

## Course Outline

### Certificate Course on Non-Networked Sanitation Management

Urban sanitation now poses a tremendous challenge, given rampant urbanization and inadequate development of networked sewerage systems. Accelerating development or extension of networks is unlikely to address this; the high cost, long gestation period and water-intensive nature of centralized sewage networks in fact make it an unviable option, particularly in the rapidly growing small towns and urban peripheries. Decentralized, non-networked solutions are more viable and likely to more effectively meet the sanitation challenge, and are therefore emerging as the preferred options in the AMRUT program, various Missions and by international agencies.

Currently, the understanding and expertise required for non-networked sanitation is very sparse in the country. Academic programs and courses typically focus on the conventional technologies, networked systems and state financing, and knowledge of alternative systems and PPP arrangements are missing. To bridge this gap and develop the requisite expertise, the Xavier Center for Urban Management and Governance (XUMG) of Xavier University, offers an unique three-week Certificate Program in (Non-networked) Sanitation Management (CCSM), with the support of the SCBP of the NIUA. The CCSM is designed to be useful for professionals, government officers, consultants and post-graduate students desirous of understanding non-networked sanitation, and developing the capability to design, develop and manage such systems. Professionals from urban local bodies, parastatal organizations for liquid waste management, consulting organizations and academics, researchers and students specializing in this domain are encouraged to take this course.

### Course Objective

This course will provide participants with a comprehensive understanding of the planning, financing, development and management of non-networked sanitation systems.

### Learning Goals

- Understand status of urban sanitation in Indian cities, and related policies and programs.
- Develop the skills to plan for urban sanitation, including need-demand assessment, consideration of feasible technology options and financing models, and development of DPR.
- Learn the process of procurement and contract management in non-networked sanitation
- Know the operational challenges and management approaches for the commissioned system.



- Be familiar with social marketing strategies to meet stakeholder on-boarding and service challenges and achieve established and new service level benchmarks.

## Course Format

The course is designed will engage participants for three weeks (102 contact hours). Learning will be through classroom lectures, group exercises, case discussions, role plays and site visits. A live case (or cases) will be taken up for the exercises and assignments. Learning materials will be provided in advance. Evaluation will include assignments, quizzes and case completion. A Certificate in Non-Networked Sanitation Management will be awarded to all participants who successfully complete the course.

## Course Outline

### Module 1: Sanitation Planning

Prior to diving into the management aspect of non-networked sanitation, the first module will establish the theoretical and technical foundation of urban sanitation for the participants. The module will introduce them to the sanitation ecosystem, existing scenario of wastewater management in Indian cities, and familiarize them to the legislation, policies and guidelines on urban sanitation in the country. Participants will further be guided to use different planning techniques to assess and extrapolate sanitation demand - supply gap, identify stakeholders, and evaluate non-networked sanitation technological options based on different factors across the value chain.

#### Topics

- **Wastewater management in cities**
- **Data and trends w.r.t. components and SLBs**
- **Sanitation demand assessment and scoping**
- **Sanitation systems (technologies) and their evaluation**
- **FSSM ecosystem including value chain**
- **Stakeholders in sanitation**
- **Guidelines and policies**



## References

- Faecal Sludge Management - Systems Approach for Implementation and Operation - IWA Publishing
- Strategic Planning for Municipal Sanitation – a Guide – GHK Research and Training
- Sanitation21 - Simple Approaches to Complex Sanitation - IWA Publishing
- Integrated Wastewater and Septage Management - Training of Trainers Manual - SCBP
- Faecal Sludge and Septage Management - an Orientation and Advanced Modules - SCBP
- Sandec Training Tool 1.0 - Water and Sanitation in Developing Countries – Module 1 - EAWAG
- Sandec Training Tool 1.0 - Faecal Sludge Management (FSM) – Module 5 - EAWAG
- Technology Options for the Sanitation Value Chain - CSTEP
- Acts, Policies and Guidelines
  - National Urban Sanitation Policy – 2014
  - Advisory Note - Septage Management in Urban India – 2013
  - National Policy on Faecal Sludge and Septage Management (FSSM) – 2017
  - Guidelines for Swachh Bharat Mission – Urban – 2017
  - AMRUT Mission Statement & Guidelines – 2015
  - The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013
  - Odisha Urban Sanitation Policy – 2017
  - Odisha Urban Sanitation Strategy – 2011
  - Manual on Sewage and Sewerage Treatment - CPHEEO – 1993

## Module 2: Procurement and Contract Management

This module will demonstrate the participants in resource and contract management using projects on non-networked sanitation as case-studies to work on. It will focus on evaluating stakeholders and conducting feasibility studies that would help them decide the extent and nature of involvement of private and non-government agencies in a project, and assigning them with contracts to manage the available assets optimally. The module will also cover tendering process, preparation and appraisal of RFPs, DPRs, Environmental Assessment Report, NOCs, project planning and scheduling.

