WAT-SAN: Bahraich Model

As per the NDMA Bahraich is a Severely Flood affected district. Every year floods enter 209 revenue villages of 7 Blocks and 3 Tehsils. About 4, 50,000 people get affected by the floods every year. While the concept of Floods can be understood from its affect on Man, Animals and Property there are few critical issues which require instant attention. Two such issues during floods are the problems of Safe Drinking water and the problem of sanitation, particularly for women. The twin problems of water and sanitation are commonly known as problems of WAT-SAN.

Rescue work on in Bahraich

At district Bahraich the district administration has developed some in house innovative solutions to mitigate the problem of WAT-SAN during floods. These innovations we believe if replicated in other districts on India would benefit millions of our citizens who are annually faced with the natural disaster of floods.

People moving to safer places

Problem: Safe drinking water:

The District has 43,000 India Mark 2 Hand pumps. During severe floods most of the Hand Pumps in the Flood affected villages get submerged thus cutting off the sole source of safe drinking water in the villages.

Hand pumps Submerged during floods

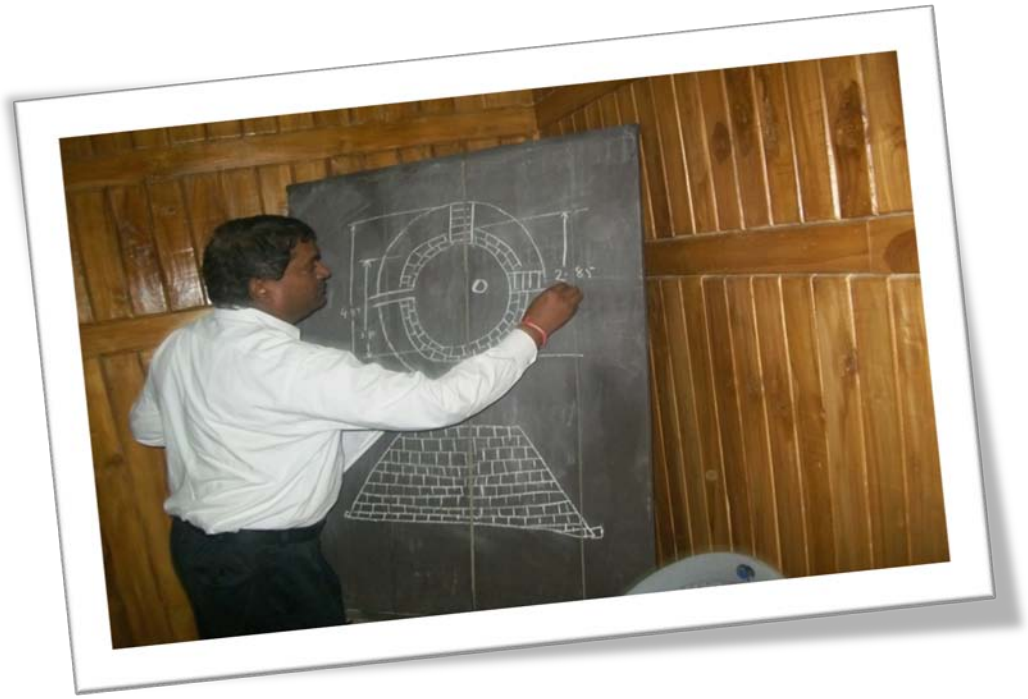
School Hand pumps during floods

Solution:

During our routine field survey and interaction with the local flood affected villagers some simple queries had us thinking.

The questions being asked by villagers was that “If the flood water goes high why can’t our existing hand pumps too go high?” Some local villagers and NGOs suggested us to raise the height of the existing hand pumps. This was easier said than done. There were some fundamental questions to be answered.

- What would be the design of the hand pumps?
- How many hand pumps to be raised?
- Where to provide the budgets from?



Executive Engineer Jal Nigam Training the BDOs and JEs on the new Flood Proof Hand Pumps

At Bahraich the district administration constituted a team of engineers and administrators to work upon the above questions.

- We decided to have 800 renovated Flood proof Hand pumps spread over about 200 flood affected villages. Some villages were left out as Safe Drinking water was not a problem there.

At first we had to work on the design of the raised flood proof hand pumps .The Executive engineer Jal Nigam proposed a design with a rectangular platform of 1 meter height. This was debated in an open forum consisting of Block Development Officers of all the seven Flood affected Blocks as well as the Engineers from the Flood Division. In the meeting we were convinced with the argument put forward by the Executive Engineer Flood Division that the platform with 90 degree slope would collapse in the case of flash floods when the water rushes with a very high force.

A method had to be devised to make the base of the new hand pump strong enough to cushion the force of the flood water. At the end of the meeting the Engineers from the UP Jal Nigam and the Flood Division decided to make a sloped pyramid shaped hand pump with a plateaued top .The 45 degree slope would help cushioning the force of flash floods thus protecting the Handpumps .The 2.9 meter plateaued platform would enable people to stand at a dry place and draw water. The Executive Engineer Jal Nigam and the Executive Engineer Flood Division were assigned the task to develop the final estimate and the design of the Flood Proof Hand pumps. What was finalized was a hand pump raised at a High flood level height (HFL) of almost 1 meter height. The height was however subject to the HFL of the local village as per need. HFL is the highest point of flood at any place. As a thump rule we selected those hand pumps which were located at the highest point in the flood affected villages.

