

# Annual Report 2018-19

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### Annual Report - 2018 - 19

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Front Cover- Washing Hands, Devanahalli - Photograph by Julia Knopp Back Cover - CDD Society Office - Photograph by Karthik Ravichandran



# **Annual Report 2018-19**

Consortium for DEWATS Dissemination Society, Bengaluru

## From the Director of Programs

## P.G. Ganapathy

The year 2018-19 was an important year for Consortium of DEWATS Dissemination (CDD) Society on the programs front, in many ways. CDD looked to create more impact in its Decentralised Wastewater Treatment Systems (DEWATS) offering by working on:

(a) **bigger scale and new contexts** e.g. 1 MLD wastewater treatment plant at Mahadevapura Lake

(b) **more innovative solutions** e.g. Vertical Flow Wetlands and Woodchip Wetlands in APJ Abdul Kalam Museum in Patna



(c) **Integration** e.g. Alleppey canal rejuvenation that involved toilet construction, shallow sewer networks, DEWATS and cleaning of a nallah.

CDD also invested time and resources in reviewing its DEWATS design approach for improved treatment performance, space optimisation and cost efficiency. Within CDD, we call this the DEWATS+ program. CDD also made appreciable strides in understanding and exploring household scale DEWATS options, as part of a GIZ study to implement such solutions in the faculty housing of Kerala Institute for Local Administration (KILA). We call this the i-DEWATS program within CDD.

In the FSM domain, CDD continued to focus on the program deliverables of the Bill and Melinda Gates Foundation (BMGF) grant. As on date, there are **5 plants in operation in the country** that are designed by CDD (*Devanahalli in Karnataka, Leh in Ladakh, Dhenkanal in Orissa, Jhansi in Uttar Pradesh and Sircilla in Telangana*). There are another 4 plant**s under various advanced stages of construction** (Phulera and Khandela in Rajasthan, Angul in Orissa, Bhalki in Karnataka, Unnao in Uttar Pradesh) and few more that are expected to begin construction soon.

CDD has also contributed to the **development of ideas** in the **co-treatment** domain by working with the Technical Task Force of the National Faecal Sludge and Septage Management (NFSSM) Alliance. Besides this, CDD has participated in many training activities. It has developed **two flagship training programs** viz.,

(a) An Advanced program on design of FSM solutions for Design Engineers(b) Advanced program on FSM for contractors and operators

During the year, CDD also made substantial progress in expanding into the water resources domain through **Water Body Rejuvenation (WBR)** projects viz., (a) Mahadevpura lake

- (b) Coimbatore 8 lakes project under the Smart Cities Mission
- (c) Alleppy Canal Rejuvenation
- (d) Saidpur Nallah in Patna

CDD is currently working on several publications and training programs on WBR, largely funded by the BMZ program. Under the BMZ program, CDD is also beginning to make inroads into the subject of **Integrated Urban Water Management (IUWM)** and hopes to offer technical and capacity building solutions in this domain.

The year also witnessed CDD moving towards a more **program** and **project-based structure** with clear roles and responsibilities for program and project delivery. **CDD strengthened its project management systems – for planning, budgeting and accounting**. There was great emphasis placed on **leadership development** by coaching and mentoring, **quality** of deliverables by having more rigorous review process and **timely delivery** by creating a culture of planning and time budgeting.

CDD also strengthened the **HR function** by recruiting a Senior Human Resource Manager who has in a short period of time worked on standardisation of levels and titles (grid), updation of various HR policies, standardisation of employee and consultant contracts, updation of employee databases, introduction of a formal performance management system, and so on.

CDD has made good strides in **strengthening** its capacity building and training arm - **Centre for** 

**Advanced Sanitation Solutions (CASS)** by conducting more workshops and training programs during the year across all focus areas, bringing out more publications and working on improving the laboratory. These improvement activities, which started in FY 2018-19, will mature further in FY 2019-20.

CDD also engaged **Sattva Consulting** to help articulate its vision, guiding philosophy, key principles, and North Star for the next 10 years (upto 2030). Sattva is also helping CDD in putting together a 5 year plan, developing a **fundraising strategy** and a fundraising program. This was achieved through a highly participatory process that included the Governing Body and the CDD Leadership team. This exercise also **served as a good platform for the CDD Governing Body to reflect** upon CDD's journey till date and what CDD's identity should be going forward to capitalise on the opportunities offered by the changes happening in the no-profit world.

Looking ahead, the FY 2019-20 will mainly focus on **strengthening the Finance function**, moving further on **automation of various HR and project management processes, strengthening the fundraising and outreach function** to name a few.

Wastewater sample collection for Devenahalli Grey water management plan

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## Abbreviations

ABR	Anaerobic Baffle Reactor
ADB	The Asian Development Bank
AMRUT	Atal Mission Rejuvenation and Urban Transformation
APF	Azim Premji Foundation
ASCI	Administrative Staff Colleges of India
AF	Anaerobic Filter
AP	Andhra Pradesh
BEL	Bharat Electronics Limited
BOD	Biological Oxygen Demand
BORDA	Bremen Overseas Research and Development Association
BMGF	The Bill and Melinda Gates Foundation
BMZ	Federal Ministry of Economic Cooperation and Development (Germany)
CASS	The Centre for Advanced Sanitation Solutions
СВ	Capacity Building
ССМС	Coimbatore City Municipal Corporation
CDD	The Consortium of DEWATS Dissemination Society
COD	Chemical Oxygen Demand
CSR	Corporate Social Responsibility
CSCL	Coimbatore Smart City Limited
CWIS	Citywide Inclusive Sanitation
DPR	Detailed Project Report
ELCITA	Electronics City Industrial Township Authority
EAWAG	Swiss Federal Institute of Aquatic Science and Technology
ENPHO	Environment and Public Health Organization, Nepal
FS	Faecal Sludge
FSM	Faecal Sludge Management
FSSM	Faecal Sludge and Septage Management
FSTP	Faecal Sludge Treatment Plant
DEWATS	Decentralised Wastewater Treatment Systems
GGHS	Government Girl's High School
GJC	Government Junior College
G0279	Government Order 279
GP	Gram Panchayat
GWM	Greywater Management
HH	Household
ICO	India Country Office
ICT	Information and Communication Technology

idewats	Household-level DEWATS
IUWM	Integrated Urban Water Management
KLD	Kilo litres per day
KSPCB	Karnataka State Pollution Control Board
LWM	Liquid Waste Management
NABL	National Accreditation Board for Testing and Calibration Laboratories
NGT	National Green Tribunal
NIRD	National Institute of Rural Development
NIUA	National Institute of Urban Affairs
NoC	No-Objection Certificate
NFSSM Alliance	National Faecal Sludge and Septage Management Alliance
NSS	Non-sewered Sanitation
ODF	Open Defecation Free
055	On-site sanitation systems
PDB	Planted Drying Bed
PMU	Project Management Unit
RCUES	Regional Centre for Urban and Environmental Studies
RVCE	R V College of Engineering
Q&Q	Quality and Quantity
RGRHCL	Rajiv Gandhi Rural Housing Corporation Limited
RLWM	Rural Liquid Waste Management
SATRA	Social Action for Appropriate Transformation and Advancement of Rural
	Area
SCIMMU	State Change Communication Mission Management Unit
SCBP	Sanitation Capacity Building Platform
STP	Sewage Treatment Plant
SUID	State Institute of Urban Development
SWM	Solid Waste Management
SR	Stabilisation Reactor
SUDA	State Orban Development Authority
	Total Discolved Solids
	Tamil Nadu Urban Sanitation Support Program
ToT	Training of Trainers
т	
TSU	Technical Support Unit
III B	Lirban Local Body
	IHE Delft Institute for Water Education
	United States Agency for International Development
WASH	Water and Sanitation
WB	The World Bank
WRR	Water Body Rejuvenation

Monitoring and Evaluation study at Positive Labels - Jigni

Mr. Manas Rath receiving the award on behalf of CDD for the Social Impact Category at the Spirit of Humanity 2018 Award by Americares

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# **O1** About CDD Society

CDD Society is a not-for-profit organisation registered in 2005. The 'C' in CDD Society stands for Consortium - as the organisation was (informally) formed in 2002 by 25-30 organisations who came together to collectively address the issue of wastewater. The consortium also partners with other like-minded organisations to promote basic sanitation services and sustainable water management practices across the Country.

93% of India's sewage finds its way to ponds, lakes and rivers – untreated and hazardous. This sewage is the leading polluter of our water sources and is causing grave damage to the environment as well as public health. According to a World Bank report, the cost of environmental damage in India through poor sanitation decimates 6.4 percent of the country's gross domestic product.<sup>1</sup>Lost productivity from death and disease (water-borne diseases, such as diarrhoea are India's leading cause of child mortality) are the primary culprits.

In fact, access to toilets itself, which the Government is trying to tackle through initiatives like the *Swachh Bharat Mission* is a challenge. Though well-intentioned, these initiatives are limited in scope and impact as their focus starts and ends with providing toilets to the 48% of Indians who do not have one.

Building enough toilets alone will not solve India's sanitation woes. Toilets bring with them a larger set of problems – one of which is getting people to use them. The biggest challenge lies in providing post-toilet infrastructure i.e. containment, transportation and treatment of sewage.

This is the area that CDD focuses on - providing post-toilet infrastructure that is robust, effective, decentralised, and affordable - to enable mass implementation across India. We do so by adopting an integrated and holistic approach appropriate to the local context. In doing so, we believe, we are fortifying the efforts of the Government (and other organisations) to ensure these efforts do not go *down the toilet*.

Our team of technical specialists, which includes in-house staff, consultants, partners, and trainee participants, has provided solutions across the user spectrum - from single households and schools to rejuvenation plans for water bodies (rivers, lakes, nullahs) and even sanitation plans (FSM planning) for small to medium cities. In a bid to have more and more people implement decentralised solutions, we continue to dedicate considerable resources and efforts to capacity building and training, especially designed for practitioners and decision makers through CASS.

(1) - https://www.worldbank.org/en/news/feature/2011/01/13/india-cost-of-inadequate-sanitation

## **Sectoral Perspectives**

#### A. Wastewater Treatment

Wastewater treatment continues to be a core focus area for us, and DEWATS our primary technology cum approach to tackle wastewater. Infact, we apply the DEWATS principles – robust, low maintenance, low energy, easy to operate, nature-based systems – to all of our sectors. At a sector level, we see that there continues to be an increase in demand for systems that are nature-based – akin to DEWATS and across the world there is a perceptible shift towards nature-based systems for wastewater management among various other things. We are also making conscious efforts to focus on holistic interventions like a combination of collection, conveyance and treatment (small networks) and reuse.

