Exposure Visit Report on Decentralised Wastewater Treatment & Faecal Sludge Management

CDD Society, Bangalore, India on May 9 & 10, 2017

Context:

The South Asia Urban Knowledge Hub (K-Hub), comprising of the partners from India, Sri Lanka, Nepal and Bangladesh engages in urban policy dialogue and practice for sustainable development, and supports information and experience exchange in South Asia among the government, utility staff, policy makers, academia and the private sector for improved service delivery. In this regards, National Institute for Urban Affairs (NIUA) organised an exposure visit for Urban Local Bodies and parastatal agencies of Uttar Pradesh at CDD Society, Bangalore.

CDD Society acknowledged the benefits of knowledge sharing platform and conducted the exposure visit for the officials of Uttar Pradesh on May 9 & 10, 2017 to understand the implemented projects of Decentralised Wastewater Treatment Systems (DEWATS) and Faecal Sludge Management (FSM).

Objective of the Exposure visit:

The overall objective of the exposure visit is to exchange ideas and experience regarding challenges in implementation of FSM services at town/city-scale, and potential of DEWATS in the management of human waste, from slum/low-income communities to large cities like Bangalore.

The visit involved the interaction with various stakeholders apart from the members of the organising team for exchange of ideas and sharing of experiences.

Proceedings of the Exposure Visit:

CDD Society, Bangalore, India, successfully conducted the exposure visit on May 9 & 10, 2017.

Day 1: May 9, 2017

The first day, May 9 2017 was organised and executed at the Devanahalli Town Municipal Council Hall, Karnataka for 21 officials and Ms. Paramita Datta Dey, NIUA attended the programme.

Mr. Kanakeshwar Kanakaraj, Project Manager, CDD Society and Ms. Paramita Datta Dey, Senior Research Officer, NIUA welcomed and gave an introduction about the programme to the officials. The agenda for the two days was introduced to the officials detailing the aspects of decentralised sanitation solutions services, which CDD is offering, and the South Asia Urban Knowledge Hub (K-Hub) project at Uttar Pradesh (UP).

Picture 1: Mr. Kanakeshwar Kanakaraj welcoming the Officials

Decentralised Wastewater Treatment Systems (DEWATS):

Mr. Ritesh Suman, Jr. Project Engineer, CDD Society introduced the officials to DEWATS, its principles and modules. This session focused on enabling the officials to understand the basic principles of DEWATS™ as an approach rather than a hardware package. DEWATS is driven by the core principles of decentralisation, simplification and conservation/ recycling.

Picture 2: Mr. Ritesh Suman explaining DEWATS

Key attributes of DEWATS were familiarised to the officials, such as;

- Treatment of organic wastewater from domestic and industrial sources.
- Affordable prices.
- Fulfillment of discharge standards.
- Treatment of wastewater flows from 1-1000 m3/d.

• Tolerance to inflow fluctuation.
• No dependence on external energy.
• Minimal maintenance.
• Reliability and long-lasting.
• Reuse of wastewater and its contents.

Decentralised approach was discussed as a viable alternative to centralized sanitation. Officials were also introduced to the prefabricated DEWATS as a means for faster implementation of DEWATS. Experience and sectors of application of DEWATS were shared by quoting projects and various case study examples.

Faecal Sludge Management (FSM),

Introduction & experience in Unnao DPR, UP:

Picture 3: Ms. Swadha Das explaining FSM

Ms. Swadha Das, Sr. Project Engineer, CDD Society, introduced the concept of FSM to the participants. She explained about the technologies applicable in collection, transportation, treatment, and reuse of faecal sludge. The treatment principles, source of the technology, and the development status of the technologies were detailed to the participants.

CDD society with the support of NIUA aims to demonstrate FSM in the town of Unnao, UP, and lay foundations to the mainstreaming of FSM through SCBP at a national and state level. To give an insight about the CDD interventions in Unnao, UP, she explained on the various stages involved in preparation of DPR for the city in improving the delivery of sanitation services through decentralised approaches such as;

Methodology used in FSM planning

- Reconnaissance survey of town
- Sanitation infrastructure data collection
- Sanitation Situational Assessment

- Conceptualization of FSM for town
- Preparation and submission of Detailed Project Report (DPR) town

Leanings from Unnao, UP

- 16.7% of households do not have access to toilets (Census survey 2011)
- Poorly designed pits and Septic tanks
- Irregular and unscientific desludging
- No existing STP, raw and partially digested sludge in onsite systems
- Unscientific reuse or discharge of raw or partially digested faecal sludge on agricultural lands/ water bodies

