A TRAINING REPORT FROM CSE

‘DRINKING WATER FOR THE LAST PERSON’

TRAINING PROGRAM FOR PRIs

Mukhiyas and Jal Sahiyas

November-December 2011

(At Viswa Training Centre, Ranchi, Jharkhand)

Centre for Science and Environment

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New Delhi 110 062

Contents

1. Executive Summary

Following the release of the new guidelines of the Department of Drinking Water and Sanitation (DDWS), the Jharkhand government has committed to provide all villages with sustained access to potable drinking water. The new guidelines called the National Rural Drinking Water Programme makes a break from the past in several ways. It calls for deeper involvement by the communities through the Panchayati Raj system and has made improved norms in terms of quantity and quality of water to be supplied. It also has the ambitious aim of 100% coverage of piped water supply. The most important point is the stress on ensuring sustainability of water supply system as a whole. There is an emphasis on rainwater harvesting and recharging to ensure sustainability of groundwater resources as also to switch over to conjunctive use surface and ground water.

As part of the endeavour to set in motion the implementation of these new guidelines, the Jharkhand State Water and Sanitation Mission supported training workshops for PHED engineers, PRIs and NGOs on building sustainability into the water supply systems. These are significant pointers to the way the government of Jharkhand is thinking in terms of institutional structures at the village level for giving effect to participatory management.

In November, 2011, CSE conducted 6 workshops for 201 participants.

Date	District	Number of participants
10-12 Nov	Ramgarh	40
14-16 Nov	Ranchi	41
17-19 Nov	Khunti	36
22-24 Nov	Lohardaga	27
28-30 Nov	Gumla	19
1-3 Dec	Hazaribagh	38

The aim was to create an understanding of the availability, demand and usage of water by designing a sound village water security plan.

Outcome: The training workshops exposed participants to knowledge of new and old ways of ensuring sustainable water supply and gain new perspectives about how the community can be involved in creating a village water security plan for themselves. They were shown experiences of successful NGO efforts in water supply. Field exposures were also included in every workshop for a deeper understanding of issues.

Some of the key learnings of workshops saw some impacts and constraints as well. The workshop's focus was on water sustainability. However, we found that the participants were not aware of their roles and responsibilities at all. For most of them,

this was the first time that they came to know of the importance of rainfall and how they can play a role in managing water in their village. To make them understand this, games and interactive sessions proved to be very useful. Participants were also very keen to know about the schemes and support offered by the State and other agencies. However, during interactions with PHED officials did not seem very forthcoming over these questions. Discussions around technical and funding support were not very prospective and helpful. The *panchayat* and its officials need support and training on a long term basis on management, maintenace and sustainability components. Monitoring and follow-up of the activities also need to be implemented for a stronger and more effective plan.

2. BACKGROUND AND OBJECTIVES

In April 2009, the Department of Drinking Water and Sanitation (DDWS), Ministry of Rural Development released the new guidelines for rural water supply namely the National Rural Drinking Water Programme (NRDWP). These guidelines reflect a change in the philosophy and implementation strategy from the previous programme. The aim is to provide safe and adequate water for drinking, cooking and other domestic needs on a sustainable basis to every rural person by 2012. Major emphasis has been on ensuring sustainability of water availability in terms of potability, adequacy, convenience, affordability and equity while also adopting decentralised approach involving Panchayati Raj Institutions (PRIs) and community organisations. Adoption of appropriate technology, revival of traditional systems, conjunctive use of surface and ground water, conservation, rainwater harvesting and recharging of drinking water sources have been stressed upon in the new approach. The new paradigm means going beyond providing water to habitations- it takes a holistic view of rural drinking water supply.

In order to achieve this goal, DDWS has charted a course for itself. Under the new paradigm the PHED will play a much larger role in the community and have diverse responsibilities such as:

- ensuring source sustainability through catchment's protection,
- rainwater harvesting and recharging,
- encouraging conjunctive use of surface and groundwater,
- ensuring water quality as per prescribed standards,
- ensuring system sustainability through a system of monitoring and periodic checks,
- involving the community at every step of water supply including financial contributions

CSE has been nominated as a Key Resource Centre by DDWS to undertake activities of research, training and awareness creation. As part of this initiative, CSE conducted a series of training programmes for PHED engineers, panchayat officials, NGOs. These programmes covered issues of source and system sustainability, community involvement and water quality. The training workshops for engineers aim to expose them to knowledge of new and old ways of ensuring sustainable water supply, plan for sanitation, and gain new perspectives about how communities can be involved in water supply. Workshops for NGOs bring experiences of successful NGO efforts in water supply and sanitation and those for PRIs put them through the rigour of preparing Village Water Security Plans. Workshops were also conducted for

plumbers and masons to give them hands on training on constructing urban rainwater harvesting systems.