### **B. Faecal Sludge Management**

Our work in Faecal Sludge Management is predominantly anchored through the BMGF Grant. The activities under BMGF grant are presented in more detail in Section 2.2. This section provides an outlook of the FSM sector in India in general.

We believe that at this point FSM in India is well poised for scaling up. Policy at the national level as well as those adopted by various states have helped raise awareness on FSM within the Government system across various tiers. The technology demonstrations that have have taken place in various parts of the Country – by CDD Society as well as other organizations – have also led to traction in turn creating demand for FSM services. More importantly, it can be seen that funds are being allocated for implementation of FSM projects by various states.

Going forward it is important that a supportive environment is created to enable private sector participation in the FSM sector. We have also made efforts to enable this ecosystem and will continue do so in the near-medium term. Efforts are also on to channelize other sources of funding to non-sewered sanitation viz., Asian Development Bank , West Bengal, USAID, corporate social responsibility funds and private capital wherever feasible.

## C. Water Body Rejuvenation

Building on our legacy of decentralised wastewater treatment systems (DEWATS), we have come up with nature-based solutions for rejuvenating waterbodies. These take a holistic approach that look at the multiple facets of a waterbody – its role as a water storage and recharge structure in preserving and enhancing our water resources and thereby enhancing water security; its potential role as a cleanser i.e. its ability to remove carbon and nutrients from polluted waters; its role as a buffer in flood management; its role in supporting life (biodiversity) and livelihoods (economy); and its additional role as a glorious public and religious space that heals the soul.

Our solutions thus take into account the history, legacy systems, hydrology and hydro-geology, native biodiversity, catchment and pollution characteristics, and social contexts around livelihood and rights – and are highly contextual.

This year, we made inroads into **Integrated Urban Water Management (IUWM)** and hope to offer technical and capacity building solutions in this domain. These would include:

- Water Supply Management
- Wastewater Management
- Solid Waste Management

- Rain Water Harvesting
- Storm Water Management
- Ground Water Management



Pichola Lake in Udaipur - picture taken during the field visit for the WBR Compendium

# **O2** Programmes

## 2.1 The BMZ Grant 2018

#### Poverty Alleviation and Sustainable Protection of Natural Resources in South Asia

In December 2017, we initiated a new project, titled "Integrated Urban Water Management at the centre of Municipal Public Services", under a new grant from the BMZ. The overall goal of the project, targeted for 2018 to 2026, is to sustainably manage water and sanitation so as to be at the centre of public services and be accessible to all.

The larger goal over the period 2018-2026 is – "Sustainably managed water and sanitation are at the center of public services and are accessible to all". In the current phase i.e. 2018 to 2020, the goal is to support Municipalities and environmental service providers to improve the living conditions of all inhabitants, protect natural resources, and develop liveable and inclusive cities.

This is in continuation to Phase V (2015 to 2017) of The Federal Ministry for Economic Cooperation and Development (BMZ) project, through BORDA, "Poverty Alleviation and Sustainable Protection of Natural Resources in South Asia

CDD in the current phase will be working in the following 2 result areas of the project:

#### **R1** IMPLEMENTATION

Municipalities and service providers are supported in the development, implementation, operation and dissemination of essential environmental services in the water, wastewater and waste sectors

## **R2**

#### NETWORKING AND COMMUNICATION

A regional professional cooperation network is established to develop and foster the knowledge and capacity of municipal environmental service providers and stakeholders in the water, wastewater and waste sectors.

The list of activities under this project and achievements against each have been tabled in annexure 1. Two key activities have been elaborated here.

## 2.1.1 Approach to Water Body Rejuvenation - A knowledge document

Over the past couple of years, we have had the opportunity to work on a number of water body rejuvenation projects. Each project has varied in scope, and presented us with different kinds of challenges, giving us several opportunities to learn and hone our WBR skills. In the process, we also developed an approach



when it comes to rejuvenating a water body. As we began contemplating on developing an approach document on water body rejuvenation to capture these learnings, the BMZ Project truly provided us with the opportunity to do so.

We have worked on a knowledge document, titled "Approach to Water Body Rejuvenation – A perspective". The aim of this document is to capture our learnings from the field – for private, Government and other stakeholders involved in Water Body Rejuvenation to learn from. We also hope that this document helps decision makers and CSR funders learn more about CDD and our knowledge and experience with regards to water body rejuvenation.

The draft content of this approach document has been developed and reviewed. With feedback and design left, we are aiming to have this publication ready by the end of June.

## 2.1.2 Compendium of Water Body Rejuvenation Projects

The BMZ Project gave us the opportunity to develop a second publication on Water Body Rejuvenation in the form of a Compendium of Water Body Rejuvenation Projects. This publication documents numerous water body rejuvenation initiatives across the country – by other organisations and CDD. The aim of the compendium is to capture the impact and learnings of different technologies, approaches and methods that have been adopted for water body rejuvenation in different contexts. It helps readers understand what has worked and what has not (and why) with regards to water body rejuvenation (WBR). This publication is aimed at practitioners, NGOs, citizen groups and government stakeholders who care for water bodies and are involved in the rejuvenation of waterbodies (in some manner).



50 case studies were identified and secondary research conducted. Of these, 14 lakes were visited for collection of primary data. The draft is almost complete; with internal and external reviews, designing and printing, it should be ready in another 2-3 months time.

FSTP Leh Operator

## 2.2 The BMGF Grant

Strengthened Technical and Managerial Capacity of CDD to Provide Advisory and Implementation Support Services to the Government, ULBs and Development Partners on Faecal Sludge Management and Non-Sewered Sanitation.

The following are our key achievements in FSM through the BMGF grant:

• A strong technical team of over 25 staff across different levels with good knowledge of FSM and non-sewered sanitation has been created; this team is actively working with partners, government, and private sector.

• CDD now has a **fully functional laboratory** for analysing faecal sludge, one of two such globally recognised laboratories in India.

• **Many technical training modules** have been developed and two flagship advanced training modules for the private sector were developed and successfully released. One was conducted in association with BORDA, National Institute for Urban Affairs (NIUA) and Sanitation Capacity Building Platform (SCBP) and focussed on designers; the other focussed on contractors and operators. We continue to provide Capacity Building support to partners as well as the SCBP.

• **Devanahalli and Leh** have been developed as model towns for FSM and non-sewered sanitation services. FSTPs have been commissioned in Dhenkanal and Jhansi; FSTPs are under construction in 7 more towns. In many more towns, work is ongoing – currently at various stages of tendering and detailed project report preparation.

• Focussed FSM efforts are ongoing in **Rajasthan, Jharkhand** and **Karnataka** 

• **30+ organisations** have been trained in faecal sludge management, of which at least 7 have entered this sector and are participating in tenders for construction and operation & maintenance of FSTPs.

• CDD has directly worked with **50+ towns** preparing them for FSM systems and implementation of FSTPs. It has also worked indirectly through partners in 60+ towns across 5 Indian states.

• Researched and demonstrated many **FSM Technologies** – Sludge drying beds, Planted drying beds, hybrids and variations of these drying bed technologies, solar drying, solar pasteurisation, co-treatment technologies and screw press. A consolidated progress of our FSM work in different towns is depicted in Annexure 2.

The current BMGF grant ends in December 2019 and hence planning has begun with the India Country Office (ICO), Delhi for further engagement as a follow-on of this grant. The ICO's focus is at the national level through Project Management Units, Technical Support Units of 5 States and 4 Citywide Inclusive Sanitation (CWIS) cities. Hence, CDD was requested to consider the same while detailing out the concept for the next phase grant. A second level concept is under preparation further detailing out proposed service offerings and engagement models of CDD with other partners in the FSM sector.

#### **Highlights**

#### 2.2.1 Advanced training for Design Engineers on Faecal Sludge Management -29th October to 1st November, 2018

CDD Society in partnership with BMGF, NIUA, SCBP, and BORDA, Germany, conducted an Advanced training for Design Engineers on Faecal Sludge Management. This programme was organized at CASS from October 29 to 31, 2018 and a one-day exposure visit on 1 November 2018. The Advanced Training for Design Engineers on Faecal Sludge Management disseminated engineering and technical experience related to the design and operations of various types of faecal sludge treatment technologies suitable to Indian contexts.

#### 2.2.2 Co-treatment Workshop – 31st January 2019

CDD, with support from NIUA, had undertaken a desk study on co-treatment of wastewater and faecal sludge. This study covered major literature that has been published (Internationally and in India), to better understand co-treatment from a technical perspective, to capture the present knowledge on this subject as well as explore possibilities of bringing out new dimensions with respect to co-treatment feasibility and design. The study report was circulated to all participants prior to the workshop. At the workshop, conclusions outlined in the desk study were presented to the group and their view points were sought. The workshop culminated with participants agreeing over short-term and long-term objectives to take forward co-treatment in India.

#### 2.2.3 Training on Implementing and Operationalising FSM - February 5-8, 2019

This training focused on consultants and private practitioners in the country who are involved in FSM. The training sessions spread over 4 days covered various aspects of the FSM eco- system – policy, institutional, financial, legal and economics. This was a very engaging workshop where the participants were keen to get an in-depth understanding of the sector and understand how they can play a role in the FSM eco-system. This session too was very well received with a feedback score of more than 4.5 on 5.

#### 2.2.4 Dhenkanal FSTP Inauguration

Odisha's first FSTP was inaugurated in October 2018. It has been built by Practical Action and CDD in coordination with the Dhenkanal Municipality and the Government of Odisha. The plant is built for a population of 22,000 households (projection for 2030), to treat 27 KLD of faecal sludge (presently serviceable at 30% capacity for current population). Set up over 2.5 acres of municipal land, it is located just 7 kms from the centre of the town with appealing aesthetics that render it an asset to the community. The plant has been designed to ensure no odours are emitted throughout the treatment process. The aesthetics have been paid special attention to, so the community does not reject this facility as a nuisance.

