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### Interesting Link:

[www.indiawaterfoundation.org](http://www.indiawaterfoundation.org)

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Test your knowledge...

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National level  
training on  
Decentralised  
Wastewater  
Treatment  
Systems  
(DEWATS)



## Prologue:

Warm greetings from CDD Society! We have the pleasure to bring to you the September issue of e-Disha.

This issue will bring you information about ongoing DEWATS projects as well as the planned training programmes organized by CDD Society and its network Partners on decentralized basic need services. The regular contents of e-Disha are also included.

The Editorial Team would be pleased to receive feedback and suggestions. Contributions to the Newsletter are most welcome

## Picture of the month:



**Fig: National level training on Decentralised Wastewater Treatment Systems (DEWATS)**

This Training Program was organised by CDD Society with the support of BORDA and RGRHCL at EVOMA, Bangalore from 17<sup>th</sup> through 22<sup>nd</sup> August, 2009. Seventeen engineers working in sanitation and waste management sectors from different Government, non-governmental organisations and private firms participated.

The main object of this Training Program was to create a platform for engineers engaged in the sanitation and waste management sector to gain practical skills and knowledge for planning, designing, executing, operating and maintaining DEWATS.

The Training helped in exchanging and gaining knowledge on DEWATS implementation and maintenance.

## Project fact sheet:

DEWATS at Beedi Workers Colony

<http://www.borda-sa.org/modules/wfdownloads/visit.php?cid=6&lid=79>

## Research on sanitation:

**Climate Change and the Global Water Crisis: What Businesses Need to Know and Do? By Jason Morrison et al...**

In this Paper, the authors describe how global warming affects water and energy resources and the challenges and opportunities this presents globally. The Paper summarizes the way in what ways climate, energy and water are likely to affect business and offers general guidance on how companies could respond to the challenges in an integrated way.

[http://www.unglobalcompact.org/docs/issues\\_doc/Environment/ceo\\_water\\_mandate/UNGC-PI\\_climate-water\\_whitepaper\\_FINAL.pdf](http://www.unglobalcompact.org/docs/issues_doc/Environment/ceo_water_mandate/UNGC-PI_climate-water_whitepaper_FINAL.pdf)

## DEWATS Elements:

### Wastewater Reuse Options

Expansion of urban population and the resultant increase in use of water resulted in a generation of larger quantities of municipal wastewater. Reuse of wastewater is therefore necessary to meet the growing needs for water. Use of treated wastewater will result in the conservation of water and its use for purposes other than irrigation. Reuse of treated wastewater governs the level to which wastewater treatment is needed in order to minimize the risks to public health and environment. The main areas of wastewater reuse include irrigation, industrial use, surface water replenishment and groundwater recharge.

In this issue, we dwell on reuse of wastewater for irrigation. Wastewater can be used as a substitute water of a higher quality which would be a wasteful especially for agriculture, the single largest fresh water demand on freshwater and wastewater worldwide. The main benefits of using treated wastewater for irrigation is that it not only conserves valuable water resources but also takes advantage of the nutrients present in sewage to benefit crops. However, uncontrolled use of wastewater in agriculture has important health implications.

Nutrients in municipal wastewater and treated effluents have a particular advantage over conventional irrigation water sources as supplemental fertilizers may sometimes be eliminated. Typically, nutrients in treated wastewater effluent from conventional sewage treatment processes are: N - 50 mg/l; P - 10 mg/l; K - 30 mg/l and, assuming an application rate of 5000 m<sup>3</sup>/ha/year, the fertilizer contribution of the effluent would be: N - 250 kg/ha/year; P - 50 kg/ha/year; K - 150 kg/ha/year. Thus, all of the N and much of the P and K normally required for agricultural crop production could be supplied by the effluent.

Treated wastewater if handled carefully could be a valuable agricultural input. However, wastewater is never hygienically safe and guidelines for the safe use of wastewater in agriculture are necessary. This would maximize public health benefits while allowing for the beneficial use of scarce resources. The farmer who uses wastewater for irrigation must consider the health risks and therefore check whether the wastewater he uses for irrigation is suitable to the crops or pastures he intends to irrigate. The World Health Organization (WHO) recommends that treated wastewater for unrestricted irrigation should contain less than 10,000 fecal coliforms per litre and less than 1 helminthes egg per litre. This limit should be observed strictly since the risk of transmitting parasites is relatively high.

#### WHO guidelines for wastewater use in agriculture

Category	Reuse conditions	Treatment required
A	Irrigation of crops to be eaten uncooked, sports fields, public parks	Series of stabilisation ponds
B	Irrigation of cereal, industrial and fodder crops, pasture and trees	10 days retention in stabilisation ponds
C	Localised irrigation of crops of category B, no contact by workers or public	At least primary sedimentation

Properly planned use of municipal wastewater alleviates surface water pollution problems and in addition to the economic benefit of the water, the fertilizer value of the effluent is of importance.

## Wastewater Analysis:

### CHLORINE CELL TEST

For the determination of the Chlorine ( $\text{Cl}_2$ ) concentration in the range of 0.01-7.5 mg/l.