3. ABOUT CSE

The Centre for Science and Environment (CSE) is a public interest research and advocacy organization based in New Delhi. The Centre researchers into, lobbies for and communicates the urgency of development that is both sustainable and equitable.

The scenario today demands using knowledge to bring about change. This is what we aim to do. The challenge, we see, is two-pronged. On one hand, millions live in within a biomass-based subsistence economy, living at the margins of survival; the environment is their only natural asset. But a degraded environment means stress on land, water and forest resources for survival. It means increasing destitution and poverty. The Centre's work over the past 20 years has led it to believe and argue, both nationally and internationally, that participation, equity and community-based natural resource management systems alone will lead the nations of the world towards durable peace and development.

The opportunity to bring about change is enormous. But it will need a commitment to reform - structural reform - in the way we do business with local communities. On the other hand, rapid industrializing is throwing up new problems. Growing toxification and a costly disease burden. The answers will be in reinventing the growth model of the Western world so that we can leapfrog technology choices and find new ways of building wealth, which will not cost us the earth. This is the challenge of the balance.

As a public interest organisation, the Centre supports and organises information flow in a way that the better organised sections of the world get to hear the problems and perspectives of the less organised. Environmental issues are seen in an anthropocentric perspective that seeks to bring about changes in the behaviour of human societies through appropriate governance systems, human-nature interactions, and the use of science and technology. We do this through our research and by communicating our understanding through publications. We call this knowledge-based activism. Though the public awareness programmes of the Centre have been its key strength and focus of work, it has endeavored to move into associated areas of work like policy research and advocacy in the past years. Our aim is to raise these concerns and to participate in seeking answers and more importantly, in pushing for the answers to become policy and then practice. Learning from the people and from the innovations of the committed has helped the Centre to spread the message regarding the environment without its normal association with doom and gloom. Rather, the effort of the Centre is to constantly search for people-based solutions and create a climate of hope.

4. WORKSHOPS FOR PRI CONDUCTED IN JHARKHAND

Workshops for PRI were conducted in Jharkhand between 10th November to 3rd December,2011. The agenda for these workshops was designed in a way to debate the aspects of water management and community participation. It was designed to provide an understanding of the process of planning for the water security of a village. This included creating awareness about the finite nature of village water resources, the need to identify critical water issues in a village, and how these problems can be addressed through a collective planning process in order to gain water security for the village.

The sessions revolved around critical aspects of water such as scarcity, quality, catchment area recharge, maintenance, funding and technical support. Modules also consisted of water conservation technologies (both traditional and modern) prevalent in different geological and topographical areas of Jharkhand. The workshops saw a mix of audio visuals (power point and videos), visual aids (posters), group discussions, practical exercises and lectures.

Field exposures were selected to illustrate suitable measures for water supply in water-stressed areas by both NGOs and PHED. Participants were shown Ormanjhi's government water supply plant and Tyma watershed area in Ramgarh (by PRADAN) to understand successful practices and community mobilisation. A visit was also organised to Mander block to display repair work of hand pumps by trained women mechanics for hands on understanding of operation and maintenance work.

4.1 Training agenda

Module	Sessions
1. Introduction	1.1 Course introduction: What, when and how 1.2. Participant introduction: Knowing each other: A game
2. What is Village Water Security	2.1 Water is life: An overview presentation on why we should conserve water 2.2 What is village water security: Interactive session 2.3 Importance of community mobilisation: Exercise 2.4 Elements of village water security: Exercise 2.5 Rainwater harvesting
3. Roles and responsibilities of different actors	3.1 Roles and responsibilities 3.2 Case studies and documentaries
4. Operation and maintenance	4.1 Women as hand pump mechanics
5. Field trip	5.1 Field trip and discussions
6.Valedictory session	6.1. Feedback 6.2 Conclusion and certificate distribution

4.2 Details of sessions

Module 1: Introduction

1.1 Course introduction: What, when and how

1.2 Participant introduction: Knowing each other: A game

This session introduced CSE and its work to the participants. The objective, methodology, structure and outcomes of the training programme were also conveyed.This was followed by deciding rules and regulations to be followed by everyone throughout the workshop. At the end, participant's expectations were discussed at length.