#### 2.2.5 Rajasthan - Faecal Sludge Management

Over the last year, we made gradual progress in Rajasthan – primarily because of elections in the state. Consequently, there was a delay in the allocation of funds. Given this change, the focus is now limited to 15 towns from the earlier 100 towns. The construction of the FSTP at Phulera began in July (2018) and is progressing. Tender for the FSTP in Khandela was floated in November 2018. Additionally, DPRs in 3 towns (Bagru, Sadulsahar and Raisinghnagar) have received technical sanction from the State Government; the respective municipal boards have also provided administrative and financial sanction for these DPRs. In addition, 3 trainings were conducted – 1 in collaboration with NIUA and 2 in collaboration with UNESCO-IHE and Manipal University. (Refer to Annexure 12 for details)

#### 2.2.6 Jharkhand - Faecal Sludge Management

The State Urban Development Agency (SUDA) of Jharkhand is keen on implementing Faecal Sludge Treatment Plants for unsewered towns in Jharkhand. These are primarily towns that are not funded by any Central or State mission projects. SUDA in collaboration with CDD through a Memorandum of Understanding took the first step to realise this. 26 towns, , which don't have any dedicated state or central funding for septage treatment, were selected for implementation of FSSM under this project. For key acheivements refer to Annexure 13.

#### 2.2.7 Rural FSSM Study

We have prepared an Approach and Strategy to Liquid Waste Management (LWM) in the state of Karnataka along with the development of an excel-based model to help in planning of RLWM initiatives. This approach and strategy has been included in the first State level Policy and Strategy on rural solid and liquid waste management in the country, being done by the Karnataka Rural Drinking Water Supply and Sanitation Department. A series of consultations at different levels of administrations have been held so far for finalization of the same.

#### 2.2.8 Andhra Pradesh and Telangana Bid Support for Construction of FSTPs

The States of Andhra Pradesh (AP) and Telangana took the decision to construct FSTPs in their urban local bodies through a Hybrid Annuity Model – a Public-Private Partnership (PPP). The approach is a mix of both annuity and EPC (Engineering, Procurement and Construction) models – with the private party investing a certain percentage of the project cost and the Government investing the rest. Of the amount invested by the private party – part of it is paid on completion of the construction and the remaining is paid as an annuity on a quarterly basis for 10 years.

Given our credentials, as an established FSTP design expert in the Country, quite a few bidders were directed by respective State Governments (as well as by Administrative Staff College of India (ASCI)), to seek our support as design providers. Since 140 towns (AP and Telangana put together) were being tendered out in bulk, we looked at it as an opportunity to achieve our target of commissioning 30 FSTPs (this has now been revised to 10) committed under the BMGF programme (by building capacities of private players in the sector).

At the same time, being technology providers, we were not required to have liabilities towards the Government in the form of Bank guarantees or Performance guarantees. This low risk was an incentive to support the bid.

#### Andhra Pradesh Bid Support

In Andhra Pradesh, the private party was Arvind Envisol Private Ltd., an arm of The Arvind Group, Ahmedabad. They sought our support as technology providers for a set of 10 towns and also for helping them estimate costs of construction of the plants based on the Devanahalli model. Arvind Envisol were successful in their bid.

#### **Telangana Bid Support**

In Telangana, we were already supporting a private contractor – Privadhar International Marketing Pvt Ltd. - for the construction of the FSTP in Sircilla. The group approached us for design support so that they can bid for the construction of FSTPs. They have now been awarded the contract for construction of FSTPs in 18 towns. These 18 towns have FSTPs of 4 different capacities – 10, 15, 20 and 25 KLD. We have been requested to provide type designs for these 4 capacities of FSTPs and the contractor would take the responsibility of contextualizing the design to site conditions with our support.

#### 2.2.9 Solar Drying Roof

Green house solar dryers were installed at the FSTP at Devanahalli in order to improve the efficiency of the plant. Solar dryers create a greenhouse effect inside the solar drying beds, reducing the time required for the sludge to dry. This greenhouse effect is achieved with the help of an air circulation & ventilation unit, which traps moisture released from the sludge (for a certain period). The roof, which is parabolic in

shape and made of poly-carbonate sheets, helps induce this greenhouse effect. The first trail is in progress - for which 25cm of stabilized sludge has been placed in one of the drying beds. Sludge temperature, moisture levels inside the bed, air temperature inside and outside the drying beds are being compared against the actual sludge drying time.

#### 2.2.10 Athena Toolbox

Athena Infonomics is a data-driven global consultancy. They combine social science research methods and Information and Communications Technology (ICT) tools to drive innovation in policies, processes and programs in international development.

Their FSM Toolbox is an online platform providing tools for assessment of faecal sludge management across the sanitation value chain in a given town at different levels of the system, such as households, key stakeholders, regulatory and financial mechanisms, training needs etc. In its previous version, there were a wide array of tools which catered to the different aspects of faecal sludge management planning process. A number of these tools were reviewed. It was understood that while they provided help in certain individual aspects of the faecal sludge management planning, they were standalone tools working in isolation and suffered from inadequacies, such as a difficult-to-navigate user interface, repetitive data points within a tool and lack of integration of the tools to one another. This fragmentation hindered the purpose of the tool which is to support user groups especially city and state government officials, who may not be subject experts but who play a key role in driving and implementing decisions pertaining to faecal sludge management.

This necessitated a revamping of the FSM Toolbox which can support influential stakeholders who may not be subject matter experts. The revamped toolbox includes the best components of all the existing tools. In addition to this, it provides inputs of the kind of training and capacity building interventions to be put in place for creating an enabling environment for FSM implementation.

For the purpose of this revamping, Athena Infonomics, approached CDD to help them ask the relevant questions and create a logical framework for the new platform. Our experience in city-wide sanitation planning and in-depth understanding of the FSM planning process would help in creating a well-thought out framework for FSM planning. This included how and from where to collect the required data points, providing the calculations for identifying infrastructure gaps and a deck of possible solutions at each level of the system across the value chain. Sample data sets were also provided for testing the website.



#### Clockwise from top:

Advanced training for Design Engineers on Faecal Sludge Management Topography survey for FSTP in Jharkhand Orientation workshops for ULB officials in Rajasthan



#### Clockwise from top:

FSM Toolbox Interface First load of faecal sludge received at FSTP Dhenkanal Solar drying roof at FSTP Devanahalli



THE REAL PROPERTY AND

Ongoing DEWATS Construction - APF Gulbarg

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# **03** Other Programs and Projects

## **3.1 DEWATS**

12 DEWATS projects were commissioned this year. Additionally, a 1 MLD DEWATS under a Water body Rejuvenation project at Mahadevapura Lake, Bangalore, was also commissioned. These projects, collectively, are treating 1,251 m3 of wastewater daily, benefitting approximately 8,000 people from the nearby community. Please see Annexure 2 for details. We have focused on the projects below given their novel nature.

#### 3.1.1 DEWATS at APJ Abdul Kalam Science City, Patna, Bihar

APJ Abdul Kalam Science Museum (Patna, Bihar) is an upcoming state-of-the-art museum, public garden and pedestrian street. Being set up in an underprivileged part of the city, devoid of public open spaces, the project includes a six-acre public garden, which is being developed as a temporal bio-diverse wetland park with a wide variety of plant and animal species along with dynamic wet-dry gradients.

The garden is being set up to play an active role in urban flood management as well as wastewater management for the museum campus. A DEWATS (by CDD) is being set up (in the garden) to treat, purify and recycle all the wastewater and sewage generated by the Science City facility as well as neighbouring sites including the Saidpur nallah.

The design is supported by Biohabitats, a US-based organization, specializing in wetland technologies. The system, designed for 100 KLD capacity, helps in removing the organic load of the wastewater as well as nutrients through wetland treatment. After primary and secondary treatment through the settler, anaerobic baffle reactor and anaerobic filter, the wastewater is pumped through vertical flow constructed wetlands and horizontal flow woodchip wetlands consecutively. This process aids in reducing nitrogen content, which is found abundantly in wastewater generated from such day use facilities.

Once complete, the setup would also serve as a working demonstration for museum visitors.

We are also working to ensure that the DEWATS setup is aesthetically pleasing, which people can interact with – not a typical waste management facility at the corner of the site that people would prefer to stay away from. The aim is for the setup to serve as an example of how nature-based technologies can be implemented for large scale infrastructure while aesthetically blending into the architectural and landscape design of the facility. it would help serve as a pilot that could be replicated across the city of Patna and help transform the city aesthetically as its sanitation is taken care of.

#### 3.1.2 Azim Premji Foundation School, Gulbarga

Azim Premji Foundation which is renowned for its contribution towards education is currently opening a new school campus in Gulbarga, Karnataka. The campus consists of a school building, District Teachers Training Institute and guest house. The projected occupancy of the building is around 1,200 including residential and non-residential population.

Since the site is located on the outskirts of the city and faces water shortage, there is a requirement for reusing wastewater and conserving rainwater; hence, a requirement for a rainwater harvesting system and wastewater treatment plant. Low maintenance and low power requirements of DEWATS made the school opt for DEWATS. A 35 KLD DEWATS has been proposed for the campus. The treatment process includes a settler, balancing tank, anaerobic baffle reactor and filter followed by planted gravel filter. The effluent from the planted gravel filter would further pass on to a sand and carbon filter before being pumped out for irrigation and flushing.

The implementation of the project commenced in September 2018 and is nearing completion. The project is expected to be commissioned in June 2019.

## **3.2 Water Body Rejuvenation**



#### 3.2.1 Eco-Restoration of 8 lakes in Coimbatore

The goal of this project is not just to revive the lakes but to develop the lakefront as a beautiful public space in order to build community ownership.

CDD, in collaboration with Oasis Designs Inc, New Delhi as lead partner for urban components of the projects, has taken water components in the project. As consultants for the project, CDD's role is to ensure that clean water is available in the lake for the maximum time during the year. However, a sign of a healthy lake, is not just the quantity and quality of its water but also its biodiversity. A rich biodiversity enables nature to continue to keep the lake healthy. With 40 years of contamination to make up for, building a self-sufficient natural cleansing system is the only way to ensure enduring systems.

This year, our work in the project was completed with submission of the Environmental Impact Assessment, Detailed Design Reports and Operation and Maintenance reports for all the 8 lakes.

These projects are now in the process of phase-wise implementation by Coimbatore City Municipal Corporation (CCMC). We have also addressed concerns in the master plan and design report, raised by CCMC during start of implementation.

#### 3.2.2 9th Lake in Coimbatore (Kuruchikulam)

The Coimbatore Smart City Limited (CSCL) and Coimbatore City Municipal Corporation (CCMC) were pleased with CDD's work on the master plans of the 8 lakes. This encouraged them to award CDD with one more lake for eco-restoration – a 9th lake – Kuruchikulam.

Kuruchikulam is a 330-acre lake and is situated to the south of the Noyyal River. The scope of this project is similar to the 8 lakes project.



We ended the year with submission of the Master Plan report for Kuruchikulam. The remaining scope of the project will be continued and completed, as funds are received from CSCL/ CCMC, in the coming year.

