

Training Module

Operation & Maintenance of Water & Sanitation Infrastructure

Sanitation, Hygiene Education and Water Supply in Bangladesh
(GoB-Unicef) Project - Urban Component





Training Module On Operation & Maintenance of Water & Sanitation Infrastructure

Users of the Modules:

Field level CHP/Working Groups/Facilitators of the
local institutions of the Municipality

ToT Module on Operation & Maintenance of Water & Sanitation Infrastructure (3 days)

Sanitation, Hygiene Education and Water Supply in Bangladesh
(GoB-Unicef) Project - Urban Component

Module developed by
Practical Action, Bangladesh

Technical Assistance Provided by
Department of Public Health Engineering &
UNICEF Bangladesh, WASH Team

December 2011

Contents:

Details	Page
Foreword	
Introduction	
Instruction for the Facilitator	
Suggestions for the Module users	
Purpose of the Module	
Purpose of the Training	
Topics of the Training	
Training Schedule	
Session 1: Inauguration of the Training	
Session 2: Sustainable Development and Public Participation	
Session 3: User Group and Operation & Maintenance Committee formation and its duty & responsibility	
Session 4: Operation, Usage & Maintenance of Safe Water Supply Infrastructure (Theory)	
Session 5: Operation, Usage & Maintenance of Sanitation Infrastructure (Theory)	
Session 6: Monitoring Process of Water & Sanitation Infrastructure	
Session 7: Conducting of Caretaker Training for the operation and maintenance of the Water & Sanitation Infrastructure- Planning Session	
Session 8: Field Visit- Practical	
Session 9: Conducting of Caretaker Training for the operation and maintenance of the Water & Sanitation Infrastructure- Demy Session	
Session 9: Closing Session	

Foreword

One third of total population lives under poverty line in Bangladesh. The poor community especially children & women are suffering from disease, discomfort and mal-nutrition. The number of population deprived from health service is increasing. The people are migrating to town from village for their livelihoods. The population pressure in the town has been increasing alarmingly during the last few decades. The people in slums and low income areas are increasing day by day due to population growth and lack of employment opportunities and settlement in the towns.. The poor people living in the slums or low income areas are suffering from various diseases due to lack of safe water supply and sanitation system and clean environment..

With the financial support of UK Aid and cooperation of UNICEF, Department of Public Health Engineering (DPHE) has been implementing Sanitation, Hygiene Education and Water Supply (GoB-UNICEF) project in Bangladesh since 2007 to develop the sanitation and water supply system for the poor communities living in the slums /low income settlements.

, The plan has been taken to deliver water supply & sanitation facilities and to provide individual health care and hygiene practices through behavioral changes of more than one million people living in the municipalities within the project areas by the year 2011. . The main objective of the project is to develop the safe water supply and sanitation system in the area where the people are suffering from the scarcity of drinking water and sanitation system. The demand of children and women has been given priority in this project. There are 18 municipalities of Bangladesh in three categories (A, B & C) under this project. According to the project planning, the field activities have been started in 18 Municipalities through 18 NGOs.. For facilitating the project implementation, there is a need to give a detailed idea to the workers recruited by the NGOs about the project objective, implementation procedure, and guidelines etc. so that the workers can help the community people for preparing Community Action Plan from the very beginning of the project. Under the project , along with the Hygiene Promotion and Community Mobilization the infrastructure of safe water supply and sanitation has to be installed . For ensuring the proper operation, usage and maintenance of the infrastructure, this is very important to conduct training at the Municipality level for the local institutions for delivering clear concept and increasing efficiency of the community workers. So it would be possible to operate, use and maintain the infrastructure properly in the project area by providing training to the caretaker.

Practical Action Bangladesh has been given the responsibility to do demand assessment, module preparation and trainingconduction. . We are very happy that the works has been started and going on. Deputy Project Director of DPHE, Urban Development Specialist of UNICEF and WES Officer has cooperated by providing their valuable suggestions. For this we would like to extend r our special gratitude to them. We are also thankful to the members of Module Preparing Team of Practical Action who have given the final shape of the module by their restless labor. Finally we are hopeful that, the module will play a vital role to implement the activities in the field level and then only our job would be successful.

Introduction

Bangladesh is a developing country. It has 1,47,570 square kilometer area and about 16 crore population. Bangladesh is one of the most populated countries in the world. One-third of total population lives under poverty line in Bangladesh. The govt. allocation is beyond the capacity of the total population. The people are migrating to the urban areas from the villages for getting alternative job. The population pressure in the towns has been increasing alarmingly during the last few decades. The people in slums and low income areas are increasing day by day due to unemployment and lack of settlement caused by population growth. People are moving from one place to another for their employment. The civic facilities in the slums and low income areas are inadequate and somewhere the facility is totally absent. So the people of that area are living in unhealthy environment with major health risks. The poor people of the slums or low income areas are suffering from various diseases due to lack of safe water supply, sanitation system and unhygienic environment. The child death rate is increasing due to diarrheal and other malnutritional diseases.

With the financial support of UK Aid and cooperation of UNICEF, Department of Public Health Engineering (DPHE) has been implementing Sanitation, Hygiene Education and Water Supply (GoB-UNICEF) project in Bangladesh since 2007 to develop sanitation and water supply facility for the poor community and slum dwellers.

Under this project, the plan to deliver the facility of water & sanitation service, development of individual health care and hygiene practice for more than one million people living in the municipalities within the project area by 2011 has been targeted. The main objective of the project is to develop the safe water supply and sanitation system in the area where the people are suffering from the scarcity of drinking water and sanitation system. The demand of children and women has been getting priority in this project.

In this connection, the field activities have been started in 18 Municipalities through 18 NGOs, where the Municipalities have to play a leading role. According to the project design or philosophy of the project, the planning has been done in this way that Local Govt. Institutions or Municipality can play major role in implementing the project. As the Municipality is recognized as driver of the project implementation, the project is also considered as development project of the particular Municipality. The ownership will be created by involving the Municipality in implementation of the project and sustaining the activities. It is very much needed to conduct training for the Sub- Asst. Engineer/Water Superintendent/, Work Assistant and Sub- Asst. Engineer of DPHE, mechanics and field level staffs of the Associated Organizations for implementing, operating & maintaining the Water Supply and Sanitation System of the project. Thus the workers of the Municipalities would be able to extend their cooperation in every phase of the implementation schedule, we hope.

Instruction for the facilitator:**The main issues that facilitator should keep in mind:**

The success or failure of training depends on the efficiency of the facilitator to facilitate. A facilitator can make the learning environment more pleasant, attractive and spontaneous by both of his efficiency & technique of facilitation. Facilitation means the situation which can help to make the learning environment more participatory, modest, open and spontaneous. The facilitator believes the theme “Man can do”. The main responsibility of a facilitator is to explore the belief by facilitating properly. The main job of the facilitator is to deliver the need based facilitation for moving forward the project. Then the success or failure of the training would go on the participants shoulder. Facilitator never owns the credit alone. He has to establish the theme “we have done”. So for creating a learning environment, the facilitator will have to give attention to the following points.

Training Venue or Spot selection:

The training room or training spot plays an important role to make the training successful, spontaneous, creative and vivid. This issue is considered seriously for the participatory training process. So for selecting training venue, we should have looked into the following issues:

- The seating design of the participants should be 'U' shape, half-circled or round so that the facilitator and the participants can discuss face to face.
- Training room should have the required space for two teams to have a discussion
- Training venue should be silent so that vehicular sound or external noise cannot reach.
- Wash room/toilet must be at a close distance from the training room & sanitation materials (soap, safe water etc) should be available there
- Drinking water should be available in the training room
- The training room should have proper ventilation
- Field for practical works should be situated by the side of the training venue

Make Friendly Environment:

The facilitator should be very open-minded so that all participants can enjoy a friendly environment. To make the training environment lively, the facilitator should adopt some techniques.

- Maintaining a easy, friendly and nice relationship with the participants
- Playing game, throwing jokes or singing could be arranged if the participants feel bore
- The introducing session among the participants should be very pleasant so that they can enjoy the friendly environment. As sooner as the participants come closer, so quickly the lively environment will be created.
- The presentation of the facilitator should be based on the experience which can facilitate to create a learning environment.
- The facilitator should keep him/her away from partiality so that the participants cannot be misguided
- Long time discussion on the same topic makes the participants bore, so facilitator should bring a variation in his presentation for removing boringness
- Participatory approach should be used more comparatively
- Opportunity has to be created for the participants to limit the discussion on topic.

Review & Evaluation:

Review & Evaluation is a very important part of the training. Assessment of exchanging views is ensured properly through review & evaluation. It is needed to look into the matter carefully so that the participants will not find the method as controlling strategy. The method and process which are used for evaluation should be attractive and based on interesting game so that it can pull the participants into interactive mood. If the evaluation is done in a more interactive way, it would be more acceptable to both sides. And thus it would be very easy to achieve the purpose of the training.

Facilitator's way of delivering speech:

Way of delivering speech by the facilitator influences the participants to participate and to keep the quality of training uptrend. So the facilitator should be aware of his pronunciation, use of language and body motion:

- The vocal-tone of the facilitator should be up-down on the basis of room's size and quantity of participants. But the vocal up-down should be within tolerable limit
- Body language (movement of body) should be in line with the vocal language. So it is needed to do it carefully so that it would not be irritating or over exaggerated.
- The facilitator has to instruct in a very easy & simple way so that the participants can understand easily and give feedback.
- The facilitator will ask for comments from the participants instead of delivering long lecture.

Ensuring the Participation of the Participants:

There is no alternative except active participation of all to explore the hidden intelligence of the participants. When the participation of all participants is ensured, the inner thinking of all will be clearly reflected. For bringing out the positive approach, knowledge and efficiency of the participants, the following steps would be maintained-

- More participatory method to be used in the training session
- During the time of asking question, the participants are given some time for thinking so that the answer could be more rational
- The participants who speak a little bit will be inspired to speak more in the session
- The quality or rationality of the answer from the participants should be minor part so that they will be inspired to give answer more in future
- Experience related topic should be focused more. To make them understand, different examples to be shared so that they can keep the incident in mind
- The wish and initiative of the participants would have to be accepted.
- No need to be concentrated on correct answer only, it will discourage them for giving answer.
- The experience oriented issues has to be given importance in discussion. More examples as well as hands on training have to be given for their complete understanding.

Proper utilization of time:

The facilitator has to be flexible as well as be careful in time management to smoothly run the participatory discussion. Some variations in time allocation may be considered but taking too much time is discouraged. Need not to be much hurry as well during presentation. Sometimes the facilitator team can discuss among them and follow the opinions of the participants, however the time frame would be readjusted based on the topic and method of discussion.

Special Note:

Facilitation module works as a directive in participatory facilitation process. There is no bindings that the facilitator has to follow the method & process written in the module. The training method may be changed on the basis of social perspective and training environment, however actual initiative depends on real situation. The facilitator never be flexible. Self judgment has to be applied for arranging a training.

Necessary Materials for Arranging Training:

Banner preparation
Paper file/folder, note book & pen for the participants
Attendance sheet for the participants
Training Evaluation form
Brown paper, poster paper, flipchart, VIPP card, A4 size white paper etc
Artline marker, white board marker, sketch pen etc
Scissor, Knife, board pin, scotch tape, GluStick, stapler with pin, punch machine etc
OSP, OSP sheet, pen, camera, laptop, multi media etc
Module or hand out, case study, story script, format etc.
Flash card, poster, audio visual, different documentary, photographs
Different tools of water & sanitation infrastructure

Note: Training venue, Food and overall management for the guests and participants should be fully prepared before arranging training course.

Rules to be followed in Training Room

- Time Management
- Control internal conversation
- Confidence in the Process
- Keep Silent of the Mobile Phone
- Participation
- Entertainment
- Inter personal respect, Experience Sharing and learning
- Relevant Discussion

Suggestions for the Module Users:

- The module is designed/divided into 5 chapters. Module users should have clear idea about every chapter .
- At the beginning of the module, the idea/concept about the chapter is described but the facilitator can apply his/her own style.
- The module user will deliver the details of the chapter in easy language with giving example from real experience and avoid irrelevant stories.
- The facilitator or presenter will share the topic with user group and committee which is written in the module
- The module user will prepare the relevant materials such as poster paper, photograph etc beforehand of the training
- Situation has to be created so that all participants can join or participate in the discussion
- The module user/presenter should be confident, friendly and joyful

- For using the module to discuss about the operation and maintenance for water supply and sanitation infrastructure, the facilitator will have to follow the training instruction and caretaker training module developed by DPHE

Purpose of the Module:

- To get instruction for proper operation and maintenance of water & sanitation infrastructure
- The community workers in the field level can use the module for caretaker training of operation & maintenance of the infrastructure of the water & sanitation
- The workers related to public health activities can use this module for caretaker training
- The beneficiaries related to sustainable development of water supply & sanitation system, caretaker, staff of the govt. & non-govt. organizations can use the module as an instruction book especially for operation & maintenance of water supply & sanitation infrastructure.

Training of Trainer (ToT) Module on Operation, Usage & Maintenance of WatSan Infrastructure

Applicable for whom: Municipality facilitator of field level Implementing Organization , Community Hygiene Promoter (CHP), Sub- Assistant Engineer of Municipality & DPHE.

Duration of Training: Three (3) days

General Purpose of the Training:

After completing the training, the participants will get the clear idea on Operation, use & Maintenance of Water & Sanitation Infrastructure implemented under Sanitation, Hygiene Education and Safe Water Supply project (Urban Component: GoB-UNICEF) and will be able to implement such kind of activities in the field level.

Specific Purpose of the Training:

After completing the Training, the participants will-

- Get clear idea/ concept & explain about the Development & Sustainable Development
- Get clear idea/ concept & explain the necessity & importance of Public Participation for sustainability of the infrastructure of WatSan
- Get clear idea/concept & explain the team formation process, WatSan Infrastructure committee formation, duty & responsibility and conducting meeting
- Get clear idea/concept & explain about the financial documentation (Income & Expenditure) for operating infrastructure
- Get clear idea/concept & explain about Safe Water Supply, Sanitation Infrastructure
- Get clear idea/concept & explain about operation, Usage and Maintenance Process of safe Water Supply & Sanitation Infrastructure
- Get clear idea/concept & explain about Monitoring & Participatory Monitoring Process
- Get clear idea/concept about WatSan Monitoring Process and be able to implement in the field level
- Achieve efficiency for arranging caretaker training using the training module of DPHE who will be responsible for operating and maintaining the infrastructure in the project area

Main Topics of Training:	
1	<p>Sustainable Development & Public Participation</p> <p>1.1 What is Development? Concept of Sustainable Development</p> <p>1.2 The necessity of Public Participation in Sustainable Development</p> <p>1.3 The necessity of Public Participation for the sustain ability of WatSan Infrastructure</p> <p>1.4 Concept & necessity of team /committee formation to ensuring active participation</p>
2	<p>User Group and Operation & Maintenance Committee formation and its Roles - responsibility</p> <p>2.1 User Group formation Process (Characteristics of the Member & Selection Process for inclusion)</p> <p>2.2 WatSan Infrastructure operation and maintenance committee formation process</p> <p>2.3 The activities of operation & maintenance committee for implementing SHEWA-B project</p> <p>2.4 The roles & responsibilities of general member and Operation & Maintenance Executive Committee</p> <p>2.5 Income and Expenditure statement for O&M infrastructure</p>
3	<p>Safe Water & Sanitation Infrastructure- Usage & Maintenance Process (theory)</p> <p>3.1 What is Safe Water and different types of safe water technologies</p> <p>3.2 Operation, usage and maintenance of different types water technologies (for normal situation)</p> <p>3.3 Operation, usage and maintenance of safe water infrastructure during disaster and after disaster</p> <p>3.4 What is Sanitary Latrine and different types of sanitary latrine</p> <p>3.5 Operation, usage and maintenance of different types sanitary latrine (for normal situation)</p> <p>3.6 Operation, usage and maintenance of drainage system (for normal situation)</p> <p>3.7 Operation, usage and maintenance of sanitation infrastructure during & after disaster period</p>
4	<p>Facilitation techniques training on O&M of WATSAN facilities for care takers</p> <p>4.1 Presentation & techniques of O&M of watsan facilities developed by DPHE</p> <p>4.2 Process to use of O&M manual & developed DPHE</p>
5	<p>Field Visit- WatSan Infrastructure Operation & Maintenance Process (Practical)</p> <p>5.1 Operation, Usage and Maintenance of different Safe Water Technologies</p> <p>5.2 Operation, Usage and Maintenance of different Sanitation Infrastructure</p>
6	<p>WatSan Infrastructure Monitoring process.</p> <p>6.1 What is Monitoring and Participatory Monitoring</p> <p>6.2 WatSan Monitoring process in the field level</p>

Training Schedule

Training of Trainers (ToT) on Operation & Maintenance of WatSan Infrastructure

Time: 3 (three) days

Venue: Municipality Level

Participants: Pourashova (Municipality) Facilitator (PF) & Community Hygiene Promoter (CHP)

Supported by: Practical Action Bangladesh

Time & Chapter	Session No. & Title	Topic
1st Day		
09:00 10:30	1. Inauguration, Introducing, Expectation and purpose of the Training	<ul style="list-style-type: none"> ● Inauguration and introducing ● Expectation ● Purpose & Topic discussion
10:30-11:00	Tea Break	
11:00 12:00 Chapter-1	2. Sustainable Development & Public Participation	<ul style="list-style-type: none"> ● What is Development? Concept of Sustainable Development ● The necessity of Public Participation in Sustainable Development ● The necessity of Public Participation for the sustainability of WatSan Infrastructure ● Concept & necessity for ensuring active participation
12:00 02:00 Chapter-1	3. User Group and Operation & Maintenance Committee formation and roles -responsibility	<ul style="list-style-type: none"> ● Group formation Process (Types of Member & Selection Process of inclusion) ● WatSan Infrastructure operation & maintenance committee formation process ● The activities of operation & maintenance committee for implementing SHEWA-B project ● The roles & responsibility of general member and Operation & Maintenance Executive Committee ● Income and Expenditure statement for operating infrastructure
2:00-2:30	Launch Break	

Time & Chapter	Session No. & Title	Topic
02:00 03:30 Chapter-2	4. Safe Water & Sanitation Infrastructure operation, Usage & Maintenance Process (theory)	<ul style="list-style-type: none"> • What is Safe Water and different types of safe water technologies • Operation, usage and maintenance of different types water technologies (for normal situation)
03:30-04:00	Tea Break	
04:00 05:00 Chapter-2	4. Session Continuing...	<ul style="list-style-type: none"> • Operation , Usage & Maintenance of Safe Water Supply Infrastructure during and after disaster period



Time & Chapter	Session No. & Title	Topic
2nd day		
09:00 10:00	Review on previous day's discussion	<ul style="list-style-type: none"> • Inauguration and introducing • Expectation • Purpose & Topic discussion
10:00 11:00	4. Session Continuing	Operation, usage & maintenance of safe water supply facilities during & after disaster
11:00-11:30 Tea Break		
11:30 01:00 Chapter -2	5. Operation, Usage and Maintenance of Sanitation Infrastructure (Theory)	<ul style="list-style-type: none"> • What is Sanitation System • Sanitary Latrine • Different types of sanitary latrine • Operation, Usage and Maintenance of Sanitation of different types of sanitary latrine • Operation, Usage and Maintenance of Drainage system
1:00-2:00 Lunch Break		
2:00 3:30 Chapter -3	Caretaker Training on WatSan Infrastructure Operation & Maintenance	<ul style="list-style-type: none"> • Operation, Usage and Maintenance of Sanitation Infrastructure during and after disaster period
3:30-4:00 Tea Break		
4:00 5:00 Chapter -3	6. Session continuing	<ul style="list-style-type: none"> • Presentation of facilitation techniques of training manual on O&M of WATSAN facilities for caretakers developed by DPHE. • Practice of O&M training facilitation following manual developed by DPHE.

