



WATER RESOURCE MANAGEMENT

A vertical image on the left side of the slide showing a splash of water falling against a light blue background. The water is captured in mid-air, creating a dynamic, textured appearance with many small droplets and bubbles. The splash starts wide at the top and tapers as it falls.

WATER RESOURCE MANAGEMENT

- ▶ Water Resources Management (WRM) is the process of planning, developing, and managing water resources in terms of Water quality and Water quantity
- ▶ It includes the institutions, infrastructure, incentives, and information systems that support and guide water management.

Functions of water resources management

01

Harnessing the benefits of water

02

Sustaining healthy water-dependent ecosystems.

03

Protecting the aesthetic and spiritual values of lakes, rivers, and estuaries.

04

Managing water-related risks, including floods, drought, and contamination.

Initiatives and Programs in Water Resource Management

National Hydrology Project

Timeline – 8 Years from 2016-2017 to 2023-25.

AIM - - Improve water resources in the country with strengthened real time monitoring networks. Setting up national water informatics centre & Water resource operation and management system.

Implementing Agency –

Ministry of Water Resources, River Development and Ganga Rejuvenation

Use of Geospatial Technology

▶ Use of web and GIS based management system for geophysical investigations, water quality studies, time series analysis of water level, rainfall, and other meteorological data.

Atal Bhujal Yojana

Timeline – 5 years from 2020-21 till 2024-25.

AIM - Sustainable ground water management in identified water stressed areas in seven States of the country.

Implementing Agency –

Ministry of Water Resources

Use of Geospatial Technology

Use of remote sensing and GIS

- For speedy implementation
- Ensured by annual verification of results
- Transparency and accountability through MIS and geo-tagging

Initiatives and Programs in Water Resource Management

Development of Water Resource Information System (WRIS)

Aim -The Development of Water Resource Information System (DWRIS) envisions to bring all relevant water data on one platform.

Timeline – Started in 2014 . Presently, a continuous process

Use of Geospatial Technologies

- A Web GIS for real time Monitoring.
- Data Generation through Digital Image Processing / GIS Mapping.

Ganga Rejuvenation- Namami Ganga Program

- Pollution, Conservation and Rejuvenation of National River Ganga.
- Covers 5 states- 66 districts- Ganga River Basin- 2525 KM

Timeline – Entry Level (Immediate Impact), Medium Level (5yrs) and Long-term (within 10yrs)

Use of Geospatial Technologies

- Generate HR DEM and GIS support in decision making. GIS-based mapping of microbial diversity for Ganges ecosystem and data generation for aquifer mapping.
- Web-based archive of corrected historic images of the Ganga River – creation of Atlas showing comparative images and description of important location.

Geospatial Technologies Applications in Water Resource Management

GIS and Spatial Analytics

- GIS based maps for water resource assessment, hydrologic and flood inundation forecast.
- Search, access, visualize surface & groundwater for assessment, monitoring, planning and management.

Scanning (LIDAR Radar, GPR)

- Monitoring water quality, aquifer mapping, etc.
- LiDAR systems used for accurate profiling of water depths.

Satellite Sensors/EO/ Drones/UAVs

- Geo-referenced satellite imagery of merged data, Base maps, and LU/LC maps to the project partners for the micro-watersheds in the selected districts
- Synthetic Aperture RADAR (SARI Data from RISAT4 and RADARSAT) for 14 micro-watersheds identified for soil moisture studies

IT, Cloud, Artificial Intelligence, and others

- Dashboards for project updates Management Information System (MIS)
- Software based decision support systems
- ArcGIS and Global Mapper based for water resource modelling.
- Web-based and cloud-computing software application, river basin management platform, Streamfkriv forecasting and reservoir operating System.

THANK YOU