods will move about considerably in the tubewell, and put a lot of strain on all the joints. These joints may work themselves loose and cause hand-pump failure. Also, the pipes can continuously knock against the hard-rock sides of the tubewell—this can result in the pipes being damaged, and water will leak from these damaged points.

Trainer's notes



4. **Open front cover. Clean out trash from drain-hole below this inspection cover.**

As part of this once-a-week service, the caretakers have to take off the front cover and clean out the trash which may have accumulated in the top-head. They should also put some oil or grease on the chain.

It is essential that this cleaning is done, since the trash can prevent the free movement of the handle. The trash will also obstruct the free flow of water which may have accumulated inside the top-head. This water should normally drain out freely through the drain slit in the top-head. The **drain slit**, or drain hole, is shown in the picture which accompanies this text. The caretaker is shown cleaning out this drain slit.

Explain to the caretakers that the stagnant water in the top-head may cause the top-head to rust. Rust will automatically damage the hand-pump, as it will eat away at the mechanism. The caretakers themselves can remove any rust on the pump with **sand paper** and/or a **wire brush**, and thereafter applying some **paint**.

After checking, the caretaker has to refit the inspection cover, and fully tighten the inspection cover lock bolt.

Inform the caretakers that you will hold a practical demonstration on how to service and operate the hand-pump, later on, at the end of Section 4. They will be able to work on the hand-pump with their own spanners, which will be distributed to them at the start of the practical session.

Trainer's notes

LOOK OUT

FOR THE

FOLLOWING

DEFECTS . . .

At this stage, arrange a short break. Then ask the trainees to copy down the previous pages, which deal with steps for preventive maintenance. After they have done so, ask them to close their copy-books, and then proceed to explain the rest of this Section to them.

Explain that you are now going to show the caretakers how they can detect a number of faults in the operation of the hand-pump.

Against each problem, a few of the more common reasons have been given. Since the caretakers will not be carrying out these repairs themselves, it is sufficient to provide them with a general idea of the technical reasons.

Specific technical questions raised by any trainee can be deferred till later, to be answered during the practical session which will be held at the end of Section 4.

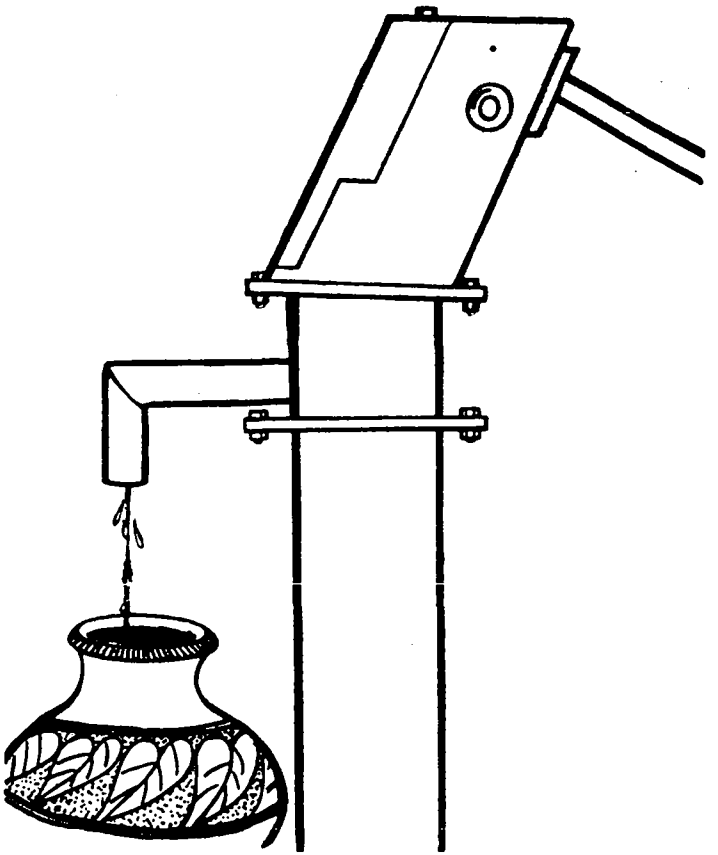
Emphasise that the caretakers are being given **practical** training during this programme, which does not require specific mechanical know-how. All that the trainee needs is an attentive and common-sensical approach.

Trainer's notes

1. **WEAK FLOW**

   OR

   NO FLOW



Weak flow or **no flow** can be caused by any one of the following :

—pipe assembly damage

—drop in the underground water level (additional pipes to be added to the existing below-ground assembly)

—the hand-pump mechanism being out of order (damaged components to be replaced).

These problems require immediate attention, and the mobile maintenance team should attend to them. Report these failures to the District Engineer.

Trainer's notes

2. **DELAYED FLOW**

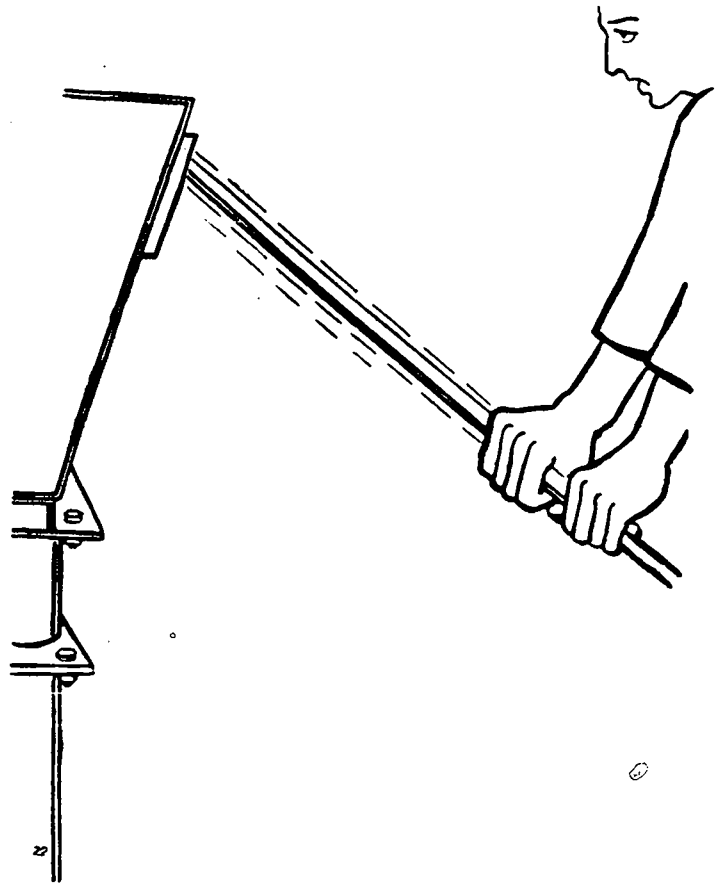
(you have to pump many times before water comes.)

Delayed flow is caused by

—leakage in the cylinder foot-valve
or
—leakage in the pipe assembly.

The District Engineer should be informed so that he can send the mobile maintenance team to get this major defect rectified.

Trainer's notes



3. **PUMPING DIFFICULT**

Normally, the handle movement should be smooth, without any obstructions.

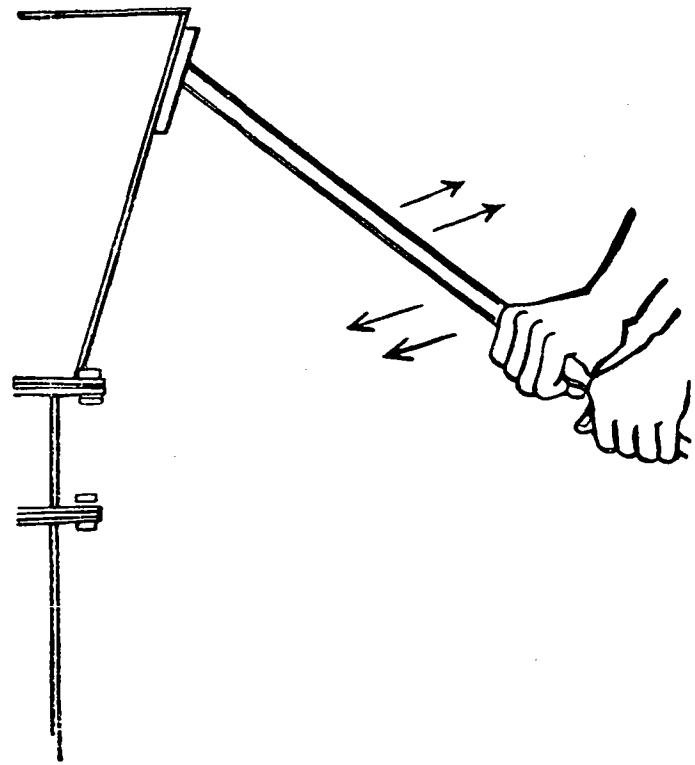
Pumping difficult :

This is commonly caused by a cylinder leather bucket getting stuck. In such a case, the cylinder will have to be over-hauled.

