**Abstract**

The biosphere has a variety of biomes, which are further divided into different well known ecosystems and habitats. Wetland habitats are one among them and are truly unique and are vital for all other biomes. To define wetlands in a single step is very difficult. However RAMSAR convention (1971) defines wetlands as “areas of marsh, fen, wetlands or water, whether natural or artificial, permanent or temporary with water that is static or flowing, brackish or salt, including areas of marine water the depth of which at low tides does not exceed 6 meters. Wetlands are biologically diverse and productive ecosystems. Wetlands exists in all continents except Antarctica. Globally, the aerial extent of wetland ecosystems ranges from 917 million hectares (Lehner and Doll 2004) to more than 1,275 million hectares (Finlayson and Spiers 1999). In India wetlands occupy 58 million hectares, including areas under wet paddy cultivation (Directory of Indian wetlands 1990).The National Wetland Atlas prepared by the Ahmedabad Space Application Center( SAC) and Indian Space Research Orgaanization (ISRO) stated that 6.92% of geographic area of Tamil Nadu is wetlands.

For the present study, inventory of wetlands of Trichy district, boundary analysis of selected wetlands and the detailed study of Thiruthalyur wetland is undertaken. For inventory studies and boundary analysis, geospatial techniques are used. The detailed study of Thiruthalyur wetland includes soil analysis, water quality analysis,

biodiversity studies and study on socio-economic aspects. Standardized methods are followed for the detailed study of Thiruthalayur wetland.

The present investigation revealed the presence of 2399 wetlands of different size categories are present in Trichy district. 2366 wetlands are in less than 0.5 sq.km size, while 31 wetlands fall under 0.5 to 0.75 sq.km, 20 wetlands are in the size category of 0.75 to 1 sq.km while 5 wetlands fall under 1 to 1.25 sq.km and only 7 wetlands are greater than 1.25 sq.km.

The boundary analysis of 3 selected wetlands maintained by PWD namely Thiruthalyur wetland (Thuraiyur taluk), Nagayanallur and Mullipadi wetland (Musiri taluk) that these wetlands are shrinking considerably due to monsoon failure and encroachment of wetland boundaries. Biodiversity studies carried out in Thiruthalyur wetland showed rich flora and fauna typical of wetland habitat, which deranged due to failure of monsoon. This wetland not only provides water for irrigation but also gives the rural community multiple benefits of ecological services, economical benefits and cultural benefits. Based on the results of the study, suggestions are given to preserve and protect the wetlands of Trichy district.