Time & Chapter	Session No. & Title	Topic
3rd day		
09:30 10:00	Review of previous day's session & field visit preparation.	
10:00 01:00 Chapter-4	7. Field Visit- Practical	Operation, Usage and Maintenance of different sanitation technologies Operation, Usage and Maintenance of drainage system
1:00-2:00	Lunch Break	
2:00 3:30 Chapter -5	8. Monitoring process of O&M of Watsan facilities	1. What is monitoring ? 2. What is participatory monitoring ? 3. Techniques of monitoring ?
3:30-4:00	Tea Break	
4:00 5:00	10. Closing session of the Training	Evaluation of training course Session closed



Inauguration of Training of Trainers (ToT) on WatSan Infrastructure Operation & Maintenance

Session-1

Purpose:

1. Inauguration of the training
2. Creating a spontaneous and hassle free environment for the participants through introducing themselves in an interesting way
3. The participants will be able to explain the purposes of the training
4. The participant's expectations would be picked out
5. The participants will get the idea/concept of the training and the coordination between expectation & topic discussion will be happened

Time: 1 hour & 30 minutes

Process of Facilitation:

Process of Presentation	Materials	Time
Purpose 01: The facilitator will welcome all the participants and ask for their wellbeing. He will deliver his name, rules of training and other facilities in brief. Then he will invite the guest to inaugurate the training.	The subject of the module	30 mins
Purpose 02: The facilitator will request the participants to introduce themselves and discuss the importance of introducing. He will ask the participants to choose from the surrounding VIPP cards. Then they will try to make pair of their VIPP cards. After this, the participants will deliver their designation, organization's name, their favorite things and in this way they will be introduced by each other in a friendly environment. By this way all the participants will be introduced within a particular time.	Poster Paper VIPP card	30 mins
Purpose 03: The facilitator will help the participants to understand the purpose of training course by presenting & explaining the topic through multimedia. The additional issue will be added & explained which will be come from the participants.	Multimedia	15 mins
Purpose 04: After discussing the purpose of the training, the facilitator will ask the participants to deliver what the issues to be discussed for achieving the purpose. The facilitator will write the opinions on the poster paper. Now the facilitator will tell the participants that to achieve such a point, they all have to cooperate.	Brown paper Marker	10 mins
Purpose 05: The facilitator will distribution the topics to be discussed		05 mins

Chapter- One

Sustainable Development & Organizational Procedure

Session-02

Purpose:

- Idea/Concept & explanation of Development and Sustainable Development
- The necessity of Public Participation in Sustainable Development
- The necessity of Public Participation for the sustainability of WatSan Infrastructure
- What are the team/group & committee? The necessity of group & committee.

Time: 1 hour

Facilitation Process:

Process of Presentation	Materials	Time
<p>Purpose 01 & 02: The facilitator will divide the participants into three groups and ask them to do group work on development, sustainable development and necessity of public participation in sustainable development.. After the group work, the participants will share their group works and with all the opinions , develop a clear concept with consensus of all . The facilitator will help the participants if they need . He will facilitate to make them understand that the development is not possible without public participation. Then they will discuss on that issue that how to ensure the public participation in development and how the group and committee can play an important role for that.</p>	Board Marker Poster paper Instruction guide	30 mins
<p>Purpose 03 & 04: The presenter will show a photograph of the group or committee (4/5 persons discussing) through multimedia and describe onthe definition of group or team in line with the participants' observation . To explain the necessity of group,role-play support would be taken. The facilitator will bring a pile of sticks and ask the participants to break it, few later he bring a single stick and ask them to break. Now the facilitator will want to know the feelings of the participants and describe the necessity of group or committee. To make them understand a real experience would be explained.</p>	Picture Stick Written definition in the module	20 mins
<p>The participants will be asked what they have understood from the presentation..</p>		10 mins

Chapter- One

Sustainable Development and Public Participation

Session- 03

Purpose:

1. Will know about formation process of User Group and Operation & Maintenance Committee & how to implement it in the field level
2. Will know the roles and responsibilities of different designated posts and general member of the Operation & Maintenance Committee and they will be able to cooperate in field level implementation
3. Will be able to explain the process of meeting conduction and accounts management and can help the operation & maintenance committee to keep record of deposit-expenditure documents.

Time: 1 hour

Facilitation Process:

Process of Presentation	Materials	Time
Purpose 01: The facilitator will give the clear concept about how the group and committee are formed through multimedia presentation. This time facilitator will distribute the form of committee formation and show them the filling process. Then group and committee membership, period and operational process will be discussed gradually.	the subject of the module Multimedia Form	20 mins
Purpose 02: In this session the facilitator will get the concept of the roles & responsibility of WatSan committee member and help the participants to get the the total idea. The facilitator may take help from the module.	Poster Paper Multimedia	20 mins
Purpose 3: The facilitator will explain hands on training on meeting conduction and accounts management to the WATSAN committee members . The facilitator will illustrate the experience of CBO meeting conduction and accounts management as examples.	Particular Format	15 mins
The facilitator will ask the participants to explain briefly what they have known		05 mins

Chapter- Two

Process of operation, usage and maintenance of Safe Water Supply & Sanitation Infrastructure

Session- 04

Purpose:

1. Able to know & explain about Safe Water
2. Able to know & explain about the different types safe water technologies
3. Able to know & explain the operation, usage and maintenance of different types water technologies
4. Able to know & explain the operation, usage and maintenance of safe water infrastructure during disaster and after disaster

Time: 2 hours & 30 minutes

Facilitation Process

Process of Presentation	Materials	Time
<p>Purpose 01: First of all, the facilitator will discuss on what is safe water. Then he will note down the different water technologies/infrastructure on the board based on the inputs of the participants and discuss the suitable technologies on the basis of geophysical situation of particular area.</p>		15 mins
<p>Purpose 02: The facilitator will demonstrate the suitable infrastructure of safe water supply and explain the different part of it according to module. The problem and solution of the different parts of the infrastructure will be discussed clearly. In this session, the mechanic of DPHE and Work Assistant of Municipality will cooperate to give hands on support on the technical part.</p>	<ul style="list-style-type: none"> ● Subject of the module ● Picture of the infrastructure ● Different parts of Water Supply infrastructure ● Described issues on poster paper 	60 mins
<p>Purpose 03: In this session the operation, usage & maintenance of water supply infrastructure will be presented through OHP/multimedia.</p>	<ul style="list-style-type: none"> ● Instruction of infrastructure maintenance through picture ● Multimedia 	30 mins
<p>Purpose 04: In this session the operation, usage and maintenance of safe water infrastructure during disaster and after disaster will be presented through OHP</p>	(for using materials the instruction guide of DPHE will be followed)	30 mins
<p>The facilitator will ask the participants to briefly explain what they have learned.</p>		10mins

Chapter- Two

Sanitation Infrastructure Operation, Usage & Maintenance Process

Session – 5

Purpose:

1. Able to know & explain about Sanitation System
2. Able to know & explain about the different types Sanitation Infrastructure
3. Able to know & explain different types of sanitary latrine
4. Able to know & explain the operation, usage and maintenance of Sanitation Infrastructure
5. Able to know & explain the operation, usage and maintenance system of Sanitation Infrastructure before, during and after disaster period

Time: 2 hours

Facilitation Process:

Process of Presentation	Materials	Time
The participants will read out the previous day's discussion report and review it. The reporting team will add or delete if any in the report on basis of participants' opinions. The facilitator will cooperate to do this.		60 mins
<p>Purpose 01, 02 & 03: First the facilitator will want to know the definition of sanitation system from the participants. Then he will draw a definition by reconciling all the opinions of the participants. He will write down the different types of sanitation infrastructure on the board and mark some infrastructures which are suitable for that particular region.</p> <p>During the discussion on suitable sanitation infrastructure, the facilitator will give a clear picture of sanitary latrine and what types of sanitary latrines are included in the project for the clear understanding of the participants.</p>	<ul style="list-style-type: none"> ● Subject of the module ● Picture of the infrastructure ● Different parts of Sanitation Infrastructure ● Multimedia (for using materials the instruction guide of DPHE will be followed) 	30 mins
<p>Purpose 04: In this session, the facilitator will explain the functional activities of different parts of the sanitation infrastructure with the support of the module. He will also discuss what are the problems may happen and how the problems will be addressed. Then the facilitator will brief the overall operation, usage and maintenance of the sanitation infrastructure through multimedia presentation.</p>		45 mins
<p>Purpose 05: In this session, the facilitator will brief the overall operation, usage and maintenance of the sanitation infrastructure during and after disaster period through multimedia.</p>		30 mins
The facilitator will ask the participants to briefly explain what they have learned from the discussion.		15 mins

Chapter – Three

Preparation of Planning document for conduction of Caretaker Training on WatSan Infrastructure Operation & Maintenance

Session – 06

Purpose:

1. The participants will get knowledge on the preparation of the planning session on Caretaker Training Conduction on WatSan Infrastructure Operation & Maintenance

Time: 1 hour & 30 mins

Facilitating Process:

Process of Presentation	Materials	Time
Purpose 01: The facilitator will present a sample of planning session of caretaker training on WatSan infrastructure maintenance through multimedia. By this session the participants will get the concept of the duration of caretaker training, quantity of trainees, types of trainees, session title, time, discussion topic, materials, method/technique etc. Then the participants will be divided into several groups and continue the practice of planning session.	<ul style="list-style-type: none">• Described topics in the module• Planning format• Art line marker• Multimedia (for using materials the instruction guide of DPHE will be followed)	30 mins
Purpose 02: The facilitator distribute one copy manual (developed by DPHE) among every two participants. Then the facilitator will discuss how to use this manual during facilitation of CT training.		30 mins
Purpose 03: The facilitator continue the session basis on previous discussion, one participant will be welcomed to facilitate the training session for CT using DPHE manual. Then facilitator give clear understanding about the techniques to facilitate the session using DPHE manual. Other participants will be roled as caretakers during session. After the session, facilitator will discuss the improvable area of facilitation. He may show how this area could be improved. Facilitator can wellcome other one participant to facilitate the session if time favour.		60 mins

Chapter- Four

Monitoring Process of WatSan Infrastructure

Session – 7

Purpose:

1. Able to know & explain about the monitoring, participator monitoring and its necessity
2. Able to know the process of WatSan Infrastructure monitoring & its technique and gain skill to implement it in the field level

Time: 1 hour

Facilitation Process:

Process of Presentation	Materials	Time
Purpose 01: First of all, the facilitator will want to the definition of monitoring from the participants and then draw an acceptable definition of monitoring taking the opinions of the participants. He then explain the necessity based on the opinions of the participants.	<ul style="list-style-type: none">● Subject of the module● Instruction of the maintenance of the infrastructure with picture● Multimedia Monitoring Format Sanitary Inspection Sheet	20 mins
Purpose 02: In this session the facilitator will discuss on the monitoring process of the WatSan infrastructure under the project area through multimedia. He will distribute the monitoring form for the field level feedback to the participants. Then the participants will be given lesson how the adolescent girl monitoring team will fill it up. The facilitator will explain the link between inspection sheet and the monitoring format.		30 mins
The facilitator will ask the participants to briefly explain what they have learned from the presentation.		10 mins

Chapter- Five

Field Visit (Practical)- Operation, Usage and Maintenance of WatSan Infrastructure

Session – 08

Purpose:

1. Able to gain practical idea of different types of WatSan Infrastructure
2. Able to gain practical idea and efficiency on how the activities of WatSan technologies work, their problems & reasons behind the problems and how to resolve the problems
3. Able to gain lesson and skill on monitoring form fill up of WatSan infrastructure operation & maintenance

Time: 3 hours

Facilitation Process

Process of Presentation	Materials	Time
The participants will read out the previous day's discussion report and review. The reporting team will add or delete some items of the report on basis of participants' opinions. This time facilitator will cooperate the program	<ul style="list-style-type: none">● Described topics in the module● Inspection Form● Reconstruction & Maintenance tools	30 mins
<p>Purpose 01, 02 & 03: The facilitator will describe the purpose, topics, methods and rules before field visit. He will distribute the inspection form to the participants and make them understand how to fill up the form.</p> <p>The team will practice the fitting and fixing of the WATSAN infrastructures.. This time the participants will observe and learn how the technology works, the name, activities, problems and reasons behind problems & solution of different parts of the WatSan infrastructure. Then the participants will fill up the Sanitary Inspection Form of water supply infrastructure. The facilitator will help the participants to understand all the relevant matters. The mechanic of DPHE will play a vital role in giving practical demonstration at field visit.</p>		3 Hrs

Closing Session

Session – 09

Purpose:

1. Able to know about the strong & weak points of the training
2. Able to know the learning capacity of the participants through the training evaluation
3. Formal closing of the training

Time: 1 hour

Facilitation Process:

Process of Presentation	Materials	Time
Purpose 02: To know the learning capacity of the participants through the training evaluation	Evaluation Form	15 mins
Purpose 03: The facilitator will invite few participants to make their comments on the training and request them to give emphasis on strong points and weak points of the training.		20 mins
Purpose 04: The facilitator will describe the importance of the training to all presented guests & the participants and request the chief guest to deliver his closing remarks.		25 mins



Learning Material

Training of Trainers (TOT) on Water & Sanitation System Infrastructure Operation & Maintenance

Sanitation, Hygiene Education and Water Supply (GoB-UNISEF) Project - Urban Component



Contents

Session	Page
Development, Sustainable Development & People's Participation	
What is user group? Its importance & quantity with list	
Form of water supply infrastructure operation & maintenance committee with list	
The activities of the committee and the responsibilities of the member of the committee	
Meeting conduction & documentation process	
Maintenance of the structure of different types of safe water supply	
The process of operation, usage and maintenance of different water supply technology	
Operation of infrastructure of safe water supply	
Usage & maintenance of safe water supply	
Operation and maintenance of emergency safe water supply	
Sanitary latrine, different infrastructure of sanitation	
Operation and usage of the infrastructure of sanitation system	
Maintenance of the infrastructure of sanitation system	
Operation and maintenance of safe water supply in emergency period	
Process of monitoring and participating monitoring	
Session planning	

Chapter-1

Learning Material Session: 2

1.1 Development

- Development is a systematic process that highlights the positive change of overall situation. Development is a systematic process by which the condition/situation of people (Economic, Social, Political & Cultural) can be changed positively.
- Positive change through participatory participation on the basis of social justice and ecological balance is development.
- The expression of people's self-capacity is development. This capacity depends on ownership and the extent of his capacity to establish his ownership to the services/ products. Not only the availability of product but also the power of enjoying the product should be also noticed here. It is not fair to justify only the human development by increasing their wants of people but to examine the extent of opportunity and freedom of choice are also included in the concept of human development. The opportunity or right consists of- * Proper Education, Hygienic Environment, Political Freedom, Cultural integrity, Safe environment and wellbeing of human.

(Amarta Sen: Life Style and Economics)

Development is such a process that ensures the positive change in human of his present condition through the spontaneous participation of greater communities by removing the social barriers.

1.2 Sustainable Development

Sustainable development is such a development process that would be able to sustain for long time in any situation. It is not developed for a short time by a person, community or external group of an area. People have to establish such kind of development by themselves. So targeted people are the key players of the development. The development cannot be continued smoothly without the spontaneous participation of the people and their Inherent co-operation.

As the development is a continuous process, it should be run uninterruptedly. The activities of the development have to be handed over to the participants, user group and beneficiaries of the project to run the development process functionally.

So we can say the development process is operated by the target group which runs smoothly without any interruption, the people can face any problem by their own accord. They are very much able to control the overall situation of the development by gaining resources and use of it properly .