Sometimes it can be caused by a vacuum, created because of the excessive water draw-down in the tube-well. In this case, additional pipes need to be added to the existing assembly.

This is a major repair. Inform the District Engineer so that he can instruct the mobile maintenance team to carry out the necessary repair.

Trainer's notes



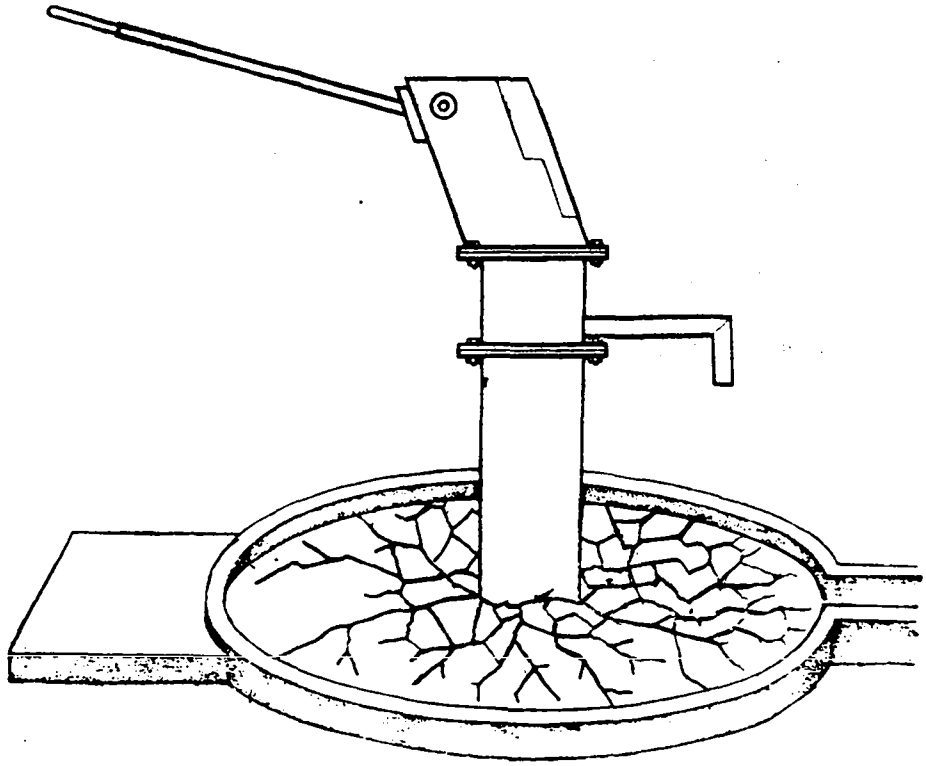
4. HANDLE SHAKY

Handle shaky :

This usually indicates that the **ball bearings** in the handle assembly are worn out and need replacement.

The District Engineer should be informed, and he will either instruct his mobile maintenance team or the block mechanic to carry out this repair.

Trainer's notes



5. HAND-PUMP LOOSE IN ITS FOUNDATION . . .

Normally, the India Mark II hand-pump should sit firmly embedded in its concrete foundation. There should be no movement in the hand-pump pedestal.

If the hand-pump is loose in its foundation, it can lead to a major breakdown—pipe and connecting rod joints may loosen. Also, waste water can go down the tube well and pollute the underground water.

A hand-pump being loose in its foundation is due to a gap around the pedestal, or cracks in the platform, which should be immediately repaired to prevent any contamination of the ground water. Caretakers should mail the postcard to inform the District Engineer so that his mobile team (with the mason) can rectify this by **reconcreting the hand-pump pedestal base.**

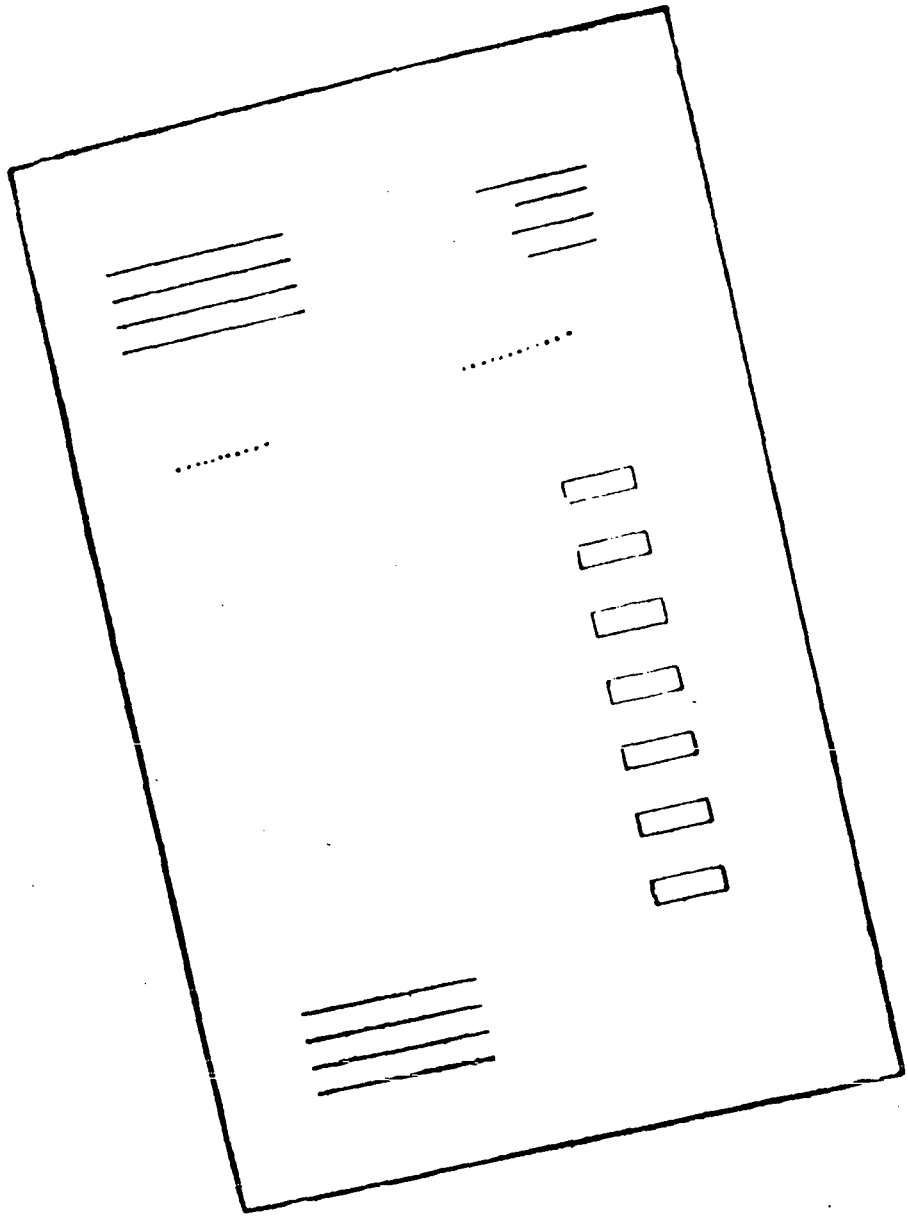
NOTE : Explain to the caretakers that when this repair is undertaken, sufficient **curing time** is required for the concrete to set. **The pump should not be operated until the curing time is completed.** Normally, the curing time required is 7 days, during which time **the concrete has to be kept wet.**

However, the curing time can be reduced to one day only, if quick setting compound is mixed with the concrete.

Whenever concreting work is undertaken on the hand-pump platform or drain, the caretaker is responsible for ensuring that proper curing of the concrete is done, and that the hand-pump is not used during the curing period. Apart from explaining to families that they should not use the pump for this period, the caretaker can also make the hand-pump inaccessible for a few days by surrounding the site with thorny branches.

The caretaker should not forget that the better the condition of the installation, the longer the hand-pump will work. A continuously working hand-pump is a mark of the caretaker's success.

Trainer's notes



If there is a defect, fill in the card and mail it to the District Engineer

The five defects you have just indicated are the most common ones in hand-pump repair.

