CENTRE FOR ADVANCED SANITATION SOLUTIONS
The Centre for Advanced Sanitation Solutions was set up as a joint collaboration project between Rajiv Gandhi Rural Housing Corporation Ltd (RGRHCL) Govt. of Karnataka, the Consortium for DEWATS™ Dissemination (CDD) Society, and Bremen Overseas Research & Development Association (BORDA) as a one stop sanitation solution center with focus on building practical capacities of all stakeholders.
Rajiv Gandhi Rural Housing Corporation Limited (RGRHCL) is a unit of Government of Karnataka catering to the housing needs of the economically weaker section of society. RGRHCL also fosters promotion of Sustainable Basic Need Services.

Consortium for DEWATS™ Dissemination (CDD) Society is a not-for-profit organization based in Bangalore. It works with a network of like-minded partners seeking to promote basic sanitation services and sustainable water management practices.

Bremen Overseas Research and Development Association (BORDA) is a not-for-profit organisation registered in Bremen, Germany. BORDA operates in 23 countries providing knowledge support for planning, design and implementation of Decentralised Basic Needs Services in the fields of environmental protection.
CASS has been empanelled as Key Resource Centre (KRC) by the Ministry of Drinking Water and Sanitation – Govt. of India
Urban population of India generates 62,000 million litres of sewage per day (MLD), but can treat only 23,277 million litres!! Disposal of such a large volume of untreated domestic sewage from cities and towns is the biggest source of environmental pollution in India.

Centre for Advanced Sanitation Solutions was set up as an extended arm of BORDA, CDD Society and RGRHCL to create a committed resource pool in the space of Water and Sanitation. It was envisioned as a learning centre to meet the knowledge and capacity gap among sector professionals and policy makers.
CASS promotes an attitudinal reorientation towards emerging concerns of solid waste, water and sanitation.

CASS envisages to create a critical mass of thought leaders, skilled professionals and experts who believe in a sustainable way forward in building solutions for water and sanitation.
The training programs aim to foster practical knowledge among practitioners and impart core skills for delivering water and sanitation solutions.

The programs also aim to sensitize participants towards the social, economic, and political environment in which sanitation and sustainability measures are implemented.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td>CASS was conceptualized</td>
</tr>
<tr>
<td>2008</td>
<td>RGRHCL, BORDA and CDD Society agreed to implement the CASS concept</td>
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<tr>
<td>2009</td>
<td>CASS was formally established and the first training course was conducted</td>
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<tr>
<td>2010</td>
<td>Conducted first international training course</td>
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<tr>
<td>2011</td>
<td>CASS Sanitation Exhibition launched</td>
</tr>
</tbody>
</table>
2012
Organised the First International Conference in partnership with International WATER Association

2013
Developed Full Credit Curriculum for a Vocational Training Institute- Afghanistan

2014
Trained 500 sanitation professionals across 13 Countries and 23 Indian states

2015
Empanelled as Key Resource Centre (KRC) with Ministry of Drinking Water and Sanitation, Govt. of India

2016
Achieved record of disseminating to 1478 professionals in an year and developed partnership with 19 leading, training Institutes
CASS STORY

CASS HAS FIVE MAJOR ARMS

All the units are interdependent and specialised arms which work to reinforce the core of CASS – Capacity Building.

1. Capacity Building Unit
   The CB unit is housed in an eco-friendly building and campus spread across 20,000 sq. ft. It offers specialized capacity building and training courses on concept, design and construction of various components of water and sanitation infrastructure. The training programs conducted at CASS develop implementation capacity on the technical as well as the socio-economic front, combining theoretical and practical elements.

2. Research and Development
   The R&D unit provides facilities for applied research and development of advanced decentralized sanitation solutions. There is a laboratory for waste and water analysis. The unit also addresses aspects such as adaptation, improvement and simplification of existing designs and monitoring systems, as well as research on materials.

3. Design and Production
   In an area of 18,000 sq. ft., the unit focuses on development and testing of appropriate material and components for sanitation infrastructure, design of prefabricated elements and cost-efficient, high quality production processes. The unit also provides for evaluation of functionality of infrastructure and production of prototypes.
Knowledge Management
This unit comprises of water and sanitation professionals dedicated to translating international experience and current research findings for local application. The unit is equipped with subject-related documentation facility, library and databases.