The features of sustainable development:

- Developed is achieved by the people's own effort. The target group can realize that nobody from outside can gift development to them.
- When people are aware of and interested in sustaining their development, they will be very much active in search of their existing resources.
- When a people realizes that he is himself a resource, his/her spirit to search other resources will be increased. Thus they find that all the materials are available around them.
- When the people are able to identify their resources, they automatically feel by themselves to manage the resources. Thus the feeling of ownership is created .
- Target group is united under an organizational body spontaneously
- They are sharing their views themselves and practicing the process to take decision.
- They also gain the knowledge, skill and value to operate the group or organization

- A practice or culture to resolve internal conflict has been developed
- A practical implementation to resolve any conflict by identification, prioritization and practical implication has been achieved.
- They are able to design plan and its proper implementation, gaining knowledge on monitoring through the process of proper examination and justification
- The supply of money and its management would be possible by their own accord
- When the confidence, ownership, availability of resources and its management are very fair and transparent, sustainable development would be established

1.3 Peoples Participation:

Participation is such a process by which the spontaneous engagement of all communities is ensured through the awareness and realization of their necessity, responsibility, problem and resources. The awareness and inspiration make them more confident on their power which helps them to point out other problems in future and thus resolve it.

Necessity of participation:

- The proper development would be possible if the participation of the community people is ensured and the project is allocated particularly for the community
- As the water, sanitation and hygiene education is designed particularly for that community, the opinion of them is much more important for sustainable development
- If the development plan and implementation schedule serves the demand, opinion, justification and value of the local community, the sustainability would be longer.
- Actually the active participation of local community is very important for the overall success of the project
- The active participation of local community is also very important for sustainability of the project Above all, the sustainability of water supply, sanitation and hygiene practice activities depends on local community.

Learning Material Session: 3

1.4. Group Formation

What is group?

The combination of individuals or families who are connected entirely on the basis of mutual understanding, emotion and sensitiveness is considered as group. The group consists of such kind of members who maintain equal relation among them.

They are also considered as community. The community is such an arena where each member can feel each other and habituated to live in same condition and enjoy the basic needs and wishes.. In that respect, the user group of WatSan infrastructure is also included in a group.

Member of the Group:

Every family (in slum or low income area) who uses the WatSan infrastructure would be the member by registering the form.

There is a space for the signature of CHP (Community Hygiene Promoter) in the bottom of the page and a top sheet is for the signature of focal person/WatSan committee chairperson.

The eligibility of the group member (Community/User/Slum dwellers/Low income area):

- Active participation in all development activities
- Keep warm relation among the user group member
- Ability to explore leadership and capacity to take decision
- Prepare and Implement plan of WATSAN infrastructure in a proper way
- Build ownership on the infrastructure
- Keep clean the surrounding environment of the infrastructure by the committee member/caretaker
- Extend possible cooperation to the committee for operating, repairing and maintaining of the infrastructure

Sanitation, Health Education and Water Supply (GoB-UNICEF) Project, Urban Component

.....Municipality,

Field Agency:

The list of the member of user group of water and sanitation infrastructure (Infrastructure Based)

1. Name of the Infrastructure:Date of committee formation:
2. Location of the Infrastructure:(indicate specifically)
Cluster name:..... Cluster No..... Ward No.....
Name of the Pourashova:.....
3. The total member of the committee:

List of the member of User Group

SL	Name	Father/Husband Name	Member of the Thana	Signature

Signature of CHP :
Name :
Date :

Signature of Facilitator :
Name :
Date :

Signature of Ward Councilor : . .
Name :
Date :

1.5. Operation & Maintenance Committee

Process of Committee Formation:

From a general meeting of the user group (Community/Cluster/Low income area/Slum), some members would be picked up who are treated as direct beneficiary and the committee will be formed from these members for operating and maintaining the infrastructure.

Type of the Member:

- The male and female of the committee is 40% & 60%
- Either President or General Secretary must be female
- A member from CBO (Community Based Organization) to be included in this committee.
- Two adolescent girls will be included in the committee

The number of members in the committee:

- The number of the committee members would be 07 to 11 from the user group families who are elected by getting major support of all. So the committee is a member-based committee. The operation and maintenance committee member will depend on the number of members of user group committee. So if the numbers of the user group committee member is low, definitely the operation and maintenance committee member will be limited. And if the quantity of the user group committee member is large, definitely the operation and maintenance committee member will be increased.

Designation of the Committee Member:

President, General Secretary, Treasurer and general member would be selected from the user families who are elected by getting major support of all. Whatever the number 7, 11 or 15, the main three designations (President, General Secretary and Treasurer) could be same. The post of Vice President may be included there if necessary.

President	>>>>>>>	General Secretary	>>>>>>>	Treasurer	>>>>>>>	General Member
-----------	---------	-------------------	---------	-----------	---------	----------------

Note: To keep the surrounding environment clean, one caretaker would be appointed by the permission of operation and maintenance committee who will be taken from a user group family.

Duration of the Committee:

The duration of the committee for infrastructure is 01 year but it would be extended up to 2 years taking the opinion of the slum, low income community and user group. New committee will be formed within this period by arranging meeting. If the new committee is formed, the old committee will be dissolved automatically. In that respect, the Ward Councilor or any eligible personality will make an operation and maintenance committee. They will not appoint the same person who was in the old committee.

Sanitation, Health Education and Water Supply (GoB-UNICEF) Project, Urban Component

.....Municipality,

Field Agency:

The list of the member of user group of water and sanitation infrastructure (Infrastructure Based)

1. Name of the Infrastructure:Date of committee formation:
.....
2. Location of the Infrastructure:(indicate specifically)
Cluster name:..... Cluster No..... Ward No.....
Name of the Municipality:.....
3. The total member of the committee:

List of the committee member

SL	Name	Father/Husband Name	Designation	Mobile No.	Signature

Signature of CHP : Name : Date :
--

Signature of Facilitator : Name : Date :
--

Signature of Ward Councilor : .. Name : Date :
--

The activities of the operation & maintenance committee to implement SHEWA-B Project:

- Arranging monthly meeting where the operation and maintenance of water supply and sanitation infrastructure would be discussed and planning directives and decision would be given
- Guiding & monitoring the activities of the caretaker for the proper operation and maintenance of water supply and sanitation infrastructure
- Determining the contribution money and collect it for the proper operation and maintenance of the infrastructure which is implemented from the project support
- Keeping an income and expenditure record for the operation and maintenance of water supply and sanitation infrastructure
- Co-operate CHP to collect monitoring report through adolescent girl monitoring activities to operate and maintain the infrastructure
- Inspect the activities of water supply and sanitation infrastructure once in a month by all members of the committee.
- Co-operate and monitor the activities of operation and maintenance of water supply and sanitation infrastructure.
- Communicate regularly with govt. and non govt. institution for operating and maintaining water supply and sanitation infrastructure

The role & responsibilities of President, General Secretary, Treasurer and General Member:

President:

- The General Secretary will call a meeting in a month by the instruction of the President
- The President will conduct the meeting and lead the committee with the presence of 60% participants
- If any member is absent for 3 consecutive meetings without the permission of the president, the president will cancel his or her membership on the basis of committee's decision
- President will appoint caretaker considering the opinions of the committee members
- President will fix the monthly contribution money for maintenance in consensus.
- President will open bank account with joint signature (President, General Secretary/Treasurer)
- President will spend the contribution money for the infrastructure maintenance which is collected from the community and will deposit the unspent money into the bank account for future expenditure.

General Secretary:

- To call & conduct meeting regularly by the instruction of the president
- To ensure the participation of all participants in the meeting
- To maintain the resolution book of the meeting
- To make necessary step to pass the amended resolution considering the opinions of the participants
- To write down the resolution of the current meeting
- To collect the name and signature of the participants

Treasurer:

- Maintain and update the accounts properly
- Maintain the financial documents
- Present the financial update regularly

The duty & responsibility of caretaker

- Cooperate & keep update of the accounts related activities
- Keep clean the Shared Latrine/Community Latrine/Mini Pipe Water Supply /Ring Well/ Tube Well/Drain
- Clean the Reserver/Overhead Tank regularly
- Keep clean the platform of Tube Well/Ring Well
- Preserve the cleaning materials (Bucket, Mug, Brush, Sand, bleaching Powder etc)
- Endure the security system of the infrastructure
- Reduce the wastage of water
- Inform the committee if any problem is arisen
- Maintain good behavior with the user group
- Perform the duty properly
- Obey the decision/instruction of the committee
- Present at the monthly meeting regularly

Member:

- The Number 1 member of the committee will act as president in the meeting in absence of the president
- Give their opinions in the meeting and extend overall cooperation
- Actively participate in implementing decision taken in the meeting
- Identify the problems of the infrastructure of the respective area

Arrangement & Conduction of monthly meeting of Operation & Maintenance Committee

Generally three steps are important regarding this. These are-

1. Before meeting
2. During meeting
3. After meeting

Activities before meeting	Activities during meeting	Activities after meeting
<ol style="list-style-type: none"> 1. Inform all the member about date, time & venue by serving notice 2. Specify agenda 3. Prepare all the materials such as chair, refreshment etc 4. Present at the meeting venue <p>N.B: Financial issue should be included in the agenda for transparency</p>	<ol style="list-style-type: none"> 1. President selection for the meeting 2. Welcome address of the President & inform the purpose of the meeting 3. Specifying the issue to be discussed (if any issue comes out of the pre-specified agenda) 4. Read out and approve the decision taken in the previous meeting 5. Inviting for discussion, participation & decision making 6. Make resolution on the basis of discussion 7. Ensure signature of all participants 8. Fix up date, time & venue for the next meeting and closing the meeting 	<ol style="list-style-type: none"> 1. Implementing the activities & monitoring according to the meeting decision 2. Making report 3. Serve Notice for the next meeting

1.6. Meeting Conduction

The discussion will be held on the specific issues with 60% attendance (corum) of committee member. Besides, one or two of the following issues will be discussed in the meeting. It is noted that special or emergency meeting would be called anytime beside the monthly meeting.

- Public health & hygiene
- Social aspects
- Financial matter
- Technical/repairing/maintenance
- Overall hygiene in the area

The rules of writing resolution (Register Book)

Type of the Meeting:

Date: Vanue: Time:

SL	Name of the participants	Designation	Signature

Discussion Topics:

-
-
-

Decisions:

The decisions have been taken on the basis of president's consent with% attendance of the participants:

-
-
-

Signature of the President:

Signature and comments of the Inspector:

Maintaining accounts of Income and Expenditure for the operation of the infrastructure:

The income and expenditure are incurred for the operation & maintenance of the infrastructure.

Possible earning sources:

- The monthly contributory money () from the user group for repair & maintenance of the WatSan infrastructure
- Contributory money (one time) from the user group for the major repairing
- The monthly contributory money from the user group for keeping the infrastructure clean

Expenditure:

Repairing: The repairing cost will be met from the collected contribution money

Maintenance: The cost for procuring bleaching powder, bucket, mug, register book & pen, resolution book of the meeting etc will be spent from the collected contribution money

Electricity bill: Electricity bill for water pump operation and use in the toilet will be spent from the collected contribution money

Honorarium of the caretaker: the honorarium of the caretaker who take care of the WatSan infrastructure will be expended from the collected contribution money

The rules of maintaining accounts

(The details of deposit in one page & expenditure in other page should be written in the register book)

Name of the Infrastructure:

Deposit							
Name of Depositor	Collection Date	Details of the deposit	Deposit	Deposit of the previous month	Total deposit	Signature	
						Cashier	Depositor
Rahim	20.4.11	Monthly Contribution Money	20	100	120		
Expenditure							
Date	Details of the expenditure	Expenditure	Previous Expenditure	Miter reading water	Miter reading electricity	Signature	
						Cashier	Depositor
05.4.11	Herpic	50	420	470			
10.4.11	Cleaning Brush broom	20	470	490			

Chapter-2

Facilitator's Note Session: 4

2. Operation, Usage & Maintenance of WatSan Infrastructure

2.1. Safe Water

The water which is not harmful for human health is called safe water. The indicators of the safe water-

- No germ for causing disease
- Colorless & clean
- Tasteless & flavorless
- The acid & alkalinity within permissible limit
- No harmful gas like hydrogen sulfides
- Mineral like iron, manganese, arsenic, fluoride etc. within permissible limit

The list of the water supply infrastructure under this project:

1. Shallow tube well no. 6
2. Deep tube well no. 6
3. Shallow Tara Dev head tube well
4. Deep Tara Dev head tube well
5. Ring well (pump no. 6)
6. Ring well (Tara Dev head)
7. Pipe water supply
8. Community rain water harvesting

To keep WatSan system effective, all infrastructures need to be operated, used and maintained properly. This is very important to operate, use, maintain and clean every part of the infrastructure for ensuring safe water supply and proper usage of sanitation system.

Urban Component- Operation, usage and maintenance process of different water supply infrastructures under Sanitation, Hygiene Education and Safe Water Supply (GoB-UNISEF) Project

Operation, usage & maintenance of different water supply technologies is given below:

1. Shallow tube well no. 6

Water is extracted from the shallow depth of unconfined-layer of the ground by this tube well. The depth of this tube well is generally 250 feet (75 meter). If the water layer is 25 feet deep from the pump head, the tube well no.6 or suction mood pump will be installed. The suction mood pump is the pump in which the planzer is used in the pump head for extracting water. If the water layer is far away than 25 feet, the suction mood pump does not work. The distance between tube well and latrine should be 30 feet.

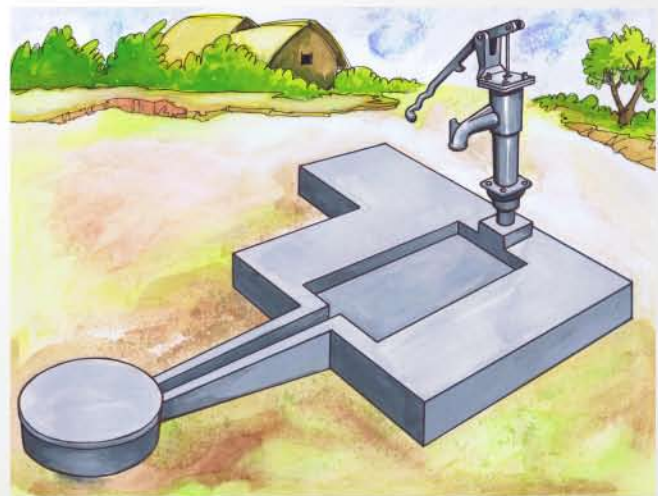
Number of user families: 10



2. Deep tube well no. 6

Water is extracted from the shallow depth of unconfined-layer of the ground by this tube well. The depth of this tube well is generally more than 250 feet (75 meter). If the water layer is 25 feet deep from the pump head, the tube well no.6 or suction mood pump will be installed. The suction mood pump is the pump in which the planzer is used in the pump head for extracting water. If the water layer is far away than 25 feet, the suction mood pump does not work. The distance between tube well and latrine should be 30 feet.

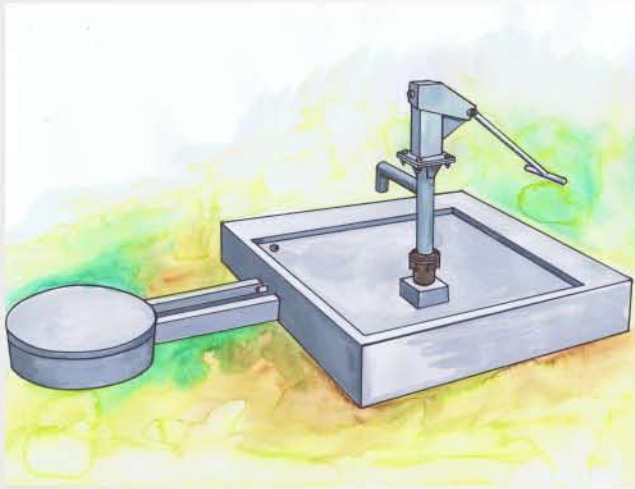
Number of user families: 10



3. Shallow & Deep Tara Dev head pump

This tube well is such kind of tube well that can supply water more than Tara -II tube well from the water layer of the ground. The under ground design is just like Tara-II & the pump head is like a box of T-shape. The T-shape handles are two types. One is 3:1 technology based which has 33-100 feet (10-30 meter) capacity and other is 4.5:1 technology based which has 100-147 feet (30-45 meter) capacity extraction efficiency.

Number of user families: 10



4. Ring well (Pump no. 6)

Some of the part of Bangladesh (especially hill track area) is made of stone and stony layer. There is no such a sand layer of water, so the general installation of tube well is not possible. For that area the easy, economy and feasible technology is Ring well. Ring well is a well made by RCC ring and the well is covered by RCC cover. If the water layer is in 25 feet in the ring well, then hand pump tube well no. 6 is used to extract water. The distance between ring well and latrine should be at least 30 feet.

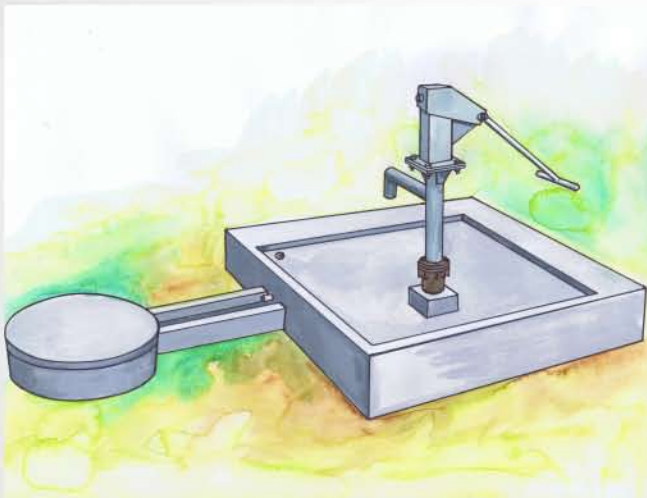
Number of user families: 10



5. Ring well (Tara Dev head)

Some of the part of Bangladesh (especially hill track area) is made of stone and stony layer. There is no such a sand layer of water, so the general installation of tube well is not possible. For that area the easy, economy and feasible technology is Ring well. Ring well is a well made by RCC ring and the well is covered by RCC cover. If the water layer is far away than 25 feet in the ring well, then Dev head hand pump tube well no. 6 is used to extract water. The distance between ring well and latrine should be at least 30 feet.