Explain to the caretakers that at the end of the training programme, they will be given 3 pre-stamped and pre-addressed reporting cards, on which the five previously indicated defects are mentioned. Whenever the caretakers observe any defects, they should tick off the corresponding box and drop the card into the mail. The fifth box is for notifying installation problems. The card also has provision to indicate any other defect(s) the caretakers may observe.

The reporting system works in this way : the caretakers will be given 3 identical postcards. Whenever they need to report a defect, they should fill in a card and mail it to the District Engineer. As soon as he receives the postcard, the District Engineer will send either the mobile team for major repairs or the block mechanic for minor repairs to attend to the pump.

Explain to the caretakers that they can obtain more cards, if necessary, from the office of the District Engineer.

You may now let trainees copy down the text of Section 2 onto their own Flipcharts. When they have finished doing so, ask the trainees to close their books again. Then proceed with the explanation of Section 3.

Trainer's notes

SECTION - 3

CLEAN AND HYGIENIC HAND-PUMP SURROUNDINGS ARE VERY IMPORTANT.

The caretaker must therefore ensure that . . .

SECTION 3

Clean and hygienic hand-pump surroundings are very important. Explain here to the caretakers that providing a hand-pump means providing good and safe drinking water.

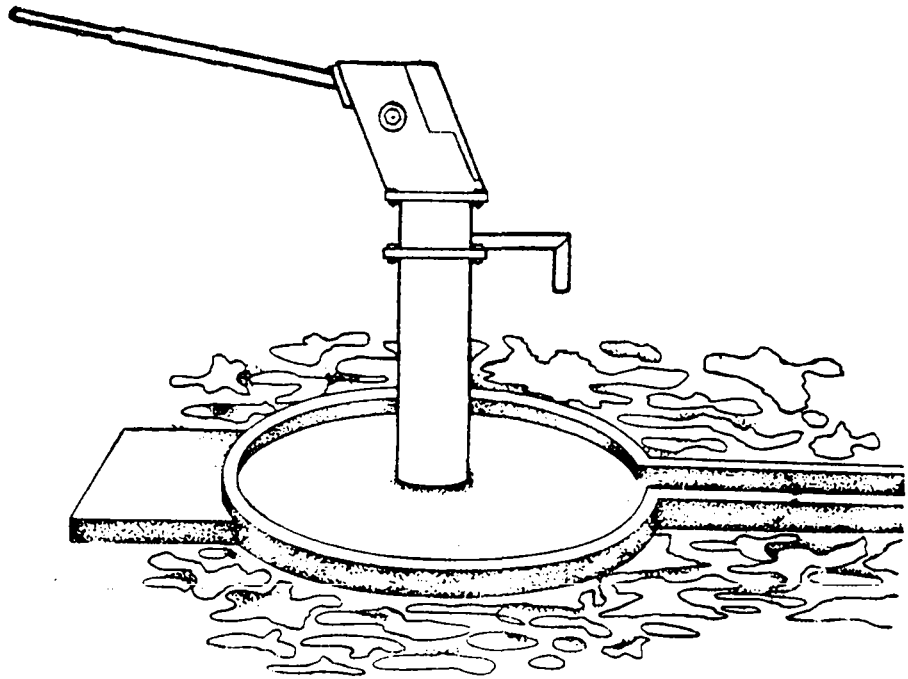
But while providing safe water, one should not create a health hazard :

—dirty and slushy surroundings attract flies and mosquitoes, which are transmittors of disease and contamination.

—surface water can carry germs and bacteria from surface dirt when it seeps into the ground, and this may contaminate the underground water.

Therefore, the hand-pump surroundings have to be kept dry and clean.

Trainer's notes



1. **Excess water does not collect around the hand-pump . . . .**

Explain to the caretakers that excess water should not collect around the pump. It will make the surroundings unhygienic and unattractive, and stagnant water will become a breeding place for mosquitoes.

When stagnant water is allowed to collect, it can seep underground and pollute the ground water.

A minimum of **50 feet** around the hand-pump site should therefore be kept **dry and clean,** and no stagnant water should collect around the hand-pump site.

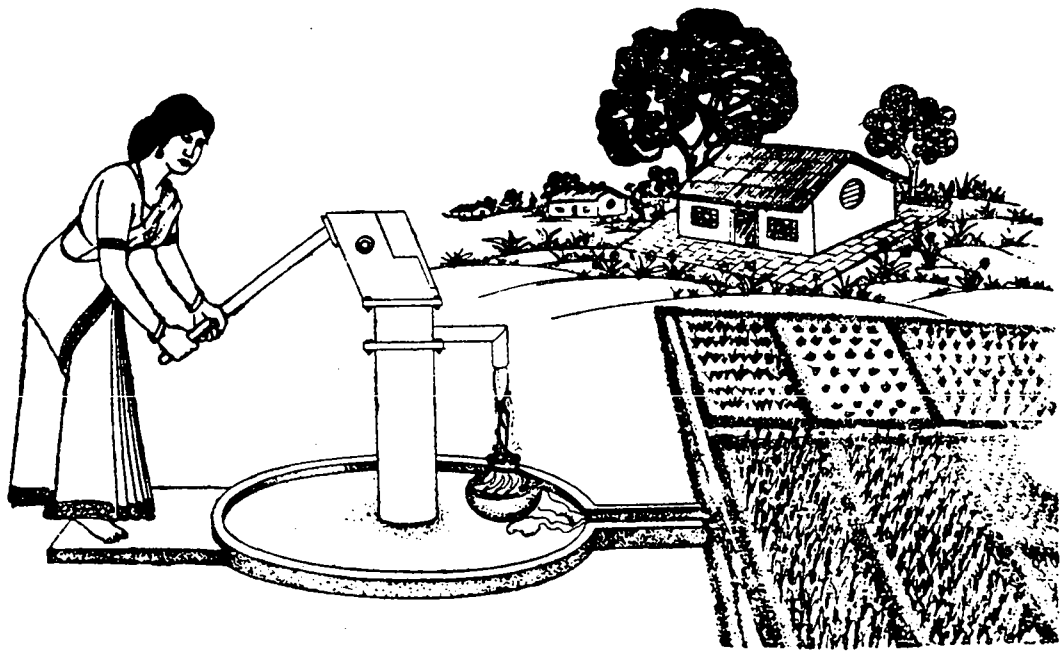
Normally, stagnant water will not collect around the pump site if the **drain** is kept in good order. Caretakers should tell villagers who use the pump for bathing, washing of clothes or utensils, to make sure that all waste water is being disposed off through the drain.

Hand-pump users should avoid spilling waste water off the platform, as this will tend to accumulate around the hand-pump site.

Trainer's notes

2. but runs into

a garden . . . .

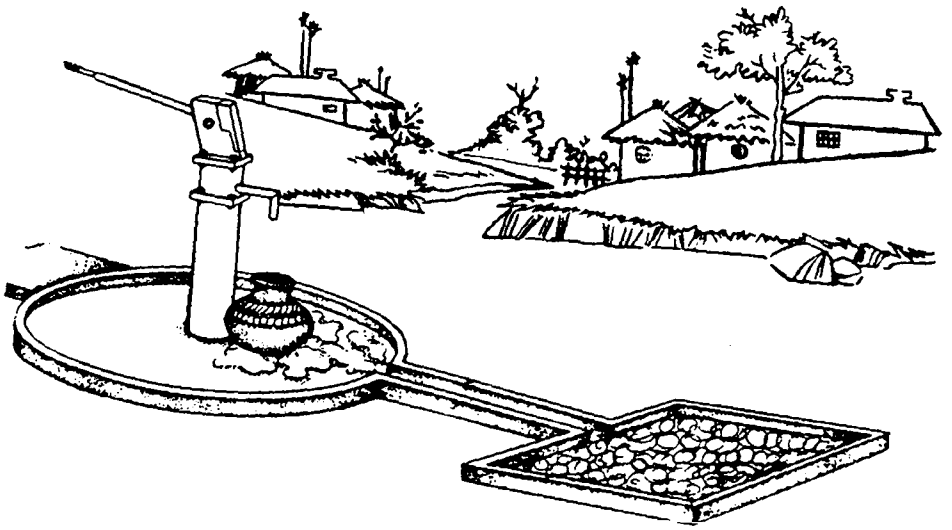


The waste water drain should either lead to a kitchen garden, to grow nutritious vegetables, or be diverted to grow tree saplings.

In some villages, people may want to use this waste water for cattle. If this is the case, the caretaker should make sure that the cattle-drinking trough is more than **50 feet away** from the hand-pump site.

The water can be channelled away from the constructed drain by means of a 'kutcha' drain or an extended 'pucca' drain.

Trainer's notes



3. or a soakage pit.

Where waste water cannot, or need not, be utilised in these ways, it can also be properly disposed off into a soakage pit.

