

Module 7: Sewage and Wastewater Management

Aim:

Introduce the basic concept of sewage and wastewater along with their linkages to socio-economic, technical and policy aspects so that students will be able to take appropriate decisions in sewage and wastewater management.

ILOs:

At the end of this module, the students will be able to:

- Explain sewage and wastewater, their sources and constituents, and generation processes in rural and urban areas.
- describe water quality parameters and standards of effluent discharge
- assess the impacts of wastewater discharge to the environment
- propose water reuse methodologies and monitoring programs for different wastewater types.
- propose ways to reduce wastewater and select appropriate technologies for wastewater management in the context of IWRM

Contents

Concepts of Wastewater

- Definitions of sewage, sewerage, wastewater
- Sources of sewage and wastewater, linear and closed loop systems in wastewater, point and non-point sources, contaminant pathways and wastewater classification
- Water quality and wastewater discharge standards (National and WHO)
- impacts of wastewater disposal on water bodies

Socio-economic aspect of sanitation and wastewater

- Sanitation and human health
- Impact of water scarcity on sanitation and contamination of groundwater
- Cost effectiveness of sanitation
- Water supply, wastewater generation and sanitation in rural and urban context
- Water reuse classification and monitoring program

Wastewater management strategies

- Sanitation and effective disposal systems
- Reduction, reuse and recycle of wastewater
- Water quality characterization and criteria for wastewater management
- Management options (open and recycled system, responsibilities, implementation)
- Wastewater disposal and treatment systems/technologies (low cost/appropriate/indigenous/eco-friendly/advanced)

Policy and institutional issues on wastewater

- National need assessments, decision support tools, water conservation based approaches (indigenous and advanced technologies) for sewage and wastewater management
- Policy issues, regulations, frameworks for decision makers to support sanitation and wastewater management programs
- Case studies of sustainable wastewater management in developing countries.