Number of user families: 10



6. Pipe water supply

In this method an overhead tank is set up which is connected to submersible pump or with the pipe line of municipality. Water is collected from production shallow or deep tube well and preserved in the overhead tank. Generally pipe water supply technology is installed in the area where community latrine or public latrine exists. The overhead tank is installed on the roof of the community or public latrine. There is electric meter by which the monthly electricity bill is calculated. Tap stand is installed in the surrounding community area for the beneficiary by connecting pipe to the overhead tank where water is preserved.

Number of user families: 40-50



7. Rain water harvesting system

Rain water harvesting system is such a system by which the water is collected in the rainy season and preserved in a hygienic way for the whole year as drinking water. In this system, the water is collected & preserved in a tank from the roof through a gutter. Then the water is served through tap or tube well.

Number of user families: 10



Operating system of safe water supply infrastructure

1. Operation of shallow tube well no. 6

- As the tube well is no. 6 pump-head (liver action) tube well, the operation is very easy
- When the handle is turned up, the piston is gone down. This time the valve of the plunger/piston is opened and water is come up and water does not go down as the foot valve shut down.
- When the pump handle is turned down, the piston valve is closed and water is supplied through pump and the space between piston valve and foot valve become empty that pressurize underground water to be extracted up through the ground pipe. In this way, the tube well works.



2. Operating system of deep tube well no. 6

- As the tube well is no. 6 pump-head (liver action) tube well, the operation is very easy
- The foot valve of this tara dev head tube well is installed to the water layer through the ground pipe and the piston assembly is installed in the cylinder through the pump rod
- If the handle is turned up, the piston is gone down. This time the valve is opened and water is extracted and supplied
- When the pump handle is turned down, the piston valve is closed and water is supplied through pump and the space between piston valve and foot valve becomes empty that pressurize underground water to be come up through the ground pipe. In this way, the deep set pump works.



3. Operating system of shallow & deep Tara Dev head tube well

This is a pump just like Tara-II tube well. The pump head has been turned to T-shape box and the handle is also like a T-shape.

- As the tube well is liver action tube well, the operation is very easy
- The foot valve of this tube well is installed to the water layer through the ground pipe and the piston assembly is installed in the cylinder through the pump rod
- If the handle is turned up, the piston is gone down. This time the valve is opened and water is extracted and supplied
- When the pump handle is turned down, the piston valve is closed and water is supplied through pump and the space between piston valve and foot valve becomes empty that pressurize underground water to be extracted up through the ground pipe. In this way, the pump works.



4. Operating system of Ring Well (no. 6 pump & Tara Dev head)

Ring Well operation is very simple. Different models such as Tara Dev head or no. 6 pump is connected to Ring Well and worked as it is. In this technology of the Tara Dev head or no. 6 pump extracts water from the stored part of Ring Well.

Hand pump tube well no. 6 based Ring Well



Tara Dev head tube well based Ring Well



5. Operating system of Rain Water Harvesting System

- The tin-shade roof should be clean before rainy season
- The gutter should be clean before rainy season
- Check carefully if there is any leak in the down pipe or Inlet pipe
- The water should not be stored first 8-10 minutes of rainfall
- The flash pipe should be stopped after 8-10 minutes of raining
- Rain water will be stored in the tank through the gutter pipe installed in the tin-shade roof



6. Operating system of Pipe Water Supply

- In this system water is preserved in the overhead tank through the surface pump from the shallow or deep tube well
- Water is supplied through the supply pipe to the tap from the overhead tank
- Caretaker will operate the pump daily in a fixed time
- Maintenance committee will observe the water supply thoroughly
- For operating system of Pump, the following things should be checked:

Before starting pump:

- Electric motor, pump and pipe should be checked carefully so that the connection among the materials can be perfectly ok. If there is any loose connection, the caretaker will fix it properly
- The gate valve of delivery line should be closed 90%
- The electric voltage should be checked (200-220 volt for 2 phase) During working period of pump
- Main switch/circuit breaker should be switched on
- Press the star delta starter button/on switch
- When the pump rotate in full speed, the delivery gate valve should be opened slowly

Time for closing pump:

- The gate valve should be closed slowly up to 90% just before switching off the pump
- At first starter and then circuit breaker should be switching off pressing the starter back push button/ off switch.
- If the pump is shutdown suddenly due to by interrupted electricity or for any other reason, the main switch should be switched off quickly for avoiding any major problem



Usage & Maintenance of water supply infrastructures :

Usage of Tube Well & Ring Well:

For using the wells , the following things should be carefully noticed-

- Platform and surrounding area should be cleaned
- Should be careful about the drainage system so that it cannot be blocked by waste of the users
- The infrastructure cannot be damaged by wrong/improper use
- Don't use the system with dirty hand. If the area is dirty, the user should clean it properly
- If there is any technical problem, inform caretaker immediately for taking action

Usage of Pipe Water Supply:

For using the infrastructure, the following things should be given special attention -

- User group & the committee should have the clear idea on how the system works
- Should be economic in using water and try to reduce the wastage of water
- If anyone cannot stop the water supply, s/he will inform caretaker immediately to stop it
- Deposit the contribution money regularly
- Platform and surrounding area of the infrastructure should be cleaned
- Should be careful about the drainage system so that it cannot be blocked by waste of the users
- Use softly so that the tap cannot be damaged
- Don't use the system with dirty hand. If the area is dirty, the user should clean it properly

Usage of Rain Water Harvesting System:

For using the infrastructure, the following things should be maintained-

- Stored rain water should be used only for drinking
- Platform and surrounding area of the infrastructure should be cleaned
- Should be careful about the drainage system so that it cannot be blocked by waste of the users
- Use softly so that the tap cannot be damaged
- Don't use the system with dirty hand.
- If the area is dirty, the user should clean it properly by his/her own effort
- Tap should be stopped properly after collecting water

Maintenance

The role of caretaker is very important in maintenance process. So managing caretaker is also important for the proper maintenance of the WatSan infrastructure. In this regard the following things should be maintained-

- The committee will fix up contribution money for user group based on their opinions
- The user family deposit the respective contribution money regularly
- Caretaker would be recruited on monthly salary basis with the decision of user groups & the committee
- The salary should be paid for caretaker from the contribution money which is preserved for the maintenance activities. Caretaker would be recruited from the user family or from the committee members
- The maintenance committee will repair small technical problem and if they face a major problem, they will resolve that in cooperation with DPHE

Maintenance of the water supply infrastructure

Maintenance of all types of tube well:

User group & caretaker should maintain the following things for the maintenance of the tube wells:-

- Keep clean the platform of the tube well
- Should be careful about the cleanliness of platform so that it cannot be dirty or sleepery after using for utensils or cloth wash
- The surrounding the platform of the tube well should be filled by soil every year
- The platform & the tube well should be cleaned by brush after 2/3 days regularly
- The dust/dirty waste should be cleaned from the surrounding of platform every day morning
- The drainage system should be cleaned so that the waste water can pass smoothly. If the drain is blocked by some how, it would be cleaned soon
- If there is any damage in the platform or drainage, it should be repaired quickly
- Caretaker & user group should take care so that nobody can use it roughly
- If the handle is very tight, the necessary measure would be taken to resolve it
- The user group & the committee should have the idea on the technical parts of the infrastructure so that they can easily collect them from where it is available and communicate with the mechanics when required
- The arsenic should be tested every after 6 months with the help of DPHE and mark the tube with red or green color according to the test result
- The bacteriological test should be done after every 3 months with the help of DPHE



Shallow hand tube well (hand pump no. 6)



Deep hand tube well (suction/deep-set)



Tara Dev head hand tube well

5. Maintenance of Ring Well

- The maintenance is very easy if the installation of Ring Well is perfect
- Oil or Mobil should be dropped in the nuts and bolts of the tube well after every 7 days
- The infrastructure and tube well should be cleaned after every 15 days by the brush
- The platform & the surrounding area should be cleaned by brush everyday
- Sands would be deposited in the ring well by leaching through the pipe. For removing the sand's layer, the bottom part of the ring well should be cleaned after 5/7 years by opening up the back part of the infrastructure or someone enter into the well and collect the sand. l
- Some parts of the tube well such as cap-seal, bucket, valve, seat- valve, nut-bolts etc would be changed if required. For that repairing, the committee would communicate with the respective mechanics.



Hand pump tube well no. 6 based ring well



Hand pump tube well no. 6 based ring well

5. Maintenance of water supply system through pipe water supply

In this system the possibility of water pollution is more than the other system. Basically the ground water source and supply pipe are the responsible for polluting water. Special awareness and measures are necessary to protect such kind of pollution. Regarding this, the user group and the committee should maintain the following things-



5. Maintenance of water supply system through pipe water supply

In this system the possibility of water pollution is more than the other system. Basically the ground water source and supply pipe are the responsible for polluting water. Special awareness and measures are necessary to protect such kind of pollution. Regarding this, the user group and the committee should maintain the following things-

The process of cleaning reservoir- pipe water supply

- At first the stored water would be pumped out from the reservoir. Then the reservoir needs to be cleaned properly. The structure of reservoir should be cleaned by the brush with bleaching powder and dry it with cloths
- The dry reservoir needs to be kept empty for 30 minutes and then it would be washed again by the clean water and after that water would be stored
- The bacteriological test should be done after every 3 months with the help of DPHE and if there is any bacteriological germs, necessary measures should be taken

The responsibility of caretaker- pipe water supply

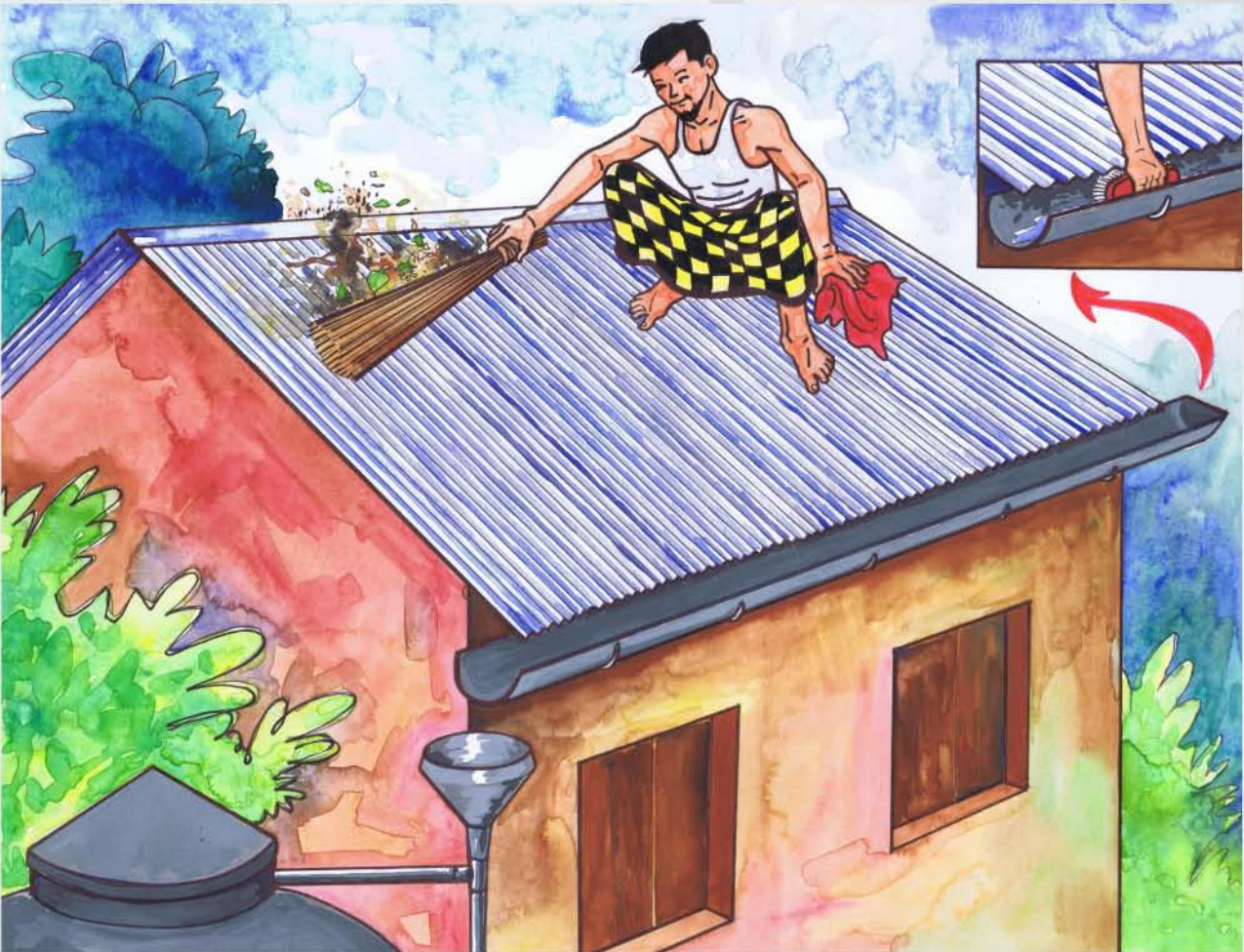
- Reservoir should be cleaned regularly
- The bacteriological test should be done after every 3 months with the help of DPHE
- If there is any bacterial germ, bleaching powder is used (generally 2.5 gram bleaching powder is used for 1000 liter water)
- The pipe line of the reservoir should be checked regularly and if there is any leak or other problem in the pipe line, measures should be taken immediately
- The main pipe line between reservoir and water source should be checked regularly
- The surrounding area of the reservoir should be cleaned regularly
- Should be very careful so that any outer thing or waste cannot be entered into the reservoir
- The gate valves are to be checked regularly, so that no water can leach through it.
- The connection of the distribution lines should be checked regularly
- Whether Meter is working well or not should be checked regularly and meter pit should be cleaned properly.
- The meter pit should be covered so that no one can enter into it and manipulate the meter reading . No one can throw unnecessary thing into it even it is damaged.
- Water or waste materials should not be stored in the area so that the water would be polluted
- Caretaker should be available when the pump is running so that he/she can switch off it when tank is full or electricity shutdown

6. Maintenance of Rain Water Harvesting System

The every part of the system should be repaired in every year. Especially before the rainy season the tank should be cleaned properly by bleaching powder mixed water

- Inlet filter should be cleaned by disconnecting from the down pipe
- The man who will clean the tank should be washed himself properly

When the water of the tank is finished, some one should enter into tank and wash all the waste that deposited for a year.



The possible problem, reasons behind problem & solution of Water supply infrastructure

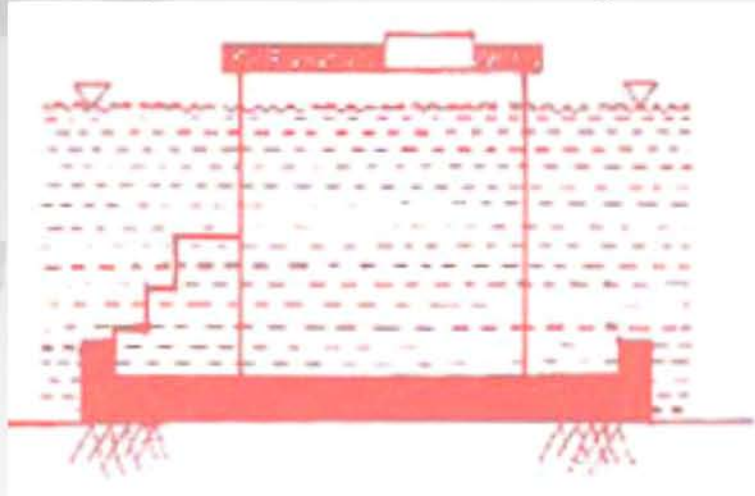
Possible problem	Reasons behind problem	Solution
Tara/Deep-set/Tara head tube well		
Low water supply in first pressing	Problem in any part of Piston Assembly: <ul style="list-style-type: none"> • The machinery parts are not well set • Loose or scratch of the bucket, piston-valve • The hole of the valve would be big 	Take out the piston assembly and test it properly and the machinery parts should be repaired or replaced if needed
Water poured after pressing several times	Problem in foot- valve Assembly: <ul style="list-style-type: none"> • Displace of foot- valve assembly • Foot- valve would leaked or displaced , the middle hole becomes big 'O' Ring scratched 	Take out the foot- valve assembly and test it properly and the machinery parts should be repaired or replaced if needed
Feeling hard when pressing the tube well handle.	<ul style="list-style-type: none"> • it may happen if new bucket is installed • bucket may be turned over or swell in contact with water 	If it happens for new new bucket, it will be easy after some time and if the bucket is turned over, it should be changed
Handle feels very light & no water comes out	looseness of the connector of pump rod and disconnected from bottom part	Call the mechanic
Tara/Deep-set/Tara head tube well		
Soil comes out with water	the connection between GI pipe & PVC pipe is damaged PVC pipe would be damaged/broken	Call the mechanic
Sands come out with water	Pipe or filter would be damaged /broken	Call the mechanic
Shallow or Deep tube well no. 6		
No water comes out at first pressure but Water comes after pressing handle several times	Problem in seat- valve assembly, like- <ul style="list-style-type: none"> • Displace of seat- valve assembly • Any part of set- valve would be damaged • Screw of seat- valve is opened 	Take out the seat- valve assembly and repair it or replaced
Feeling hard for pressing handle	It happens due to new bucket Bucket may be turned over	If it happens for new bucket, it will be easy after some time and if the bucket is turned over, it should be changed

