

FSM – MOOC - Further reading

Key readings

- [Faecal Sludge Management: Systems Approach for Implementation and Operation](#): The FSM-book presents an integrated approach that includes technology, management and planning. It addresses the planning and organization of the entire faecal sludge management service chain, from the collection and transport of sludge and treatment options, to the final end use or disposal of treated sludge. The FSM-book is available in English and Spanish.
- [Compendium of Sanitation Systems and Technologies](#): The Compendium presents a huge range of information on sanitation systems and technologies in one volume. By ordering and structuring tried and tested technologies into one concise document, the reader is provided with a useful planning tool for making more informed decisions. On our website, the second version is available in English, French and Arabic, the first version is available in Spanish, Nepali, Vietnamese and Korean. There is also an online version of the Compendium available [here](#).

Week 1: An introduction to faecal sludge management

FSM-book chapters

- Chapter 1: The Global Situation [[pdf](#)]
- Chapter 18: The Way Forward [[pdf](#)]

Further readings

- Capital and Operating Costs of Full-Scale Faecal Sludge Management and Wastewater Treatment Systems in Dakar, Senegal. [[pdf](#)]
- Hanoi, Vietnam: Sanitation service delivery context analysis and mapping of excreta flows along the sanitation service chain and throughout the city [[pdf](#)]
- Kampala, Uganda: Sanitation service delivery context analysis and mapping of excreta flows along the sanitation service chain and throughout the city [[pdf](#)]
- Management of Excreta, Wastewater and Sludge. Sandec [[website](#)]
- Market Driven Approach for Selection of Faecal Sludge Treatment Products [[pdf](#)]
- Results of faecal sludge analyses in Kampala, Uganda: Pictures, characteristics and qualitative observations for 76 samples [[pdf](#)]
- SFD Promotion Initiative [[website](#)]

Videos:

- MOOC Module: Shit Flow Diagram [[video](#)]

Week 2: Overview of fundamentals for design and selection of treatment technologies

FSM-book chapters

- Chapter 2: Faecal Sludge Quantification, Characterization, and Treatment Objectives [[pdf](#)]
- Chapter 3: Treatment Mechanisms [[pdf](#)]
- Chapter 4: Methods and Means for Collection and Transport of Faecal Sludge [[pdf](#)]
- Chapter 10: Enduse of Treatment Products [[pdf](#)]

Further readings

- A value proposition: resource recovery from faecal sludge – can it be the driver for improved sanitation? [[pdf](#)]
- Characterization of FSM. Pollution Research Group, University of KwaZulu Natal [[website](#)]
- Guidelines for the safe use of wastewater, excreta and greywater. WHO [[pdf](#)]
- Market Driven Approach for Selection of Faecal Sludge Treatment Products [[pdf](#)] XXX
- Sanitation safety planning: Manual for safe use and disposal of wastewater, greywater and excreta. WHO [[website](#)]
- Wastewater website. WHO [[website](#)]

Videos

- MOOC Module: Introduction to sanitation safety planning [[video](#)]

Week 3: Treatment technologies for faecal sludge

FSM-book chapters

- Chapter 5: Overview of Treatment Technologies [[pdf](#)]
- Chapter 6: Settling-Thickening Tanks [[pdf](#)]
- Chapter 7: Unplanted Drying Beds [[pdf](#)]
- Chapter 8: Planted Drying Beds [[pdf](#)]
- Chapter 9: Co-treatment of Faecal Sludge in Municipal Wastewater Treatment Plants [[pdf](#)]