#### 3.2.3 Mahadevapura Lake Rejuvenation

The work done under the Mahadevapura Lake Rejuvenation Project has been covered in detail under the CSR Section.

## 3.2.4 Rejuvenation of Alleppey Canal Network

#### Background:

A pilot project was taken up by CDD for rejuvenating a 250m stretch of the Allepey Canal Network (which are plagued by poor solid and liquid waste management). The objective of this pilot was to develop a natural and decentralized solution for the situation.

#### Our Work:

• We began work on cleaning of the drains. Studies of site conditions and testing of water samples were carried out. A concept note for treatment strategy was submitted.

• 40 Alleppey council members visited the Bangalore office to understand FSTP processes and the working of DEWATS.

• 22 toilets were retrofitted, 30 toilets were newly constructed. All 52 households were connected with sewer lines for conveyance of sewage from household to treatment system (DEWATS). The DEWATS has been implemented, commissioned and inaugurated – now wastewater from all these 52 households (~15m<sup>3</sup>) is being treated before being disposed into the Municipal canal.



## 3.2.5 Other Water Body Rejuvenation Projects

1. With Karnataka Industrial Area Development Board (KIADB) for an integrated water management project

2. The University of Pennsylvania's School of Design and the Anant National University in Ahmedabad have come together to work on an alternative for Saidpur *Nallah*: an open storm water drain in Patna, Bihar. Over time, it has become a carrier of wastewater and solid waste instead and city authorities are planning to cover it with an elevated road to put it out of sight. But sealing the nallah would not only create an anaerobic environment which would generate methane and hazardous gasses thereby creating a potential dangerous zone, but also reduce the ability of the nallah to collect rainwater, increasing chances of floods. Working with CDD and Biohabitats as technical partners, solutions are being explored on a 8.6 km stretch (of total 13 km length) to reduce pollution in the nallah so it may can be kept open.



## **3.3 Solid Waste Management**

## 3.3.1 Andhra Pradesh

#### Background:

In an effort to become fully compliant to Solid Waste Management (SWM) rules 2016, the State of Andhra Pradesh issued "Uniform Guidelines" for managing Municipal Solid Waste Management in all 110 urban local bodies (ULBs) across the state. Stakeholders involved in handling municipal solid waste play a key role in effective implementation of uniform guidelines and their success on ground. Hence, it was decided to build capacities of all stakeholders. In order to do so, the state floated a state-wide capacity-building programme – G0279 (Government Order 279). The Programme focusses on training more than 30,000 public health workers and 6,000 Municipal officials. CDD was appointed state-level agency to roll out Capacity Building programs for implementation of these uniform guidelines across the state.

#### Our Work:

We designed the Capacity Building programme in a blended learning approach involving e-learning, faceto-face (F2F) trainings, field trainings for workers and onsite demonstrations in the form of study tours and refresher courses.

Public Health workers have been targeted first for capacity building as they form the most important cog in the wheel and their buy-in is critical at this moment. Approximately 20,000 Public Health Workers have been trained so far. 5,998 Municipal Officials have been enrolled for the e-learning course and more than 95% (i.e. officials in 105 out of 110 ULBs) have completed the e-learning course. E-Learning trainings for Swachh Survekshan (Under Indicator 5.1)

The capacity-building programme has developed better understanding of roles and responsibilities amongst the sanitary workers.

#### **Our Achievements**

1) Development of content and rollout of Department Publicity Themes on topics related to affordable housing, Anna Canteens (like Indira Canteens), Municipal Schools etc.

2) Rolling out Training of Trainers (ToTs) modules for the above publicity themes for all 13 district DCs within 10 days (through State Change Communication Mission Management Unit or SCIMMU consultants).

3) Submitted a draft SWM Policy within one week (on oral request from SCIMMU).

4) Introduction to FSM for new Commissioners.

5) Submission of case study – CB Award Category for SWM International Conference held in Guntur, November 18.

### 3.3.2 Solid-Liquid Waste Management in Rural Himachal Pradesh

#### Background:

The National Green Tribunal (NGT) carried out water quality tests on rivers of Himachal Pradesh, based on which the rivers were classified in terms of pollution load into priority I to V, I being the highest risk and V being the lowest risk. Sukhna River and Markanda River were found to be on priority I and II respectively.

The NGT further directed the State Government to prepare sanitation action plans for 11 Gram Panchayats (GPs) located in the catchment areas of these 2 rivers. Preparation and implementation of an action plan to improve the sanitation situation along Sukhna and Markanda rivers thus became a high priority for the State Government (for which CDD was roped in).

The situational assessment of these GPs took the following factors into consideration in order to develop a Shit-Flow diagram and recommendations:

The factors are:

- Water supply and sources
- Greywater Management Practices: conveyance, reuse, outfalls, degree of pollution
- Blackwater Management Practices: containment types, collection and conveyance practices, treatment, reuse and reuse potential
- Solid waste management practices: generation, collection, treatment, reuse and reuse potential

#### **Our Work:**

Our findings and inferences indicate that one GP in each block i.e. GP Taksal located in the catchment of Sukna River and GP Kala Amb located in the catchment of Markanda River are key contributors to river water pollution. Pollution from GP Kala Amb was much higher than GP Taksal, as the wastewater generated from GP Kala-Amb receives considerable amount of industrial discharge, wastewater and solid waste from the GP, which was found to be flowing into the Markanda River.

With regards to blackwater management, the containments in place are huge and have lined walls but unlined, percolating bottoms. It was also observed that most of the households were inaccessible by trucks. However, the households claimed to have never had the need to desludge as they let tanks overflow with rainwater instead – which is the common practice. Banning such practices and following the other recommendations (made by CDD) would help control pollution in the rivers.

As far as solid waste is concerned, besides GP Taksal and GP Kala Amb, the remaining 9 GPs managed the organic fraction of solid waste at the household level. Organic waste constitutes 90% of waste. Inorganic waste, however, was burnt due to unavailability of solid waste collection services.

We recommended the following to improve the sanitation situation in all 11 GPs across the river basins.

• Convert all insanitary containment systems into sanitary containment systems by converting single pits to twin pits.

• Safely collect and empty faecal sludge from all the households using booster pump, sludge pump or small vaccutugs.

• Safely dispose collected faecal sludge through shallow trenching and lime stabilization method.

• Streamline dry waste collection from all the villages and process it at a centralized location.
Solid - Liquid Waste Management in Rural Himachal Pradesh



# Clean Hands to build a better future

Dracle Project - Devanahalli

# **04** Corporate Social Responsibility

Since 2016, CDD has been working with CSR partners - Oracle (in Devanahalli), Tata Power (in Jharkhand in 2016) and United Way Bengaluru (Mahadevapura). It is expected that corporates will increasingly collaborate with strategic partners to drive their CSR agenda in sectors that they are interested in. We are also viewing this sector with much interest and are looking at opportunities to collaborate with like-minded partners whose ideas resonate with our vision and mission.

# 4.1 The Oracle Grant

### Background:

Our aim through the Oracle grant is to make Devanahalli a model sanitation town (over the years). This includes:

(a) Faecal Sludge Management (FSM) - All the faecal matter will be safely transported and treated through an end-to-end Faecal Sludge Management system

**(b) Greywater Management (GWM)** - No wastewater (from storm drains) will find its way to the local lake thanks to an end-to-end Grey Water Management system

**(c) Solid Waste Management (SWM)** - All garbage from households will be safely disposed through an end-to-end Solid Waste Management system i.e. all the areas that need to be covered to ensure improved sanitation for the town.

### Our work this year:

Based on our field investigations and interactions with the Town Municipal Council and other stakeholders, the following interventions were prioritised:

(a) Installation of a Stabilisation Reactor (SR) at the Faecal Sludge Treatment Plant (FSTP), which has resulted in improving the intake capacity of the plant.

b) Refurbished toilets and accompanying DEWATS for Devanahalli's Government Girl's High School (GGHS) and Government Junior College (GJC).

c) Pilot demonstration of greywater management at Neeleri (which is one of Devanahalli's wards) - At

Neeleri, greywater from households was flowing into open drains, stagnating and causing flies to gather and odor issues. We identified a cluster (i.e 16 households, 3 piggeries and 1 cow shelter) and conducted a pilot demonstration of a decentralized household level greywater management treatment system for the cluster of animal shelters along an entire street

d) Construction of household toilets in 5 more houses across ward number 10 (i.e. Neeleri 2 toilets), in ward number 16 (Ambedkar Beedi, 2 toilets) and in ward number 23 (Vinayaka Nagara, 1 toilet).

e) Refurbishment of a public toilet located within the premises of the City Sessions Court.

These interventions (refurbished toilets with accompanying DEWATS at the two schools and greywater management for Neeleri) are examples that can be replicated by the ULB across the town.

Apart from these interventions, we also undertook surveys of the towns drains to better understand their condition.

For FY 2018-19, Oracle has approved another grant of Rs. 38 lakhs.



# 4.2 Mahadevapura Lake Rejuvenation

### **Background:**

The Mahadevapura Lake is spread over 26 acres. Over time, as developments have grown around the lake, water hyacinth – the most telling sign of deteriorating water quality - have started to slowly choke its waters.

United Way of Bangalore brought together four tech firms (Mphasis, Amazon, Dell Technologies, Ciber) to fund a solution for the Lake, as part of their CSR. They selected CDD to help with a solution that would prevent further pollution.

### **Our Work:**

A survey undertaken by our team confirmed that sewage from the neighboring areas is the cause of this deterioration. We designed and implemented a 1MLD DEWATS to treat this sewage and pump 1 MLD of treated wastewater into the Lake everyday. Moreover, many constructed wetlands, both shore-based as well as floating, will ensure that with time, the natural ecosystem and accompanying biodiversity of the Lake will get restored eventually.

A solid waste collection area has also been setup at the lake premises to manage solid waste scrapped out from the screens, installed in the two inlets to the Lake through the DEWATS.

The DEWATS was commissioned in February 2019. Post commissioning, we faced several operational challenges. Primarily that the wastewater entering the AF chambers was turning black due to leaching of cinder into the water. Rigorous reference (literature) study, discussion with experts, laboratory exper



CDD Society Laboratory

# **05** Applied Research and Development

# 5.1 Laboratory

The CDD-CASS Analytical Laboratory was established in 2010 to provide cost effective, high quality analytical testing services in support of DEWATS research activities. The scope of research activities has been extended to FSM in recent years.