Possible problem	Reasons behind problem	Solution
Soil comes out with water	<ul style="list-style-type: none"> the connection between GI pipe & PVC pipe is damaged PVC pipe would be damaged 	Call the mechanic
Sands comes out with water	Pipe or filter would be damaged	Call the mechanic
Maintenance of Rain Water Harvesting System		
Water poured all the time through the tap even when it is stopped	Tap- valve would be out of order	Change the tap
Water is leaked through drainage pipe and the cap	End-cap or socket would be loosen	Change the End-cap or socket
Water is leaked through not passed through Inlet pipe	Gutter has not been set at appropriate place or not in lower slope.	Gutter should be reset
Tara/Deep-set/Tara head tube well		
Water is leaking always from the bottom of tap or drainage pipe	Bottom part of the tap or drainage pipe has been loosen	Call the mason
Water is socking from the body of the reservoir	There may be a leak in the body of the reserver	Call the mason
Insects found in the water	<ul style="list-style-type: none"> Cleaning was not done properly Flash has not been done at the beginning of the storage system 	Make the reserver empty & wash it properly by water mixing with bleaching power

Operation & Maintenance of Water Supply Infrastructure during emergency period

Before disaster

If the water level is beyond the cover of the well, the ring well will work properly



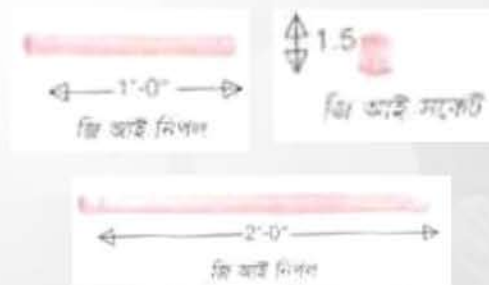
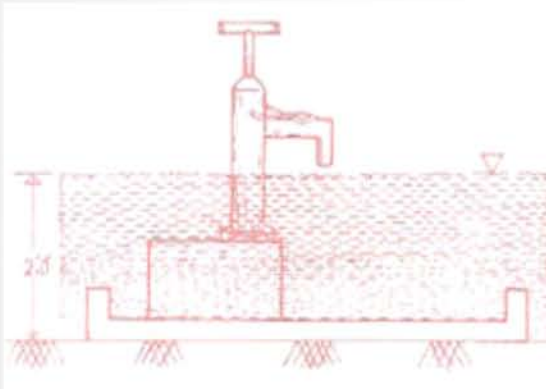
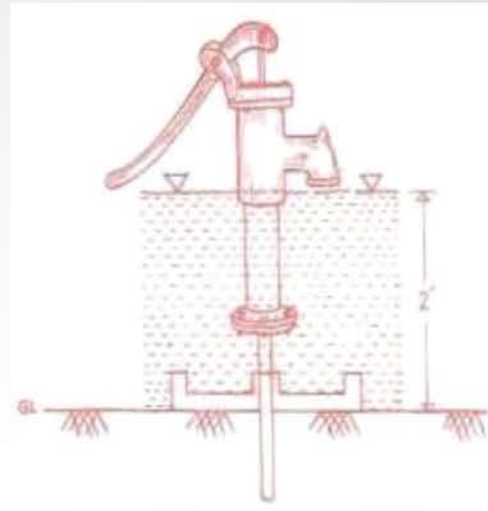
The platform of the tube well would be constructed on an upper place where flood level can not touch



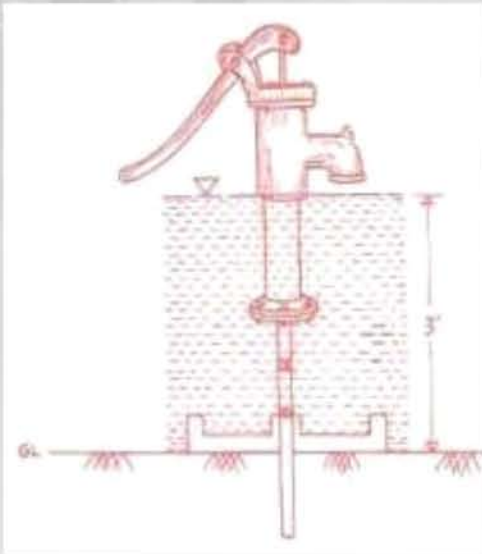
During Disaster Period:

1. Taking measures for existing facilities:

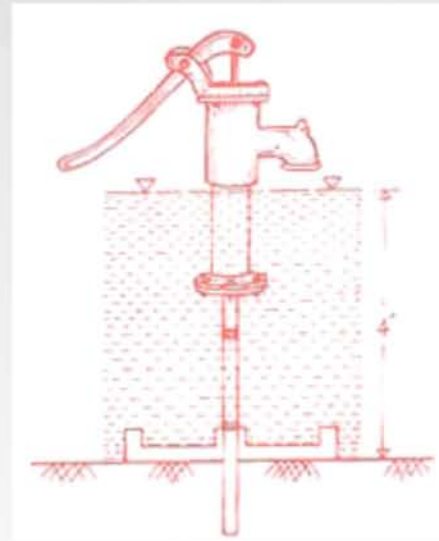
- Shallow or Deep tube well no. 6 can work/it can run up to 2 feet from the ground
- Pipe nipple (1 or 2 feet) would be added with main pipe of the tube well during flood season
- If the pipe length of the tube well no.6 is more than 4 feet, the tube well does not work/run. In this regards, alternative measures would be taken.



(N.B. Tara pump will be able to extract water from the distance of 6 inch, so increasing length above the ground is not considered for this pump)

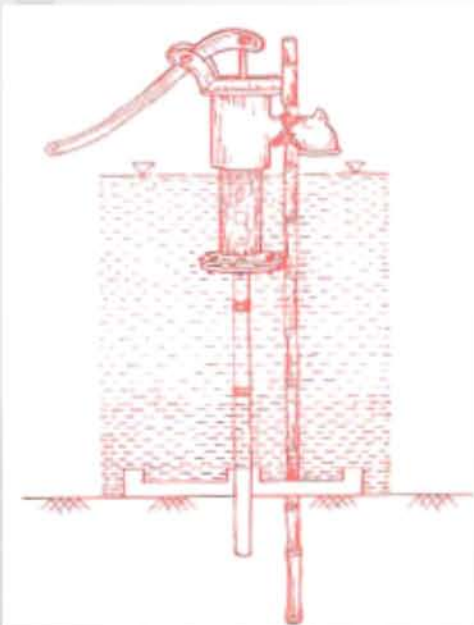


water level is reached to 3 feet above the ground, so the length of the tube well has been increased 1 feet.

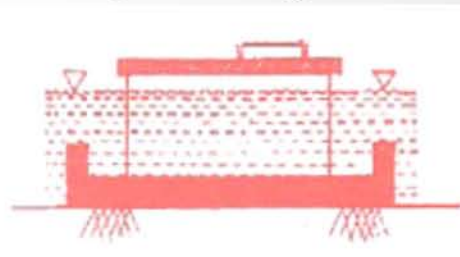


water level is reached to 4 feet above the ground, so the length of the tube well has been increased 2 feet

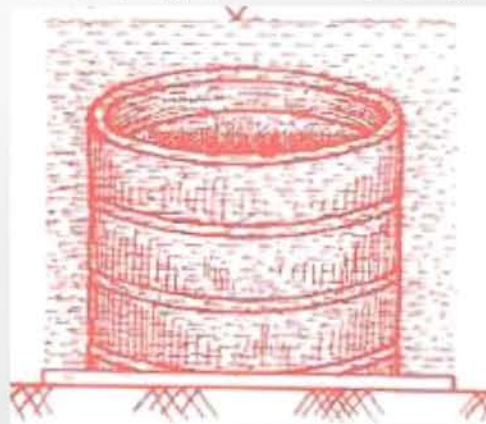
Caption for Ring Well:



If the length of the tube well has been increased up to 2 feet, a bamboo will be adjusted with the tube well for taking pressure/jerking.



If the water level is below the cover of the well, the ring well will work properly.



If the water level is reached above the cover of the well, the ring well will be inactive. In this case, alternative measure would be taken.

N.B: water would be extracted from the tube well since the above ground water level is 6 inch away under the spout face of the tube well.

2. Alternative source of water/system

I. Source: Surface Water:

Unpolluted surface water (pond, river etc) would be collected by purifying in two ways.

Purifying Process -1

Step no. 1: water with little turbidity and less microorganism can be purified by alum (fitkari) or by filtration

- a) Drop alum (one/two tea size spoon) in the 20 liter water and mix it properly. Keep the water pot untouched till 1 hour. After 1 hour the 90% upper part of the water has been put in another pot. The lower part of the water should be thrown away as waste water.
- b) Filtrate the water properly in the pot till 5/7 hours and collect 90% water of the upper part from the pot. The lower part of the water should be thrown away as waste water.

N.B: step-1 does not purify the water. To purify the polluted water, step 2 should be followed:

Step: 2 Water should be passed through the folding cloths for purifying

First of all, take a long clean cloth and fold it twice and pass the water through it in another pot.

N.B: Step-2 does not purify the water properly. For proper purification, step-3 should be followed-

Step: 3

- a) by bleaching powder
 - b) by water purifying tablet
 - c) if the options a & b is not available, the water would be purified by the ray of the sun
- a) by bleaching powder: $\frac{1}{4}$ part of a spoon bleaching powder should be mixed with 20 liter water. After 30 minutes the water tastes slight chlorine. If there is no, more bleaching powder would be mixed up.
 - b) By Purifying tablet: 20 tablet (1mg) would be mixed with 20 liter water and the water stirred properly. After 30 minutes it would be pathogen free safe water.
 - c) By Ray of the sun: If the options a & b is not available, the water would be purified by the ray of the sun

Water should be put into transparent glass pot in the sunlight for 4-6 hours. The glass pot should be so transparent so that the ray of the sun can pass through the pot. The hot water will be normal at the night and the next day it would be considered as safe water.

Step No. 4: Now the water is considered as safe water. To keep it safe for long time, it must be covered with clean cover.

Purifying Process -2

Step No. 1: Boiling Water

A pot of water is to be put on oven, when water is boiled then another five minutes, the water has to be boiled

Step No. 2: Make it normal

Keep the boiled water pot for whole night until it becomes normal.

Step No. 3: the boiled water would be passed through the folding cloths.

Step No. 4: now the water is considered as safe water. To keep it safe for long time, it must be covered with clean cover.

2. Source: Rain Water

Step No. 1: In the rainy season the rain drop is stored as safe water. The water is collected from the roof of the house (or artificially roof) and stored in a tank. Rain drops should be collected first 8 or 10 minutes after starting rain.

Step No. 2: collected water should be stored carefully by a clean cover

Step No. 3: the daily needed water for drinking is stored separately

Step No. 4: Water should be passed through the folding cloths for purifying

Step No. 5: Water Purification

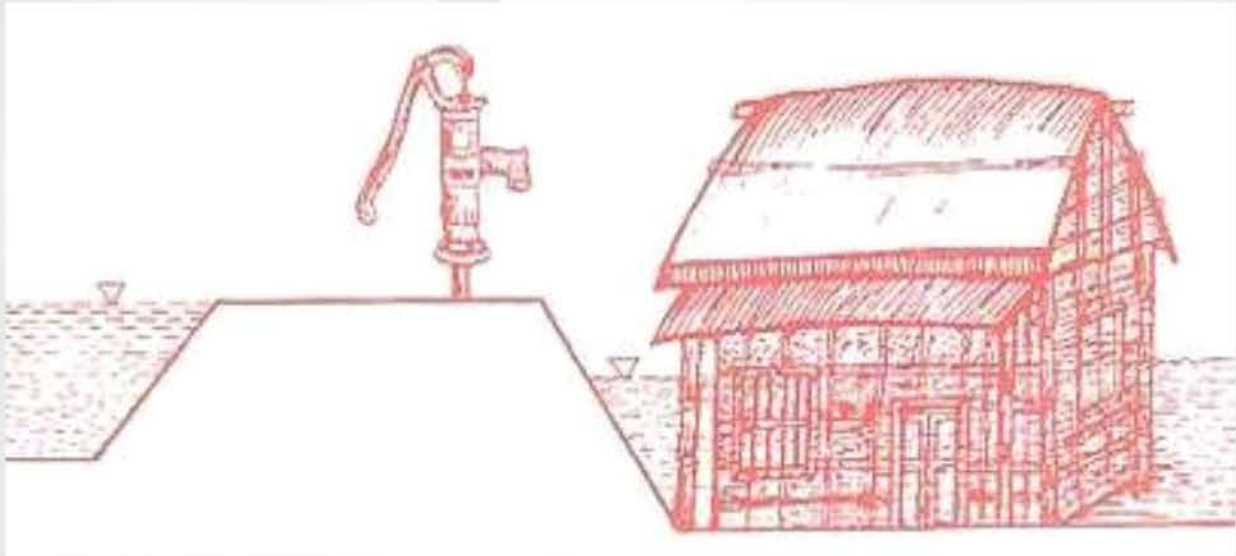
a) by bleaching powder

b) by purifying tablet

c) if the options a & b is not available, the water would be purified by the ray of the sun

Step No. 6: now the water is considered as safe water. To keep it safe for long time, it must be covered with clean cover.

a) Installation of Water Supply System (tube well, PSF, Water Treatment Plans etc) on upper place temporarily



Facilitator's Note Session: 5

2.2 Sanitary Latrine

This is such a technology where the excreta is confined in a particular area, the excreta or excreta containing waste water can never come out from the pipe line not connected with other supply source and it never spread bad smell or allow the birds or flies to enter into. Above all, The latrine which does not pollute the environment is called sanitary latrine.

There is list of some sanitation infrastructures under the project:

1. shared latrine
2. community latrine
3. public latrine
4. compost latrine
5. community drainage

1. Shared Latrine

This is a double-pit offset latrine for 2/3 families. The sub-structure of the latrine is brick made and super-structure is brick-made or makeshift. The squatting pan is connected with the junction-box through a pipe. The line from the junction-box is divided by two and connected with separate pit. The junction box has such system that if one pit opens, then another pit will be closed. The excreta can deposit in any pit of the two. If one is filled, then another pit will be used for excreta deposit and vice versa.

Number of user families: 2/3 families



2. Community Latrine

If there is no place for installing pit-latrines in dense areas of the municipality, the community latrine can be installed. This latrine consists of more than one pit or septic tanks. There are different chambers for male & female. On the basis of the number of families, it has two or more chambers for female. Besides a separate chamber for bathing of women. For ensuring water supply facility tubewell or other water supply system has to be installed. Water supply connection with community latrine is highly considered under the SHEAW-B project.

Number of user families: 25/30



3. Public Toilet

Generally public toilet is installed in a crowded place in a municipality. Actually it is installed in the place where pit-latrines are not possible to install for lack of wide space. This latrine consists of more than one pit or septic tanks. There are separate chambers for male & female. On the male side, toilet pan, urinal and hand wash basin and on the female side, toilet and hand wash basin are provided. Besides for water supply system tubewell or any other system is installed in a near distance for ensuring water supply.

Number of users: 200/250



4. Compost-toilet

Eco-toilet is such a toilet which is environment friendly and the human waste is used in agricultural land in a scientific way. In this way, sanitation and environment would be improved and proliferation could be used for cultivation as compost fertilizer. Eco-toilet lasts long, so though the installation cost is higher, but it serves for 15/20 years and it has economic value in agriculture.



5. Community Drain

Such kind of drain is made & used for draining out waste water of cooking, bathing, washing, cleaning etc. The rain water is also passed through the drain. The drain never be connected to toilet or use to drain out sewage water. This drain is connected to the main drainage line of the municipality.