District	Key expectations
Ramgarh	• Rain water-harvesting techniques
Ranchi	• Creating a village water security plan
Khunti	• To know about the duties, responsibilities and work details (as *Mukhiyas* and *Jal Sahiyas*) • Hand pumps maintenance and repair work
Lohardaga	• Technical knowledge of water and its circulation in the environment
Gumla	• Issues around water quality and mitigation
Hazaribagh	• To find solutions to water related issues and water management

Module 2: Village water security

2.1 Water is life: An overview presentation on why we should conserve water Presentations in this session enlightened participants regarding the water cycle, issues and politics around water and the need to conserve rain water. Case studies illustrated how water was managed successfully in ancient civilisations (Harappa) and how it is done in today's time throughout our country.

2.2 What is village water security: Interactive session Activities involved making small groups so that participants could debate and list results of water scarcity (due to low or no rainfall) in their everyday lives and how it affects their village.

The purpose of such an exercise was to make them realise different kind of problems that arise around water in their own lives and look at them to systematically plan ahead for solutions. The session's stressed on making people realise the central part of water resources in everyone's life.

The main issues listed by participants were:

1. Managing agriculture and livestock would be hugely affected.
2. Drinking water would be difficult to source as wells and hand pumps would dry-up.
3. Drought like situation would prevail.

2.3 Importance of community mobilisation: Exercise: Each group was givena puzzle to complete in three rounds. Each round had specific rules to be followed by participants. In the first round, participants we asked to create the puzzles without conversing with anyone. In the second round, they were allowed to talk to members of their group and work together to finish the task. In the final round, the groups were asked to move around, interact with other participants of other groups and share pieces from their puzzles to finish their task.

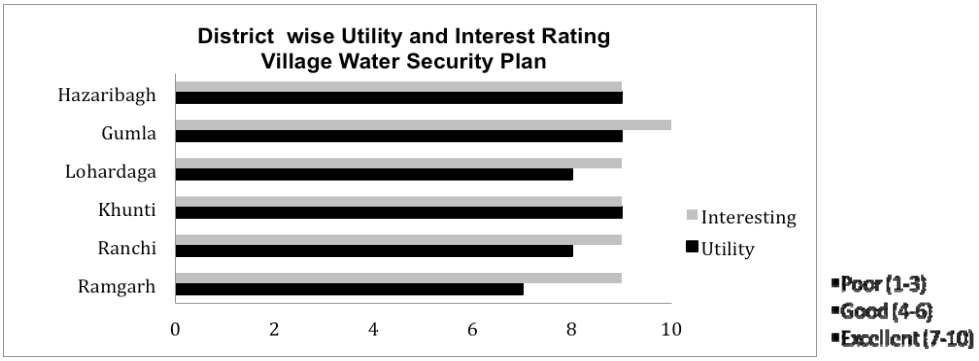
The purpose of this exercise was to make the participants understand the significance of community mobilisation.It is very important for communities to understand how they can work together with others utilizing skills and resources to address their needs and to change their own lives. This is often realised through the formation of social groups working for a common agenda.

2.4 Elements of village water security: Exercise: This session comprised of a presentation on what water security means to participants and how water scarcity affects their lives. An interactive exercise was conducted on trend analysis to show why water must be conserved. An imaginary map of a village with its boundry, hamlets, streams, common land, vegetation, hand pumps, wells etc was drawn on a board. Participants were provided with human and livestock population and different kinds of real life case studies were taken up as issues and the participants were asked to draw out a plan. This was a challenging and crucial exercise as where and what kind of structures should be proposed with the available resources was discussed. All the major learnings ranging from data collection, quality, structures, planning, community mobilisation etc. were a part of it.