Training session, Ex- Eng Jal Nigam in the background on the Black Board

By end of May 2010 we would have on average 4 hand pumps in a village. For 200 villages it came out to be 800 renovated Flood proof hand pumps catering to the drinking water needs of about 400,000 people.

We used the MNREGA to finance the entire project. For Bahraich the total budget came to be about Rs 80, 00,000. We decided against transferring the budget to the UP Jal Nigam as by this we saved 12.5% of the cent age charge which the department would have charged .The budget was allotted to the BDOs of the seven Blocks who were made the Work in-charge.

Instructions were given to the executive engineer to ensure that the junior engineers of the Jal Nigam at the Block level personally monitor the technical aspect of the project.

First Proto type under Construction at the Bahraich Collectorate

DM and CDO Inspecting the construction at the Collectorate

First Flood Proof Hand Pump at the Bahraich District Collectorate

ग्राम पंचायत– गोडहिया नं04

बजार पुरवा विक्रम के घर के सामने इण्डिया मार्का हैण्डपम्प उच्चीकरण का कार्य

Village Kandauli

Village Gauldiya

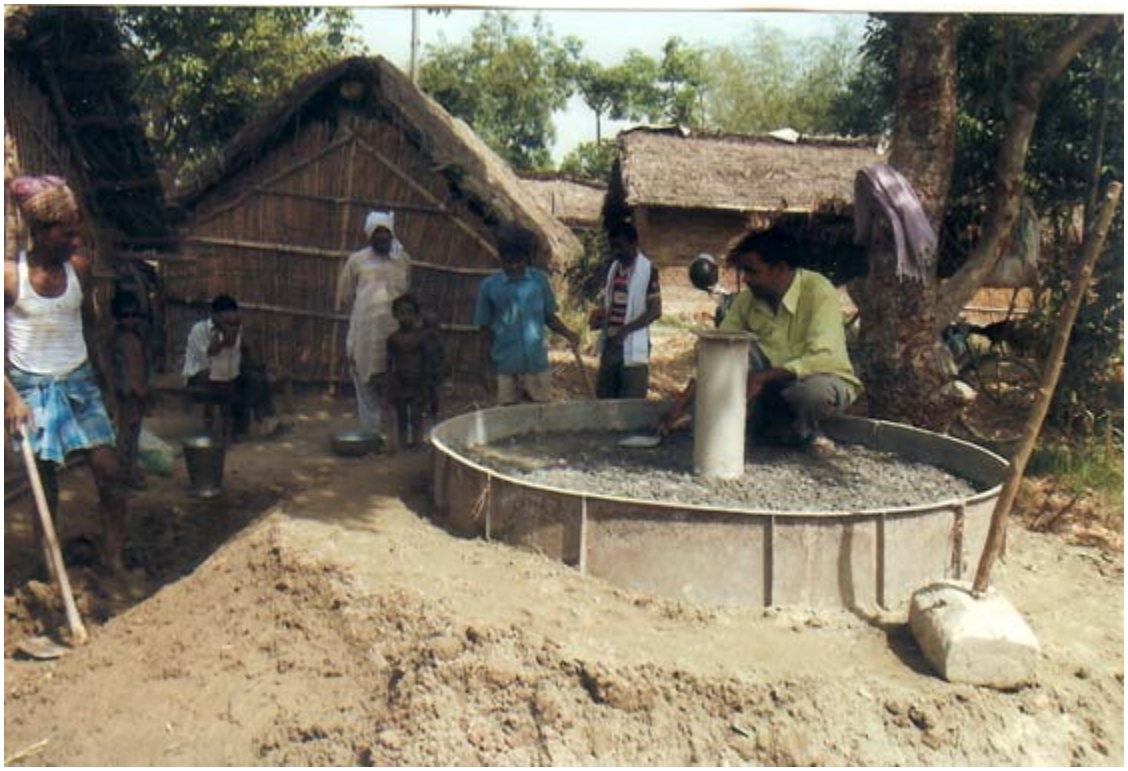
ग्राम पंचायत– गोडहिया नं04

प्रधान पुरवा राम सुद्धि के घर के सामने इण्डिया मार्का हैण्डपम्प उच्चीकरण का कार्य

Work in progress on another Hand Pump in Village Gauldiya

ग्राम पंचायत– बगहिया

प्रा0पा0 बगहिया प्रागंण में इण्डिया मार्का हैण्डपम्प कार्य चल रहा है।



Construction of the 2.9 Meter Platform

Soil work under MNREGA

Work under Progress in 800 Hand Pumps

Work under Progress in 800 Hand Pumps

Work under Progress in 800 Hand Pumps

Work under Progress in 800 Hand Pumps

Work under Progress in 800 Hand Pumps

Problem: Absence of Sanitation facility for Women and children

During floods most of the people move to higher places and live under the open sky in hundreds and thousands .Sanitation during floods becomes a very critical issue for the displaced people. The problem becomes more compounded for the women and children. This further leads to spread of diseases among the displaced. At such relief camps the traditional Honey Comb soak pit system of toilets often don't succeed for the following reason.

- The Soak pit gets filled with flood and accompanying rain water.
- The ground water level too rises thus the soak pits get over flowed.

Solution:

At District Bahraich we have developed a flood resistant community toilet based on the Septic Tank method to be used specially by the women and children (Design available on request).

Special Flood proof Toilets for Women and Children

The base consist of three septic chambers of 5 'Height and 3 'wide .

Night soil gets broken in one chamber and passes to the other.

The life of such a system for one family is 10 years