Exhibition
The Exhibition is an engaging visual experience of sanitation solutions in communities and cities. On display are important elements of sanitation infrastructure which usually cannot be seen during field visits as they are installed underground. The exhibits also serve as a significant training tool for specialised sanitation training courses conducted at CASS.

Live Projects
Live projects showcase the different innovative solutions implemented on ground. The small selection of work includes:
1) Community based toilets integrated with wastewater solutions
2) DEWATS™ for low income communities
3) Faecal sludge treatment at town scale
4) DEWATS™ for a urban gated community.

CASS trainees visit these projects to gain practical exposure to working solutions in different contexts and insights from end-users.
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</tr>
</thead>
<tbody>
<tr>
<td>Bangalore</td>
<td>Chennai</td>
<td>Kurnool</td>
<td>Hyderabad</td>
<td>Trichy</td>
<td>Pune</td>
<td>Ahmedabad</td>
<td>Jaipur</td>
<td>Dehradun</td>
<td>Shimla</td>
<td>Mumbai</td>
<td>Shillong</td>
<td>Imphal</td>
<td>Itanagar</td>
<td>Aizwal</td>
<td>Kolkata</td>
<td>Bhubaneswar</td>
<td>Ranchi</td>
<td>Patna</td>
<td>Raipur</td>
<td>New Delhi</td>
</tr>
</tbody>
</table>
CASS FOOTPRINT

1. Myanmar  
2. Bhutan  
3. Bangladesh  
4. Nepal  
5. Sri Lanka  
6. Pakistan  
7. Afghanistan  
8. Oman  
9. Iraqi Kurdish  
10. Lebanon  
11. Mauritius  
12. Kenya  
13. Tanzania  
14. Sudan  

15. Zambia  
16. Botswana  
17. Tunisia  
18. Ghana  
19. Finland  
20. Germany  
21. Latin America  
22. Bahamas  
23. Nicaragua  
24. Mexico
Trained participants from 20 countries

Conducted training programs in 6 countries

Disseminated to 5927 people since 2005

44 Projects implemented by participants of DEWATS™ Engineers Training Programs

MoUs with 19 organisations across India & abroad to assist in various Capacity Building programs.
NGOs
Cities
ULBs
CBOs

CASS supports ULBs, CBOs, cities, other NGOs and international organisations by providing requisite training to tackle sewage and water problems.
Since 2009, training programs have been redesigned to expand their scope of impact – they now intend to create a powerful knowledge base and develop skills and understanding with special focus on Decentralised Wastewater Treatment System (DEWATS™), Decentralised Solid Waste Management (DESWAM), City Sanitation Planning (CSP) and Sustainable Community Based Sanitation solutions (CBS).

Decentralised approaches to sewage treatment have been crystallised into working solutions and presented to participants in intensive training programs. Most ULBs require modular solutions which can be implemented in a phased manner; our approaches are carefully designed to achieve this goal.

Listed below are the various themes and programs offered at CASS. While each of these is a complete program in itself - they are also customised and crafted to suit specific contexts and needs of the target groups.
Sanitation Solutions

**DEWATS™ (Decentralised Wastewater Systems)**

DEWATS™ Training is a program for engineers to gain technical skills and practical knowledge of planning, designing, implementing, operating and maintaining DEWATS™.

**DESWAM (Decentralised Solid Waste Management)**

DESWAM training is designed to impart knowledge about the technical and social aspects of decentralised solid waste management. The program covers - solid waste – sources, generation and control - collection and transportation, storage and disposal, legal aspects of solid waste. Financial strategies and PPP model in Decentralised Municipal Solid Waste Management and O&M of DESWAM.

**CBS (Community Based Sanitation)**

This training is designed for professionals engaged in projects for low-income communities - to comprehend issues involved in managing liquid and solid waste - introduction to approaches for collection, conveyance, treatment and disposal of waste in a manner that is safe, economical, effective, locally suitable and legally compliant. It has a strong focus on participatory approaches.
**FSM (Faecal Sludge Management)**

The FSM training is designed to provide participants with the knowledge and skills for systematic planning of activities like collecting, containment, transportation, treatment, safe disposal/reuse of faecal sludge and overall management. The training also provides practical exposure into functioning of decentralised wastewater, faecal sludge and solid waste treatment systems.