The soak pit should be

1 metre deep, and

70 cms. in diameter.

The bottom of the pit should be filled with large boulders.

For the rest of the pit, smaller stones, broken bricks or pebbles should be used, and on top of it a layer of sand is to be spread.

This kind of soak pit will work very well in normal/sandy soil.

Emphasise to the caretakers that the soak pit will **not** function in soil which has a low water-absorbing capacity, such as black cotton soil or clay ground.

Ask some of the caretakers what kind of soil they have in their villages. If the answer is black cotton soil, then indicate that waste water would be excellently utilised for a kitchen garden or for watering tree saplings.

The caretakers should be reminded that waste water should, under no circumstances, be allowed to collect around the handpump.

Trainer's notes

4. Keep
the area
around
the hand-pump
clean
and free
of
refuse.

The hand-pump site should be kept clean and free of refuse for at least a **50 feet radius** around the hand-pump site.

No garbage should be dumped in the vicinity of the hand-pump; no cowdung and manure should be allowed near the hand-pump. Dirt attracts flies, which carry the same dirt they sit on onto food which is prepared in houses.

Most people find flies irritating and bothersome; but they seldom realise that flies are probably one of the most dangerous carriers of disease. You can use the following text of scientifically verified facts to explain to the trainees how flies transmit disease.

—Flies are always attracted to manure, excreta, garbage, decaying fruits and vegetables, discharges from wounds and open sores.

—Since the fly cannot eat solid foods, it vomits on its food and makes a solution out of it which it can then suck in. These drops of vomit contain germs. Flies also defecate constantly, and their excreta contains numerous germs. Flies not only spread infection through their vomit and excrement; they also transport germs on their feet and legs, infecting whatever they rest upon. Being restless insects, flies constantly move back and forth between food and filth.

—Flies are potential carriers of many communicable diseases, ranging from typhoid, cholera and diarrhoea to serious eye infections. Flies sit on the excreta or secretions of infected persons, and carry these germs to healthy persons, either through food or through direct contact.

—Flies are thus responsible for making infection spread from a single infected person to many families, especially in areas where sanitary latrines are not used, or where general village sanitation is poor.

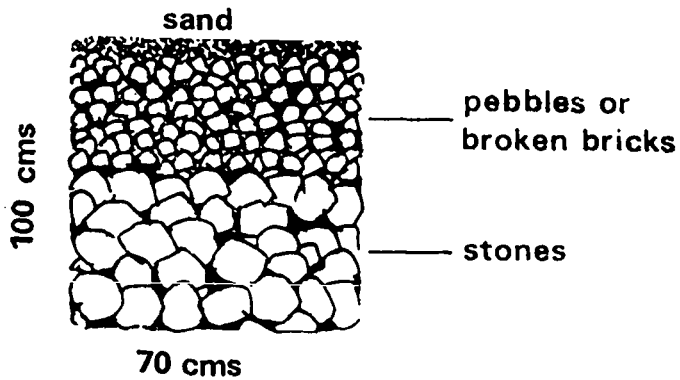
It is essential that the hand-pump site be kept free of manure and refuse so that it provides a clean and ideal example for other areas in the village.

Ask the trainees to suggest places in their villages and homes where flies seem to collect in large numbers. Some will mention sweets and uncovered food; others will suggest rubbish heaps, animal dung, and infected sores. Have a brief discussion on the examples they give. In this way, they will be able to see for themselves how flies draw them or their food into contact with dirt and disease.

Trainer's notes

NOTES

1. Report hand-pump failure promptly.
2. 50 feet around the hand-pump to be kept dry and clean.
3. How to make a soakage pit :



NOTES

Remind the trainees that the caretakers must always report defects promptly. They should regularly check and service the hand-pump once or twice a week, and as soon as they notice a problem they should inform the District Engineer by filling in and mailing the 'failure reporting card'.

The caretaker is responsible for ensuring that the villagers keep the surroundings of the hand-pump dry and clean for at least a 50 foot area around the hand-pump site. Water and dirt around the hand-pump means :

—dirty water going back into the ground and spoiling the pure ground water

—mosquitoes breed in the stagnant water and this could lead to a rise in malaria incidence.

—flies carry filth into houses and make the food unsafe, causing illness.

Having summarised the major points, tell the trainees to make a cross-section of a soak pit, as part of point number 3 on this page. Explain to the trainees that this kind of soak-pit is also well suited for taking care of household effluents. You can draw the various layers of the soak-pit (see facing page) on the blackboard, and request trainees to reproduce the same on this page of their Flipcharts, along with the two other points mentioned.

Thereafter give the trainees enough time to copy down the text of Section 3 onto their own Flipcharts, page by page.

Trainer's notes

SECTION - 4

THE CARETAKER SHOULD EXPLAIN TO THE VILLAGERS . . .

— how to properly use the hand-pump

— how water and health are related.

SECTION 4

Explain to the caretakers that this Section deals with some additional and complementary responsibilities they should undertake.

The caretaker must ensure that people operate the pump properly.

Rough or incorrect handling of the pump will cause the hand-pump to break down.

A broken-down hand-pump means no safe water supply. As a result, people will rely heavily on sources of unsafe or contaminated water, which will lead to illness and disease.

It is therefore important for the caretaker to ensure that people learn the correct methods for pumping water, in order to avoid damage to the hand-pump.

Trainer's notes

EXPLAIN . . .

how to stand directly
behind the hand-pump

Whenever an opportunity arises, the caretakers should explain to people how to use the hand-pump properly.

The easiest way to operate a hand-pump is to **stand directly behind the handle,** holding the hand-pump handle at the far end. The handle-grip of the India Mark II hand-pump is painted red. This way, the user gets the maximum benefit, because the weight of the handle counter-balances the weight of the connecting rods. When the hand-pump is operated like this, it makes pumping very easy, and should not require any undue effort.

Point out to the caretakers that people often operate the hand-pump from the middle of the handle, which makes pumping heavier.

Explain that more water will be obtained with less effort when people use the hand-pump standing in the right position.

Trainer's notes

and

to

use

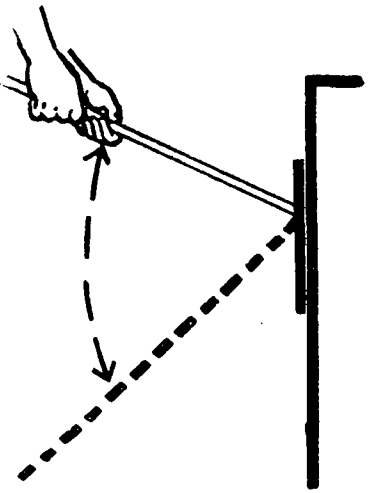
LONG

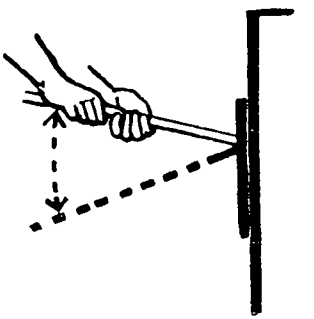
strokes

not

~~short~~

ones





The caretakers should explain to people how to get the maximum benefit of the handle movement. People should use **long** strokes and not short strokes.

A long stroke will make the cylinder piston work better. More water will be lifted and people will get more water with basically the same effort.

It should also be pointed out that people should not bang the handle against the top and bottom stops, as this will damage the hand-pump.

Use the model hand-pump to demonstrate the correct methods of hand-pump operation.

Trainer's notes

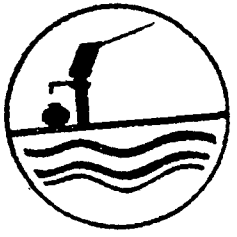
EXPLAIN
THAT
GOOD HEALTH
BEGINS
WITH
GOOD WATER . . .

Emphasise to the caretakers that they should share whatever they learn in this training programme with as many people as possible in the village, and they should use any opportunity to do so.

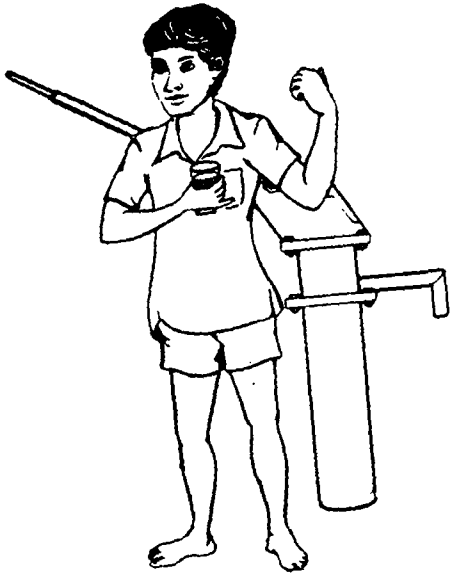
One of the most important aspects of this training is understanding the safe drinking water concept. The caretakers should explain to people that hand-pump water is good, safe water. Good health begins with good water.