The Laboratory is capable of analysing water, wastewater, faecal sludge, compost and dried sludge. Samples are analysed to understand the nature of waste (i.e. wastewater and faecal sludge) going into DEWATS and FSTPs, to facilitate better monitoring and evaluation of different treatment systems and for lab scale or pilot scale research activities.

This year, we extended our scope to helminth egg analysis for faecal sludge by procuring microscope from OPTIKA. A Digital Colony Counter used for counting of microbial colonies and a pH probe for onsite measurement have also been added to the instrument list.

The process of NABL accreditation has been initiated and the team has attended a one-day training on the same. The Laboratory has also been enlisted in the Global Partnership of Laboratories for Faecal Sludge Analysis (prototype of which has been released during FSM 5).

# 5.2 Quality and Quantity (Q&Q) Study in Sircilla, Telangana

This Study was commissioned by the Swiss Federal Institute of Aquatic Science and Technology (EAWAG) and funded by the Swiss Development Cooperation (SDC). The background of the Study was jointly conceptualised by EAWAG and CDD. All operations related to the field implementation of the study were co-ordinated by CDD. The study was conducted Sircilla, where the Municipality supported the entire process of setting up base and initiating it. Sircilla was also selected for the Study because it is the first district in Telangana State to have achieved zero open defecation.

#### The study had 2 objectives:

•The first objective was to measure the sludge accumulation rate in lined elliptical tanks, which is a standard design in Sircilla.

 The second objective was to determine qualities (total solids, volatile solids, and chemical oxygen demand) and quantities of faecal sludge in the onsite sanitation containments, so that these could be used to estimate what will arrive at the treatment plant. The focus on quantity parameter gave us an important factor "Sludge Accumulation Rate" (SAR) which can be tapped into for planning the capacity of upcoming FSTPs. SAR is an important number as it represents the total accumulated quantity of sludge that will need to be managed in the future. This Study is aimed at providing insights on SAR in containment systems in Sircilla and how treatment systems can be better designed using these numbers. Ultimately, these can lead to policies and programmes to improve activities along the sanitation value chain.



This Study will help in establishing a standard method for investigating the faecal sludge SAR for other towns as well. Even though different areas vary on the basis of different geographical and demographical conditions which will have different SAR values, but these contextualised numbers from this study can be used in designing an FSTP.

#### Our Work this year

• A questionnaire survey with the owners of the sanitation systems regarding baseline data of the systems, faecal sludge quality and quantity data in 6 trials has been completed for 30 lined elliptical tanks. The trials were done at an interval of 2 months.

- We have collected Q&Q data of 153 residential and 30 commercial establishments, till date.
- Data analysis and report writing work has also begun.

# 5.3 Planted Drying Bed (PDB)



A PDB is a physical and biochemical treatment unit for treating faecal sludge from pits and septic tanks. Plants on top of the drying bed digest faecal sludge to a level where it can be reused. In mid-2018, we setup a PDB to evaluate the suitability of this treatment system for faecal sludge and to optimize the existing load rates for practical treatment efficiency.

The designed area of the PDB is 20 m<sup>2</sup>, where the bed size is 4×5 m, with 8-10 plants planted per square meter. A free board of 1.60m has been

provided. Once the desludging truck empties the faecal sludge onto the PDB, solids get trapped in the soil layer of the bed and the liquid part percolates and flows into the DEWATS at Beedi Workers' Colony.

Every new load of faecal sludge is brought to the bed, regular quality check (pH, temp., COD, BOD, ammonia, phosphate, TS, VS, TDS) is conducted. Quantity and quality of leachate as well as quality check of the dried bed sample are also performed. The bed sample is also checked for Helminth egg concentration. Every 10 days' (on average), new loads are fed onto the bed.

# 5.4 Applied research on floating treatment wetlands

Floating wetlands are an integral part of water body rejuvenation projects being implemented all over India. Floating wetlands are believed to reduce organic loads while some studies have also indicated that they absorb nutrients. Though numerous studies have been conducted in other countries to establish removal efficiencies of floating wetlands, there is a dearth of studies conducted under the Indian context.



The research on floating treatment wetlands is being conducted not only to establish treatment efficiencies but also to understand the treatment process, develop physical design and validate available design models. For a practical study, CDD in collaboration with Clean Water Solutions has implemented some floating treatment wetlands at a setup at BEL layout. These wetlands are manufactured using different materials and substrates. They have been planted with species, such as Typha, Vetiver Grass, Reeds and Phragmites.

The implementation is almost complete, post which, it will be closely monitored for various parameters.

# **5.5 Evaluation and Monitoring of FSTPs**

Funded by BMGF, this Project is a collaborative effort between EAWAG, DELVIC Sanitation Initiatives (Senegal) and ENPHO (Nepal) to carry out an in depth research and assessment of FSTPs in South-Asia and Sub-Saharan Africa . CDD assisted as a key stakeholder in the implementation and management of FSTPs in India. With FSM and FSTPs gaining ground in South Asia and Sub-Saharan Africa, investing in effective operation and maintenance for FSTPs in operation, is becoming important. This two-year long research project is being planned with the objective of delivering recommendations for design and O&M of new and existing FSTPs.

### **Objectives of the Research Project:**

• The Project includes monitoring 8 FSTPs in India, over a year, to gather data on operation conditions and performance with regard to quality and quantity of faecal sludge discharged into the plants.

• To implement the field observations into application for FSTP design, management and operation activities.

• To understand and develop O&M and systematic monitoring procedures for FSTP operations.

• To understand the operational dynamics (technical, financial, management and social aspects) of existing FSTPs.

### Our Work

• We have visited 5 FSTPs (Berhampur, Bhubaneswar, Dhenkanal, Karunguzhi, Puri) to collect the baseline data. For FSTPs in Devanahalli and Leh, where CDD has been an active partner in design and implementation, we provided the client with details of design, baseline data and actual operating condition.

# 5.6 Automatic weather station and Evaporation Pan

An automatic weather station and digital evaporation pan were installed by Yuktix Technologies Pvt. Ltd., Bengaluru, in December 2018 and January 2019 respectively, at our office premises.

The automatic weather station has been installed with solar-powered sensors, and gives daily temperature, relative humidity, rainfall, pressure and wind velocity data. For both instruments, the data is connect-



ed to a main circuit board that logs all the data for each of these. This real-time data can now be accessed from the dashboard as the stations transmit the data on a regular basis. We are now able to compile and analyse weather data (of the neighbourhood) and use the same in our R&D activities.

## DEWATS Training

# **06** Capacity Building and other Dissemination Activities

### **Trainings at CASS:**

In FY2018-19, 21 training programmes for 501 participants were conducted. 16 of these were on Faecal Sludge Management. Details provided in Annexure 3.

### Support to Other Organisations:

The State Institute of Urban Development (SUID), Mysore and Regional Center for Urban and Environmental Studies (RCUES) were the 2 primary organisations we supported with our resource persons delivering sessions at their trainings. Details are provided in Annexure 4.

### **Orientation for Academia:**

Orientation on DEWATS and FSM was conducted at 3 institutes. Proposals were sent to 3 more institutes. Details are provided in Annexure 5.

### **School Orientation:**

IEC sessions were conducted for over 600 students at 2 schools in Devanahalli on sanitation, under phase 2 of the Oracle Project.

### **Guest Lectures:**

4 Guest Lectures were delivered during FY18-19 on various topics. Details are provided in Annexure 6.

### Trainings/Conferences:

Multiple technical and non-technical trainings over the last year have increased staff's capacity and skill sets. The training topics included: FSM, DEWATS and Delivering Effective WASH Trainings. Complete list is provided in Annexure 7.

### Peer Learning Sessions:

5 peer learning sessions were conducted. List provided in Annexure 8.

DEWATS Training

# **07 Human Resources**

In August 2018, CDD witnessed a significant change in management with Sasanka Velidandla stepping down from his role as CEO and Ganapathy PG taking over as Director of Programs.

Another significant change was that there is now a formal Human Resource function at CDD Society – a need that has been felt for some time now, given the organisation is slowing inching to becoming 100 employee strong. HR is now being lead by Geetika Chopra who joined in January 2019.

Over the last three months (of the financial year), she has taken initial steps to create and streamline a number of procedures and policies under HR function. These include:

- Making titles and levels uniform across the organisation
- Compensation Banding and Framework
- Travel Policy and procedures
- Leave Policy

• Learning and Development Policy (covering higher education, certification courses and internal learning)

Performance Management and Goal Setting for 2019

These, along with other HR initiatives, shall see progress in the coming year, helping strengthening the HR function at CDD.

### All Employees – 2018-2019:

Staff appointments in FY 2018 - 2019 - **21** Staff attrition in FY 2018 - 2019 - **18** 

The list of employees is provided in Annexure 9, with their respective dates of joining and leaving during financial year 2018 - 2019.

Devanahalli Oracle Project

# **08** Governance and Strategy

In the past year, efforts were made to engage with the Governing Body at various points. Regular Management Committee meetings were held apart from specific events which also provided an opportunity to various team leaders in CDD to start interacting with Governing Body members on a more regular basis.

1. A Consortium Partners meet on the theme of Water Body Rejuvenation was conducted in September 2018.

2. A strategic retreat was conducted in January 2019. A summary of the event has been provided below.

### **Governing Body:**

All Governing Body members and Office Bearers hold honorary status. Details of Governing Body members are provided in Annexure 10.

# **Strategic Retreat**

Enabled by the BMZ grant, a strategic retreat was held in January, 2019. CDD's management, Management Committee and senior advisors from BORDA met over two days to reflect on the current stage of CDD (i.e. an established technical organisation in the sanitation space today versus its initial role of being secretariat for the DEWATS consortium ) and took some key decisions regarding its future. This clarity will help CDD focus on the right opportunities, structure itself in the right manner, build relevant skills within the team – helping it to grow, with a clear vision and mission. We have hired the Bangalore-based consultancy firm, Sattva, to help us through this journey.

In the coming months, it is expected that a consolidated strategy will be in place articulating CDD's history, vision and long-term plan, while summarizing its funding needs for organisational growth and programme operations.