**CSP (City Sanitation Planning)**

The main objective of CSP training is to introduce and impart planning skills for preparation of citywide sanitation plans in compliance with the National Urban Sanitation Policy (NUSP). The training covers introduction to NUS Policy, solid – liquid and waste management guidelines, O&M regulations, role of municipalities, urban infrastructure and waste water management, solid waste management, sewerage, Legal obligations and compliances.
CAPACITY BUILDING

Water

**RWH (Rain Water Harvesting)**
The program on RWH equips participants with skills for design of rain water harvesting systems and various methods of water conservation. The CASS building has integrated various elements of RWH and serves as a practical tool for training.

**IWRM (Integrated Water Resource Management)**
The IWRM sessions focus on an integrated systems approach to water problems, processes in IWRM, technical aspects of rainwater harvesting, watershed management, sewerage and waste water management. The training also emphasizes on policy, regulation, governance, institutional reforms and frame work for IWRM.

**Water Quality**
The program on Water Quality helps participants understand basic concepts of Water quality – monitoring, testing, drinking water quality guidelines and standards. It equips learners with skills to measure different parameters – physical, chemical and microbiological. It also covers quality control in water sampling, laboratory safety measures and management.
CAPACITY BUILDING

Vocational Training

Faecal Sludge Management - Desludging
To enhance knowledge about septic tanks, pits and their design, structure and functioning. To train service providers on 'step-wise' procedures in periodic maintenance of septic tanks and pits. Raise awareness of do's and don'ts during de-sludging. Impart knowledge on scientific disposal of sludge.

Simplified Sewer System
This training is aimed to introduce and impart engineering skills for design and implementation of Simplified Sewer System. The training covers all vital elements – data collection, pre-planning, conceptualizing and design, and case studies.

Masons Training
Masons training focuses on creating awareness towards the use and construction of toilets; provides them with technical knowledge and skills on design and principles under the OSS as specified under the SWACHH BHARAT MISSION (twin-pit, septic tank, UDDT, DRDO toilet). It also familiarizes them with construction norms and specific requirements for construction of OSS.

Plumbers Training
This training is designed to equip plumbers with an understanding of the basic design and installation procedures of household, sewerage systems. It familiarises them with the current practices of plumbing in water supply and sanitation. Plumbers are trained to conform to regulatory requirements and improve their workmanship so it meets accepted standards.

Sustainability

Decentralisation and community engagement - key approaches

Teamwork

Experienced team of sector specialists/ subjects matter experts
Methodology

Learning-by-doing sessions/
analysis of case studies/field visits

Interactive

Through the online DBNS platform interact
with other DBNS professionals
Workshops at the District & State level

Many NGO’s, urban and rural bodies, Government agencies, private organisations and institutes approach CASS to design one-day workshops on topics related to Water and Sanitation. Some examples are below:

**EcoSan Workshop**
The Ecological Sanitation approach advocates recapturing nutrients safely at the source – the toilet. Urine and faeces are collected and stored separately and reused after treatment and sanitisation. The EcoSan concept offers a safe sanitation solution which prevents disease and promotes health by hygienically converting pathogen-rich excreta into a resource.

**Water and Wastewater Management**
Water Management Workshop was aimed to create awareness among the rural elected representatives and officers about issues related to ground water and sanitation. Sessions covered topics such as: Wastewater situation, solutions options, various water related policies and regulations.
Technology options for Decentralized Wastewater Management

The major objective of this workshop is to provide exposure to a range of decentralised wastewater management options. The workshop also functions as a platform for exchanging knowledge and experiences and takes the premise of sustainability - ‘mixing as few flows as possible’ forward.

Service Providers Workshop - Efficient Desludging

This workshop is designed to focus on equipping service providers with efficient desludging services. Primary objectives are - to impart knowledge on safety measures, health hazards and best practices in desludging and dumping of sludge, application of tools and practical guidance on planning effective O&M and the Do's and Don'ts.

The learner is at the core of our training. Content and method are designed for each program to suit the context of the participant.

Goal is always to enhance the required knowledge and skills of the participants.

