Proceedings of the Training

SCHOOL OF WATER AND WASTE

AAETI

Training Programme on

Operation and Maintenance of Faecal Sludge and Septage Management Systems

10 – 12 June, 2026 • Anil Agarwal Environment Training Institute (AAETI), Nimli, Rajasthan

The Residential Training Programme on "**Operation and Maintenance of Faecal Sludge and Septage Management (FSSM) Systems"** was organized by the Centre for Science and Environment (CSE) from **10–12 June 2026** at **the Anil Agarwal Environment Training Institute (AAETI), Nimli, Alwar, and Rajasthan.** The three-day intensive programme was designed to strengthen the technical and operational capacities of urban local body officials and plant operators responsible for managing Faecal Sludge Treatment Plants (FSTPs) across Rajasthan. The training brought together 17 participants from diverse professional backgrounds, including Executive Officers, Assistant Engineers, Junior Engineers, and Supervisors from MVR Technologies. The programme served as an important platform for knowledge exchange, peer learning, and capacity building in the field of faecal sludge and septage management.

Training Day 1 – 10 June 2026

The training began with a pre-assessment quiz to understand the participant's existing knowledge of FSSM. This was followed by an introductory session on the objectives, structure, and expected outcomes of the training programme. Participants were introduced to the work of CSE and the importance of proper operation and maintenance of sanitation systems for their long-term success. During the session, participants shared their work experiences, expectations from the training, and the challenges they face in operating and managing treatment facilities in their cities and towns. The discussion encouraged active participation and helped create a comfortable and interactive learning environment.

The first technical session on the Status of Faecal Sludge and Septage Management in Rajasthan was delivered by representatives from the FSM Cell, Directorate of Local Bodies (DLB), Rajasthan. The session provided an overview of the state's progress in FSSM implementation, ongoing initiatives, operational challenges, and future priorities for improving sanitation services.

This was followed by a session on the Basics of Faecal Sludge and Septage Management (FSSM) conducted by Vivek Kumar Sah, Programme Officer, Centre for Science and Environment (CSE). The session provided participants with an understanding of the need for safe management of faecal sludge and septage to protect public health and the environment. Participants were introduced to the sanitation service chain, including containment, collection, transportation, treatment, and safe disposal or reuse.

The next session was conducted by Dr. Sumita Singhal, Programme Manager, CSE. She presented the key findings from CSE's assessment of Faecal Sludge Treatment Plants (FSTPs) in Rajasthan. She shared common issues observed at treatment plants, such as poor maintenance, equipment problems, inadequate record-keeping, and gaps in process monitoring. Dr. Singhal also explained how these challenges affect the performance and sustainability of FSTPs. Based on the assessment, she shared practical suggestions to improve plant operation, maintenance, monitoring, and overall efficiency.

The afternoon session focused on the operation and maintenance of different units of an FSTP. The session was conducted by Jyoti Parsad Dhadhich, Deputy Programme Manager, CSE. He explained the planning needed for effective plant operation and maintenance. He discussed the roles and responsibilities of different stakeholders and highlighted the importance of coordination among agencies. The session also covered standard operating procedures (SOPs) and their importance in ensuring the smooth functioning of treatment plants. Participants learned how proper planning and regular monitoring can help improve plant performance.

This was followed by detailed sessions on the operation and maintenance of primary, secondary, and tertiary treatment units. Vivek Sah explained the working principles and maintenance requirements of primary treatment units, while Dr. Sumita Singhal covered secondary treatment units and their operational considerations. Jyoti Parsad concluded the technical sessions with an overview of tertiary treatment units, highlighting their role in improving treatment efficiency and ensuring safe disposal or reuse.

The final session of the day was delivered by Subrata Chakraborty, Director, Water Programme, CSE. The session focused on ways to improve the utilization of Faecal Sludge Treatment Plants (FSTPs). He discussed the common reasons for low plant usage, such as low desludging demand, lack of enforcement, and limited public awareness about safe sanitation practices. The session also highlighted practical measures to improve desludging services, strengthen coordination among stakeholders, and enhance the overall efficiency of plant operations. The day concluded with participant feedback, discussions, and reflections on the key learnings from the sessions.

Training Day 2 – 11 June 2026

The second day began with a guided visit to the AAETI Green Campus, led by Jyoti Parsad and Vivek Kumar Sah. During the visit, participants observed various sustainable water and environmental management practices implemented on the campus, including wastewater treatment and reuse systems, rainwater harvesting structures, and other resource conservation measures. The visit provided practical exposure to sustainable infrastructure and highlighted the importance of efficient water and environmental management.

