

**“SPATIAL DECISION SUPPORT SYSTEM FOR WETLAND
MANAGEMENT OF CHIKMAGALUR TALUK USING
REMOTE SENSING AND GIS”**

PROJECT REPORT

(Sponsored by KSCST)

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Submitted by



DIVYASHREE H.P

(4AI10EV007)

THEJASWINI S.M

(4AI10EV021)

RENITA JOHNSON MOOTHEDATH

(4AI10EV017)

NAVEEN KUMAR.C

(4AI11EV400)

Under the guidance of

Mrs. SHRUTHI C.G , M.Tech.

DEPARTMENT OF ENVIRONMENTAL ENGINEERING

Adichunchanagiri Institute of Technology

(Affiliated to Visvesvaraya Technological University)

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CHAPTER 1

INTRODUCTION

1.1 GENERAL

Wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water. Once treated as transitional habitats or several stages in succession from open water to land, the wetlands are now considered to be distinct ecosystems with specific ecological characteristics, functions and values. Wetlands, natural and manmade, freshwater or brackish, provide numerous ecological services. The density of birds, in particular, is an accurate indication of the ecological health of a particular wetland. However, unsustainable use of wetlands without reckoning of their assimilative capacity constitutes major threat to the conservation and management of these vital biodiversity rich areas. Thus, restricting the prospects of future generation to utilize the benefits of the ecosystem services provided by these wetlands [8].

'Wetland' denotes a large body of water surrounded by land, whether natural or artificial, permanent or temporary with water that is lentic or lotic. Wetlands perform some useful functions in the maintenance of overall balance of nature.. Wetlands have many names and many definitions. names like bog, fen, swamp, marsh, wet tundra, or muskeg are familiar to wetland ecologists and the public at large. Often, these terms have different meanings for different people, and the variation in meaning can be subtle or substantial. Due to economic growth, urbanization ,population increase and industrialization, more and more waste materials were discharged in to it and make it unfit for any uses. Hence to maintain the ecological balance, it is imperative to preserve these wetlands to make it fit for various purposes[8].

Remote sensing and GIS tools are commonly used in land use planning and management of natural resources at district level in India (Challa *et al.* 1995; Maji *et al.* 1998). In this context, terrain evaluation is an essential prerequisite. Guidelines to maintain a rational balance between environment and human needs were developed by using land resource mapping (combination of remote sensing and GIS) through sustainable land use planning (Chakrabarti 1998). Large spatial and non-spatial data have been generated through soil