Not a cookie-cutter methodology! Every training is a mix of classroom discussion and practical exposure - case studies, workshops & site/field visits.
CAPACITY BUILDING

- Masons
- Plumbers
- DSI Operators
- Environmental Engineers
- Site Supervisors
- Monitoring Specialists
- Civil Engineers
- Elected Representatives
- Sanitation Workers
- Engineers
- Project Managers
- Health Educators (NGO)
- Water Quality Experts
- De-sludging Operators
- Architects
- Urban Planners
- Health Officers
- Geologists (water)
- Researchers/Associates
- Students/Educators/Schools
- Social Scientists/Workers
- Women/Children/Young Adults/Members of Community
- Policy Makers
44 Projects implemented on ground, by participants of DEWATS™ training treating wastewater generated by 62,288 people!

College of Engineering, Pune

KESAR City, Goyani Group, Ahmedabad

Staff Quarters – Swami Vivekananda Memorial Hospital

Pondicherry

Tribal Girls Hostel – Swami Vivekananda Tribal Centre for Learning

Residence, Kengeri

Spartan School, Sripuranpudoor

Open pond, Mahalingapuram
RESEARCH AND DEVELOPMENT
Applied Research Collaborative Research

The R & D unit provides facilities for applied research and development of advanced decentralized sanitation solutions. The unit addresses aspects such as adaptation, improvement and simplification of existing designs and monitoring systems; as well as research on materials and optimization of reuse options of waste treatment products. The unit has an active laboratory for waste and water analysis. In addition, the unit provides opportunities for research scholars and collaborations in allied fields.

CASS is also an important venue for many guest lectures by Researchers, Innovators and Thought Leaders working in the space of Sustainability and Sanitation. Some sessions potentially become mutual collaborations to further research. One such research collaboration is with Freshrooms Lifesciences, Chennai. Mr. Vinoth Rayar, founder and CEO, has been working on the cultivation of the Black Soldier Fly Larvae (BSFL) for use in organic waste management and nutrient recycling. CDD society and Freshrooms Lifesciences have presented a proposal to further this research – to develop a sustainable business model for scaling-up FSM using Black Soldier Fly Larvae.
Research learnings are actively fed back into training modules and field implementation.

Research and Collaborations

Technical Knowledge Sharing

Prototyping

Content and Methodology of Modules
Current Research Projects

*Monitoring the FSTP at Devanahalli, Bangalore*
We are analysing the quantity and quality of incoming faecal sludge and its treatment at various stages in the plant.

*Assessment of Small Scale Sanitation Systems (4S)*
CDD Society and BORDA are working with Eawag - a Swiss based water research institute to conduct a comprehensive study on 400 4S projects across India, Nepal and Bangladesh.

*Applied Research at Beedi Workers Colony, Kenegri, Bangalore*
Assessment of Biogas digester performance, sludge production at ABR, methane potential of sludge from ABR and effects of different inoculums in DEWATS™.

*Research options for DEWATS™ Plus*
Integration of systems like Vortex, Trickling Filter and Vertical Filter as feasible solutions to address the issue of oxygenation and nutrient removal.

*Wastewater Monitoring of DEWATS™ projects*
CDD Society conducts detailed performance monitoring of DEWATS™ units for selected sectors. These results are integrated back into training and design improvements.

*Monitoring and Evaluation of DEWATS™ projects*
This project conducts high-level performance monitoring of DEWATS™ for assessing the operations. We have monitored more than 165 DEWATS™ projects in India.
RESEARCH AND DEVELOPMENT

62 Guest Speakers since 2013

Featured below are some Guest Speakers

**Joe Madiath**
Former Executive Director– Gram Vikas and Board Chairman of Gram Vikas

**Andrea Schaefer**
Head of Language Department Goethe-Institut Max Mueller Bhavan, Bangalore

**Francis L.de lo Reges**
Engineer, Jon Shaw and Associates, Boeing, USA

**Dr. Fabio Masi**
Technical Director, R&D Manager, IRIDRA Srl, Florence, Italy

**Prof. Dinesh Mehta**
Professor Emeritus, CEPT University, Ahmedabad

**Prof. Meera Mehta**
Professor Emeritus, CEPT University, Ahmedabad

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**Prof. Lawrence Surendra**
Chairman, The Sustainability Platform, India

**Dr. Jan-Olof Drangert**
Associate Professor, Dept. of Water and Environmental Change, Linköping University Stockholm, Sweden

