

SPATIAL INFORMATION SYSTEM FOR WATER AND ASSOCIATED RESOURCES

D. Chalisgaonkar

D S Rathore

N Panigrahy

T Ahmad

National Institute of Hydrology

S K Jain

Department of WRDM Roorkee

IIT, Roorkee

ABSTRACT

Protection and sustainable use of water resources requires spatially and temporally distributed information about the different elements of hydrologic cycle such as precipitation, evaporation, runoff, etc. Further, these elements interact and are influenced by earth features including topography, soil, land use, land cover, and drainage network. Clearly, timely and reliable information on the earth features and hydrologic variables is required for optimal management of water resources. Such information for India, particular the spatial data is lacking and one comes across different data from different sources. Recently GIS has evolved as a powerful data management system to generate and analyze different type of thematic maps that are typically required for hydrological studies.

This paper describes the Hydrology and Water Resources Information System (HWRIS) being developed at National Institute of Hydrology, Roorkee which gives hydrological information including thematic maps about India from national to sub-basin level to provide a common, integrated, and quantitative geo-spatial framework. Various thematic maps included in the HWRIS are topography, state and district boundaries, drainage, hydrometeorology, dams and diversions, canal network, geology, soil, geomorphology, land use, etc. The national / basin /sub basin level maps are being obtained from various sources, e.g., atlases, internet, or are being digitized from maps. Since some of the maps are dynamic, the system is being provided with facility to handle time series of

maps. In addition, maps showing population density, agroecological regions, water related problems including natural hazards areas, flood affected areas, drought affected states etc. is also being included in the system.

The HWRIS will offer a uniform and consistent representation of hydrologic information about India to have one common efficient hydrological information system for the country.