After a brief recap of the previous day's learning, Jyoti Parsad conducted a session on Occupational Health and Safety at Treatment Plants. The session focused on the health and safety risks faced by treatment plant workers and the precautions needed to reduce these risks. He explained the importance of using personal protective equipment (PPE), following safe work practices, and maintaining cleanliness at the workplace. The session also covered emergency response measures and basic safety procedures to ensure a safe working environment. Participants gained a better understanding of the importance of safety in the day-to-day operation and maintenance of treatment plants.

The participants then visited CSE's laboratory, where Arvind Singh Sengar, Principal Scientist, demonstrated the procedures used for testing and monitoring sludge and wastewater quality. He explained the importance of laboratory analysis in assessing treatment plant performance and ensuring compliance with environmental standards. Participants were introduced to sample collection methods, testing procedures, and key water quality parameters commonly monitored at treatment plants. The session provided practical insights into laboratory operations and highlighted the role of regular monitoring in improving the efficiency and effectiveness of FSTPs.

The next technical session was conducted by representatives from MVR Technology. The representative explained the working of Pyrolyser-based Faecal Sludge Treatment Plants and the use of pyrolysis technology for treating faecal sludge. Participants learned about the main components of the system, its operation, and the routine maintenance required for effective functioning. The session also discussed the benefits of this technology, including reduction in sludge volume, better treatment efficiency, and opportunities for resource recovery. Through practical examples and discussions, participants gained a clear understanding of the operation and maintenance of pyrolyser-based treatment plants.

In the afternoon, Jyoti Parsad conducted a session on Emergency Response Procedures at Faecal Sludge Treatment Plants. The session focused on how to handle emergency situations that may occur during plant operations, such as equipment failures, accidents, chemical spills, and fire incidents. He explained the importance of preparedness, safety measures, and quick response actions to protect workers and ensure the smooth functioning of treatment plants. Participants also learned about the key elements of an emergency response plan and the roles and responsibilities of staff during emergencies.

The final technical session was conducted by Dr. Sumita Singhal on Monitoring and Documentation. She highlighted the importance of maintaining proper records for daily plant operations, desludging activities, maintenance work, and treatment performance. The session explained how regular monitoring and systematic documentation help improve plant management, support decision-making, and ensure compliance with regulatory requirements. Participants were also introduced to different formats and tools used for record-keeping and reporting.

The day concluded with a group activity in which participants worked together to solve common operational challenges faced at treatment plants. The exercise encouraged teamwork, discussion, and the application of concepts learned during the training. A post-assessment quiz was conducted to evaluate participants' learning and measure knowledge gained during the programme. This was followed by a feedback session, certificate distribution, and the formal closing ceremony, marking the successful completion of the training programme.

Training Day 3– 12 June 2026

The third day of the training programme was dedicated to a field visit to the Kishangarh Bas Faecal Sludge Treatment Plant (FSTP). During the visit, participants gained first-hand experience of an operational treatment plant and observed the complete treatment process, from sludge receiving to treatment and final disposal. They also learned about the functioning of different treatment units and the routine operation and maintenance activities carried out at the plant.

The field visit provided an opportunity for participants to interact directly with plant operators and technical staff. Through these interactions, they gained practical insights into day-to-day plant management, common operational challenges, maintenance requirements, monitoring practices, and troubleshooting methods. Participants also discussed ways to improve plant performance, ensure worker safety, and enhance the long-term sustainability of treatment facilities.

The programme concluded with an interactive discussion where participants shared their observations from the field visit and reflected on the key lessons learned during the training. The combination of classroom sessions, practical demonstrations, laboratory exposure, campus visits, and field learning helped participants develop a better understanding of the operation and maintenance of Faecal Sludge Treatment Plants. The training equipped them with the knowledge and practical skills needed to support the effective implementation of Faecal Sludge and Septage Management (FSSM) systems across Rajasthan.

Photographs of the trainings

Photograph 1: Brainstorming of the participants

Photograph 2: Subrata Chakraborty, Director, Water Programme Explaining about CSE

Photograph- 3: Anil Choudadiya from DLB briefed the participants on the status of Faecal Sludge and Septage Management (FSSM) in Rajasthan.

Photograph- 4: Vivek Kumar Sah gave an introduction to FSSM.

Photograph- 5:Dr. Sumita Singhal shared the findings of CSE team visit of 50 FSTPs

Photograph- 6: Jyoti Prasad talking about Occupational Health & Safety at treatment plants

Photograph- 7: Participants visiting the CSE Environment Monitoring Laboratory

Photograph- 8: MVR representative detailed session on functioning of pyrolyser based FSTP and its O&M

Photograph- 9: Discussion on Group Exercise

Photograph- 10: Practical Exposure to Kishangarh Bas FSTP

Photograph- 11: Group Photograph