**Shubhagato Dasgupta**
Senior Fellow, Centre for Policy Research, New Delhi, India

**Brian Von Herzen**
Founder, Climate Foundation, USA, Recipient of Hertz Fellowship

**Mathew Eipe**
Former Executive Director & President of Chemicals division, Godrej Industries Limited

**Mr. S. Vishwanath**
Director, Biome Environmental Solutions, Bangalore
Dr. G. Aswatha Narayana
Regional Co-ordinator, North South Foundation
Former Secretary, (PWD Irrigation & CADA) Govt. of Karnataka
Former Consultant, Common Wealth, World Bank

Brian Arboast
Director Water and Sanitation & Hygiene
Bill & Melinda Gates Foundation (BMGF), USA

Dr. Priti Parikh
Lecturer, University College London, United Kingdom

Jon Shaw
Engineer, Jon Shaw and Associates, Boeing, USA

Günter Langergraber
Deputy Head-Institute of Sanitary Engineering and Water Pollution Control, University of Natural Resources and Life Sciences, Vienna

Mr. Raghu Rama Swamy
CEO & Vice President, Infrastructure Development Corporation (Karnataka) Limited, Bangalore

Prof. M. K. Ramesh
Professor of Law, National Law School of India University, Bangalore

Prof. Laurence William Gill
Professor
DESIGN & PRODUCTION UNIT
The Design and Production Unit provides facilities for development and testing of appropriate materials and components which support cost-efficient, high quality implementation. The unit also has a workshop which develops sanitation infrastructure elements and various pre-fabricated components. It provides for evaluation of functionality and quality control of sanitation elements and prototypes. The workshop is used to expose trainees to specific components like the sanitary pipes, fittings, gas-tight plastering, etc.
CASS Exhibition has seen **2400** visitors since 2013
One of the most important components to CASS is a permanent exhibition on Water and Sanitation solutions. Spread over an area of 7000sqft the exhibition is situated in the CASS building. It covers a wide range of topics related to history of sanitation, various tangible and intangible problems associated with sanitation and approaches for sustainable solutions covering all aspects of the sanitation value chain.
The exhibition is broadly divided into three themes

The history

The problem

The solution
Showcases sanitation and drainage systems of various civilisations from the Mesopotamians in Babylon, Indus Valley, Romans, and Aztecs to the Middle Ages and modern Europe. On display are different designs of the western flush toilet, right from the early ‘urine diversion’ design to the ‘Indian pan’.

The story of solid waste & water – the excesses of urban consumption – plastic and non-degradable materials, alarming amount of pollutants contaminating our rivers and water sources, improper disposal and dumping and the poor infrastructure to manage waste!

Exhibits also relate stories on **hygiene and social morality** - high **child mortality due to diarrhea** and poor hygiene awareness, contamination due to **open defecation**, improper sanitation facilities especially for women and girls in rural India and **lack of toilets** as a leading cause for girls to leave schools in India!

Finally, there are Solutions – solutions across History and sustainable technology options today
The most important part of the exhibition is the DEWATS™ system—on display are the **Biogas Settler**, the **Anaerobic Baffle Reactor (ABR)**, the **Anaerobic Filter**, the **Anaerobic Media – Planted Gravel Filter (PGF)** and finally the **Stabilization/Polishing Pond**.
On display are two *Model Settlements* – slum community ULLALU – a peri-urban slum in Bangalore where DEWATS™ collects wastewater from community toilets and biogas is used as fuel. Another is a regular community settlement, Rajendra Nagar, Kolhapur where DEWATS™ treats wastewater and water is reused for plants.
LIVE PROJECTS
Pilot

septage treatment plant at CASS

- Treated effluent reused for gardening
- Biogas used as fuel for cooking
- Digested sludge used as soil conditioner for garden
CBS - DEWATS™
Beedi Worker's Colony, Kengeri Upanagara, Bangalore

- Treatment plant serving 120 households and an office building
- Treated water partially used for irrigation and remaining safely discharged into the drain
- Biogas used as fuel
CBS - DEWATS™
Ullalu Settlement, Ullalu Upanagara, Bangalore

- Two Treatment plants together serving 150 households
- Reuse of treated water for gardening and horticulture
- Use of Biogas as fuel for heating water
- Sludge transformed into good manure by composting
FSTP
Devanahalli Town, Bangalore

