

## 1.2 HISTORICAL DEVELOPMENT OF HYDRAULICS

Hydraulic Engineering has served the mankind althrough the ages by providing drinking water as well as protective measures against floods and storms. In the course of history it has made the water resource available for human uses of many kinds. Management of the world's water is a complex task and both its scope and its importance continue to grow.

In course of time mankind has not only diverted and used the waters of the world for its purposes, but by engaging nature into its service has turned deserts into fertile land (e.g. Rajasthan Indira Gandhi Canal Project). Natural habitat is threatened in more and more parts of the world by an ever-growing human population. Time has come for formulation of the new value system. Thus long term needs are not only food, water and shelter but also for an aesthetically pleasing, healthy, nurturing environment. Sustainable development is "mantra" of the future.

Method of teaching Hydraulic Engineering has undergone several changes considering the availability of computers, GPS, GIS, Remote sensing data, and web based tools.

### 1.2.1 The stages of Development

1950s	Experimental hydraulics - empirical Hydraulics - Development of Engineering hydraulics.
1960s	Fundamental Research in unsteady flows, Open channel and ground water.
1970s	Gathering of large data - hydrologic engineering - Flood control.
1980s	Initial awareness on the Environmental aspects. Large scale water Resources planning, stochastic hydrology, System Analysis, distributed rainfall runoff modeling.
Early 1990s	Modeling, urban hydrology, disaster management including floods, computational engineering, CAD in hydraulics, Environmental hydraulics, water quality - quantity integration, GIS based distributed modeling in hydrology, Decision support systems.
Late 1990s	Integrating of hydraulics with water resources engineering for sustainable development using GIS, GPS, Remote sensing - Hydro 2004 informatics, Enviro informatics, Physical hydrology , space and Time scales, Climate change and its impact on river basin, planning and management. Soft computing (ANN, GA etc.) IT impact on Water Data base and knowledge, Integrated River basin Development. Reliability and Risk tools. WEB - Water Earth Biota. Alternate sources of energy.

### 1.2.2 Future

Broad scope for specialisation in aggregation of many integrated aspects of the water system.

To design integrated systems and integration of numerical modeling into information systems.

Globalisation of water research and exchange through Internet and its impact on sustainable development.

Integrating sociology, economics, biology, environment - Hydro bio modeling.

Global water markets, participatory approach.