Recommendations

- Improve access to toilets
- Capacity building on design of collection systems based on CPHEEO
- Ensuring scientific disposal of sludge by desludging operators, increased access to households in narrow lanes
- Plan to Faecal Sludge Treatment Plant (FSTP)
- Provide solutions for scientific disposal and reuse

Picture 4 & 5: Officials participation & involvement during the explaination by Resource Person

Faecal Sludge Management – Devanahalli Case Study

CDD has implemented the Faecal Sludge Treatment Plant at Devanahalli Town, Bangalore District, Karnataka. Mr. Kanakeshwar Kanakaraj explained about the FSTP. He explained the process of implementation of the plant, technical and non-technical steps which initiated from a survey of the town, understanding the development trends towards implementation of the plant. He also explained about setting up of many policy initiatives and management activities carried out to ensure safe operation as well as sustainability of the plant.

Smt. Ambika, Chief Officer and Smt. Sayeeda Nazaminnisa, Senior Health Officer of Devanahalli Town Municipal Council (TMC) were invited to interact with the officials. Since November 2016, TMC has shown great ownership in the operation and maintenance of the Devanhallli FSTP. Smt. Ambika and Smt. Nazaminnisa shared their insights and expressed that for sustaining O&M of the plant, TMC raised funds for by selling manure, collecting proper tax, through advertisement and collection of fees for desludging services.

Picture 6 & 7: Smt. Ambika and Ms. Sayeeda Nazaminnisa interaction with the officials

Visit to Devanahalli FSTP

Officials from City Corporation (15), Water Supply and Sewerage Services dept.(4), RCUES (3) and NIUA (1) were taken to the Faecal Sludge Treatment Plant at Devanahalli, Bangalore District, Karnataka. Mr. Anantha Murthy, Project Engineer, CDD Society introduced the officials and explained the process involved in the treatment plant. The plant includes anaerobic digestion units, sludge drying beds and planted gravel filters. Currently, a few private desludging operators and the TMC desludging trucks which collect the faecal sludge from the area uses the facility for treatment of sludge. The plant also includes a pilot scale co-composting unit where sludge treatment process along with municipal solid waste is tested out.

Picture 8: Officials at the Devanahalli FSTP, Bangalore

Day 2: May 10, 2017

Remediation of Water bodies, Case study of Palam Drain

The day began at CDD Society office and the officials were presented about the "Remediation of Water Bodies, Case study of Palam drain" by Mr. Mohammad Idris, Project Engineer, CDD Society. The project aimed to provide Greenway for a vibrant public space, an eco-friendly pedestrian zone, and bicycle access to people by treating the wastewater. He explained the execution of the decentralised wastewater treatment strategy where the four storm water drains in the Dwarka (study area) which carries wastewater along with huge amount of solid waste were rejuvenated and integrates the public spaces design of the place.

Picture 9: Mr. Mohammad Idris presenting the Palam drain case study

Sanitation Exhibition & DEWATS Site Visit

Picture 10: Sanitation Exhibition tour of Officials by Ms. Preethi Grace

Officials toured the Sanitation Exhibition. The Exhibition is an engaging visual experience of sanitation solutions in communities and cities. Officials were exposed to 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. Officials also got exposure to pilot Septage treatment plant, prefabricated DEWATS, and DEWATS implemented at Beedi Workers Colony.

Picture 11: Officials at the DEWATS Site

At the end of the day, a Q&A session was conducted with Mr. Sasanka Velidandla, CEO, CDD Society and the officials. The session was an open discussion on the various case study projects and real scenario with specific reference to Uttar Pradesh sanitation situation. The discussion was mostly covered on financial aspects and essential requirements for the treatment plant to run successfully.

Outcome & Sustainability:

NIUA and CDD Society have collaborated to develop the capacities of cities to deliver sanitation solutions in the states of Uttar Pradesh, Bihar, Orissa and Rajasthan by working on pilot cities. Uttar Pradesh has been strategically important as the designs for pilot implementation has been completed and ready to be implemented. The exposure visit helped in bringing together officials from different parts of the state to visualize and understand faecal sludge management. The visit was critical in building clarity over a fairly new concept of FSM to the city's executive officers.

Considering the humongous need for improvement of sanitation services in the Gangetic belt, the participants were able to identify potential sites within their city where the solutions discussed in FSM, DEWATS & water body rejuvenation could be applicable. The visit has given the opportunity to engage in discussions with the cities of Bareilly and Lucknow on FSM & drain development. The visit also helped in strengthening the capacity building initiatives with the participation from RCUES, Lucknow. NIUA & CDD are committed to continue their support to the cities and will actively pursue these discussions.