#### 1. Preparation

- The pH of the sample must be in the range 4-8. The pH of the solution must be in the range 4.5-5.5.
- The temperature of the pretreated sample should be  $5^{\circ}$ -  $40^{\circ}\text{C}$

#### 2. Procedure

- Pipette 8ml of sample into a test tube.
- Add 1 level microspoon of reagent  $\text{CL}_2$ -1 to the sample and shake vigorously until the entire reagent is completely dissolved.
- Leave to stand for 1 minute and then fill into a cell
- Measure the cell in the photometer

#### Important

- In the event of  $\text{CL}_2$  concentrations  $> 25$  mg/l, other reaction products are formed and false low readings are produced. In such cases, dilute the sample and conduct a plausibility check



## Interview:

An Interview with Mr. Arunkumar, Project Engineer, CDD RCO Chennai ,about CDD RCO Chennai current projects

### Short Background

CDD Society is carrying out DEWATS implementation in India through network Partners and Regional Coordination Offices in Nagpur and Chennai. The CDD Regional Coordination Office (RCO) Chennai started operations in 2008. It is providing technical support services for DEWATS both for community based sanitation (CBS) and Small Medium Enterprises (SME) units in different regions of Tamil Nadu with the support of ExNoRa International, the regional network partner in TamilNadu.

**1. What are the DEWATS projects that RCO Chennai is currently handling?**

The projects being handled are of a varied nature ranging from CBS to institutional to and SME units as maybe seen from the following proposed DEWATS projects at:

- Spastics Society of Tamil Nadu
- Girls Hostel at Krishnagiri
- Vivekananda College, of Chennai
- Iluppur Town
- Lalgudi Town
- Kulithalai
- Brahamadesam School at Cuddlore District
- Nagar Secondary School at Cuddlore District
- Melapattampakkam School at Cuddlore District

**2. Please briefly describe these Projects?**

▪ **CBS DEWATS**

- Lalgudi Town with proposed treatment capacity of 8m<sup>3</sup>/d
- Kulithalai with proposed capacity of 5m<sup>3</sup>/d
- Iluppur Town with proposed capacity of 10m<sup>3</sup>/d

▪ **SME DEWATS**

- 5 Institutional DEWATS units in Cuddlore District and Chennai for EcoPro
  - Secondary School, Melapattampakkam with proposed capacity of 100m<sup>3</sup>/d
  - Secondary School, Nagar, with proposed capacity of 5m<sup>3</sup>/d and
  - Secondary School, Bramadesam with proposed capacity of 11m<sup>3</sup>/d
  - Vivekananda College Hostel, Chennai, with proposed capacity of 15m<sup>3</sup>/d
  - Girls Hostel at Krishnagiri with proposed capacity of 3-5m<sup>3</sup>/d
- An institutional DEWATS at SPASTN (Read e-Disha May 2009 issue)

▪ **Is the community involved in project implementation and what is the feedback from the community?**

We are involved in social preparation as a part of the sanitation interventions in the 3Community Based Sanitation DEWATS project areas with the support of ExNoRa International.

The area in which the CBS DEWATS would be implemented has open spaces for defecation and also public toilets (in 2 project areas) but these are not in usable conditions. Therefore, the installation of toilets with appropriate conveyance, treatment and safe disposal of the treated wastewater was welcomed by the community.



Fig1: Proposed site in Lalgudi, Fig2: Existing Toilet in Kulithalai, Fig3: Toilet under Construction in Illuppur

## Events:

### **International on-site Training Program on Community-based Micro Hydro Power Units, 21st September through 2<sup>nd</sup> October, 2009**

The object of this training program is the systematic transfer of knowledge and skills required for planning, implementing and management of successful community-based Micro Hydro Power Units.

LEDeG in collaboration with the University of Applied Science Northwestern (FNHW) Switzerland and BORDA, Germany, is organizing the Training in Leh and Kargil District of the Ladakh Region from 21st September through 2<sup>nd</sup> October, 2009.

The number of participants would be 20 persons representing Government organization or Agencies, non government organizations and private firms.

### **DEWATS Supervisor Training in September**

The DEWATS Supervisors and Masons Training is being organized by CDD Society in September at Bangalore. The aim is a systematic transfer of skills and knowledge pertaining to the construction of DEWATS specifying the importance of construction norms and quality requirement.

The expected participants are Construction Supervisors and Masons with at least 3-5 years of experience in the construction industry. This package will follow a participatory learning methodology which includes class room training, assignments and field trips to the project site.

## Interesting Link:

[www.indiawaterfoundation.org](http://www.indiawaterfoundation.org)

The **India Water Foundation** is a non-profit organization established for the purpose of generating heightened public awareness all over India regarding the vital role water plays in our daily lives. Water is the key element that impacts on the quality of life Indians enjoy, from human health and economic growth to our natural environment.

## Quiz - Test your knowledge on Sanitation:

**Q:** How much water does a city-dweller use per day for taking a shower, flushing the toilet, washing dishes and clothes, and so on?

Source: WWD2000 Quiz Home page