

MODULE 4: Overview of Hydro-ecological Investigation

Aim:

To provide an overview of hydro-ecological investigation techniques in the context of IWRM

ILOs:

Upon attending this session, the participants will be able to:

1. Explain the importance and relevance of hydro-ecological investigation in IWRM
2. Describe the different techniques used in hydro-ecological investigation
3. Select the technique(s) suitable for such investigation in a given field situation

Contents:

- Hydro-ecological investigation: Context and importance in IWRM and IFRM
- Linkage of water management to physical, chemical and biological environment
- Hydrologic cycle and its role in water management
- Investigation into water quantity
 - Water quantity parameters (discharge, water level, rainfall, groundwater, meteorology)
 - Soil texture and moisture
 - Measurement and estimation of different parameters
 - Applications in water management
 - Water balance, rainfall-runoff, demand and resource assessment, risk assessment
 - Mathematical modelling and simulation
 - In-stream flow
- Physico-chemical investigation
 - Water quality parameters and standards
 - Measurement and analysis of water quality
 - Soil quality parameters and standards

- Measurement and analysis of soil quality
- Applications in water management
- Contaminant transport in soil and water

- Ecological assessment
 - Ecology and ecosystem (tropic level, food chain, interdependence)
 - Ecological parameters and indicators
 - Sampling techniques (terrestrial and aquatic)
 - Assessment of aquatic resources (survey and measurement)

- RS and GIS applications
 - Areas and examples of application