2.5 Rain water harvesting: This session comprised of a presentation that displayed a step by step guide to the practice of rooftop water harvesting. This provided a hands-on practical guide to implement rooftop water harvesting systems. Different kinds of recharge wells, soak pits and various other recharge and storage structures were explained. How much water and from where it can be collected and maintained for usage were discussed in detail. The discussion around creating the filter to use the stored water was very well received.

This was followed by excercises on calculating the availability, requirement and then deciding on the suitable structures in relation to these and the geology of the area.

At the end of the day, quick evaluations were conducted on the sessions of the day. This is a compilation of the sessions as rated by the participants of six different districts.



Evaluation chart on the basis of interest and utility for the session on Village Water Security as rated by participants

Module 3: Roles and responsibilities of different actors

3.1 Roles and responsibilities

Gram Sabha (GS): The *Gram Sabha* comprises of the larger community and is

responsible for decisions like:

- How much drinking water is needed?
- What are the available sources of drinking water and what are the most appropriate sources?
- What kind of water supply scheme is required?
- How much can each household contribute to building the scheme?
- How much should households pay in user fee charges?

- What subsidies can be given to Schedule Casts (SCs), Schedule Tribes (STs) and Below Poverty Line (BPL) households?

The *Gram Sabha* also approves the village plans and reports from the GP/VWSC on financial accounts, implementation progress and operational performance. It is also an institution for social audit.

Gram Panchayat (GP): The GP owns/manages the water supply scheme for the community and is responsible for:

- Approving investment plans and getting finances
- Approving annual budgets and user fee charges after discussion in the Gram Sabha Approving MoU's/contracts with operators
- Coordinating with the block and district and Support Organizations like the Block Resource Centre (BRC)
- Hiring trained mechanics for regular preventive maintenance for hand pumps and trained operators for piped water supplies

Sarpanch/President of *Gram Panchayat:* As the head of the village, the Sarpanch has to provide overall leadership to the process of ensuring drinking water security for the villages/ households. The Sarpanch is responsible for organizing Gram Sabha with active participation from all stakeholders, formation of a capable VWSC, conflict resolution in a transparent and just manner, monitoring construction to ensure quality, monitoring expenditure to ensure that the funds available are used in a cost-effective manner, providing equitable water supply to all including SCs, STs and poorer households, co-ordination with the block/district and Support Organizations.

The *Pani Samiti*/Village Water and Sanitation Committee (VWSC): The VWSC is a standing committee of the GP and is responsible for planning, implementation, operation, maintenance and management of village drinking water security:

- Collecting household contributions and user fees Opening and managing a bank account
- Preparing annual budgets and recommendations for user fee charges
- Organizing people to be vigilant about not wasting water and keeping water clean
- Ensuring professional support for hand pump caretakers and piped water supply operators: (a) Ensuring access to spare parts for hand pumps and trained mechanics for regular preventive maintenance; (b) Ensuring the

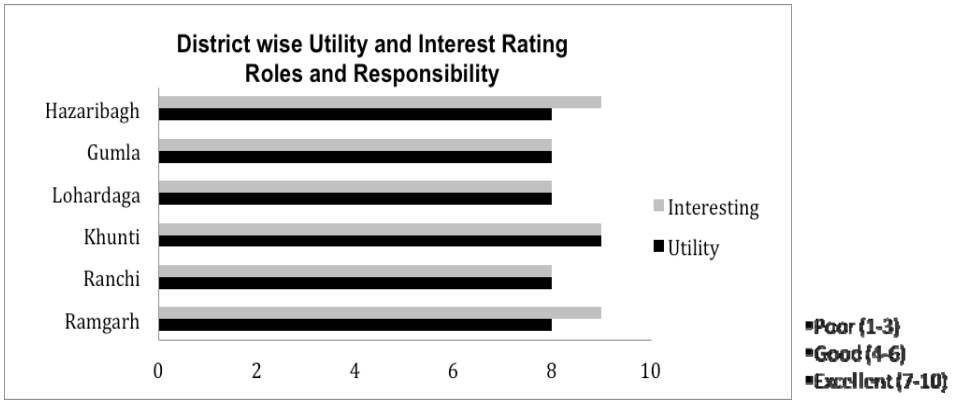
operators handling piped water supply systems are provided with adequate training to gain the technical and financial skills needed to do the job

- Responsible for procurement of goods and services, supervising contracts and works and making payments.

