

## 1.0 Introduction :

Wetlands and unique ecosystems which provide water and habitat for a diverse range of plants and animals. It is increasingly realised that earth is facing grave environmental problems with fast depleting natural resources and thereby threatening the very existence of most of the ecosystems. Looking at the consequences serious concerns are voiced among societies at large to conserve and preserve the natural resources. To explore and assess authentic data is need of the hour. Often the data are sparse and rarely inform of geospatial database (maps). Hence emphasis is given to have an appropriate geospatial database using modern scientific methods.

Present day directions of Remote Sensing (RS) Application along with Geographical Information System (GIS) is found to be an effective tools for identification of objects or phenomenon for mapping, inventory, surveillance and monitoring. Hence can very well be utilised for effective planning of natural resources. Remote sensing is defined as the science of acquiring and analysing information about objects or phenomena from a distance without any physical contact with the object or phenomena (Jensen 1986, Lillesand and Keifer 1987). When we say Remote sensing, basically we confined to satellites sensors. Satellite remote sensing can be defined as the use of satellite borne sensors to observe, measure and record the electromagnetic radiations (EMR) reflected or emitted by the earth and its environment for subsequent analysis and extraction of information. Currently more than a dozen orbiting satellites of various types provide data crucial to improving to knowledge of the earth's atmosphere, ocean, ice, snow and land. Over past few decades, Indian Remote Sensing data has been successfully used in various fields of natural resources (Navalgund et.al,2002)

Development of technologies like Geographic Information System (GIS) has enhances the use of RS data to obtain accurate geospatial database. GIS specialises in handling related, spatially referenced data, combining mapped information with other data and acts as analytical tools for research and decision making. During the past few decades, technological advances in the field of satellite remote sensing (RS) sensors, computerized mapping techniques, global positioning system (GPS) and GIS has enhanced the ability to capture more detailed and timely information about the natural resources at various scales catering to local, regional and global level study.

## 1.1 Wetlands :

Wetlands are areas of land that are either temporarily or permanently covered by water and its is one of the crucial component of the natural resources and our ecosystems. Cowardin et.al (1979) provides the official federal definition wetlands as "Wetlands an lands transitional between terrestrial and aquatic system where the water table is usually at or near the surface or the land covered by Shallow Water". Cowardin also devised the widely used classification systems associating wetlands to its hydrological, ecological and geological aspects such as : marine (coastal wetlands including rock shores & coral reefs), estuarine (including deltas, tidal, marshes and mangrove swamps), lacustrine (lakes), riverine (along rivers and streams), palustrine ('marshy'-marshes, swamps and bogs). Given these characteristics, wetland support a large variety of plant and animal species adapted to fluctuating water levels, making the wetlands of critical ecological significance.

## 1.2 Objectives :

- > To detect wetlands wing satellite data.
- > Mapping wetlands inside reserved forest.
- > Inventory of number of wetlands in each reserved forest and districts.
- > Assessment of area of each wetland in GIS.