Trainer's notes

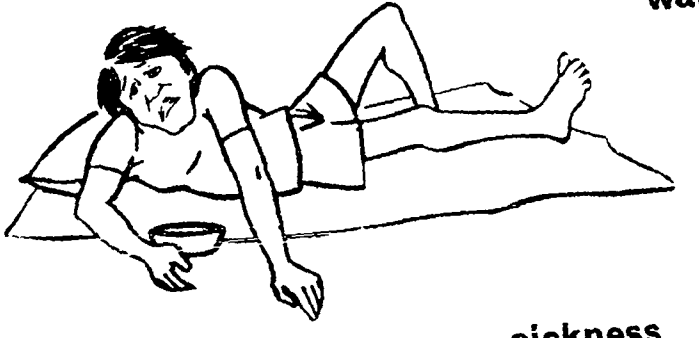
hand-pump water=



GOOD
health



unprotected
water=



sickness

Point out to the caretakers that not many people in the village realise that hand-pumps have been provided to give them a continuous supply of **safe** drinking water. Ground water is normally pure and free of all contamination.

The caretakers can explain to people that when they use only hand-pump water for drinking purposes, they will find that they are healthier. Caretakers can discuss the kinds of diseases which are caused by drinking unsafe water. They will learn about some of these diseases on page 39.

Good health relies on **safe water** and **cleanliness.** The continuous safe water source of the hand-pump provides plenty of water for everybody, not only for drinking purposes, but also for bathing, cleaning utensils, washing clothes, etc.

Getting water from the hand-pump is easier and more convenient than, for instance, walking long distances to fetch a few pots of water — or drawing water from a well with a bucket.

People should avail of this safe and continuous water supply for all household purposes. Children can be bathed more regularly, and family members can bathe more conveniently; mothers can wash clothes more often. Women can clean their cooking and other household utensils with plenty of water.

Hand-pump water is good for health, because it means germ-free water for drinking, and plenty of water for other household purposes.

Water from an unprotected source is a health hazard — it leads to infection and disease.

Trainer's notes

PROTECTED

SOURCE :

water from a hand-pump is pure and safe to drink.

Hand-pump as protected source

Ground water is pure and free from pollution. When it is supplied through a well-installed hand-pump with a good platform and drain, this is called a **protected water source.**

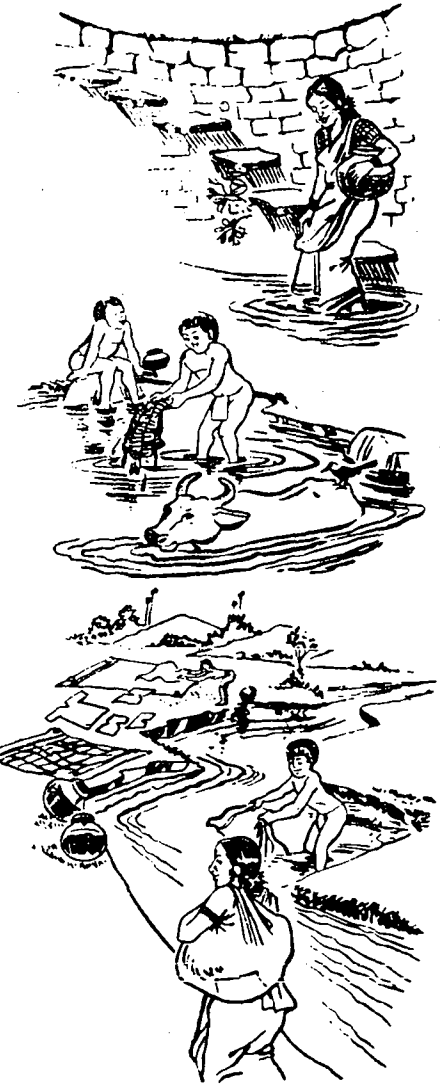
Ground water can contain some minerals which may change the taste of the water. Explain to the caretakers that the taste of ground water is sometimes different from surface water.

The caretakers should explain the benefits of safe water to families in the village, reminding them that they will soon get used to the taste of mineral water when they regularly drink water from the hand-pump.

Trainer's notes

UNPROTECTED SOURCE :

water
from
an
unprotected
source
may
make
you
sick



step well

pond

river

Surface water includes sources such as insanitary open wells, ponds and rivers.

The caretakers should explain to villagers that all surface water is almost always unsafe to drink. Germs that are carried in unsafe water can also prove harmful when such water is used for washing utensils and other purposes.

Ponds and rivers are always used for more purposes than drinking water. People wash clothes in them. Cows and buffaloes drink from these sources, and bathe in them. This contaminated water is unsafe for human consumption.

The alternative water source is the handpump, and with the caretaker's attention, it will continuously provide safe drinking water.

Trainer's notes

If people drink contaminated water they risk getting these diseases :

—diarrhoea
—dysentery
—hepatitis
—cholera
—typhoid
—worms

Read out to the trainees the list on this page, which mentions some of the more common water - borne diseases. You can add here the names of any other water-borne illness which may be prevalent in the area.

Explain that the germs of these diseases are carried in unprotected water. When people drink this unsafe water, they fall ill. A well-installed hand-pump provides pure and germ-free water, and if the hand-pump site is kept clean, this will be a protected water source.

Point out that disease and illness can also be caused by a lack of sufficient water. Skin infections like scabies, rashes, etc. are a common result of this. The hand-pump provides a continuous and plentiful source of water which, when used for drinking purposes, bathing and washing clothes, can lower the incidence of such disease.

Many of these diseases are also caused by insanitary living conditions—unhygienic disposal of excreta, poor bathing facilities, absence of soakage/manure pits, improper drainage of household effluents. An insanitary environment encourages the spread of disease. Facilities like manure and soakage pits, latrines and a safe drinking water supply are measures to control transmittance of disease.

Unprotected and unsafe water is responsible for over 50 per cent of all illness in the country. Infants and children are the most severely affected by such illness, because they do not have the strength of an adult's body to resist and fight disease. Take, for instance, diarrhoea. Many people do not think of it as a disease, because it is very common amongst children. Yet diarrhoea is a major killer; it is responsible for the largest number of deaths in the under-six age group. During a diarrhoea attack, the child cannot retain nourishment. The body loses more fluid than it can afford to, and unless this fluid loss is continuously compensated by a large intake of fluids, it leads to rapid dehydration. This imbalance in the body can result in death. Two important points the caretakers could share with mothers whose children suffer from diarrhoea are

— continue to give fluids to the child — hand-pump water or boiled and cooled water, watery foods, etc.

— make the child drink, at least six times a day, a mixture of one glass of water with a three-finger pinch of salt and a four-finger scoop of sugar.

If there is no improvement, the mother should take the child to a doctor.

Caretakers should be made to understand that the most important information they can share with their fellow villagers is their knowledge of the link between health and safe drinking water.

Trainer's notes

HOWEVER

note that the
hand-pump itself
can
also
be a source
of disease
if . . .

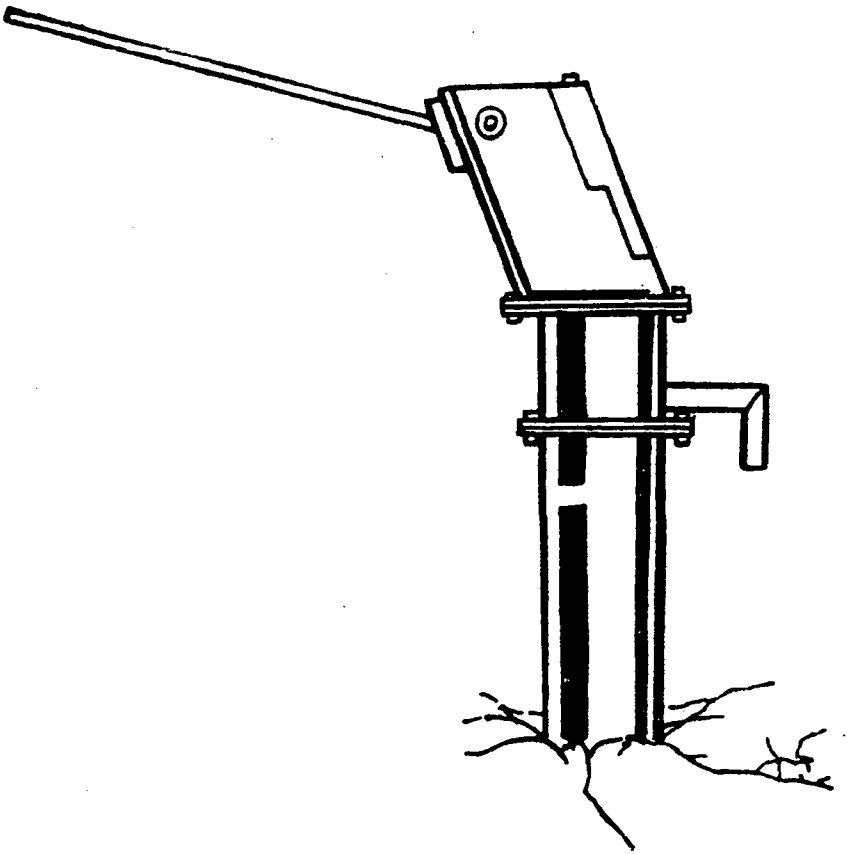
Explain to the caretakers that so far you have talked about the hand-pump as a safe and dependable drinking water source.