Water Quality: Water quality monitoring and surveillance is a key responsibility of the VWSC. Bacteriological contamination related to poor sanitation causes diseases such as diarrhea, dysentery, cholera, typhoid, etc. Excess fluoride and arsenic in groundwater drinking sources has given rise to crippling diseases such as fluorosis and arsenical dermatitis. The VWSC must ensure that regular sampling and analysis takes place using field test kits and district and sub-divisional district testing laboratories.

The VWSC's responsibilities include maintenance of the field test kits (replacement of used materials) and meeting the expenses of a nominated grass roots worker (VWSC member) as well as the costs of laboratory tests. The VWSC should liaison with Primary Health Centres and NRHM workers (ASHA) to monitor incidence of diseases relating to water (roles and responsibilities of the VWSC member and ASHA are given in the Table in this section).

At the end of the day quick evaluations were conducted on the sessions of the day. This is a compilation of the sessions as rated by the participants of six different districts.



Evaluation chart on the basis of interest and utility for Roles and Responsibility session as rated by participants

3.2 Case studies and documentaries

The participants were presented with five successful case studies from across the country. Their focus was on issues like water quality, scarcity, revival of traditional sources, water management etc. These best practices case studies showcased how people and communities have come together to find solutions to their problems. These were possible either with partial support of state's funds, NGOs intervention or even by the community's people themselves.

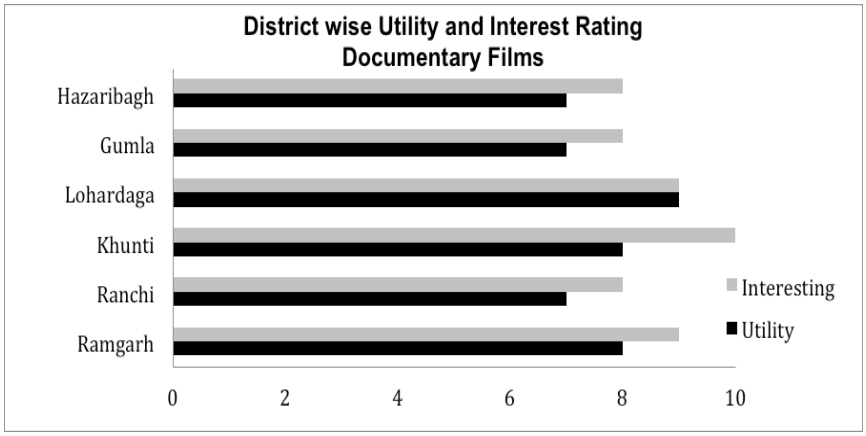
(Case study handouts enclosed as annexure-1)

Films were shown to illustrate the case studies. *Chukru Dharti ka Narak* narrates the story of a village, Chukru in Palamu district of Jharkhand. The villagers suffer from fluorosis due to the natural contamination of fluoride in the groundwater. Most of them walk with the support of wood-stick. The film tries to find-out several low-cost solutions to prevent these kinds of problems. Even though the government claims to have done a lot the village still faces this water quality issue.

Four Engineers and a Manager narrates the story of five ordinary people who have kept the intricate traditional science of water management alive from the modern onslaught. These barefoot Indian rural engineers have been practicing the tradition of water harvesting for quite some time. This film introduces the viewer to the technique and social management practices governing community water management.

Thar : Marubhumi ke Chamatkaar illustrates the diverse social and cultural practices that enabled large populations to survive in the harsh Indian desert environment. The villages of Thar in Rajasthan have amazing systems of water harvesting. Similarly, the desert farmer has devised an ingenious system to grow and maintain sources of fodder.

At the end of the day, quick evaluations were conducted on the sessions of the day. This is a compilation of the sessions as rated by the participants of six different districts.