Annexure 1: Agenda

Exposure Visit on Decentralised Wastewater Treatment & Faecal Sludge Management

Agenda

	Session	Presenter
	Day 1 – 9/5/17	
8.00 am	Departure from Hotel	
09.30am	Arrival at Devanahalli TMC	
09.30am - 10.00am	Introduction to CDD Society and context setting	Kanakeshwar Kanakaraj
10.00am – 10.15am	Coffee Break	
10.15 am – 11.00 am	Decentralised Wastewater Treatment System (DEWATS)	Ritesh Suman
11.00 am – 11.45 am	Faecal Sludge Management Introduction & Experience in UP – Unnao DPR	Swadha Das
11.45 am – 12.30 pm	Faecal Sudge Management – Devanahalli Case Study	Kanakeshwar Kanakaraj
12.30 pm - 1.00pm	Meeting with Town Municipal Council officials	Kanakeshwar Kanakaraj
01.00 pm - 2.00 pm	Lunch	
2.00pm - 3.00pm	Visit to Devanahalli FSTP	Kanakeshwar Kanakaraj
5.00 pm	Arrival at Hotel	
	Day 2 – 10/5/17	
8.30 am	Departure from Hotel	
9.15 am – 10.00 am	Remediation of water bodies (Case Study of Palam Drain)	Md Idris
10.00am – 10.15am	Coffee Break	
10.15 am – 11.30 am	Sanitation Exhibition & DEWATS Site Visit	Preethi Grace
12.15 pm – 1.00 pm	Simple Steps for Sustainability in FSM	Ajith Edathoot
1.00pm - 2.00pm	Lunch	
	Visit Closure	

Annexure 2: Attendance List

Consortium for DEWATS Dissemination Society | BORDA SOUTH ASIA | National Institute of Urban Affairs

Attendance List

Exposure Visit
Decentralised Wastewater Treatment & Faecal Sludge Management for UP Officials
May 9 & 10, 2017, Bengaluru at CASS

Sl. No.	Name	Designation	Department	Signature 09.05.2017	Signature 10.05.2017
1	Mr. Ravindra Bora	Superintendent Engineer (NURM)	UP Jal Nigam, Lucknow		
2	Mr. U.K Tayal	Specialist PDMC (AMRUT)	UP Jal Nigam		
3	Mr. Vijay Kumar Gupta	General Manager	Nagar Nigam, Firozabad		
4	Mr. Balram Singh	General Manager	Nagar Nigam, Barelly		
5	Mr. Vinay Kumar Mani Tripathi	Executive Officer	Nagar Palika Parishad Baraut		
6	Mr. Anil Kumar Singh	Executive Officer	Nagar Palika Parishad, Bulandsahr	9/5/17	10/5/17
7	Mr. Harpal Singh Jural	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Agra	9/05/17	
8	Mr. Rahul Awasthi	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam,Kanpur	09/05/17	
9	Mr. Vipin Kumar Singh	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Varanasi		
10	Mr. Aviral Saxena	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Barelly		

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Sl. No.	Name	Designation	Department	Signature 09.05.2017	Signature 10.05.2017
11	Mr. Pushpendra Singh	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Mathura		
12	Mr. Lokesh Kumar	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam,Baraut		
13	Mr. Prashant Singh	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Raibarelly		
14	Ms. Priya Mishra	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Lakhimpur	Priya Mishra	Priya Mishra
15	Mr. Rahul Tripathi	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Hardoi		
16	Mr. Hanuman Singh	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, Sultanpur		
17	Ms. Alka Singh	Deputy Director	Regional Centre for Urban & Environmental Studies, Lucknow		
18	Mr. A.K. Gupta	Additional Director, RCUES, Lucknow	Regional Centre for Urban & Environmental Studies, Lucknow		
19	Mr. Ajit Kumar Mishra	Assistant Director	Regional Centre for Urban & Environmental Studies, Lucknow		
20	Mr. Prakash Bihari Srivastav	Urban Infrastructure Specialist	City Mission Management Unit, Nagar Nigam, jhansi		

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Sl. No.	Name	Designation	Department	Signature 09.05.2017	Signature 10.05.2017
21	Mr. B.K. Garg	Project Manager	Construction Unit,U.P. Jal Nigam, Agra	9/5/17	10/5/17
22	Mr. Abhay Kumar Yadav.	Assistant Engineer.	U.P. Jal Nigam	09.5.2017	10.5.2017
23	Ms. Paramita Dey	Senior Research Officer	NIUA		
24	MOUSHEEN.H.M	Intern	Development clusture	09/05/17	
25	Ananthu Moorthy.	Project Engineer.	Development clusture		
26	Ritesh Kumar Suman	Project Engineer	Technical team		
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Annexure 2: Attendance List