However, **the hand-pump can also become a source of disease when it is not properly installed**—or when the hand-pump site is not properly looked after.

Underground water can be contaminated when the following precautions are not taken.

Trainer's notes

. . . the
base is
cracked
or loose
(dirty
water
may run
back into
the well.)



Hand-pump Platform

The hand-pump platform should be firm and solid—of approximately 2 metre diameter. There should be no cracks in the platform, and there should be no gap around the base of the hand-pump pedestal.

If there are cracks in the platform, then waste water may seep back into the tube-well. People use the hand-pump water for many purposes, like bathing and washing clothes, and if this dirty waste water runs down into the tube-well it will contaminate the ground water.

Explain to the caretakers that whenever there are cracks or gaps developing in the platform, these should be cemented.

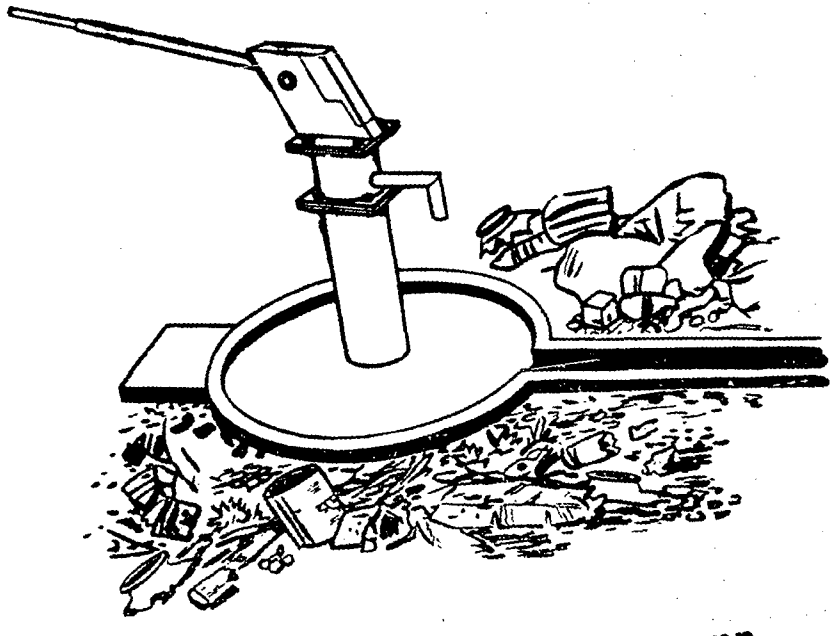
The hand-pump pedestal should sit firm in its foundation—it should not shake. Whenever there is a gap around the base of the hand-pump pedestal, it should be filled up with concrete.

Also, the waste water should be disposed off through a drain of adequate length into a garden, natural drain or soakage pit. The drain must therefore be kept in good condition.

Either the district mobile team or the block mechanic can do this job, but explain to the caretakers that this job can also be done by themselves. They can organise the village mason; organise some cement (get a small contribution from the pump users) and do these small repairs immediately. **The cement-sand-pebble mix used should always be in the proportion 1:2:4.**

Whenever such repairs are carried out, the caretakers must remember that the curing time is 7 days (unless quick-setting compound is used). During this period, the construction must be kept wet, and the caretakers must ensure that the pump is not used until the curing time is over.

Trainer's notes



If the area around a hand-pump is not clean, it can contaminate the water below.

Hand-pump surroundings

Remind the caretakers that the hand-pump surroundings should be kept clean, dry and free of refuse for a radius of at least **50 feet**. There should be no manure pits or dung heaps in the area of the hand-pump.

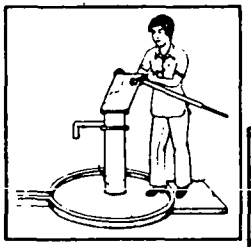
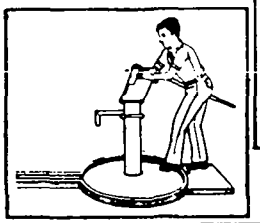
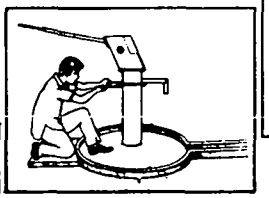
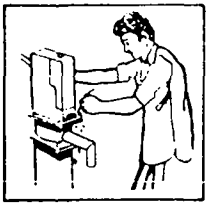
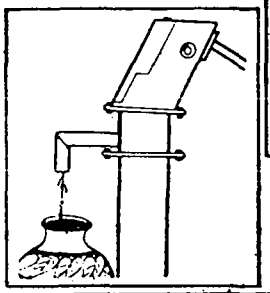
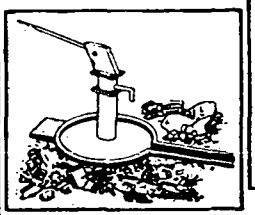
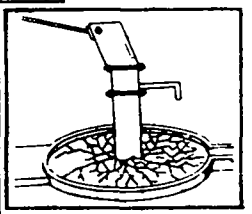
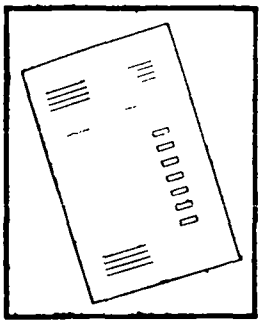
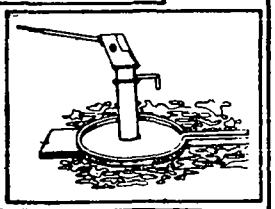
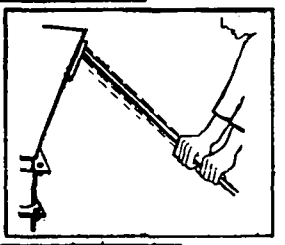
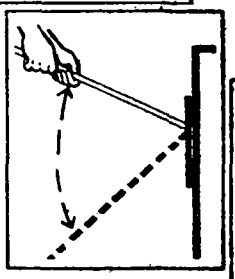
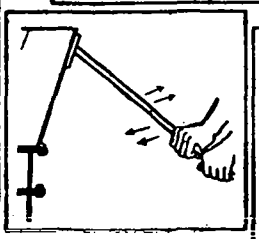
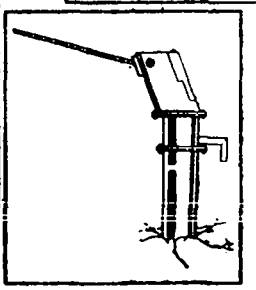
Explain to the caretakers that this whole area of 50 feet around the hand-pump should be kept clean because when rain water passes through the dirt on the surface and seeps into the ground, it can *carry germs and bacteria into the tube-well.*

Moreover, this public service utility and its surroundings should be taken care of by the beneficiaries, and the people themselves should not allow the surroundings to get dirty.

The hand-pump is provided for the community; the community should, therefore, take care of it. The families who benefit from the hand-pump must participate in keeping its surroundings clean.

Trainer's notes

Practical Session

You have now finished explaining to the caretakers the most essential aspects of hand-pump maintenance and care at the village level. A number of these aspects can be even more clearly understood when the trainees are given an opportunity for practical application of the information they have received through the Flipchart. This practical session will thus enable trainees to gain first-hand experience of servicing the hand-pump, checking for defects, correct operation of the hand-pump, and the requirements for a well-maintained hand-pump site.