Evaluation chart on the basis of interest and utility for documentary films as rated by participants

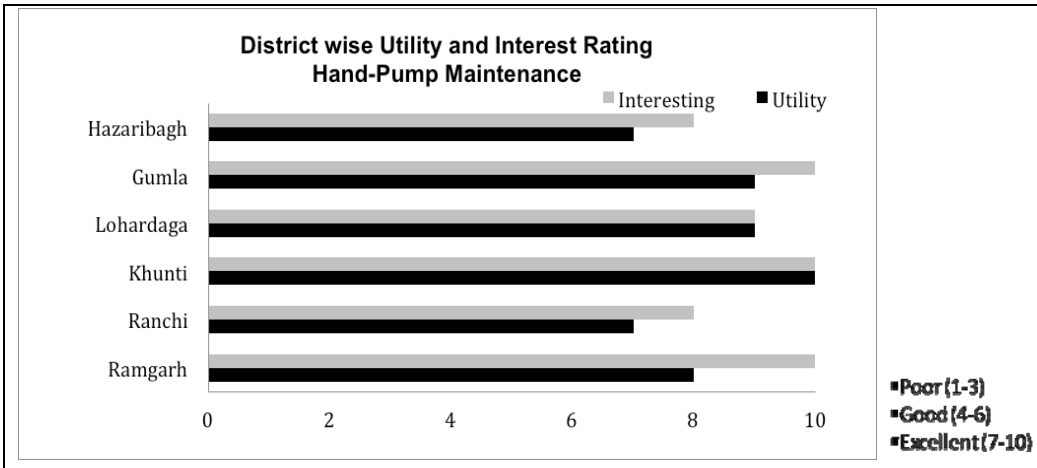
Module 4: Operation and maintenance

4.1 Women as hand pump mechanics: Hand pumps and its repair and maintenance work feature prominently in a Jal Sahiya and Mukhiya's work. Thus, in order to explain its proper functioning and repair work, participants were taken to Mander block. The session was conducted by three trained women hand pump mechanics who received training by Unicef and *Mahila Samakhya* in 2007.

Different parts of a handpump were shown and explained to the participants. The process of dismantling and finding out the defected parts to repair or replace them was explained in detail. The different repair materials like base pipe, lifters, sly ranch, washer etc were explained and shown part-by-part. The participants took active part in the activity and checked the working of every part. The mechanics also talked about procurement and the costing involved in the process.

They also talked at length about the costs involved in repairing and sourcing the various parts.

At the end of the day, quick evaluations were conducted on the sessions of the day. This is a compilation of the sessions as rated by the participants of six different districts.



Evaluation chart on the basis of interest and utility for the session on Hand Pump maintenance as rated by participants

Module 5: Field Trips

5.1 Government Water Supply Plant at Ormanjhi

The participants were taken a government's water treatment plant at Ormanjhi. It treats and supplies water to 120 households in the area through seven supply points. The participants were shown the underground reservoir where the water was stored after being pumped from the nearby stream (source).

Then they were also shown the treatment units, pump house and the overhead storage tank from where the water was supplied to the supply points. The coordinator of the plant also showed the stream and the small check dam built on it.

The purpose of the visit was to show the participants the workings of a supply system and see its source as well. As the *panchayats* would be overtaking the supply scheme it was crucial for the *sarpanchs* and *jal sahiyas* to see and understand its planning, design and working to make it more effective and sustainable.

5.2 Watershed Initiative and community mobilisation at Tyma watershed area

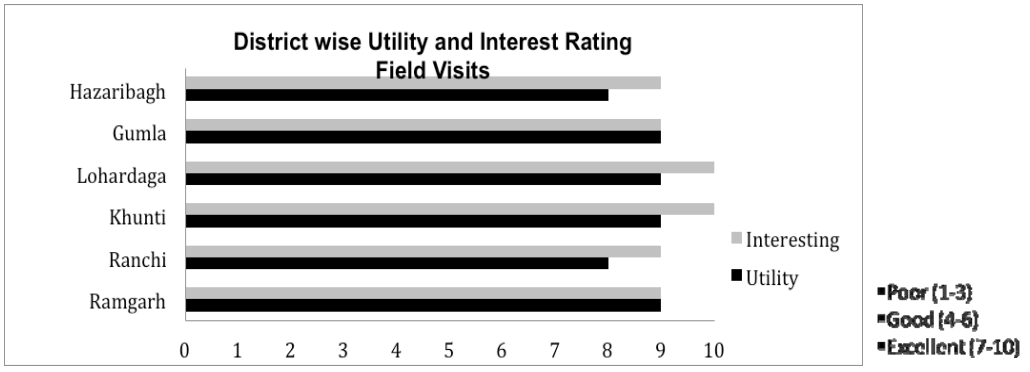
Participant groups were taken to Gola Block of Ramgarh district to understand the workings of a watershed. Tyma watershed was built with the support of NABARD and PRADAN in 2008. The same year, Tyma Watershed Development Committee was registered as a society. The area is spread over 1016 hectares and covers four villages. Mr.Bahadur Tanti and Mr. Jaydhan Murmur explained the situation before

