



Consortium for  
DEWATS  
Dissemination  
Society

# @DISHA

## PROLOGUE

Warm greetings from CDD Society

## WASTEWATER ANALYSIS

3M Petri film plates are used to analyse

## PICTURE OF THE MONTH

The Plan of Operation meeting for the year 2009

## INTERVIEW

An interview with Alexander Miller

## PROJECT FACT SHEET

DEWATS at Rajendra Nagar

## NEWS AND VIEWS

Introduction to Holistic Sanitation Approach

Training on Operation & Maintenance  
05 March 2009 at CASS

## RESEARCH ON SANITATION

Emergency Sanitation : Assessment and system design by  
Peter Harvey, Sohrab Baghri and Bob Reed

## INTERESTING LINK

<http://www.waternewsportal.com/>

## DBNS ELEMENTS

Hydrum for water supply

## QUIZ

Test your knowledge...



## PROLOGUE

Warm greetings from CDD Society. It is our pleasure to bring you the March 2010 issue of e-Disha. This is the second successive year of the 3rd Phase of BMZ-BORDA project on 'Poverty Reduction and Sustainable Protection of Natural Resources in South Asia'. We would like to extend our sincere thanks to you for your constant support and encouragement.

The editorial team would be pleased to receive feedback and suggestions. Contributions to the newsletter are most welcome.

## PICTURE OF THE MONTH

The Plan of Operation meeting for the year 2010 was held on 5th February 2010 in Bangalore. All the CDD Society staff, including regional coordinators from the Nagpur and Chennai offices attended the meeting. The first half of the meeting was a 'Work Package Mela 2009'. This provided a platform for the staff to share and learn from each other. CDD staff presented those work packages which they considered as important achievements within CDD and from partners. These were presented in an illustrative and reflective way, discussing the successes and what had been the learnings in the process.



*CDD team at Plan of Operation Meeting*

In the second half of the meeting, the work packages 2010 for each unit within the CDD Society and the network partners were discussed. T-shirts in the CDD brand colour with the message '1 Million' (which indicates our target of reaching 1 million people with Decentralised Basic Needs Services (DBNS) by 2015) were distributed to all CDD staff. The meeting was completed successfully with the planned agenda in scheduled time.

## PROJECT FACT SHEET

DEWATS at Rajendra Nagar

<http://www.borda-sa.org/modules/wfdonloads/visit.php?cid=6&lid=92>

## RESEARCH ON SANITATION

**Emergency Sanitation: Assessment and System Design**  
by Peter Harvey, Sohrab Baghri and Bob Reed

This book is recommended to the readers as an additional reading to know more about the balance between hardware (technical) and software (social-cultural, institutional) aspects of sanitation programmes. The main focus of this book is on the structured approach to the systematic design of emergency sanitation. It helps all those involved in the planning and implementation of emergency sanitation. To read more, please visit

[http://www.reliefweb.int/rw/lib.nsf/db900sid/LGEL-5Q4DGB/\\$file/lou-water-02.pdf?openelement](http://www.reliefweb.int/rw/lib.nsf/db900sid/LGEL-5Q4DGB/$file/lou-water-02.pdf?openelement)

## DBNS ELEMENTS

### HydRam for Water Supply

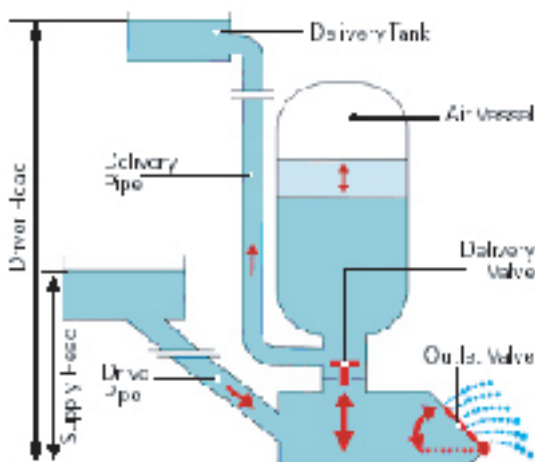
CDD Society with the support of BORDA has been engaged in promoting poverty oriented decentralised water supply systems in mountainous areas. These demand oriented and well-proven concept has led to notable successes in Ladakh which needs to be widely disseminated. It is important to understand that fields in Ladakh are located at very high altitudes and may have no source of irrigation even though a river or spring may run below them. Hence, it becomes essential to use technologies that can raise water to such high levels on the mountains. Hydraulic Ram pumps, which do not require any electric fuel or manual power, come across as a practicable solution to the woes of Ladakhi farmers.