Operation & Usage of Sanitation Infrastructure

1. Operation & Usage of Shared Latrine

The user groups have to take precautions in using it so that it would not be inoperative -

- Bring 2/3 liter water while using the latrine
- Use water in the pan before using the latrine if it is very dry
- Put 2/3 liter water after using the latrine so that all waste could be washed away
- No hard/soft things except water should be thrown in the pan
- Smoking is strictly prohibited in the latrine
- Girl or female guardian will cooperate while the children use the latrine & clean properly after using it



2. Operation & Usage of Community Latrine

The users will fix the roles and responsibilities for operating and maintaining the community latrine taking the opinions from them. They can consider the following things-

- Bring 2/3 liter water in a pot/mug while using the latrine
- Use water in the pan before using the latrine if it is very dry
- Adequate water provision should be confirmed
- Put 2/3 liter water after using the latrine so that all waste could be washed away
- No hard or soft things except water should be thrown in the pan. This may cause blockage of the pipe.
- Smoking is strictly prohibited in the latrine
- The entire space of the latrine should be cleaned properly after using it. Pot/mug etc. should be kept in proper place.
- Hand wash material (soap/ash) should be kept near the latrine
- Girl/parents/guardian will cooperate while the children use the latrine & clean properly after using it
- Respective contribution money should be deposited regularly for using & operating the infrastructure



3. Operation & Usage of Public Toilet

The users will fix the roles and responsibilities for operating and using the Public Toilet taking the opinions of all concerned. They can consider the following things-

- Bring 2/3 liter water in a pot/mug while using the latrine
- Use water in the pan before using the latrine if it is very dry. Adequate water provision should be kept.
- Put 2/3 liter water after using the latrine so that all waste could be washed away
- No hard/soft things except water should be thrown in the pan. This may cause blockage in the drainage system.
- Smoking is strictly prohibited in the latrine
- The entire space of the latrine should be cleaned properly after using it
- Hand wash material (soap/ash) should be available near the latrine
- Girl/parents/guardian should cooperate while the children use the latrine & clean properly after using it.
- The guardians should teach them about cleaning, washing, hygiene etc.
- Respective contribution money should be deposited regularly for using & operating the infrastructure



4. Usage of Compost Toilet

- User will carry water before using the latrine everytime
- The water pot is kept at the right side of the pan or any other convenient place
- Cover will be opened by the left hand and kept in a feasible distance from the pan
- Keep the leg on the front side of footpace and urinate and evacuate in respective holes
- After defecation take ash in hands and move back one or two pace, put the ash on the stool
- Wash the hand with hand-wash (soap/ash) after using the latrine
- Cover the stools with adequate ash
- Cover the hole with the shade after defecation
- Do the anal washing at designated place
- Close the door after using latrine
- Wash the hands with soap or ash after leaving the latrine



4. Community Drain

A community drain is made for draining out waste water/rain water of the cluster/slum/low income community from their houses. For operating and maintaining the drain, some steps should be followed-

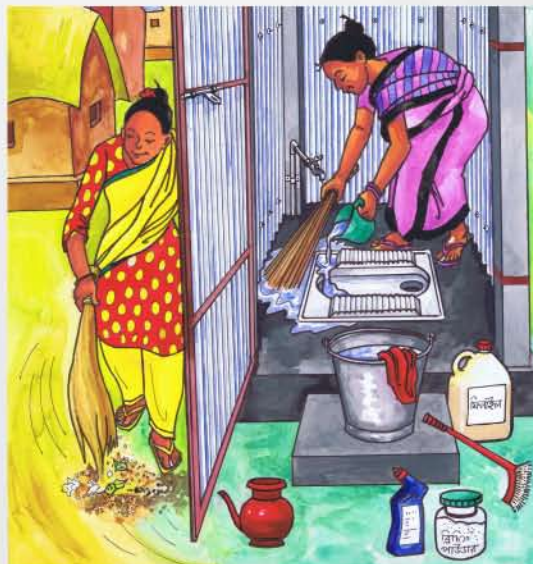
- Should take care properly so that the sullage water can not create water logging
- Hard things such as waste of vegetables, peelings of fruits and other things should be thrown
- Do not throw polythine bags, bottle, etc which are not rotten in the drain
- Should take care properly so that the children don't defecate in the drain
- The latrine can never be connected to the drain



Maintenance of Sanitation Infrastructure

1. Maintenance of Shared Latrine

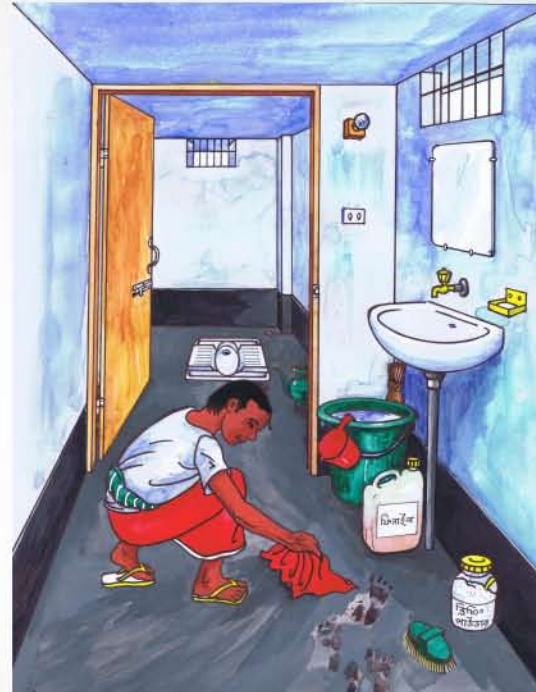
- The user groups and caretaker will have the the responsibility to clean the latrine alternatively. A very small quantity of chemical would be used (Bleaching powder/Harpic/Finile) so that biodegradation by bacteria can not be stopped or reduced
- If one pit is filled by human waste, the other pit would be opened. This time the filled pit is to be sealed carefully so that it can not be harmful for environment. The pit has to be emptied to use again.
- The user groups use salt, urea or kerosene for reducing pollution or sanitizing the stool.



2. Maintenance of Community Latrine

To maintain this type of latrine properly, monitoring is badly needed.

- A committee for operation & maintenance of latrine has to be formed
- The committee will select a caretaker to take care of the latrine operation and maintenance
- At first an amount of 5000 taka is to be deposited for the operation and maintenance of the latrine (including pipe water supply)
- Beside the primary fund, monthly contribution money is to be fixed for operating & maintaining the sanitation infrastructure based on the expenditure incurred
- A bank account with joint signatories of President and Secretary has to be opened for operation and maintenance expenditure
- The following things should be given importance for operating & maintaining the infrastructure properly-



The responsibility of the caretaker-

- The latrine and the surrounding area should be cleaned by Harpic or Bleaching powder
- For cleaning purpose, Finile & bleaching powder should be stored
- Latrine, bathroom and the surrounding area of the tubewell should be cleaned one day in every week
- If the water point exists beside the latrine, the reservoir, meter-pit and supply line should be maintained regularly
- Should check the water supply so that water will be available in the latrine
- Should check whether the users wash their hand with soap/ash after using latrine

Latrine and the surrounding area should be cleaned every early morning and night with Finile and bleaching powder. If the area is clean and insect free, the user will feel easy to use it.

The cleaning process of water reservoir of the latrine-

- At first the stored water would be pumped out from the reservoir. Then the reservoir needs to be cleaned properly. The bottom, walls and roof of the reservoir will be cleaned by the brush with bleaching powder and dry it with cloths
- Then the entire part of the reservoir should be cleaned again 10 gm bleaching powder mixed

with water . (2500 liter capacity tank needs 500 gm bleaching powder)

- The dry reservoir needs to be kept empty for half an hour and then it would be washed again by the clean water and after that water would be stored
- The bacteriological test should be done after every 3 months and if there is any bacteriological germs, then bleaching powder (chlorination) can be used

The cleaning process of septic tank-

- If the tank is filled up, the committee will take necessary measure
- The sweeper will take out the waste from the tank in a hygienic way and dispose it in a designated place
- The waste water of washing cloths and other should not be entered in the latrine pan
- If Vaccutag or desludging machine is available, it would be used for excreta removal

3. Maintenance of Public Toilet

Regular monitoring is needed for proper maintenance of Public Toilet-

- The operation & maintenance committee will select a caretaker but the authority can care of the toilet itself
- A fund of 5000/- taka is to be deposited for operation & maintenance of the toilet as contribution money from the user families
- The municipal authority would give lease the latrine for operation and maintenance

The following things should be maintained properly for operation and maintenance-

Responsibilities of caretaker-

- The inside of the public latrine and the surrounding area should be cleaned by Harpic, fenile or Bleaching powder
- For cleaning purpose, Finile harpic, & bleaching powder should be stored all time.
- Latrine, bathroom and the surrounding area should be cleaned one day in every week
- Should check the flashing system, water tap and other fittings whether are workable
- Hand wash basin and bathroom should be cleaned regularly
- If the water point is exists beside the latrine, the reservoir , meter-pit and supply line should be maintained properly
- Should check the water supply so that water will be available in the latrine
- Should check the users so that the user can wash their hand with soap/ash after using latrine



4. Maintenance of Eco-toilet

- If water is poured into the stool-chamber, those should be covered by enough ashes
- The entire part of the pan should be cleaned properly by the broom/brush
- The floor of the latrine is to be washed by wet cloths
- The surroundings of the floor should be cleaned with half wet cloth
- Sometimes the stool has to be shifted slightly by a specially made handle
- The evaporation bed should be stirred occasionally so that the used water can soak into the ground through the brick bats
- The connector pipe of the urination tank is to be connected tightly and properly
- After every 6 months the back door of the toilet chamber is to be opened for collecting compost
- Compost is to be collected by spade
- The compost is to be dried properly in the sunlight covering by black polythine
- After 15 days the compost is taken from the black polythine and again dried it in sunlight



5. Maintenance of Community Drain

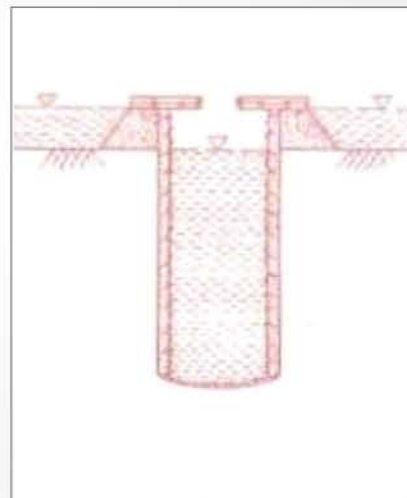
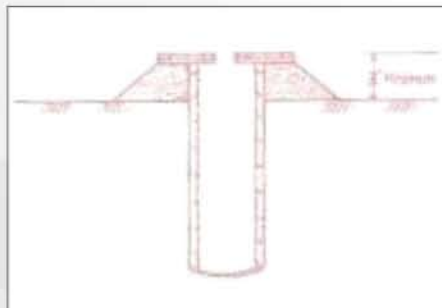
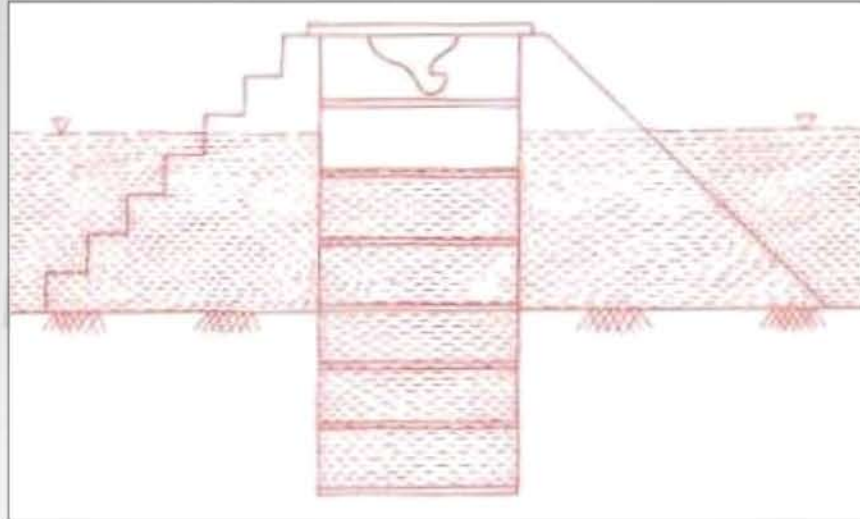
Small scale drainage system is made for draining out waste water of the community/cluster/ slum house under this project. For repairing, cleaning and maintaining the drain, the user groups have some important responsibilities-

- After every/three months or as per requirement the drain is to be cleaned by a long stick and spade
- The waste of the drain is stored at a particular place from where the municipality authority can pick it
- Bleaching powder is to be sprayed in the drain & the surrounding area so that mosquito or any other insects can not be born
- One caretaker would be recruited for maintaining the community drain or the caretaker of other infrastructure can carry out the responsibilities



Operation & Maintenance of Sanitation Infrastructure during disaster period

Before disaster



Operation & Maintenance of Sanitation Infrastructure during disaster period

During Disaster

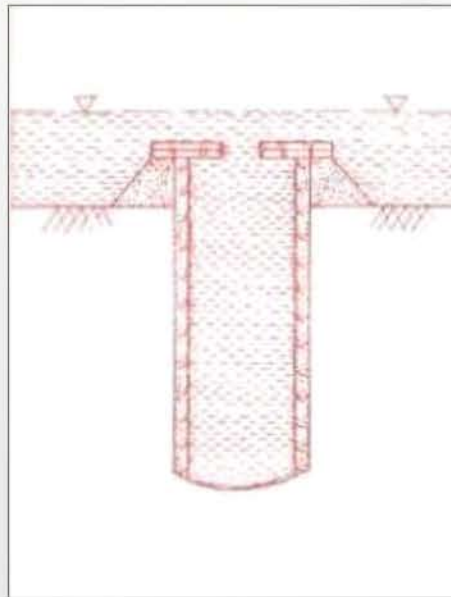
The sanitation infrastructure with low lining system would be collapsed or inoperative during disaster. Picture (top left corner): Sanitation without proper lining system. It is ok during normal season. Picture (top right corner): Sanitation without proper lining system. It has been collapsed during flood season.



লাইনিং বিহীন পায়খানা। স্বাভাবিক অবস্থায় ধ্বসে পড়েনি



লাইনিং বিহীন পায়খানা। স্বাভাবিক অবস্থায় ধ্বসে পড়েছে



বন্যার পানি পল্লটফর্মের উপরে উঠে যাওয়ায় ব্যবহার অনুপযোগী হয়ে পড়ে।

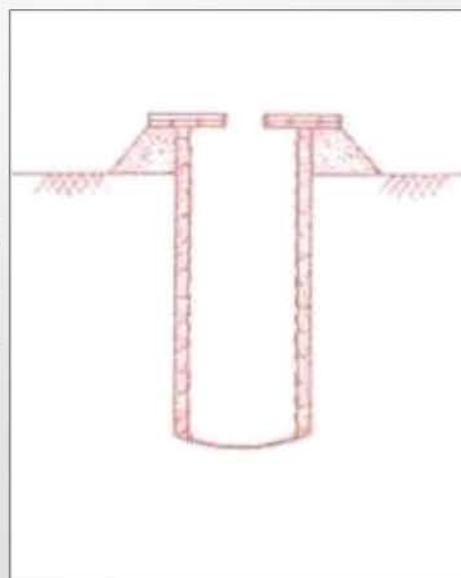
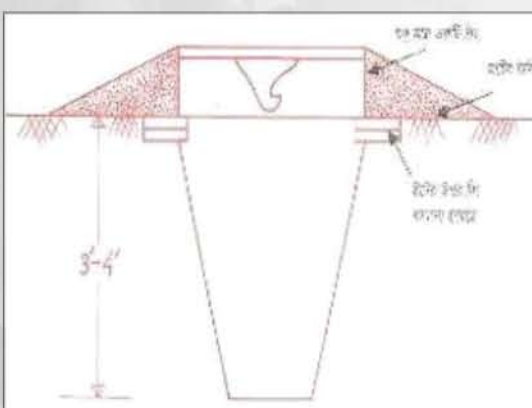
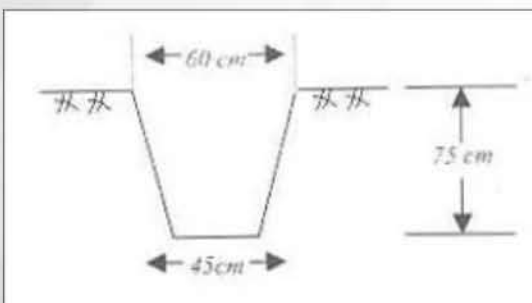
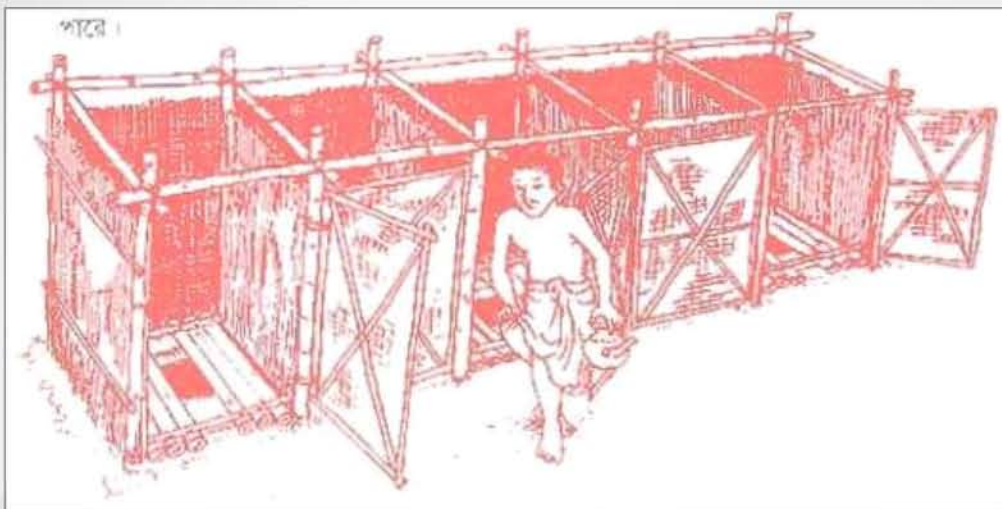
Operation & Maintenance of Sanitation Infrastructure during disaster period

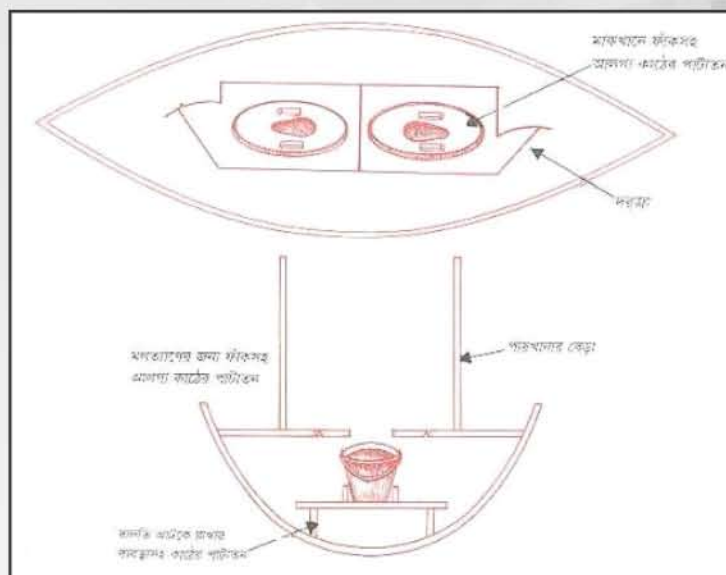
Alternative Method

For high land: If high-land is available, sanitary latrine would be installed there for the safety of flood.