the construction and how it has significantly changed after the initiative. The local people used to chop wood and sell it off in nearby markets of Gola to earn a meagre livelihood. This affected the forest cover and a drought like situation was cropping up in the late 90's. With PRADAN's intervention and successful participation of the local people the place and the people transformed their lives. The participants were shown various water harvesting and storage structures on hilly slopes and terrains like contour trenches, small pits, 30x40 pits and 5% pit models. Other physical infrastructure like filed bunding, other renovated water harvesting structures and a diversion dam were also shown and their relevance was explained.

A lot of discussion also revolved around community mobilisation, participation by various people in the decision making process and the role of women in planning and implementation. Various kinds of schems and support that are offered by the State and other agencies and the channels of approching them were also discussed. The participants were also shown vegetable and mango plantations under agro-forestry and horticultural practices.

This particular ield exposure was selected to illustrate suitable measures for water supply managed by a NGO and local people. The participants were encouraged to hold discussions on what goes into making, planning, implementation and then maintaining of an effective, sustainable and model project.

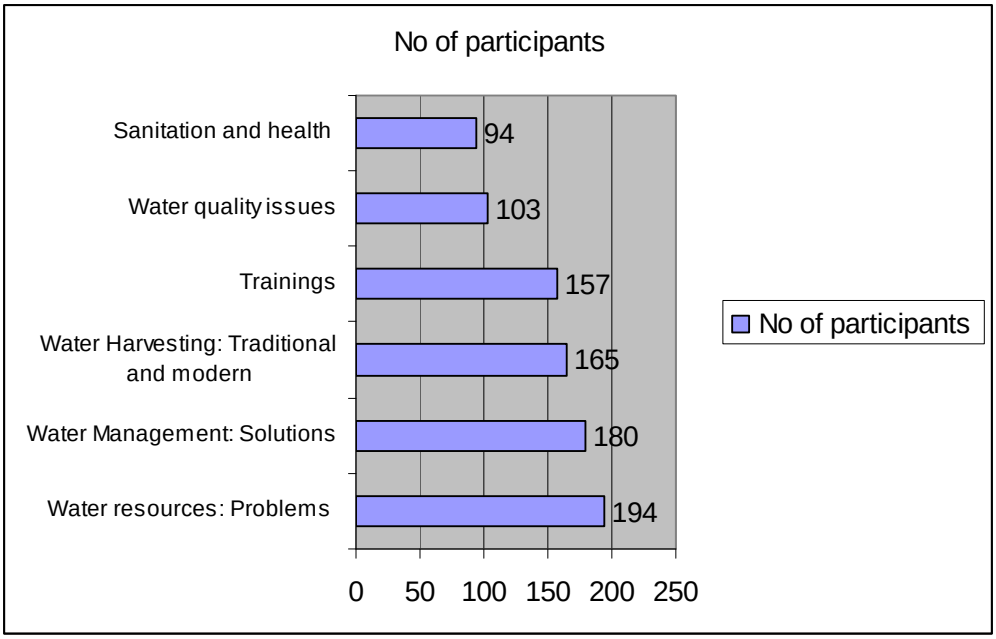
At the end of the day, quick evaluations were conducted on the sessions of the day. This is a compilation of the sessions as rated by the participants of six different districts.



Evaluation chart on the basis of interest and utility for the field visits as rated by participants

5. Feedback from participants

We found that the participants were not aware of their roles and responsibilities at all. Most of them were also not able to read or write. This made the sessions extremelychallenging. The team had to make changes in the program agenda to make it completely needs based and more hands-on. Caculations and exercise sessions were broken down and made easier to ensure applicability.The participants were very happy to be a part of such a programme and were impressed by it. For most of them, this was the first time that they came to know of the importance of rainfall and how they can play a role in managing water in their village. Participants were also very keen to know about the schemes and support offered by the State and other agencies.