Annual Report 2018 - 2019

# **Og Annexures**

### **Annexure 1: BMZ 2018 Project Activities**

### **Continue to Support old Portfolio**

S. No.	Activity (2018)	Status
1	More DEWATS and advancement in DEWATS	Completed in 2018
2	Support CASS , CDD's Capacity Building and Training Centre	Completed in 2018
3	Support selected training programs at CASS	Completed in 2018
4	Raise funds for the sanitation work of CDD	Completed in 2018

# Support integrated water management plan and implementation

S. No.	Activity (2018)	Status
1	Training on Integrated Water Management (Haviltas etc.)	Carried Forward to 2019
2	Develop approach for Lake and Nallah rejuvenation	Carried Forward to 2019
3	Support 1-2 Lake Rejuvenation projects	Completed in 2018
4	3 meetings of water body network (1 meeting carry forward- ed to 2019)	2 completed in 2018, 1 carried forward.
5	Inter-city workshop on water and sanitation – New Urban	Completed in 2018
6	Wetland piloting and study	Carried Forward to 2019
7	Compendium of Water body Rejuvenation Projects	Carried Forward to 2019
8	Wetland workshop or meeting	Completed in 2018
9	IWM in Devanahalli	Completed (though work contin- ues as this effort is co-funded by Oracle)

# Other strategic support

S. No.	Activity (2018)	Status		
1	Retreat for Strategy Development for Family (i.e. CDD, CASS, BORDA and BWC) (Carry forward to 2019)	Carried Forward to 2019		
2	1 training on IuWM (Carried forward from 2018)	To be completed in April 2019		
3	Development of training module on Water Body Rejuvenation	To be completed in September 2019		
4	Conducting a training on Integrated Water Management	To be completed in October 2019		
5	Conducting a training on Water Body Rejuvenation	To be completed in September 2019		
6	Conducting a training on Integrated Water Management for city officials	To be completed in October 2019		
7	Support CASS	Ongoing through 2019		
8	Develop Approach for Lake/Nallah Rejuvenation (Carried forward from 2018)	To be completed in October 2019		
9	Develop Service package for Water Body Rejuvenation as case of Integrated Water Management solution	To be completed in November 2019		
10	Develop luWM service package for small towns/cities	To be completed in November 2019		
11	Similar study for Devanahalli/Partner town in south	To be completed in November 2019		
12	Other big picture intervention for South Indian towns	To be completed in November 2019		
13	Other practical measures in a South Indian city	To be completed in November 2019		
14	Water Body Rejuvenation	Ongoing through 2019		
15	Allapuzha project - continued support	Ongoing through 2019		
16	Support old portfolio - DEWATS etc.	Ongoing through 2019		
17	Funding proposal writing	Ongoing through 2019		
18	Conduct one networking meeting (2 done in 2018, 1 is a carry forward)	To be completed in October 2019		
19	Conduct a retreat to discuss CDD's strategy in the coming years (carried forward from 2018)	Completed in January 2019		
20	Facilitate cooperation between the relevant actors and con- sortium members	To be completed in November 2019		
21	Compendium of Water body Rejuvenation Projects (carried forward from 2018)	To be completed in June 2019		

### **Annexure 2 : FSM Projects**

### Legend

- 1 DPR Prepared
- 2 DPR Approved
- 3 Tender Prepared
- 4 Tender Floated

- 5 Tender Awarded
- 6 Construction started
- 7 FSTP Commissioned
- 8 End to end operations

Name	1	2	3	4	5	6	7	8
Angul					•			
Bagru								
Bhagalpur								
Bhalki	•	•		•	•	•		
Bheemli								
chirkunda	•	•		•				
Chunar	•							
Devanahalli								•
Dhenkanal	•	•	•	•	•	•	•	•
Gauribidanur	•							
Gulbarga	•							
Jhansi	•			•	•		$\circ$	
Jobner	•							
Kalmeshwar	•							
Khandela	•	•	•	•	•	•		
Kodaikanal	•							
Leh	•	•	•	•	•		•	
Madikeri	•	•	•	•	•			
Mul	•							
Raisinghnagar	•	•						
Sadhulsaher	•	•	•					
Samber- Phulera	•	•		•	•	•		
Sircilla	•		•	•	•	•		
Trichy	•	•	•	•	•	•		
Unnao				ightarrow				

## **Annexure 3: DEWATS Projects**

S.No	Project	City	State	Wastewater Quantity (cum/day)	No. of people served
1	ELCITA (Electronic City)	Bangalore	Karnataka	9	8,000
2	Mallya Aditi Interna- tional School	Bangalore	Karnataka	17	800
3	Hand-in-Hand (2 units)	Kanchipuram	Tamil Nadu	20	1,905
4	National Institute of Rural Development (NIRD)	Telangana	Hyderabad	0.5	5
5	Azim Premji Founda- tion School	Yadgir	Karnataka	30	1,528
6	Aishwarya Empire Township	Raipur	Chattisgarh	81	1,400
7	Mutton Market	Warora	Maharashtra	10	1,000
8	Jain Temple	Talegaon	Maharashtra	11	500
9	PMI Office Building	Nagpur	Maharashtra	6	75
10	Vijay Bhoomi Inter- national School	Orissa	Maharashtra	20	500
11	Pristine Apartments	Bangalore	Karnataka	17	120
12	Government Girls High School	Devanahalli	Karnataka	2.5	147

S.No.	Title	Days	No. of participants
1	Orientation Workshop on Faecal Sludge and Septage Management (April 4, 2018)	1	23
2	Orientation Workshop on Faecal Sludge and Septage Management (April 6, 2018)	1	11
3	Orientation Workshop on Faecal Sludge and Septage Management (April 6, 2018)	1	34
4	Faecal Sludge Management - Capacity Building Training to Municipal- ities in Nepal (April 5 to 8, 2018)	4	19
5	Orientation cum Exposure visit on FSM (April 25-26, 2018)	2	31
6	Advanced FSM training (May 9-11, 2018)	3	32
7	Advanced FSM training (May 23-25, 2018)	3	24
8	FSM Training (July 13, 2018)	1	50
9	National FSSM Orientation cum Exposure to FSTP (August 20-21, 2018)	2	30
10	Training on FSM and Septage Management (August 20-21, 2018)	2	24
11	Training on FSM and Septage Management (August 20-21, 2018)	2	26
12	Advanced FSM training (August 3-4, 2018)	2	17
13	International Engineers' Training on DEWATS (September 3-7, 2018)	5	28
14	Advanced Training for Design Engineers of FSM (October 29-Novem- ber 1)	4	24
15	Orientation of Academicians on Faecal Sludge Management for facul- ty (October 22-24, 2018)	3	24
16	One-day Orientation of Sanitary inspectors at RCUES Lucknow (No- vember 14, 2018)	1	8
17	(Capsule-2 ) for Engineering Group under AMRUT (November 15, 2018)	1	24
18	(Capsule-2 ) for Engineering Group under AMRUT (November 28, 2018)	1	30
19	Orientation cum Exposure visit for officials of TNUSSP (December 14, 2018)	1	8
20	Training on Implementing and Operationalising FSM (February 5-8, 2019)	4	24
	Total		500

# Annexure 4: Trainings Organised at CASS

### **Annexure 5: Orientation for Academia**

S.No.	Name of Organisation	Торіс	No. of people
1	Tata Trust Zila Swachh Bharat Prerak (ZSBP) (July 27, 2018)	FSM (2 sessions)	27
2	Unity IE World Private Limited, Infrastructure, Environment, Water and Sanitation Consultants (August 10, 2018)	FSM -Treatment Mechanism and Q & A.	55
3	State Institute for Urban Development, Mysore (July 2, 2018)	Introduction to FSM and Expo- sure visit	15
4	Administrative Staff Colleges of India (ASCI) (May 7, 2018)	Orientation on FSM	25
5	NEEL Water Company, Mumbai (May 30, 2018)	DEWATS and FSTP	6
6	Office of Executive Engineer, Zila Parishad, Aurangabad, Maharashtra (September 10, 2018)	DEWATS and FSTP	13
7	Mantralaya, Mumbai (September 12, 2018)	DEWATS	20
8	State Institute for Urban Development (SIUD), Mysore (July 13, 2018)	CSP	50
9	Extention Training Center, Kalahasti Tirupati (September 28, 2018)	Wastewater treatment tech- nologies for rural areas	25
10	Swachh Bharat Mission Solid Waste Management Expo- sure Workshop, 2018 in Tirupati, Andhra Pradesh (October 23, 2018)	Importance of FSM for effec- tive SWM	25
11	Orientation on Waste Water Treatment Systems for NIUA staff (August 24, 2018)	Technology options for waste- water management	15
12	Centre for Policy Research, Delhi (October 2, 2018)	Case studies on Leh and Deva- nahalli	15
13	Swachh Bharat Mission Solid Waste Management Expo- sure Workshop, 2018 in Visakhapatnam, Andhra Pradesh	Importance of FSM for effec- tive SWM	25
14	Zilla Panchyat Tumkur (November 2, 2018)	Introduction to concept of FSM	300
15	Department of Labour	Personal Hygiene Handwash	80
16	RVCE, Bengaluru (November 14, 2018)	Sanitation in India	150
17	KSPCB, Gulbarga Division (November 14, 2018)	Wastewater Mangement -DEWATS	45
18	RCUES, Lucknow	Liquid Waste Management	8
19	RCUES, Lucknow (November 17, 2018)	FSM sessions	8
20	RCUES, Lucknow	FSM sessions	24
21	RCUES, Lucknow (November 28, 2018)	FSM sessions	24
22	RVCE, Bengaluru (November 14, 2018)	Recycle and Reuse of Water	

### **Annexure 6 : Guest Lectures**

Name	Designation	Торіс	Date
Luckas Ulrich	Eawag	Presentation of the Findings from the 4S Project	9-May-18
Madhu Krishna	Leading official, The Bill and Melinda Gates Foun- dation's India initiative on Water, Sanitation and Hygiene	Inspirational Talk: Introduction to Principles of BMGF	24-May-18
Professor Anil Dutt Vyas	Professor, Manipal Univer- sity, Jaipur	Linkages between academic institutions and practitioner organization – ways to bridge theory and practice	29-June-18
Dr. Fabio Masi + Uwe Klaus	IRIDRA Italy + Aqua Plan- ner, Germany	Treatment Wetlands, Water Body Rejuvenation, Planted Drying Beds, Faecal Sludge Treatment Technologies	15-Dec-18

## Annexure 7: Training and Conferences attended by Staff

Title	Name and address of the Organisation con- ducting the training	Staff who attended	Date	No. of Days	No. of per- sons	Total Per- son days
Web session on DEWATS Tools	CASS	8 persons	Sep 27, 2018	1	8	8
Engineers Training on DEWATS	CASS	Yogish	Sep 3-7, 2018	5	1	5
Engineers Training on DEWATS	CASS	Ragasamyutha	Sep 3-7, 2018	5	1	5
Engineers Training on DEWATS	CASS	Antha Moorthy .U	Sep 3-7, 2018	5	1	5
Delivering Effective WASH Training	CAWST	Irfan Khan	Nov 13 to 17, 2018	5	1	5
Exposure visit to Philip- pines	BMGF/AIT	Anantha Moorthy	Oct 21 to Nov 26, 2018	6	1	6
Plumbing training	Koushalya Shale	Kumar N			1	
Plumbing training	Koushalya Shale	Jeevan Kumar			1	