A hydraulic ram or HydRam is an automatic pumping device, which utilises a small amount of running water to lift certain quantity of water to a greater height. Its operation is based on the principle of the water hammer effect. It does not require any conventional energy source such as electricity or fossil fuel. The machine is extremely robust in construction with only two moving parts and therefore requires minimum maintenance.

The two moving parts are a spring or weight loaded outlet valve and a delivery valve as shown in the picture below. In addition, there is a drive pipe supplying water from an elevated source and a delivery pipe that takes a portion of the water that comes through the drive pipe to an elevation higher than the source.



*An installed Hydram in Ladakh*



*Sketch of running Hydram*

Initially, the outlet valve is opened and the water from the source flows with gravity through the drive pipe. The flow soon picks up in velocity (kinetic energy) and forces the outlet valve to close. The momentum of the water flow against the closed outlet valve causes the water hammer effect, which leads pressure to build up in the body of the HydRam. Eventually the delivery valve opens under this pressure and allows water to flow into the air vessel. As a result, the air gets compressed to a pressure exceeding the delivery pressure. At this stage, the delivery valve closes and water flows into the delivery pipe. The compressed air expands to a pressure equal to the delivery head, forcing water through the delivery pipe to a tank. This cycle is repeated with most hydrams operating at 30-100 cycles per minute.

The nature of the water source determines whether the water is potable or whether it can be used for irrigation or any other purpose. The system can be configured to deliver variable quantities of water to village communities for consumption or to irrigate fields.

## WASTEWATER ANALYSIS

### 3M Petri Film Plates for E.coli and Coliform Analysis

3M Petri film plates are used to analyse both E.coli and coliforms which gives confirmed results in a short period. E.coli and coliforms, as indicator organisms, are analysed through this method to measure the microbial content of a wastewater sample.

#### Procedure:

- Lift the top film from the Petri film plate
- Add 1ml of wastewater sample
- Close the top film
- Incubate for 24 hrs
- Look for blue and red colour colonies with associated gas bubbles
- Red colour indicates coliform colonies and blue colour indicates E.coli colonies
- The counted colonies are represented in Colony Forming Units CFU/ml



3 M Petri Film Plate

#### Advantages:

- Accurate results
- Easy and fast method compared to normal standard method

## INTERVIEW

Alexander Miller is one of the Weltwaerts staff in CDD Society who joined in 2009 and is currently working in the Research and Development unit. Weltwaerts is a German word which means "going out into the world", and is a programme for young professionals supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) and BORDA/CDD.



Mr. Alexander Miller

Alex has been intensively involved in the rectification of the DEWATS plant at Beedi Workers Colony (BWC), Kengeri and at Friends of Camphill, Bannerghatta since four months. BWC is a colony for beedi workers sponsored by Rajiv Gandhi Rural Housing Corporation Limited (RGRHCL), Government of Karnataka and a DEWATS plant has been implemented to treat wastewater of 36 cu.m/day from 125 houses. Friends of Camphill is an institution which supports nearly 75 mentally challenged persons. A DEWATS plant with capacity of 9 cu.m/day is efficiently working since 2003.



Desludging of Biogas Reactors

In an interview with Alex, he talked about his experiences during the rectification work of DEWATS units. He first explained the need for the rectification of the units. At BWC, the connection and sewer pipelines in almost all the houses were either clogged or destroyed. There was a need to increase the level of the register to prevent massive rain water inflow which usually took sand and other unwanted materials inside the register.

The filter material of Planted Gravel Filter (PGF) had to be renewed and washed, and the two biogas domes and extension chambers had to be desludged because they were filled with mud, plastics and other waste materials which made the digester defunct. At Friends of Camphill, six out of eight chambers of the Anaerobic Baffle Reactor (ABR) and Biogas digesters were filled with sludge which hampered the treatment of wastewater. This was due to the additional household connections and massive inflow of rainwater, sand and dirt through damaged sewer pipes. Therefore, an operation and maintenance activity was required in this unit to ensure a better treatment process. Hence, desludging of the plant was done along with renovation of BWC.

Alex explained that the renovation work was started by rectifying the house connection pipes and the sewer pipelines in BWC followed by removal of filter materials from PGF which were washed and dried. They were sieved for desirable sizes and relayed in PGF. The loss of filter material in sieving was replaced with new filter materials. Biogas digesters and ABR chambers were desludged one after the other. He specified that in Friends of Camphill, the operation and maintenance work included desludging of the biogas digester and the ABR chambers. He also mentioned that maintenance of PGF was not required as the same work had been completed in the plant a few months before.