Jharkhand's water problems: Participants rating of priority areas in which they were keen to grow their knowledge and understanding within these issues.

Photographs

Figure 1: Puzzle game to understand community mobilisation with participants from Ramgarh

Figure 2: Interaction and discussion with Tyma Watershed Committee members at Auradih village, Ramgarh with participants from Lohardaga

Figure 3: Hand pump mechanics repairing a hand pump in Mander block, Ranchi with participants from Khunti

Figure 4: Participants from Ranchi at a group activity

Figure 5 : Check dam at Ormanjhi block, Ranchi (Government's Water Supply plant) as a part of field exposure with Hazaribagh's participants

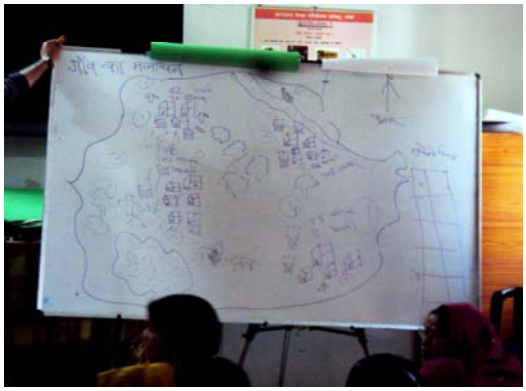


Figure 6 : Village Water Security planning excersice with participants from Gumla

7. Annexures

1. Agenda

2. Case study handouts

i) *Narayanpur : Mahilaon ki atmaprerna*

ii) *Madhya Pradesh ke ghaat mein fluoride ka ghatav*

iii) *Naag gaon, Uttrakhand*

Annexures

Annexure 1: Workshop agenda

Drinking water for the Last Person: Training workshop for PRI officials

Objective: To provide an understanding to members of the Panchayati Raj Institutions (PRIs) of the need for, and of the process of planning for water security of a village.

As per the new guidelines of the National Rural Drinking Water Programme, the panchayat officials of every village are responsible to prepare a Village Water Security Plan. This series of workshops are aimed at enabling members of the PRIs to undertake this planning exercise.

Learning from the course

After completion of this course the participants will:

- Gain an understanding of the finite nature of the village water resources
- The process of identifying available village water resources
- Estimating current and future water demand
- Planning and executing rooftop water harvesting in the village
- Understanding the basics of planning for a pond/check dam to harvest water in the village.

Programme agenda

Day One

9.30-10.00: Registration of participants

Module 1: Introduction

Objectives

- To inform the participants about why they are there and what they will learn during the workshop.
- To enable participants to get to know about CSE and about each other.
- To inform the participants about the programme agenda

Session 1:Course Introduction

During this session, participants will be informed about the programme sessions, speakers, and the time. Participants will get to know each other and also speak about their expectations from the course.

10.00-10.30: Course introduction: What, when and how

10.30: 11.00: Participant introduction: Knowing each other: A game

11.00-11.15 Tea break

Module 2: Village water security

Objective

To enable participants to get an understanding of the concept of Village Water Security and then to work with community members to undertake planning for Village Water

Session 1: What is village water security

11.00 -11.30: Water is life: An overview presentation on why we should conserve water

11.30-12.00: What is village water security: Interactive session

12.00-1.00: Importance of community mobilisation: Exercise

1.00-1.30: Lunch break

Session 2: Planning for village water security
1.30-2.15: Elements of village water security Exercise
3.45-4.30: Presentation
4.30-5.00: Rainwater harvesting
5.00-5.15: Quick evaluation

Day 2
Module 3: Roles and responsibilities of different actors

11.00 -12.00: Roles and responsibilities
12.00-1.00: Case studies and documentaries

1.00-1.30: Lunch break

Module 4: Operation and maintenance

1.30-3.00: Women as hand pump mechanics: Lecture demonstration
3.30 – 4.30 Documentaries

Day 3
Module 4: Field Visit
10.00 – 4.00: Field visit, discussions and feedback
4.00 – 5.00: Conclusion and certificate distribution

Case study handouts