Operation & Maintenance of the usable latrine during disaster period

- The entire space of latrine and surrounding area should be cleaned and infrastructure should be repaired so that flood water can not reach the infrastructure and pollute the water body
- Existing usable latrine should be used in proper way. Stool of the children is to be kept in proper place.
- Latrine should be cleaned regularly so that germs/ poisonous insects (i.e. snake etc.) can not take shelter be existed in flood season.





Operation & Maintenance of the sanitation infrastructure during disaster period

After disaster:

If the latrine is not totally damaged in flood season, then it is to be repaired. Otherwise new latrine is to be installed.

Home made latrine:

After flood it would be checked carefully whether the infrastructure of the latrine is ok or not.

- If the hole of the latrine is damaged, the hole is to be covered up by soil and new latrine is to be installed at another place
- If the hole of the latrine is ok, some repair is to be needed. For that, entire the latrine and the surrounding area should be cleaned properly.

Water seal latrine

After flood it is needed to check out that hole or pit of the latrine is ok or damaged. And the slab has been displaced or not.

- If the hole or pit of the latrine is damaged, then the hole is to be covered by soil and the slab is to be shifted for new latrine
- If the hole or pit and slab are ok, then it is not needed to install a new latrine. The existing latrine is to be repaired.

If the hole or pit of the latrine is filled up during flood, it is needed to make it empty by pumping out the waste from it and after flood season for installing new one. Otherwise it could be remain for 18 months for rotting the waste.

Community Latrine or Public Toilet

If the platform of the latrine is sunk by flood water, it is needed to check the pit or hole and slab is ok or not.

Clean up platform, drain & surrounding area:

- The deposited soil/clay should be removed by spade/broom etc. The entire space of latrine and surrounding area should be cleaned and repaired

Disinfections:

- Latrine should be cleaned regularly by bleaching powder, savlon/fenile so that germs/insects can not exist in flood season.

Chapter -3

Facilitator's Note Session: 6

3. Planning of conducting Caretaker Session regarding WatSan Infrastructure Operation & Maintenance

6.1 Planning Session:

Caretaker training on Pipe Water Supply Operation & Maintenance

Session-1

Title of the Session: Inauguration of the Training

Time: 9:00-10:00

Discussion points of the session:

- 1.1 Registration of the participants
- 1.2 Introducing
- 1.3 Discussion on the purpose of Training
- 1.4 Discussion on the rules & regulation of Training
- 1.5 Material Distribution

Training Method: Speech, Discussion, Introducing oneself

Materials: Registration form, Writing pad, Pen

Session -2

Title of the Session: Idea about Pipe Water Supply Technology

Time: 10:00-11:00

Discussion points of the session:

- 2.1 What is pipe water supply?
- 2.2 Discussion on different parts of the pipe water supply
- 2.3 Discussion on how the different parts work

Training Method: Speech, Discussion, Question & Answer & showing of different technical parts of the infrastructure

Materials: Instruction book of caretaker, different technical parts of pipe water supply technology, white board, white board marker

Tea break: 11:00- 11:30

Session-3

Title of the Session: Maintenance of Pipe Water Supply

Time: 11:30-1:00

Focusing Points of the Session:

- 3.1 Different problems of Pipe Water Supply
- 3.2 Why the problems arise?
- 3.3 How to solve the problems?

Training Method: Speech, Discussion, Showing up different parts of the technology

Materials: Maintenance Instruction of caretaker, different tools of pipe water supply, white board, white board marker pen

Lunch break: 1:00- 2:00

Session: 4

Title of the Session: Operation & Maintenance of Pipe Water Supply- Practical

Time: 2:00-4:00

Discussion points of the session:

- 4.1 Different parts of the pipe water supply
- 4.2 How the parts work of the pipe water supply
- 4.3 Problems of the different parts of the pipe water supply
- 4.4 Reasons behind the problems of the pipe water supply
- 4.5 How to solve the problems of the pipe water supply

Materials: Maintenance Instruction for caretaker, demy of pipe water supply

Training Method: Speech, Discussion, practical session on demy of pipe water supply

Tea Break: 4:00- 4:30

Session- 5

Title of the session: Closing Session

Time: 4:30-5:00

Discussion points of the session:

- 5.1 Training Evaluation
- 5.2 Concluding remarks

Material:

Training Method:

Chapter-3

Facilitator's Note Session: 7

3. Monitoring

The chronological measuring method for ensuring the implementation of the activities accordingly to goal and quality is considered as monitoring.

Participatory Monitoring:

The monitoring which is conducted by both of user group, implementing agency, external personalities is called participatory monitoring. By this method the user groups can indicate the change themselves and can change method if needed. As the user group is itself involved in the matter, the monitoring team accepts the report easily and consider their opinion what to do or not to do.

The necessity of monitoring for WatSan project:

- Measure the progress of the implementation of the activities to fulfill the purpose of the project
- Take corrective steps if there is any wrong in the implementation part
- Make aware the concerned community or authority about quality of the activities
- Justify the relevancy and feasibility of the project as targeted.
- Maintain coordination at of different areas of the project
- Asses the future planning of the project and provide recommendation

How to monitor

- The committee will discuss on operation & maintenance of the infrastructure and take next step accordingly
- The member of the adolescent girl monitoring committee will fill up the monitoring form every month
- The member of adolescent girl monitoring group will present in the monthly meeting and read out the filled up monitoring form. After presenting the monitoring report, the form will be submitted to CHP
- The committee will take next step on the basis of monthly monitoring report
- For water supply infrastructure the sanitary inspection form same as monitoring form would be filled up and the score has to be put in the fixed row The members of the adolescent girl will hang a brown paper on the wall of the infrastructure, if the system is ok, then the user group will mark the ($\sqrt{\quad}$) sign and for not ok, they will mark the (\times) sign
- The Pourashova (Municipality) facilitator (PF) or focal person will take necessary step if needed
- The committee member of operation & maintenance group will observe the activities all the time whether the operation and maintenance are in track or not.

Sanitation, Hygiene Education and Safe Water Supply (GoB-UNICEF) Project- Urban Component
..... Municipality,

Field Agency:

Monthly monitoring of Water & Sanitation Infrastructure- Operation & Maintenance

Sanitation, Hygiene Education and Safe Water Supply (GoB-UNICEF) Project- Urban Component
 Municipality,
 Field Agency:

SI	Types of Infrastructure	Name of caretaker	Name of cluster	1. Management of operation maintenance committee				2. Sanitation Infrastructure				3. Water Supply Infrastructure														
				Monthly meeting	Collection of money	Electricity bill	Active	Clean area of infrastructure	Sufficient water in the latrine	Active	Clean area of infrastructure	Sufficient water for the user	Sanitary Inspection Score													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
				Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Very High	High	High	Medium	Low
1																										
2																										
3																										
4																										
5																										

Signature of CHP:
 Name:
 Municipality,
 Date:

Pourashova (Municipality) Facilitator (PF) :
 Name:
 Municipality,
 Date:

Sanitary Inspection Sheet- Tube Well

- 1.Installed by (person/organization):
2. General Information: Municipality:, Ward:
Name of the Region:, Caretaker:
- 3.Info of Tube Well:, Type/Length deep (Feet/Miter):
4. Name of the Inspector:, Date of Inspection:
5. Water Sample collected for testing? Yes/No

Particular Information for Inspection

Risk

- | | |
|--|--------|
| 1. Is latrine available in 30 feet of Water Supply Infrastructure? | Yes/No |
| 2. Is human waste (Stool/others) on the ground in 30 feet of
Water Supply Infrastructure? | Yes/No |
| 3. Is any polluting source in 30 feet of Water Supply Infrastructure? | Yes/No |
| 4. The drain of the Tube Well is broken or half-broken? | Yes/No |
| 5. Is it to be needed to clean the drain of the tube well? | Yes/No |
| 6. Is the platform of the Tube Well broken? | Yes/No |
| 7. Is it to be needed to clean the platform of the tube well? | Yes/No |
| 8. Is the seal in the tubewell head connected with platform broken ? | Yes/No |
| 9. Is the connected part with platform faulty? | Yes/No |
| 10. Is the fence or boundary loose? | Yes/No |

Total Score:

(Score of Risk: 9-10= very high, 6-8=high, 4-5=medium, 0-3= low)

Result & recommendation:

Other areas of Risk:

Other comments:

Signature, name, designation & organization of the Inspector:

Sanitary Inspection Sheet- Ring Well

1. Installed by (person/organization):
2. General Information: Municipality:, Ward:
- Name of the Region:, Caretaker:
3. Info of Tube Well:, Type/Length deep (Feet/Miter):
4. Name of the Inspector:, Date of Inspection:
5. Water Sample collected for testing? Yes/No

Particular Information for Inspection

Risk

- | | |
|--|--------|
| 1. Is latrine available in 30 feet of Ring Well Infrastructure? | Yes/No |
| 2. Is human waste (Stool/others) on the ground in 30 feet of Ring Well Infrastructure? | Yes/No |
| 3. Is any polluting source in 30 feet of Ring Well Infrastructure? | Yes/No |
| 4. The drain of the Ring Well is broken or semi-broken? | Yes/No |
| 5. Is it to be needed to clean the drain of the Ring Well? | Yes/No |
| 6. Is the platform of the Ring Well 3 feet square? | Yes/No |
| 7. Is the platform of the Ring Well broken? | Yes/No |
| 8. Is it to be needed to clean the platform of the Ring Well? | Yes/No |
| 9. Is the head connected with platform loose? | Yes/No |
| 10. Is the seal of connected part of the tubewell with platform broken ? | Yes/No |
| 11. Is the fence or boundary faulty ? | Yes/No |

Total Score:

(Score of Risk: 9-10= very high, 6-8=high, 4-5=medium, 0-3= low)

Result & recommendation:

Other areas of Risk:





Other comments:

Signature, name, designation & organization of the Inspector:

Monitoring format of Water & Sanitation Infrastructure (Infrastructure Based)

- If the infrastructure is active for monthly based, then put tik ($\sqrt{\quad}$) mark, and if is inactive, then put cross (\times) mark
- To write down the reasons behind inactiveness of the infrastructure or inspector may write other comments in comment column

The format painted on brown paper should be hanged on the particular place

Month	Picture of the Infrastructure					Comments
					U	
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Name of the Member of Adolescent girl group:Signature:

Name of the CHP:Signature:

তত্ত্বাবধায়ক-এর
প্রশিক্ষণ সহায়িকা

তারা ডেভ হেড পাম্প



সংসারের সকল কাজে নিরাপদ পানি ব্যবহার করুন

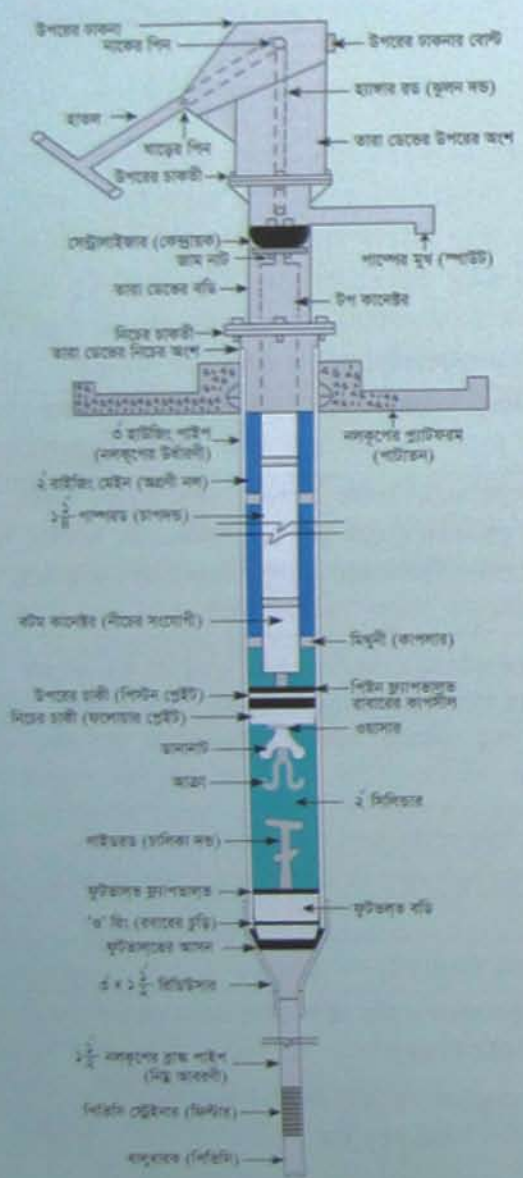


জনস্বাস্থ্য প্রকৌশল অধিদপ্তর

সমগ্র দেশে গ্রামীণ পানি সরবরাহ প্রকল্প (৫ম পর্ব) এর আওতায় প্রণীত

৮. সিলিভার পাইপ- এর নিচের অংশে ফুটভাষ বসানো থাকে এবং পিস্টন এসেম্বলী উঠানো করে পানি তুলতে সহযোগিতা করে।

২.২.২ তারা ডেভ হেড পাম্পের যন্ত্রাংশের পরিচিতিঃ



অধিবেশন - ৩

তারা ডেভ হেড পাম্প - এর রক্ষণাবেক্ষণ

সময়ঃ ১০:০০- ১২:০০

উপকরণঃ তারা ডেভ হেড পাম্প রক্ষণাবেক্ষণ নির্দেশিকা ও প্রয়োজনীয় কাগজ ও কলম

প্রশিক্ষণের কৌশলঃ তত্ত্বাবধায়ক রক্ষণাবেক্ষণ নির্দেশিকার ছবির মাধ্যমে মৌখিক আলোচনা

তারা ডেভ হেড পাম্প- এর পাম্পিং সিস্টেম অনেকগুলো খুচরা যন্ত্রাংশের সমন্বয়ে গঠিত। অনেক সময় দেখা যায় শুধু মাত্র রক্ষণাবেক্ষণের জ্ঞান না থাকার জন্য খুবই ক্ষুদ্র সমস্যার কারণে পাম্পটি অব্যবহৃত অবস্থায় থাকতে থাকতে এক সময় পুরো সিস্টেমটাই অকেজো হয়ে যায়। তাই, তারা ডেভ হেড পাম্প সচল রাখা এবং নিরাপদ পানি সংরক্ষণের জন্যে যথাযথ রক্ষণাবেক্ষণ খুবই গুরুত্বপূর্ণ। এই অধ্যায়ে বিভিন্ন পর্যায়ের পাম্পের প্রত্যেকটি সমস্যা চিহ্নিত করণ পূর্বক এর সমাধানের কৌশল ও রক্ষণাবেক্ষণের বর্ণনা করা হল।

আপনার তারা ডেভহেড পাম্পটি মেরামতের জন্য যেভাবে খুলবেন।

৩.১ পানি না উঠলে বুঝতে হবে পাম্পটির পিস্টন বা ফুটভাল্ভ এ্যাসেম্বলীর মেরামত করতে হবে।

১। তারা ডেভ হেড পাম্প মেরামতের জন্য পাম্পিং সিস্টেমে ব্যবহৃত খুচরা যন্ত্রাংশের কার্যকারিতা পরীক্ষা করতে হয়। কার্যকারিতা পরীক্ষা করতে প্রথমে গুটি রেঞ্জ (স্পেনার) দিয়ে তারা ডেভের উপরের অংশ থেকে টপ কভার আলাদা করে ফেলুন।



২। এরপর নাকের ও ঘাড়ের পিন (ফালক্রাম পিন) খুলে হাতলটি আলাদা করেন।



৩। এরপর গুটি রেঞ্জের সাহায্যে তারা ডেভের উপরের অংশ আলাদা করুন।



৪। এরপর টপ কানেক্টর (উপরের সংযোগী) থেকে ঝুলনদণ্ড সেন্ট্রালাইজার সহ খুলে ফেলুন।



৫। এরপর পাম্পের ডি (চাপদণ্ড) উপরে আস্তে আস্তে টেনে তুলুন।



৬। এরপর ডান দিকে ঘুরিয়ে প্রত্যেকটি পাম্পের ডের প্যাচ খুলে উঠিয়ে সারিবদ্ধভাবে সাজিয়ে রাখুন।



৭। পিস্টনটি উপরে উঠিয়ে দেখুন কি কি নষ্ট হয়ে গেছে। দেখা যাচ্ছে এর পিস্টন ফ্ল্যাপডাঙ্ক ও কাপসীল নষ্ট হয়ে গেছে।



৮। নষ্ট অংশগুলো মেরামতের জন্য প্রথমে ডানানাটটি ডানদিকে ঘুরিয়ে আক্রাটিকে ঢিলা করে নিতে হবে।



৯। এরপর আক্রাটিকে বাম দিকে ঘুরিয়ে খুলে ফেলুন।



১০। এরপর ডানানাটটি বাম দিকে ঘুরালে নীচের দিকে খুলে আসবে।



১১। এরপর ওয়াসারটি খুলে ফেলুন।



১২। নীচের চাকীটি (ফলোয়ার প্রেইট) খুলে ফেলুন।



১৩। এরপর নষ্ট হয়ে যাওয়া কাপসীলটি খুলে ফেলুন।



১৪। এরপর উপরের চাকীটি (পিসটন প্রেইট) খুলে ফেলুন।



১৫। এরপর নষ্ট শিকটন ম্যান্ড্রাপ ডাঙ্কটি (বাবারের কম্পন কপাট) খুলে ফেলুন।



১৬। এরপর ফুটভাষ এ্যাসেম্বলী তোলার জন্য বটম কানেক্টরের (নিচের সংযোগী) সাথে শুধুমাত্র আক্রাটি জুড়ে ডানানটি দিয়ে শক্ত করে এঁটে দিন।