### Topics

- **Feasibility studies and DPR**
- **Formulation of RFP**
- **Asset (land and location) planning**
- **Project planning and scheduling**
- **Contract management and arbitration (Scheduling, monitoring and upscaling)**
- **Available and conventional technologies/products**
- **Empaneling vendors; related agencies and vendors**
- **Project handover and transfer**

### References

- DPR-FSSM : Collection , Transport and Treatment for Port Blair, Andaman & Nicobar Islands
- Training Module on Preparation of Detailed Project Report for Faecal Sludge and Septage



Management - Workbook on Planning and Designing of FSTP – SCBP

- Tender document of RFP setting up of Faecal Sludge and Septage Treatment Plants (FSTPs) in urban local bodies of Andhra Pradesh
- Initial Environmental Examination Report – FSM Solutions for Lalsot, Rajasthan

## Module 3: Financing

The module will first cover methods to estimate the overall capital and O-M cost of a non-networked sanitation project of a city, followed by identification of all the possible financial institutions and revenue sources in order to develop a scenario based stage wise budgeting model to make the project economically sustainable. The module will also demonstrate the use of web-based tools to help professionals choose optimized technological options, decide role of PPP, private agencies and tax payers, and propose financial safety nets across the life cycle of the project.

### Topics

- **Financing mechanisms and institutions**
- **Scenario based stage wise budgeting**
- **Component wise profitability analysis**
- **Financial and technology assessment tools**
- **Private and PPP models in sanitation and innovations**
- **Cost optimization in technology operations (including life-cycle cost)**

### References

- Towards More Sustainable Faecal Sludge Management Through Innovative Financing Selected Money Flow Options - Doulaye Koné, BMGF
- Technology Options for the Sanitation Value Chain – CSTEP
- Financial and technology assessment tools
  - [SaniPlan - IFSM](#)
  - [FSM Toolbox](#)
  - [Sanitech Manual](#)
  - [WASHCost India](#)
  - [Sanitation Mapper](#)

## Module 4: Operations and Maintenance

The module will introduce the participants with the administrative organogram alongwith the roles and responsibilities of the involved government bodies influencing the sanitation management of a city. It will also discuss assessment of citizen groups, non-government agencies and other stakeholders in the value chain, and use of social mobilization techniques to involve them in the over-all functioning of the system. The module will additionally cover management of livelihood and human resources, stakeholder conflict resolution and rehabilitation of Project Affected Persons (PAPs) at all stages of value chain.



## Topics

- **Commissioning and operational organogram**
- **Job roles and job description**
- **Industry outreach and talent scouting**
- **Citizen groups and committees**
- **Public participation citizen engagement initiatives**
- **Campaigns and mass outreach for awareness building and diluting misconceptions**
- **Advocacy based decisions, negotiation/conflict resolution**
- **Project Affected Persons (PAPs) rehabilitation strategy**
- **Livelihood management and skill development / convergence for certain stakeholders**

## References

- Integrated Wastewater and Septage Management - Training of Trainers Manual – SCBP
- Sandec Training Tool 1.0 - Planning for Environmental Sanitation – Module 7 - EAWAG
- Handbook on Decentralised Wastewater Treatment Module – NIUA
- Septage Management - A Practitioner's Guide – CSE
- <https://practicalaction.org/sanitation-odisha>
- Burden of Inheritance – WaterAid
- [Welfare Schemes](#) under National Commission for Safai Karmacharis
- Self-Employment Scheme for Rehabilitation of Manual Scavengers (SRMS)
- Integrated Low Cost Sanitation Scheme

## Module 5: Performance Assessment

The module will demonstrate the use of Key Performance Indicators (KPIs) and Service Level Benchmarks (SLBs) already established and developed and adopted widely to assess the performance of a sanitation project. Project reviewing and quality control monitoring, both during the construction and operation of the project will be illustrated to the participants.

## Topics

- **Accountability checks and review meetings**
- **Monitoring and quality control**
- **KPI and SLB based comparative evaluation**

## References

- <https://practicalaction.org/sanitation-odisha>
- [PAS – UMC](#)
- Septage Management - A Practitioner's Guide – CSE

## Course Coordinators

Prof. Kajri Misra; Prof. Mayank Dubey and Prof. Nalin Ranjan