Twinning program	BMGF and BORDA	Praveen	Feb 26 to Aug 2, 2018	5	1	5
State level workshop on ODF sustainability	Rural Drinking water and sanitation Deepart- ment, Govt. of Karna- taka	Tanay Timblo	Oct 5 to June 6, 2018	2	1	2
Twinning program	BMGF and BORDA	Amresh	Feb 26 to Aug 2, 2018	5	1	5
Sanitation Workers' Inno- vation Summit	Dalberg	Debisha	Oct 5 to Oct 6, 2018	2	1	2
Multi-Country Twinning Program FSM Knowledge Exchange	Stantec and Asian Insti- tute of Technology	Debisha	Oct 21 to Oct 26, 2018	5	1	5
Advanced Training for De- sign Engineers on FSM	Advanced Traaining for Design Engineers on FSM	Shara Siby	Oct 29 to Nov 1, 2018	3	1	3
Advanced Training for De- sign Engineers on FSM	Advanced Traaining for Design Engineers on FSM	Sanjay Deu	Oct 29 to Nov 1, 2018	3	1	3
Redefining Universal Sanitation: A Gender Perspective	NFSSM Alliance	Sandhya Haribal	May 5 to May 30, 2018	2	1	2
Annual WASH partners meet	NFSSM Alliance	Sandhya Haribal	Sep 24 to Sep 26, 2018	2	1	2
Regional workshop on ODF sustainability in Chennai	MDWSS	Sandhya Haribal	Oct 30, 2018	1	1	1
Developmental commu- nication in the changing climate: turning data into narrative for influence	Center for Science and Environment (CSE), Delhi	Tarika Vaswani	Nov 14 to Nov 17, 2018	4	1	4
ToT on FSM	EAWAG	Praveen Nagaraja	Jan 8-9, 2019	2	1	2
ToT on FSM	EAWAG	Santhosh G.S.	Jan 8-9, 2019	2	1	2
Workshop on promoting the sustainable protection and restoration of soill, water, groundwater in Taiwan	National Chen Kung University, Tainan City, Taiwan	Andrews Jacob	Jan 13-20, 2019	8	1	1
Training on Operational- ising and Implementing FSM	CDD Society	Sagar Patil	Feb 5-8, 2019	4	1	4

Sanitation for and by Nature	IWA Initiative as a part of SNAPP group	Andrews Jacob	Feb 10-14, 2019	5	1	5
Training on Operational- ising and Implementing FSM	CDD Society	Puneet Agnihotri	Feb 11-15, 2019	5	1	5
Integrated Water Re- source Management	MHRD and Global Initiative of Academic Networks	Amrita	Feb 11-15, 2019	5	1	5
FSM5 Conference, Cape Town	BMGF	PG Ganapathy, Rohini, Sandhya, Praveen, Krishna, Anantha	Feb 18-20, 2019	5	6	30
Training Workshop: 'JalKalp' Biosand Filter Technology	Sehgal Foundation	Venkatachala Reddy	Feb 20-22, 2019	3	1	З

## Annexure 8: Peer Learning Sessions

Name of Staff	Topic Title
Karthik Ravichandran	Water Balance Input Parameter and Methodology
Aakash Malik	GIS and applications
Kamlesh Sharma	Flow measurement and estimation using V-notch
Joseph Mathew	Innovative Nutrient Removal using Artifical Intelligence in a Photo Sequencing Batch Reactor
Pavan Kumar Indireddy	How sanitation by-products improve soil quality in India?
Praveen Nagaraja	ToT on FSM
Santhosh G.S.	ToT on FSM
Sagar Patil	Training on Operationalising and Implementing FSM
Puneet Agnihotri	Training on Operationalising and Implementing FSM
Amrita	Integrated Water Resource Management
Venkatachala Reddy	Training Workshop: 'JalKalp' Biosand Filter Technology

### Annexure 9: Staff List (2018 - 2019)

### **New Joinees**

S.No.	Name	Designation	Date of Joining	
1	Amrita Das	Project Associate (PA)	05/11/2018	
2	Anulekha Thangavel	Project Engineer (PE)	15/10/2018 Uptil 25/10/2018"	
3	Gagana S	Project Engineer (PE)	02/01/2019	
4	Ganapathy Ponnani Ganeshan	Director of Programs (DoP)	01/10/2018	
5	H.A. Gurumurthy	Associate, Admin	01/08/2018	
6	Jeevan Kumar	Associate (A)	01/12/2018	
7	Jyoti Parsad	Project Engineer (PE)	02/01/2019	
8	Manoj Kumar	Senior Associate, Finance	03/09/2018	
9	Nivedha Ramanathan RM	Project Engineer (PE)	01/02/2019	
10	Parth Gohel	Associate Project Manager (APM)	01/03/2019	
11	Puneet Agnihotri	Junior Project Engineer (JPE)	18/06/2019	
12	Sakthi B	Junior Project Engineer (JPE)	16/04/2019	
13	Sagar Dattatray Patil	Project Engineer (PE)	01/08/2018	
14	Sanjay Deu	Project Engineer (PE)	18/06/2019	
15	Shara Shiby	Project Engineer (PE)	08/10/2018	
16	Shivareddy K.S.	Associate (A)	01/03/2019	
17	Shrutaswinee Hazarika	Project Associate (PA)	18/06/2019	
18	V.Madhu	Senior Associate (SA)	03/09/2018	
19	Vindya R	Associate (A)	18/12/2018	
20	Vrishali Subramanian	Manager, CASS (M)	18/03/2019	
21	Yogish L	Project Engineer (PE)	01/07/2018	

## **Employees Left**

S.No.	Name	Designation	Date of Leaving
1.	Aakash Malik	Urban Planner	08/02/2019
2	Amresh Sinha	Project Manager	31/12/2018
3	Anusha N.	Project Engineer – Pre Fab	29/06/2018
4	Archana Merlin	Project Associate - Communica- tions	09/11/2018
5	Ashisar Gandadhar Vani	Junior Accountant	31/10/2018
6	Avinash Yadav Kumar	Urban Planner	04/06/2018
7	Clifford Godwin S.	Junior Project Engineer	10/08/2018
8	Kamlesh Sharma	Junior Project Engineer (JPE)	28/02/2019
9	Kanakeshwar Kanakraj Devangan	Assistant Project Manager	31/08/2018
10	Lincy Paravanethu	Communication Specialist	30/10/2018
11	Mohammed Idris	Project Engineer	31/12/2018
12	Rahul Sachdeva	Unit Coordinator - Citywide Planning	31/07/2018
13	Reema Padia Parikh	Unit Coordinator – DBNS Technical Unit	31/07/2018
14	Sadhana Reddy S R	Research Associate	30/07/2018
15	Sasanka Velidandla	Chief Executive	01/06/2018
16	Shamala S.	Subject Coordinator - Infrastruc- ture	30/11/2018
17	Varshini J Reddy	Junior Project Associate	22/08/2018

## **Current Employee List**

S.No.	NAME	DESIGNATION
1	Anand Kumar K. N.	Associate (A)
2	Andrews Jacob	Project Manager (PM)
3	Anik Dutta	Junior Project Engineer (JPE)
4	Antony Charles Monk	Senior Associate, IT
5	Anwaar Ashraf	Senior Project Engineer (SPE)
6	Archana P Abraham	Associate (A)
7	Bilwa Doddamani	Project Engineer (PE)
8	Darshan B. N.	Associate, IT
9	Debisha Sharma	Associate Project Manager (APM)
10	Dene Godinho	Associate, Admin
11	G. S. Santhosh	Project Manager (PM)
12	Girija R	Associate Project Manager (APM)
13	H. B. Siddegowda	Associate (A)
14	Indrireddy Pavan Kumar Reddy	Project Engineer (PE)
15	Irfan Ulla Shariff	Project Engineer (PE)
16	Isha Dash	Senior Associate, Communications (SA)
17	Karthik Narad Kamath	Project Engineer (PE)
18	Karthik R	Senior Project Engineer (SPE)
19	Kavya Anil	Associate (A)
20	Krishna Swaroop	Project Manager (PM)
21	Kumar N.	Senior Associate (SA)
22	Laxman Gowda	Senior Associate (SA)
23	Madhwaraj Shrinivas Belgaumkar	Senior Associate, Finance
24	Manjunath K.	Associate (A)
25	Mohan K	Junior Project Engineer (JPE)
26	Molly D'Mello	Manager (Personnel and Administration)
27	Nandeesha D.	Associate (A)
28	Nikhil Gampa	Associate Project Manager (APM)
29	Nithin A	Junior Project Engineer (JPE)

30	Pavan Kumar	Senior Project Engineer (SPE)
31	Prashantha Y. K.	Senior Associate, Finance
32	Pratibha D	Associate, Admin
33	Praveeen Raje Urs	Associate, Laboratory
34	Praveen Nagaraja	Project Manager (PM)
35	Pravinkumar Choudhari	Senior Associate (SA)
36	Prerna Prasad	Senior Project Associate (SPA)
37	Ragasamyutha A	Project Engineer (PE)
38	Rajashekara K. S.	Associate (A)
39	Rajesh D. S.	Associate (A)
40	Ratna S.	Associate (A)
41	Ravikumar A. G.	Senior Associate (SA)
42	Regi K. J.	Senior Manager Finance
43	Rishikesh Rath	Project Associate (PA)
44	Ritesh Kumar Suman	Project Engineer (PE)
45	Rohini Pradeep	Project Manager(PM)
46	Roopa Bernardiner	Senior Manager, CASS (SM)
47	Sachin Tajne	Project Engineer (PE)
48	Sachit Bhandarkar	Project Manager (PM)
49	Sandhya Haribal	Project Manager (PM)
50	Sangama Parameshwar Bhat	Associate, Finance
51	Shailendra Brahmey	Senior Associate, Admin
52	Shekhar Digambar Diwale	Project Manager (PM)
53	Susheel Sagar B.S.	Associate, Communications (A)
54	Sushma Chandrashekar Bhat	Associate (A)
55	Swarna Lakshmi N.	Associate (A)
56	Tanay Sandesh Timblo	Associate Project Manager (APM)
57	Tarika Vaswani	Manager, Communications (M)
58	Thimmesha R	Senior Associate, Prefab
59	U. Anantha Moorthy	Project Engineer (PE)
60	Uchila Divyashree Shridhar	Project Engineer (PE)
61	Venkatachala Reddy K. V.	Manager (M)