*Sieving PGF filter materials*



*Washing PGF filter materials*

Alex and his colleagues took four months to complete the renovation and maintenance work at these two DEWATS plants. He concluded by saying that operation and maintenance activities are important for any DEWATS plant which have been functioning for a long period of time and suggested that a trained person need to be appointed to carry out the operation and maintenance work of DEWATS units.

## NEWS AND VIEWS

### Introduction to Holistic Sanitation Approach for Madhya Pradesh City Officials in Bangalore

On the 1st and 2nd of February 2010, CDD Society, in coordination with the Water Sanitation Program (WSP) of the World Bank, organised an introductory visit for Government officials from Madhya Pradesh. The main purpose of the programme was to provide the key decision makers in the Madhya Pradesh State Government with information about sanitation projects that use decentralised approaches for wastewater treatment and community mobilisation for sustainable sanitation facilities. Those who attended were a team of 31 officials consisting of presidents of various municipalities, chief municipal officers, sanitation experts and officers from the ministry of urban development and 3 officers from WSP, World Bank, New Delhi.

The two-day programme was organised at the Centre for Advanced Sanitation Solutions (CASS), Kengeri, Bangalore. The first day comprised of seminars and presentations whereas the second day was dedicated for site visits to different DEWATS project areas.

The first day started with a welcome speech given by Mr. Pedro Kraemer, Programme Coordinator, BORDA-South Asia. This was followed by a presentation on the activities of the Capacity Building unit in CDD by Ms. Susmita Sinha, Unit Coordinator (Capacity Building Team). Mr. Rajesh Pai, Unit Coordinator (Research & Development; Monitoring & Evaluation) gave a detailed presentation on the DEWATS approach and its concepts. Mr. Rahul Sachdeva from the Citywide Planning Team, presented the citywide sanitation planning concepts and various applications of DEWATS.



*Participants at the seminar*

Two films, namely, Aravind Eye Hospital and Evidence for Hope were shown to the participants to visually experience the DEWATS concepts. Aravind Eye Hospital is located in the boundary of Tamilnadu and Pondichery which serves the eye care need of nearly 750 people. The DEWATS constructed in this hospital to treat 307 cu.m/day of wastewater from toilets of hospital and staff quarters is an ideal example of decentralised approach for wastewater treatment in small medium enterprise (SME) sectors. Rajendra Nagar is a slum area in Kolhapur city where DEWATS has been implemented to treat the wastewater from community toilets. This place describes the successful implementation of Community Based Sanitation (CBS) DEWATS.

On the second day of the programme, site visits were arranged. Mr. Rajesh Pai explained the principle, execution, operation and maintenance of the DEWATS plants to the participants at all the project sites. On every site, there was a board set up showing the plan, layout and design details of the treatment plant. All the participants were also given project fact sheets of each site they visited.



*Participants at Friends of Camphill*

At the first site, Friends of Camphill, Bannerghatta Road, Bangalore, desludging of anaerobic baffle reactors had recently taken place and therefore, it was a good opportunity for the participants to know about the rehabilitation stages of DEWATS projects. Thereafter, the entire team was brought to Ullalu Upanagara, a low income area, where a DEWATS plant for a 22 seated community toilet complex had been constructed completely underground. Participants were able to see the use of biogas as well as the regular maintenance of the toilet complex.



*Team of MP Officials, WSP and CDD staff*

From Ullalu, the team was taken to the Beedi Workers Colony, an economically weaker section, where a DEWATS has been constructed for 120 houses. The programme successfully ended with a valedictory speech by Mr. Rajesh Pai. WSP and Madhya Pradesh Officials expressed their gratitude to all the CDD Society staff who had organised the programme.

### Upcoming Training: Operation & Maintenance of CBS DEWATS

As part of CDD's capacity building interventions on decentralised basic needs services, a 1-day training programme on regular Operation and Maintenance (O&M) of DEWATS is being organised on 5th March 2010 at Bangalore. The training will emphasise on the need and importance of regular and proper maintenance of DEWATS units to ensure its sustainability.

The expected participants will be operators and other responsible persons working with DEWATS who are interested in acquiring knowledge and skills on the basics of how the treatment modules work. The one day training programme would follow a participatory learning methodology including classroom teaching as well as 'hands-on' practical skill training.



## INTERESTING LINK

Water News Portal

<http://www.waternewsportal.com>

WaterNewsPortal.com is an online publication in the UK on water conservation and recycling technology, with an unparalleled reputation and authority. It publishes the latest news, in-depth case studies, research articles and market reports for water conservation, wastewater recycling, rainwater, hydroelectric and tidal power market.

## QUIZ

Q. What is the range of per capita waste generation in major Indian cities?

Ans: <http://www.indiatogether.org/environment/articles/wastefact.htm>

A bi-monthly publication by

Supported by