১৭। আক্রাসহ পাম্পরডগুলি পরিষ্কার পানি দিয়ে ধুয়ে জোড়া দিয়ে পাম্পের ভেতরে নামাতে থাকুন। শুধুমাত্র আক্রাটি জুড়ে ডানানটি দিয়ে শক্ত করে এঁটে দিন।



১৮। ফুটভাষ এ্যাসেম্বলী নাগালের মধ্যে আনার জন্য টপ কানেক্টরের সাথে উদ্ধার শিকটি প্যাঁচের সাহায্যে জুড়ে দিন।



১৯। এরপর শিকের হাতল ধরে পাম্পরড আরও নীচের নামাতে থাকুন যতক্ষণ না ওটা নীচে ঠেকে যায়। পাম্পরড ঠেকে গেলে আশ্তে ডানে মোচড় দিন।



২০। এরপর হাত ছেড়ে দিলে যদি শিকটি উপরের দিকে ঠেলে না উঠে তাহলে বুঝতে হবে আক্রাটি ফুটভাষ এ্যাসেম্বলীতে আটকা পড়েছে।



২১। গাইড রড (চালিকা দণ্ড) এভাবে আক্রার মধ্যে আটকে থাকবে। এবার ডান মোচড়ে রেখে আন্তে আন্তে সম্পূর্ণ পাম্প রডগুলি তুলে ফেলুন।



২২। ফুটভাল্ব এ্যাসেম্বলী বাইরে বেরিয়ে আসার সঙ্গে সঙ্গে ওটাকে ধরে ফেলুন। নইলে ঝাঁকুনি লেগে আবার পাম্পের ভেতর পড়ে যেতে পারে।



২৩। দেখা যাচ্ছে ফুটভাল্ব এ্যাসেম্বলীর 'ও' রিং এবং ফ্ল্যাপভাল্ব এই দুটোই নষ্ট হয়ে গেছে।



আপনার তারা ডেভহেড পাম্পের যন্ত্রাংশগুলি মেরামত করে যেভাবে পুনরায় সচল করবেন।

১। পুরানো 'ও' রিং খুলে এভাবে নতুন 'ও' রিং পরিয়ে দিন।



২। নষ্ট ফ্ল্যাপভাল্ব খুলে নতুন একটি ফ্ল্যাপভাল্ব লাগিয়ে নিন এবং এই ভাবে গাইডরডটি সংযুক্ত করুন।



৩। দেয়ামত করা ফুটভাষ এ্যাসেম্বলী উপর থেকে পাম্পের ভেতর এভাবে ছেড়ে দিন। ওটা নীচে জায়গা মত বসে পড়বে।



৪। বটম কানেক্টর থেকে আক্রা এবং ডানানটাটি বাম দিকে ঘুরিয়ে খুলে ফেলুন।



৫। ভালো পিস্টন ফ্ল্যাপভাষটি এভাবে বটম কানেক্টরের সঙ্গে পরিয়ে দিন।



৬। উপরের চাকীটি এভাবে পড়িয়ে দিন।



৭। কাপসীলটি এভাবে পড়িয়ে দিন।



৮। নীচের চাকীটি এভাবে পড়িয়ে দিন।



৯। ওয়াসারটি এভাবে পড়িয়ে দিন।



১০। ডানানাটটি ডান দিকে ঘুরিয়ে শক্ত করে এঁটে দিন।



১১। হালকাভাবে ডান দিকে ঘুরিয়ে এবার আক্রাটি ডানানাটের গায়ে ঠেকিয়ে দিন।



১২। ডানানাটটি বাম দিকে ঘুরিয়ে আক্রার সঙ্গে শক্ত করে এঁটে দিন।



১৩। পাম্প রডগুলির মেইল ও ফিমেইল প্যাচগুলো ভালো করে পরিষ্কার পানি দিয়ে ধুয়ে নিন।



১৪। পিস্টন এ্যাসেম্বলীসহ পরিষ্কার পাম্প রড গুলি জোড়া দিয়ে পাম্পের ভেতরে নামাতে থাকুন।



১৫। টপ কানেটরের সাথে জামনাট ও সেন্ট্রালাইজারের অংশগুলো সংযুক্ত করে দিন।



১৬। তারা ডেভ হেডের বডি'র সাথে উপরের অংশ সংযুক্ত করে দিন।



১৭। হ্যান্ডার রডের (বুলনদস্ত) উপরে ও হাতলে ফালক্রাম প্রাস্টিক বুশ ও ফালক্রাম পিনগুলো সংযুক্ত করে দিন।



১৮। হাতলটি সংযুক্ত করুন ও গুটি রেঞ্জ দিয়ে নাকের ও ঘাড়ের ফালক্রাম পিন দুটো টাইট করে দিন।



১৯। টপ কভারটি পাম্পের যথাস্থানে বসিয়ে গুটি রেঞ্জ দিয়ে টাইট করে দিন।



২০। এখন দেখুন পাম্প চাপার সঙ্গে সঙ্গে প্রচুর পরিমাণে পানি আসছে।



যে সকল সমস্যা দেখা দিলে আপনি নিজেই আপনার তারা ডেভহেড পাম্পটি মেরামত করে নিতে পারবেন।

১। পিস্টন ফ্ল্যাপভাঙ্গ এবং কাপসীল এর যে কোন একটি অথবা দুটোই ছিড়ে বা ক্ষয় হয়ে গেলে পাম্পে পানি আসার পরিমাণ কমে যাবে।



২। পিস্টন বা ফুটভাঙ্গ যদি সঠিক জায়গায় অথবা সঠিকভাবে না থাকে তবে পাম্পে পানি আসার পরিমাণ কমে যাবে।



৩। ফুটভাঙ্গ ফ্ল্যাপভাঙ্গ অথবা 'ও' রিং ছিড়ে গেলে বা ক্ষয় হলে পানি চুইয়ে নীচে নেমে যাবে এবং পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেড়িতে পানি আসবে।



৪। ফুটভাঙ্গ এর বুচরো অংশগুলো যদি সঠিক জায়গায় অথবা সঠিকভাবে না বসে তবে পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেড়িতে পানি আসবে।



৫। ফুটভাঙ্গ এর 'ও' রিং কোন কারণে খুলে পড়ে গেলে পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেড়িতে পানি আসবে।



যে সকল সমস্যা দেখা দিলে আপনাকে সরকারী নলকূপ মেকানিকের সাহায্য নিতে হবে।

১। ফুট ভাষের বক্টুর প্যাচ খুলে গাইডরড সিলিভারের ভেতর পড়ে গেলে।



৬। অসতর্কতা বশতঃ বা অতিরিক্ত টাইট বা ঢিলা থাকার কারণে মিথুনী (কাপলার) নষ্ট হয়ে গেলে।



২। ফুট ভাষের বক্টু ভেঙ্গে সিলিভারের ভিতরে গাইডরড পড়ে গেলে।



৭। অসতর্কতা বশতঃ বা অতিরিক্ত টাইট বা ঢিলা থাকার কারণে পাম্প রডের মেইল বা ফিমেইল নাট ও বোল্ট নষ্ট হয়ে গেলে।



৩। পিস্টন এ্যাসেম্বলীর খুচরা অংশগুলো বটম কানেস্টার থেকে খুলে পড়ে গেলে।



৮। কোনো কারণে হাতল ভেঙ্গে গেলে।



৪। বটম কানেস্টার জোড়া খুলে পিস্টন এ্যাসেম্বলীসহ সিলিভারের ভেতর পড়ে গেলে।



৯। কোনো কারণে বটম কানেস্টারের স্টীলের প্যাচ নষ্ট হয়ে গেলে।



৫। পাম্প রডের মেইল বা ফিমেইল নাট ও বোল্ট নষ্ট হয়ে জোড়া খুলে গেলে।



৯। কোনো কারণে টপ কানেস্টারের স্টীলের প্যাচ নষ্ট হয়ে গেলে।



তত্ত্বাবধায়ক এর
রক্ষণাবেক্ষণ নির্দেশিকা
উত্তোলনযোগ্য তারা ডেভহেড পাম্প



সংসারের সকল কাজে নলকূপের পানি ব্যবহার করুন

জনস্বাস্থ্য প্রকৌশল অধিদপ্তর
সমগ্র দেশে গ্রামীণ পানি সরবরাহ প্রকল্প (৫ম পর্ব) এর আওতায় প্রণীত





১। যদি আপনার হাতা কেঁচিয়ে, পাশের টিলায়তো পানি না উঠে তাহলে কি কারণে? সেখানে আপনাকে পাম্পটি মেরামত করে খুবায়ে মসল করতে হবে যা পর্যায়ক্রমে দেখানো হল।

পানি না উঠলে বুঝতে হবে পাম্পটির পিস্টন বা ফুটভাল্ব বা এ্যাসেম্বলীর মেরামত করতে হবে।



১। ফিরে দেখা যাবে, পিস্টনের আর্দ্রতা বা ফুট ভাল্বের 'a' সিং নই হয়ে গেছে।



২। ফিরে দেখা যাবে, ফুট ভাল্বের 'a' সিং খুলে গেছে।



৩। ফিরে দেখা যাবে, ফুটভাল্ব ক্রসপাল্ভের ও পিস্টন ক্রসপাল্ভের নই হয়ে গেছে।

আপনার তারা ডেভহেড পাম্পটি মেরামতের জন্য যেভাবে খুলবেন।



১। প্রথমে হাট বোল (স্পেশাল) দিয়ে হাতা বোলের টালায় অংশ থেকে উপ জতার আঁকানো করে দেবেন।



২। এরপর হাতা বা হাতের পিন খোলার পিন দিয়ে হাতা থেকে পিনটি খুলে হাতাটি আলাদা করুন।



৮। নই অংশগুলো মেরামতের জন্য প্রথমে ডানদিকটি ডানদিকে ঘুরিয়ে ডানদিকটিতে তিলা করে দিতে হবে।



৯। এরপর ডানদিকটিতে হাত দিতে ঘুরিয়ে খুলে দেবেন।



১০। এরপর ডানদিকটি হাত দিতে খুললে ঠিকের দিকে খুলে আসবে।



১১। এরপর ফুটভাল্ব এ্যাসেম্বলী বোলের জন্য নইম লাগেইতার দিকের অংশে নই। নইম লাগেইতার আঁকানী হয়ে ডানদিকটি দিকে শক্ত করে এঁটে দিবে।



১২। ডানদিকের পাম্পহেডটি পরিষ্কার শুষ্ক দিকে ঘুরে রেখে দিবে। পাম্পের বোলের নাম্বারে খাটুন।



১৩। ফুটভাল্ব এ্যাসেম্বলী নইমের হাতা আঁকানো জন্য উপ জতার বোলের পিন দিয়ে পিস্টন নইমের পানি খাটানো করতে হবে।

যে সকল সমস্যা দেখা দিলে আপনি নিজেই আপনার তারা ডেভহেড পাম্পটি মেরামত করে নিতে পারবেন।



১। পিস্টন ফুটভালভ এবং কাপসীল এর যে কোন একটি অথবা দুটোই ছিড়ে বা ক্ষয় হয়ে গেলে পাম্পে পানি আসার পরিমাণ কমে যাবে।



২। পিস্টন বা ফুটভালভ যদি সঠিক জায়গায় অথবা সঠিকভাবে না থাকে তবে পাম্পে পানি আসার পরিমাণ কমে যাবে।



৩। ফুটভালভ ফুটভালভ অথবা 'ও' রিং ছিড়ে গেলে বা ক্ষয় হলে পানি টুইয়ে নাচে নেমে যাবে এবং পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেরিতে পানি আসবে।



৪। ফুটভালভ এর খুচরো অংশগুলো যদি সঠিক জায়গায় অথবা সঠিকভাবে না বসে তবে পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেরিতে পানি আসবে।



৫। ফুটভালভ এর 'ও' রিং কোন কারণে খুলে পড়ে গেলে পাম্প চাপার সঙ্গে সঙ্গে পানি না এসে একটু দেরিতে পানি আসবে।

যে সকল সমস্যা দেখা দিলে আপনাকে সরকারী নলকূপ মেকানিকের সাহায্য নিতে হবে।



৬। ফুট ভালভের বন্টর প্যাচ খুলে গাইডরড সিলিভারের ভেতর পড়ে গেলে।



৭। ফুট ভালভের বন্ট ভেঙ্গে সিলিভারের ভিতরে গাইডরড পড়ে গেলে।



৮। পিস্টন এ্যাসেম্বলীর খুচরো অংশগুলো বটম কানেক্টর থেকে খুলে পড়ে গেলে।



৯। বটম কানেক্টর জোড়া খুলে পিস্টন এ্যাসেম্বলীসহ সিলিভারের ভেতর পড়ে গেলে।



১০। পাম্প রডের মেইল বা ফিমেইল নাট ও বোল্ট নষ্ট হয়ে জোড়া খুলে গেলে।



১১। অসতর্কতা বশতঃ বা অতিরিক্ত টাইট বা ঢিলা থাকার কারণে মিথুনী (কাপলার) নষ্ট হয়ে গেলে।



১২। অসতর্কতা বশতঃ বা অতিরিক্ত টাইট বা ঢিলা থাকার কারণে পাম্প রডের মেইল বা ফিমেইল নাট ও বোল্ট নষ্ট হয়ে গেলে।



১৩। কোনো কারণে হাতল ভেঙ্গে গেলে।



১৪। কোনো কারণে টপ কানেক্টরের স্টীলের প্যাচ নষ্ট হয়ে গেলে।



১৫। কোনো কারণে বটম কানেক্টরের স্টীলের প্যাচ নষ্ট হয়ে গেলে।

পিস্টন ও ফুটভালভ এ্যাসেম্বলীর নষ্ট যন্ত্রাংশগুলি যেভাবে চিনবেন।



নষ্ট পিস্টন ফুটভালভ



নষ্ট ফুটভালভ ফুটভালভ



নষ্ট কাপসীল



নষ্ট 'ও' রিং

উত্তোলনযোগ্য তারা ডেভহেড পাম্পের বিভিন্ন অংশের নাম

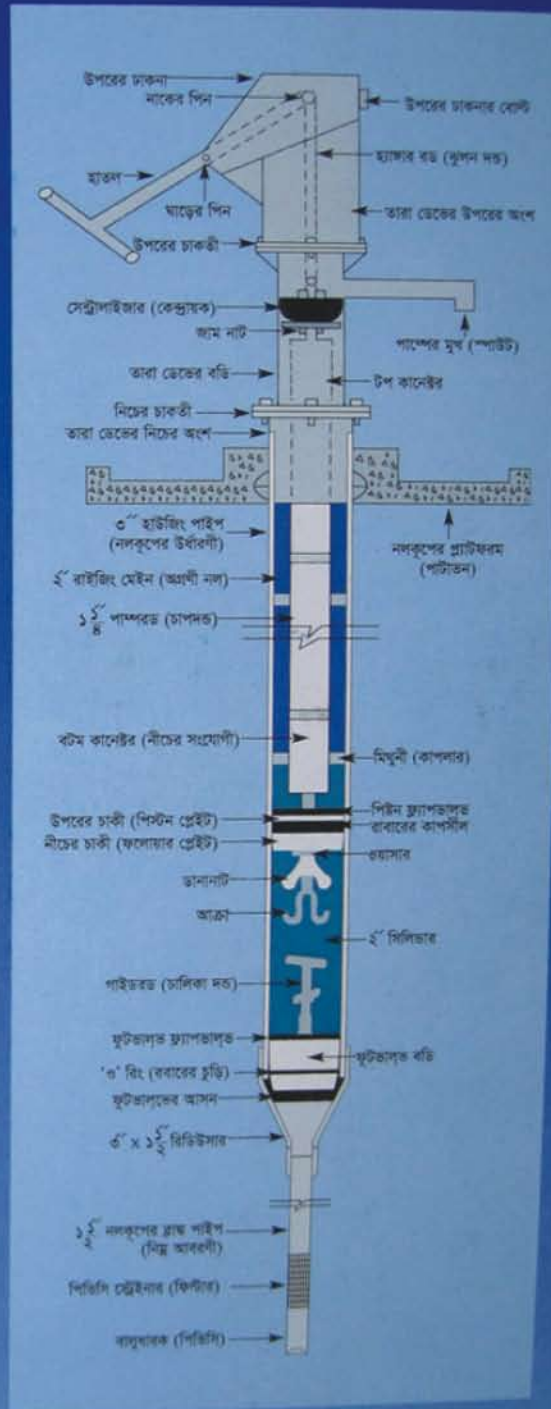
পিস্টন এ্যাসেম্বলীর অংশসমূহ



ফুটডাল্ড এ্যাসেম্বলীর অংশসমূহ



তারা ডেভের অংশসমূহ



- বস্তু ৩ আক্রার কাজে আনেনিক ও জীবাসুসুক পানি ব্যবহার করুন।
- সঠিক ভাবে নলকূপ মেসার ও বস্তুব্যবহার করুন।
- নলকূপের তারপাশের পরিবেশ পরিচ্ছন্ন রাখুন।

গবেষণা ও উন্নয়ন বিভাগ
জনস্বাস্থ্য প্রকৌশল অধিদপ্তর



Department of Public Health Engineering

14, Shahid Captain Monsur Ali Sharani
Kakrail, Dhaka-1000, Bangladesh
<http://dphe.gov.bd/>

Practical Action, Bangladesh

House-12B, Road-04, Dhanmondi, Dhaka-1205.
Ph: +88 02 8650439, 9675236, 9675243.
Fax: +88 02 9674340.
Email: practicalaction@practicalaction.org.bd
www.practicalaction.org

Unicef Bangladesh

BSL Office Complex
1, Mintu Road, Dhaka-1000, Bangladesh
Telephone: +88-02-8852266
www.unicef.org.bd