

Faecal Sludge and Septage Management (FSSM)

Design Module – Online Training

Concept Note

Background

Ministries of Government of India (GoI) are successfully running various programs related to water and sanitation across India, there arises a need of assessing the existing infrastructure and to exploit it to its full potential along with smart designing of the new infrastructure which is capable of managing the waste safely. After the great success of Swachh Bharat Mission (SBM) launched in 2014, the Union Cabinet, chaired by the Prime Minister, Shri. Narendra Modi has approved the Phase II of the SBM - Urban (SBM-U 2.0) and Jal Jeevan Mission Urban (JJM-U). The mission is planned till 2024-25 and will focus on Open Defecation Free Plus (ODF Plus), which includes ODF sustainability and Solid and Liquid Waste Management.

After the release of National Policy on Faecal Sludge and Septage Management (FSSM) in 2017, it got traction as a speedily implementable solution for reducing the pollution load going in to the environment. The Government has continued to show its commitment towards FSSM through the launch of ODF+ and ODF++ protocols, an emphasis on FSSM in Swachh Survekshan, as well as financial allocations for FSSM across AMRUT, NMCG missions, SBM 2.0. However, it did not cater to septic tank effluent and the greywater which is still flowing into the drains and polluting the river. In India, there are total 3723 urban local bodies (ULBs) including Municipal Corporations, Councils and Towns. Total sewage generation is 61,754 MLD out of which 37.5% has been treated in sewage treatment plants and the remaining 62.5% is untreated or partially treated in on-site treatment systems.

The implementation of the sewer network happens in phases and hence it takes at least 5-10 years to achieve access to the sewer to 100%. Until then, the households in the peri-urban areas should be ideally provided sanitation services through non-sewered sanitation approach (FSSM approach). FSSM enables rapid and cost-effective provision of safely managed sanitation to 100% of the population especially in small and medium cities with no provision for treatment of faecal sludge and in areas not covered by sewerage systems, even in larger cities. There is a need of appropriate planning at the state and city level for the adoption of non-sewered sanitation approach.

Purpose of the training

To build the capacities of ULB, state officials and practitioners on planning of faecal sludge and septage management. This would broadly include the following:

- Introduction to FSSM and its core components
- Treatment mechanisms and selection of treatment processes
- Design of treatment units
- Financial modeling of the FSTP
- Site planning and O&M aspects of the FSTP.

The training will allow the officials to prepare/assess the FSSM plans. **This training is crucial for officials of cities to be able to achieve objectives under SBM-U 2.0 and JJM-U.**

Module Structure

The module will provide a framework for developing approach for FSSM and design a FSTP for treatment of faecal sludge and septage. The content of the module will be useful specifically for the state and city level officials and practitioners.

The module will be structured as follows: -

- Part A: Presentation Slides
https://scbp.niua.org/sites/default/files/Design%20Module%20Part%203A_15-11-2021%20web%20low%20Size.pdf
- Part B: Learning Notes
<https://scbp.niua.org/sites/default/files/Design%20Module%203B-%2011-11-2021.pdf>
- Part C: Workbook
<https://scbp.niua.org/sites/default/files/3C%20-%20Workbook%203C.pdf>

The training will include an exercise which will provide case-based learning to the participants. This will increase the level of understanding pertaining to taxonomy and make them eligible to put to use the theoretical concepts explained during the sessions.

Target Audience

The training will be conducted by NIUA for the Assam state government officials who are involved in FSSM and officials from ULBs and parastatal bodies who are responsible for achieving various targets under SBM-U 2.0 and JJM-U.

Content

Day	Date	Session	Topic	Contents	Duration [min]
1	Monday, 7 February, 2022	Welcome and setting ground rules Introducing the training format, session quizzes, exercise, and live quiz			120
		1a	Introduction to Faecal Sludge and Septage Management	Sanitation System Approach Wet Sanitation Systems Sanitation Service Chain Challenges in Sanitation Services	
		1b	Characterisation of Faecal Sludge and Septage	Parameters for characterizing Categories of sludges Operational factors affecting the characteristics	
		2	Project Management	Contents of DPR Stakeholder Identification & Engagement Project Delivery Method	
2	Tuesday, 8 February, 2022	3	Quantification of Faecal Sludge and Septage	Need of quantification of sludge Methods of quantification of sludge Operational factors to be considered while quantification Case Study: Port Blair, Andaman and Nicobar Islands Exercise: Quantification, Collection and Transport	120
		4	Emptying and Conveyance of Faecal Sludge and Septage	Types of desludging methodologies Technical options for emptying and conveyance Optimising emptying and conveyance Reading Material: Guidelines, Advisories and Manual Scavenging Act and Rules 2013	
3	Wednesday, 9 February, 2022	5	Treatment of Faecal Sludge and Septage	Treatment targets and specific objectives Approaches for faecal sludge and septage management Treatment mechanisms Driving factors for selection of treatment mechanisms Case Study: Co treatment at Puri STP, Odisha Exercise: Decision Making Criteria for components of treatment	120
		6	Septage Receiving Station	Objectives and Design of septage receiving station Components of septage receiving station Type of septage receiving station	

4	Friday, 11 February, 2022	8	Non-mechanized Treatment Units of Faecal Sludge and Septage & its Design	<p>Stages of treatment of faecal sludge and septage</p> <p>Non mechanized treatment units</p> <p>Designing of -</p> <p>Settling Thickening Tank (STT)</p> <p>Anaerobic Digester (AD)</p> <p>Unplanted Drying Beds</p> <p>Case Study: Bhubaneswar FSTP, Odisha</p> <p>Exercise: Designing of STT, AD, and Unplanted Drying Beds</p>	120
5	Saturday, 12 February, 2022	7	Mechanized Treatment of Faecal Sludge and Septage	<p>Stages of treatment of faecal sludge and septage</p> <p>Mechanized treatment units</p> <p>Selection of -</p> <p>Dewatering technology,</p> <p>Drying technology</p> <p>Thermal treatment</p> <p>Exercise: Mechanical treatment of Solids</p>	120
6	Monday, 14 February, 2022	9	Financial aspects of FSSM	<p>Financial components of FSSM</p> <p>Financial and contracting models</p> <p>Case Study: Financial Aspects of Port Blair FSTP, Andaman and Nicobar Islands</p> <p>Exercise: Revenue Streams and Project Life Cycle Cost Analysis</p>	150
		10	Siting and Layout Planning of Treatment Plant	<p>Site characterisation and evaluation</p> <p>Site selection criteria</p> <p>Safety planning at treatment plant</p> <p>Importance of layout planning and examples</p>	
7	Tuesday, 15 February, 2022	11a	Construction and commissioning of Treatment Plant	<p>Pre construction activities</p> <p>During construction activities</p> <p>Stages in commissioning of plant</p> <p>Handover process of the plant</p>	120
		11b	Operation and Maintenance of Treatment Plant	<p>Integration of O&M with design of treatment plant</p> <p>Introduction to asset management</p> <p>Content of O&M plan for treatment plant</p> <p>Monitoring and record keeping at treatment plant</p>	
		Live quiz Closing & Vote of Thanks			

Certificate

Upon successfully completing the training, the participants will be eligible to get certificate from NIUA and ESF. The participant will have completed the training if all of the following criteria are met;

- Attending all the online sessions, a record of everyday attendance will be kept.
- Completing all the session quiz in the given timeframe.
- Completing the online quiz on the last day of the training.
- Completing the exercise given in the Part C of the workbook.