Further readings

- Biological Wastewater Treatment in Warm Climate Regions [[pdf](#)]
- Characteristics of faecal sludges and their solids-liquid separation [[pdf](#)]
- Decentralised Composting for Cities of Low- and Middle-Income Countries - A User's Manual . Waste Concern and Sandec [[website](#)]
- Domestic Wastewater Treatment in Developing Countries [[pdf](#)]
- Effect of hydraulic loading frequency on performance of planted drying beds for the treatment of faecal sludge [[pdf](#)]
- Faecal sludge drying beds: Increasing drying rates for fuel resource recovery in Sub-Saharan Seck [[pdf](#)]
- Locally produced natural conditioners for dewatering of faecal sludge [[pdf](#)]
- Marketing Compost. Sandec [[website](#)]
- Novel plant species for faecal sludge drying beds: Survival, biomass response and forage quality [[pdf](#)]
- Resource, Recovery, and Reuse: Series 2, 3 and 15. IWMI [[website](#)]
- Solids separation and pond systems for the treatment of faecal sludges In the tropics [[pdf](#)]
- The economic potential of Echinochloa pyramidalis (Lam.) Hitchc & Chase forage plant used in liquid waste treatment in Cameroon: Opportunity to link sanitation to food security [[website](#)]
- Treating Faecal Sludges in Ponds [[pdf](#)]

Videos

- MOOC module: Science of Composting [\[video\]](#)
- MOOC module: Composting technologies [\[video\]](#)
- MOOC module: Operating the Composting Process [\[video\]](#)

Week 4: Integrated approach to faecal sludge management

FSM-book chapters

- Chapter 11: Operations, Maintenance and Monitoring of Faecal Sludge Treatment Plants [\[pdf\]](#)
- Chapter 12: Institutional Frameworks for Faecal Sludge Management [\[pdf\]](#)
- Chapter 13: Financial Transfers and Responsibilities in Faecal Sludge Management Chains [\[pdf\]](#)
- Chapter 14: Assessment of the Initial Situation [\[pdf\]](#)
- Chapter 15: Stakeholder Analysis [\[pdf\]](#)
- Chapter 16: Stakeholder Engagement [\[pdf\]](#)

Further readings

- Capital and Operating Costs of Full-Scale Faecal Sludge Management and Wastewater Treatment Systems in Dakar, Senegal [\[pdf\]](#)
- Characterization of FSM. Pollution Research Group, University of KwaZulu Natal [\[website\]](#)
- CLUES - Community-Led Urban Environmental Sanitation planning guidelines [\[pdf\]](#)
- Faecal Sludge Management Tools The World Bank, Water and Sanitation Program [\[website\]](#)
- Sanitation 21 - A Planning Framework for Improving City-wide Sanitation Services. IWA, Eawag, GIZ [\[pdf\]](#)
- SFD Promotion Initiative [\[website\]](#)

Videos

- MOOC module: Case study Lusaka, Zambia - Sanitation service delivery through faecal sludge management [\[video\]](#)
- MOOC module: Case study Indonesia - How Sanitation in Indonesia was Transformed [[video 1](#), [video 2](#)]

Week 5: Innovations in faecal sludge management

FSM-book chapter

- Chapter 18: The Way Forward [\[pdf\]](#)

Further readings

- A Guide to Septage Transfer Stations, SNV [\[pdf\]](#)
- Anaerobic Digestion of Biowaste in Developing Countries. Sandec [\[pdf\]](#)
- Bioaccumulation of heavy metals in the black soldier fly, *Hermetia illucens* and effects on its life cycle [\[website\]](#)
- Biogas curriculum. BORDA [\[website\]](#)
- EWS Municipal Institute of Learning (MILE) [\[website\]](#)
- Fuel Potential of Faecal Sludge: Calorific Value Results from Uganda, Ghana, and Senegal. Calorific value of faecal sludge and comparison to other biofuels [\[pdf\]](#)
- Implementer's Guide to Lime Stabilization for Septage Management in the Philippines, USAID [\[pdf\]](#)
- Locally produced natural conditioners for dewatering of faecal sludge [\[pdf\]](#)
- Pollution Research Group, University of KwaZulu Natal [\[website\]](#)
- South African Water Research Commission [\[website\]](#)