S.No.	Name of the representative	Name of the Organisation	Designation
1.	Israel Gnanaraj	Design Collaborative	President
2.	Anslem Rosario	Waste Wise Trust	Vice President
3.	Koshy Mathew	Rural Literacy Health Progamme	Treasurer
4.	Anuj Malhotra	Reflow	Secretary
5.	A. Gurunathan	DHAN Vayalagam (Tank) Foundation	Member
6.	Latha Raman Jaigopal	Inspiration	Member
7.	Stanzin Tsephel	Individual Member	Member
8.	Lincy Pramod	Prakruthi	Member
9.	Tejas Kotak	Hunnar Shaala	Member

## Annexure 10: Members of the Governing Body

### **Annexure 11: Press Articles**

Date	Name of Publication	Title of Article	Link
June 2018	Local Kannada News- paper	Article on Devanahalli Award for going ODF+	
Sep 7, 2018	The Times of India	Going Green to Save the Greenery	https://timesofindia.indiatimes.com/ city/madurai/going-green-to-save- the-greenery/articleshow/65712327. cms
Sep 20, 2018	Express Healthcare	9th Spirit of Humanity Awards 2018 felicitates NGOs	http://www.expressbpd.com/health- care/happening-now/9th-spir- it-of-humanity-awards-2018-felici- tates-ngos/405565/
Sep 26, 2018	Hindustan Times	Sludge management the next step in India's ODF success	https://www.hindustantimes.com/ india-news/sludge-management-the- next-step-in-india-s-odf-success/ story-h8kG79wk9PnZjihdbqwSCM. html
Sep 18, 2018	Americares India	9th Spirit of Humanity Awards 2018 Felicitates NGOs	https://www.americaresin- dia.org/en/india-newsroom/ news/2018/2018-0926-9th-annu- al-spirit-of-humanity/

S.No.	Training Name	Date	Collaborating Organisations
1	Advanced Level Engineers Train- ing	May 23 - 25, 2018	Conducted in collaboration with NIUA and had 24 participants of the State Govern- ment
2	Orientation Workshop on Faecal Sludge and Septage Managment	April 6, 2018	Conducted in collaboration with UNES- CO-IHE and Manipal University, Jaipur and had 45 participants
3	Orientation of academicians on Faecal Sludge Managment	October 22 - 24, 2018	Conducted in collaboration with UNES- CO-IHE and Manipal University, Jaipur and had 24 participants

### Annexure 12: Trainings (FSM Rajasthan)

## Annexure 13: Key Achievements (FSM Jharkhand)

S.No.	Town	NOC Received	Topog- raphy survey	FS Sample Test	Geo- technical Survey	DPR	Tendered
1	Chirkunda						
2	Gumla						
3	Simdega						
4	Bundu						
5	Chakulia						
6	Jhumri telaiya	•	•	•	•		
7	Nagar Untari	•	•	•	•		
8	Manjhiaon						
9	Hussain- abad	•	•	•	•		
10	Godda	•	•				
11	Basukinath						
12	Seraikila						
13	Koderma						

14	Chakrad- harpur	•	•	•	•	
15	Pakur	•	•			
16	Madhurpur	•	•			
17	Bishrampur	•	•			
18	Lohardaga	•	•			
19	Latehar	•	•			
20	Kapali	•	•			
21	Chatra					
22	Garhwa	•	•			
23	Chattarpur					
24	Jhamtara	•	•			
25	Kunti					
26	Mihijam					

	BALANC	CE SHEET AS AT MA	ARCH 31, 2019		
		1	1 21 0010		Amount in Rs.
Particulars	Schedule	As at Ma	rch 31, 2019	As at March 31, 2018	
SOURCES OF FUNDS					
Capital Fund	A		52.000		52,000
Capital Reserve	A	2	19.58.156		19,58,156
Coperal Fund	A		2.90.45.829		2.82.48.360
Donors Funds	B		1.69.20.281		(26,94,585
FC Reserve Account	B		(15,07,608)		
			4,64,68,658	]	2,75,63,930
APPLICATION OF FUNDS					
Fixed Assets	С				
Gross Block		3,29,32,804		2,74,85,867	
Less: Depreciation		1,72,87,154		1,39,58,136	
Net Block			1,56,45,650		1,35,27,731
Investments			10,000		10,000
Current Assets, Loans & Advances:					
Cash & Bank Balances	E	96,12,615		4,19,282	
Loans, Advances & Deposits	F	2,21,38,542		2,21,75,226	
Inventory	D	48,69,789		48,52,967	
		3,66,20,945		2,74,47,476	
Less: Current Liabilities					
Statutory Recoveries	G	22,70,262		47,58,734	
Other Liabilities	Н	37,75,845		46,71,511	
Programme Advances	Ι	(2,38,169)		39,91,031	
		58,07,938		1,34,21,276	1 10 01 000
Net Current Assets			3,08,13,008		1,40,26,200
Inter Branch Sources			-		
TOTAL			4,64,68,658	2	2,75,63,930
Notes to Accounts	Q				

### CONSORTIUM FOR DEWATS DISSEMINATION(CDD) SOCIETY

The Schedule referred to above forms an integral part of the Balance Sheet;

For Consortium for DEWATS Dissemination (CDD) Society

Coshy Treasurer

Anuj Malhotra Secretary





Place: Bangalore Date : August 20, 2019

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### CONSORTIUM FOR DEWATS DISSEMINATION(CDD) SOCIETY INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31, 2019

Particulars INCOME	Schedule	Year ended 31-Mar-19 46 000	Year ended 31-Mar-18
INCOME	J	46.000	
Annual Subscription fees Income earned during the year Savings Bank Interest Miscellaneous Income- Profit on FA Sales		4,30,53,984 82,818 2,01,705	60,000 5,19,33,414 1,75,880 -
Restricted Funds: Grants - BMZ BNS Grants - FC Grants - NEXUS Grants - BMGF Grants - BMGF II Grants - IIHS Grants - Charities Aid Foundation Grants - CSR Bank Interest		2,94,12,066 28,73,975 - 7,48,43,628 - - 38,47,296 - 10,78,808	3,05,06,525 38,00,000 1,06,01,210 6,04,34,477 54,41,714 35,00,000 40,92,258 10,51,000 7,66,831
TOTAL (A)		15,54,40,278	17,23,63,310
EXPENDITURE Sanitation - DEWATS unit and Other Expenses Program Expenditure - CSR Project Expenses - Foreign Contribution Depreciation on Fixed Assets	K L C	4,22,73,040 - 9,08,16,380 34,46,129	4,18,15,244 9,00,000 11,99,11,253 25,40,378
TOTAL (B)		13,65,35,550	16,51,66,876
Surplus/(Deficit) (A-B)		1,89,04,729	71,96,434
Surplus/(Deficit) transferred to - Donors' Funds General Fund FC Reserve Account		1,96,14,868 7,97,469 (15,07,608)	(31,78,521) 1,03,74,956 
Notes to Accounts	Q	1,07,04,727	

The Schedule referred to above form an integral part of the Income & Expenditure Account; Note: All expenses and income are on accrual basis of accounting;

For Consortium for DEWATS Dissemination (CDD) Society

As per our report of even date attached For M.A. BRAGANZA & ASSOCIATES

K<del>osh∳ Math</del>ew

Treasurer

Anuj Malhotra Secretary



Chartered Accountants Firm Rectal Accountants BANGALORE 560 025 Ravishankar Hegdan Partner ICAI Membership No. 232520

Place: Bangalore Date : August 20, 2019
CONSORTIUM FOR DEWATS DISSEMINATION(CDD) SOCIETY			
RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED MARCH 31, 2019 Amount in Rs.			
	T	Year ended	Year ended
Particulars	Sch	31-Mar-19	31-Mar-18
Opening Balance		bi min 15	
Cash		1,62,809	2,29,592
At Bank		2,56,473	19,72,391
The burner		4,19,282	22,01,983
Receipts			
Advances Recovered	M	(92,57,901)	64,84,597
Statutory Recoveries	N	(24,87,591)	32,06,801
Grant Received		11,09,76,964	11,94,27,184
Bank Interest		11,61,626	9,42,711
Sundry Creditors - yet to be settled		-	9,84,090
Income earned during the year	0	4,31,44,435	5,19,33,414
Programme Advance Received	Р	16,39,579	(23,92,234)
Annual Subscription Fee		(40,000)	70,000
			-
			10.00 50 504
TOTAL: (A)		14,51,37,111	18,06,56,564
Payments		0.09.14.021	11 00 11 253
Project Expenses		9,08,14,031	11,99,11,200
Sanitation - DEWATS unit and Other Expenses		4,22,73,039	9 00 000
Program Expenditure - CSR	C	56 91 944	91 10 190
Fixed assets purchased		(2 34 181)	99.22.802
Advances Palu		(26.01.054)	7.79.778
Ouler Liabilities settled		(==),==,===,	
		13,59,43,778	18,24,39,265
Closing Balance			
Cash		1,04,597	1,62,809
At Bank		95,08,018	2,56,473
		0(10(15	4 10 282
TOTAL: (B)	t of the R	90,12,013	4,17,202
The Schedules referred to above form an integral part of the Receipts & Fayments Accounts,			
East Concertium for DEWATS Discomination (CDD)	Society		
For Consortium for DEWATS Dissemination (CDD)	Joerey	RDEWATS	
how have	4	05	
losty + 8 percens 1 Vr	E	BENGALURU (	
Koshy Mathew Anuj Malhotra	18		
Treasurer Secretary	13	NOT NOT	
		00 × No	
Auditors' Report			
We have examined the above account with the books of account and vouchers maintained			
by Consortium for Dewats Dissemination (CDD) So	netions for	nave round the same to	DUC III
accordance therewith and the information and explanations furnished to us and gives a frue and fair			
view of the transactions of the CDD Society for the year ended March 31, 2019.			



Place: Bangalore Date : August 20, 2019

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## Consortium for DEWATS Dissemination Society

Survey No.205 (Opp. Beedi Workers Colony Kommaghatta, Road, Bande Mutt, Kengeri Satellite Town, Bengaluru, Karnataka 560060

RGRHCL

CASS

KOUSHALYA SHAALE