The practical session should be held at a hand-pump site which is reasonably close to the training venue. If no hand-pump is installed close by, then stand the classroom demonstration pump outdoors, in an open area where there is enough space for trainees to comfortably work on the hand-pump. **The practical session should preferably be held around an installed hand-pump for trainees to get a good idea of the actual operation of the hand-pump and the requirements of a well-maintained hand-pump site.**

Before you leave the classroom, remind the trainees to carry their Flipcharts with them. Distribute a set of two spanners to each trainee. The trainees should refer to their Flipcharts at the respective stages of the practical demonstration.

Start the session with an explanation and practical application of the **technical aspects** covered during the training session :

— the India Mark II hand-pump components (trainees to refer to pages 3 and 4 of their Flipcharts)

— servicing the India Mark II hand-pump (pages 15 to 18)

— fault detection (pages 20 to 24)

— correct hand-pump operation (pages 33 and 34).

When demonstrating the steps for servicing of the hand-pump, let the trainees work on the hand-pump with their spanners. They should have a clear understanding of the location of nuts and bolts to be tightened. Some of them may never have handled spanners before, so it is important for trainees to feel familiar with the use of these spanners and the steps of this important exercise.

Similarly, when explaining the steps for fault detection, let each trainee attempt this exercise under your supervision, so that they are familiar with the methods. Refer here to the hand-pump failure reporting card and how it has to be filled in.

When you have finished working on the technical aspects of the hand-pump with the trainees, point out the requirements for a good hand-pump site. Trainees should refer to pages 26 to 30, and pages 40 to 42 of their Flipcharts. Go through each of these pages with the trainees at the demonstration site.

If waste water is not being satisfactorily disposed off at the demonstration hand-pump site, arrange to build a soak pit during this practical session. Page 29 of this Trainer's Guide gives details on the construction of the soak pit. Make advance arrangements if necessary for a 100 cms. x 70 cms. pit to be dug, and for the materials you will require. Trainees can then fill up this pit with layers of stones, pebbles or broken bricks and sand in accordance with the diagram they have drawn on page 31 of their Flipcharts.

Have a short break after this session, before returning to the classroom to continue with Section 5 of the Flipchart.

SECTION - 5

HOW WATER IS COLLECTED AND STORED IS ALSO IMPORTANT !

SECTION - 5

The caretakers must explain to the villagers that—as important as it is to drink only hand-pump water—it is equally important to store that water cleanly and safely within the home. If water is not stored properly, it can also become contaminated and unsafe to drink.

Trainer's notes

explain
to families

that
they
should
wash
the
insides

of vessels
before filling them
with clean water.

Safe drinking water means **clean water** in a **clean vessel.**

Whenever a vessel is to be filled with water at the hand-pump, it should first be cleaned very thoroughly—**especially on the inside.**

Trainer's notes

At home they should keep water containers covered.

At home, water-filled containers should always be kept covered. This is to protect the water from insects, dust and dirt, all of which could pollute the safe water that has been stored.

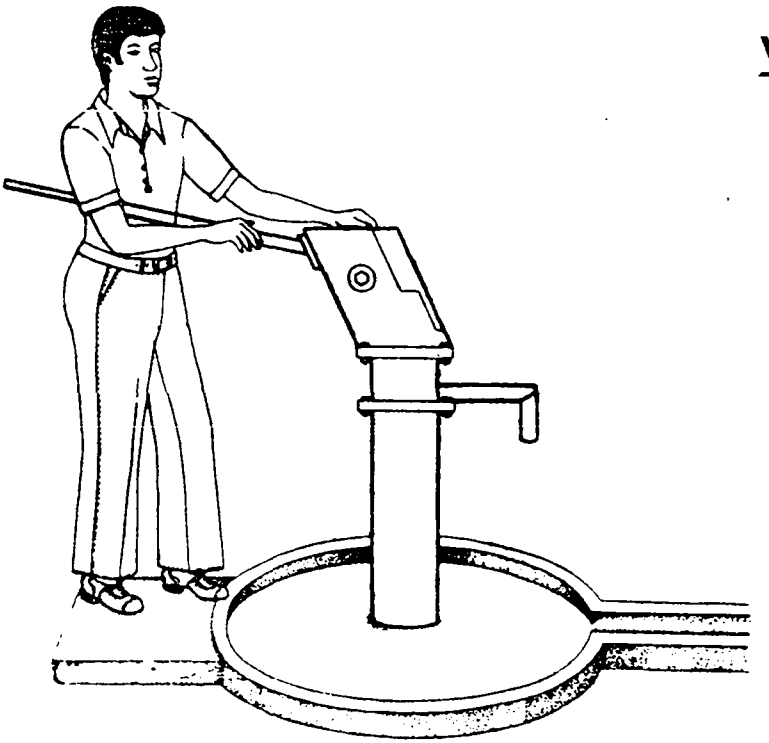
As part of their duties, the caretakers should make a point of explaining to every family the necessity for

- using hand-pump water
- storing hand-pump water correctly and hygienically in the home.

Trainer's notes

THE CARETAKER is a

V. I. P.



By doing their duties, the caretakers provide their people with a

safe, clean, continuous drinking water supply

Caretakers are very important persons in the maintenance system. If they conscientiously and regularly perform their duties and responsibilities, they significantly contribute towards providing people with a continuous source of safe, clean drinking water.

Caretakers can use their Flipcharts as a means to share with their communities what they have learnt of the benefits of safe drinking water versus the ill-effects of unsafe water. All that is required of them is

—alertness

—a little time

—an interest in the welfare of the community.

By ensuring that the hand-pump is kept in good working order, and helping families to learn about safe water, the caretakers can do a great deal for the benefit of the community.

The hand-pump is an asset for the village. People will appreciate the caretaker for looking after this asset.

Trainer's notes

SAMPLE OF HAND-PUMP LOG SHEET

VILLAGE .....
PANCHAYAT .....
BLOCK .....
DISTRICT.....

PUMP No:
DEPTH OF BORE:
WATER LEVEL.
DATE OF INSTALLATION.
YIELD:

	DETAILS OF REPAIRS	DATE OF REPAIR	DATE OF INTI-MATI-ON	NAME OF MECHANIC	REPAIR ATTEN-DED DATE	DETAILS OF REPAIRS ATTENDED	DETAILS OF SPARES USED	REMARKS

It is important for caretakers to maintain a record of the village hand-pump. They must keep the hand-pump repair log sheet up-to-date, and make sure that details of all repairs undertaken are mentioned on the log sheet.

Caretakers should fill in the details of the village, panchayat, block and district where the hand-pump is installed.

The **technical details** of the hand-pump, its installation and the depth and yield of the borewell **must be provided by the District Engineer, and the caretaker must ensure that these are filled in.**

Subsequently, any repairs that are carried out on the hand-pump by either the mobile maintenance team or the block mechanic should be detailed by them in the columns indicated on the log sheet, and signed.

The 'Remarks' column should be used for comments pertaining to the hand-pump. It can also be used by visitors to the village who are interested in the hand-pump. Along with their comments, they can indicate their name and date of visit.

The caretaker has to keep the log sheet up-to-date since block or district officials may need to see it when they visit the village to assess the condition of the hand-pump.

Trainer's notes

NOTES

1. The hand-pump site should always be in good condition.
2. Drinking water should be stored in clean and covered vessels.

NOTES

Summarise Sections 4 and 5, and remind the trainees of the need to keep the hand-pump site in good condition. The hand-pump provides a protected water source; the caretaker must protect its mechanism, installation and surroundings.

A safe water source alone is not enough; for hand-pump water to stay pure and germ-free when it is stored in homes, storage vessels must always be thoroughly cleaned from the insides, and kept covered once they are filled.

You have now come to the end of Section 5. Display the pages of Section 5 for the trainees to copy down the text in their own Flipcharts.

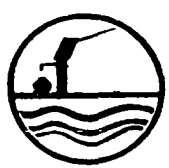
Encourage the trainees to ask questions on the facts that you have recently provided them with. Based on their questions, they may jot down additional points on this page. You could also note on the black-board the ingredients and measures for the rehydration solution mentioned on page 39 of this Trainer's Guide. Trainees can copy this down from the blackboard.

It is important to clarify any questions that the trainees may raise at this stage, because you will soon be requesting them to answer the questionnaire on the next page. **The questionnaire should not be given to the trainees until you are satisfied that they are clear on the information you have provided them through the Flipchart.**

Trainer's notes

Questionnaire

1. List 5 duties of the caretaker.
2. How can you help to prevent hand-pump failure ?
3. What should a hand-pump site look like ?
4. How will you use this note-book ?



Questionnaire

Having completed all the Sections of the Flipchart, display this 'questionnaire' page, on which you have translated and written out the four-point questionnaire. The answers to this questionnaire will help you to assess how well the trainees have understood the information contained in the Flipchart.