- Treating 6000 litres/day of Faecal Sludge from pits and septic tanks
- Town population of 30,000
- Treated effluent reused for landscaping
- Biogas used for cooking at operators’ residence
- Digested sludge co-composted with municipal waste and used in agriculture
DEWATS™
Good Earth Malhar
Kengeri, Bangalore

- Source: Toilets & wash area
- Design capacity: 7 m³/day
- Number of users: 250
- Influent quality: 300mg/l BOD & 600mg/l COD
- Reuse of treated waste water for gardening & toilet flushing
CASS NETWORK PARTNERS

CASS works with its network partners to implement customised capacity building programs. CASS also provides them with resource persons to support their CB events.

**International partners**

- **BORDA** – Myanmar  
- **BORDA** – Afghanistan  
- **BORDA** – SADC  
- **CAWST** (Centre for Affordable Water and Sanitation Technology) – Canada  
- **AIT** (Asian Institute of Technology) – Bangkok

**National partners**

- **MDWS** (Ministry of Drinking Water and Sanitation) – Govt of India  
- **Centre for Advocacy and Research** – New Delhi  
- **CSE** (Centre for Science and Environment) – New Delhi  
- **Centre for Policy Research** – New Delhi  
- **NIUA** (National Institute of Urban Affairs) – New Delhi  
- **Kerala Water Supply and Sanitation Organisation**  
- **Practical Action** – Odisha  
- **ASCI** (Administrative Staff College of India) – Hyderabad  
- **Swacch Andhra Corporation** – Municipal Administration and Urban Development – Andhra Pradesh  
- **Keystone Foundation** – Tamil Nadu  
- **Sri Krishna Institute of Technology** – Coimbatore  
- **CMA** (Commissioner of Municipal Administration)  
- **Nispana Innovative Platforms pvt.ltd.**

**Local partners**

- **WSSO** (Water and Sanitation Support Organisation) – Karnataka  
- **Karnataka Water Supply and Sanitation Department**  
- **Directorate of Municipal Administration** – Karnataka  
- **CMAK** (City Managers Association Karnataka)  
- **SIUA** (State Institute of Urban Affairs)  
- **SIRD** (State Institute of Rural Development)  
- **KSPCB** (Karnataka State Pollution Control Board)  
- **IIHS** (Indian Institute of Human Settlements) – Bangalore  
- **BWSSB** (Bangalore Water Supply and Sewerage Board)  
- **RGRHCL** (Rajiv Gandhi Rural Housing Corporation Ltd.) – Karnataka  
- **Gramavidya** – Bangalore
CASS DONORS

Ministry of Drinking Water & Sanitation

German Federal Ministry for economic cooperation and development

Bill & Melinda Gates Foundation
# TABLE OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABR</td>
<td>Anaerobic Baffle Reactor</td>
</tr>
<tr>
<td>BMGF</td>
<td>Bill &amp; Melinda Gates Foundation</td>
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<tr>
<td>CBO</td>
<td>Community Based Organisation</td>
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<tr>
<td>CBS</td>
<td>Community Based Sanitation</td>
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<tr>
<td>CEPT</td>
<td>Centre for Environmental Planning &amp; Technology</td>
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<tr>
<td>CMAK</td>
<td>City Managers Association of Karnataka</td>
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<tr>
<td>CSP</td>
<td>City Sanitation Plan</td>
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<tr>
<td>DBNS</td>
<td>Decentralised Basic Needs Services</td>
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<tr>
<td>DEWATS™</td>
<td>Decentralised Solid Waste Management</td>
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<tr>
<td>DRDO (toilet)</td>
<td>Defence Research and Development Organisation</td>
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<td>ECOSAN</td>
<td>Ecological Sanitation</td>
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<tr>
<td>EWS</td>
<td>Economically Weaker Section</td>
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<td>FSM</td>
<td>Faecal Sludge Management</td>
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<tr>
<td>FSTP</td>
<td>Faecal Sludge Treatment Plant</td>
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<td>IWRM</td>
<td>Integrated Water Resource Management</td>
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<tr>
<td>KRC</td>
<td>Key Resource Centre</td>
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<tr>
<td>LO</td>
<td>Liaison Office</td>
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<tr>
<td>MLD</td>
<td>Million Litres per Day</td>
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<td>MoU</td>
<td>Memorandum of Understanding</td>
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<td>NUSP</td>
<td>National Urban Sanitation Policy</td>
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<td>O &amp; M</td>
<td>Operations and Maintenance</td>
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<td>OSS</td>
<td>On Site Sanitation System</td>
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<td>PPP</td>
<td>Public Private Partnership</td>
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<tr>
<td>Prefab</td>
<td>Pre-fabricated/ prefabrication</td>
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<tr>
<td>R &amp; D</td>
<td>Research and Development</td>
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<tr>
<td>RGRHCL</td>
<td>Rajiv Gandhi Rural Housing Corporation Limited</td>
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<td>RWH</td>
<td>Rain Water Harvesting</td>
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<td>SADC</td>
<td>South African Development Community</td>
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<td>SSS</td>
<td>Simplified Sewer System</td>
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<tr>
<td>UDDT</td>
<td>Urine Diversion Dehydration Toilet</td>
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<tr>
<td>ULB</td>
<td>Urban Local Bodies</td>
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<tr>
<td>4S</td>
<td>Small Scale Sanitation System</td>
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</tbody>
</table>
Team - Experts, leaders and thinkers