The trainees can copy out these questions onto page 49 of their own Flipcharts, and can use the remainder of page 49 as well as page 50 for their answers.

Before trainees begin to fill in their answers, please explain that

(a) this is an individual exercise, and they should not consult with each other when writing out their answers;

(b) all answers should be complete, but very brief—preferably point-wise.

After all the trainees have finished writing down their answers, ask trainees at random to read out their answers. You can also check a few answers by reading through them. Whichever method you use, you must satisfy yourself that you have checked all the answers submitted by the trainees, in order to gauge how much information they have been able to absorb.

The answers to the questionnaire should be on the following lines :

Question 1 :

Trainees' answers should cover the following points :

—explain and demonstrate correct method of hand-pump operation to users of the pump

—service the hand-pump once a week

—keep the hand-pump site dry and clean

—channel excess water into a garden or soak pit

—report all hand-pump breakdowns promptly.

The most important aspect of the caretaker's duties is the prompt reporting of hand-pump breakdown, and every trainee's answer should include this point.

Trainer's notes

Question 2 :

There may be some degree of overlap with Question 1 in this answer, but it is important to judge whether caretakers have clearly understood how to care for the hand-pump mechanism.

Caretakers could either write

—service the hand-pump once a week

or

—tighten all nuts and bolts

—clean out trash from the top-head

—put oil or grease on the chain

—check if the hand-pump is firm in its base

and

—look out for no flow, weak flow or delayed flow; pumping difficult or handle shaky; hand-pump loose in its foundation.

—report all defects promptly by mailing the failure reporting card.

The trainees' answers should include a number of fault-prevention and fault-finding methods. Again, the most important duty of the caretaker is to report all actual or anticipated defects by promptly mailing the failure reporting card.

Question 3 :

Trainees' answers to Question 3 should include 2 basic points :

—site to be dry and clean for a radius of at least 50 feet; and

—no gaps or cracks in the hand-pump platform or drain.

When you are discussing these answers with the trainees, remind them of the various means they can employ to keep **the hand-pump site dry and clean** :

* keeping drain in good order
* drain should lead to garden or soakage pit
* telling people not to throw excess water off the platform
* telling people not to litter the surroundings
* putting pebbles and gravel over a layer of sand around the platform.

Gaps or cracks in the hand-pump

Trainer's notes

platform or drain

* should be immediately notified to the District Engineer who will arrange for repair

or

* could be repaired by caretakers arranging for the village mason for the re-concreting work.

Question 4 :

On a number of occasions you have mentioned to the trainees several points that they should explain to the villagers :

* the safe drinking water concept
* correct methods of operating the hand-pump
* ways to protect the safe water source (care of hand-pump site and surroundings)
* hygienic ways to collect and store water.

The reason for asking trainees this question, therefore, is to check whether they have understood the purpose of filling in their own Flipcharts. By doing so, they have made their own manual which they can refer to when they return to their villages; and, more importantly, they can use this as a teaching aid to share what they have learnt with their fellow villagers. Their answers to this question should, therefore, ideally be on the following lines :

—as a guide to do the caretaker's job properly

—to show to family, neighbours, friends, etc., to let them know what the caretaker is expected to do.

The trainees' answers to this question will therefore help you to assess how well trainees have been able to understand the potential uses of their Flipcharts. **On the following pages you will find practical suggestions for follow-up activities that the caretakers can organise in their villages.** The practical suggestions will help trainees to share what they have learnt with a large number of people, and especially with children.

Trainer's notes

Practical Suggestions for follow-up activities

After you have finished with the Section-wise explanation of the Flipchart and have discussed the answers to the questionnaire, point out to the trainees that — by copying down the text onto their own Flipcharts — they have now made their own manuals to take back with them. They should use these as a teaching aid in their villages.

The Trainee Flipcharts contain all the information that they have learned during the training session. They will be able to refer to them as often as required. But more importantly, they will be able to help their fellow-villagers to also learn about the hand-pump. They must share their information with their parents, wives/husbands, children, neighbours and other people in the village. They could even explain the contents of their Flipcharts to members of Mahila Mandals, Yuvak Kendras, and local community and health workers, etc.

Taking care of the hand-pump also means that the caretakers have to explain to people the importance of safe drinking water, operating the hand-pump properly, and keeping its surroundings clean.

Emphasise that the caretakers are the only persons in the village who know of the benefits that the village hand-pump can provide. Through this Flipchart, the trainees have learnt of the ill-effects of unprotected water, the relationship between safe water and health, and the means to ensure a continuous supply of safe water to the village. They have been taught how to service the hand-pump, and how to operate it properly.

Trainer's notes

In effect, they have learnt a lot during this training session. Before they were provided all this information through the Flipchart, they knew very little about the hand-pump. So in the same way that they have learnt through the Flipchart, they can help their families and neighbours learn about safe water and the hand-pump by sharing their own copy of the Flipchart with small groups of people, whenever the occasion arises.

The Trainee Flipcharts can be made to stand on a flat surface. Demonstrate to the trainees that the front and back covers serve as supports for the Flipchart to stand. The caretakers can then turn the pages one by one, and explain the pictures and text in the same way as you have during the training session.

When explaining the benefits of safe water, and the means to care for the hand-pump, the caretakers should focus especially on children. **Children are the future users of the hand-pump;** in many houses, they are already responsible for fetching water when it is needed. Children are always eager to learn new things, and they will sometimes be even more open to information than older people are.

Teach the caretakers the following practical example of how the safe water concept can be explained to children.

The caretaker can arrange, with the primary or secondary school teacher, to organise a simple and interesting exercise to

Trainer's notes

teach the school children about safe and unsafe water sources.

The children should be divided into three or four groups of 10 children each. Then each group should be asked to draw out a plan of the village, in which each child will mark his or her house, as well as other interesting landmarks. The teacher can make an outline of the village lanes on the floor of the school compound or the school courtyard, and the children can fill in the details. They can use pebbles, straw, or small piles of gravel or sand to mark these.

Having made this basic map, the children should indicate the location of **all existing water sources in the village.**

The caretakers should encourage competition amongst the groups for the neatest plan. When the various groups have completed the plans, the caretakers should discuss the water sources marked on these plans with the children.

The caretakers should indicate the sources which provide **safe drinking water,** and those which are **unsafe water sources.** To make the difference clear between safe and unsafe water sources, they should be distinctly marked. For instance, **safe water sources** could have a green object placed on them—leaves, grass, or twigs with green paper or pieces of paper saying 'safe drinking water' stuck on them. They could also place a water vessel on the sources marked for safe water. **Unsafe water sources** could be represented by the colour brown, red or black. Dry twigs, pieces of brick, small piles of ash, etc. could be used for this purpose.

The relevant pages from the Flipchart (pages 37 and 38) can be displayed to illustrate these sources, and the caretakers should explain the reasons which make a water source safe or unsafe.

The caretakers can also share pages 32 to 45 of the Flipchart with the children.

Trainer's notes

These pages deal with the correct operation of the hand-pump, the relationship between safe water and health, and hygienic ways to collect and store water.

The caretakers can explain to the children why the hand-pump is in the village; how it is a source of **safe drinking water**; and that it needs care and correct handling. The children should understand the importance of the hand-pump—it is not a toy, it is an important amenity.

To help the caretakers fully understand how this exercise is to be carried out in the village, you can arrange a similar exercise for the trainees to participate in. Divide the trainees into three or four groups, and ask them to make a plan of the area where the training programme is being held.

Ask them to not only indicate the location of water sources, but also to classify them as safe or unsafe. Encourage each group to compete with the other in preparing the most accurate map.

After each group has finished laying out their map, discuss the water sources that the trainees have marked and classified as safe or unsafe. Make corrections, if necessary, in the classification of these water sources.

This demonstrational exercise will also help you to judge whether or not the caretakers have satisfactorily understood the difference between safe and unsafe water sources.

After you have helped the trainees to understand the scope and nature of the follow-up activities they can organise when they return to their villages, arrange a short closing session.

During this session, you can remind trainees of the important role they play in providing a safe, clean and continuous water supply to villages.

Trainer's notes

Now that they have successfully completed the caretaker training programme, you can distribute the following kit to each trainee :

— 3 hand-pump failure reporting cards
— 2 hand-pump repair log sheets
— 1 safe drinking water poster, for display in the village
— the Caretaker Cerificate, with the caretaker's name filled in.

These, together with the set of spanners you have already distributed, and the Trainee Flipcharts which they have filled in, complete the kit for the hand-pump caretaker.

Trainer's notes