INTERNAL TEAM

Sasanka Velidandla  
CEO CDD Society

Stanzin Tsephel  
Regional Coordinator, BORDA South Asia, Advisor CDD Society

Rajesh Pai  
Senior Technical Advisor, BORDA, CDD Society

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Subject Coordinator, R&D, CDD Society

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Preethi Grace  
Project Associate, CDD Society
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Founder Executive, EcoPro, Auroville

Muthu Kumaraswamy
HR & Technology Management Consultant

Mr. Avinash Krishnamurthy
Director & Project Manager, BIOME, Bangalore

George Verghese
Senior Technical Consultant - Water, Environment & Sanitation

S. Vishwanath
Director, Biome Environmental Solutions

Dorai Narayana
Head of Department, Planning & Engineering Indiah Water, Kuala Lumpur, Malaysia

Bipin Dangol
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SANITATION
A WORLD VIEW
2.5 Billion people in the world lack adequate sanitation!

2000 Children die everyday
Diarrheal diseases caused by poor sanitation

1/3rd of world population has intestinal worm infections!

62 Million children under 5 are stunted
Poor hygiene and sanitation

For enquiries

Consortium for DEWATS™ Dissemination (CDD) Society
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Training topics

- DEWATS™ Engineers Training
- DEWATS™ Project Management Training
- O&M Small & Medium Enterprise (SME) - DEWATS™
- O&M Community Based Sanitation (CBS) - DEWATS™
- Orientation program to service providers on “Strategic approaches for maintenance of DEWATS™”
- Periodical Maintenance of DEWATS™ • Training on Sustainable Community Based Sanitation (CBS) - DEWATS™
- Training of Trainers (ToT) for in house DEWATS™ Engineers
- Citywide Sanitation Planning
- On job training on City Sanitation Planning (CSP) Preparation
- Decentralised Solid Waste Management (DESWAM)
- Introductory Training on Decentralised Basic Needs Services (DBNS)
- ToT on Decentralised Sanitation Solutions
- Community Based Waste Management Training
- Faecal sludge Treatment Technologies
- Faecal Sludge / Septage Management - Towards Sustainable Sanitation
- Faecal Sludge Management (FSM) Master Class
- Training on Urban Sanitation - Integrated Approach for Faecal Sludge Management
- Rain Water Harvesting
- Water Quality
- Integrated Water Resources Management (IWRM)
- Micro Hydro Power Units Training
- Construction Supervisors’ Training on DEWATS™
- Engineers’ training on Simplified Sewer System - SSS
- Training Program for Toilet Builders
- Operation & Maintenance (O&M) of Activated Sludge Process (ASP) Treatment System
- Plumbers’ Training on Dual piping, Improvised Septic tanks, and DEWATS™
- Workshop for Service Providers on Efficient desludging services
- Maintenance Training on Septic Tanks and pits
- Masons Training
- Site Supervisors’ Training
- Ecological Sanitation (EcoSan)
- Decentralised Sanitation Infrastructure (DSI) Training
“The great aim of education is not knowledge, but action”

Herbert Spencer