

“SPATIO TEMPORAL LANDUSE AND LANDCOVER ANALYSIS USING REMOTE SENSING: A CASE STUDY ON SHIVAMOGGA CITY”

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Abstract-Shivamogga's population has grown significantly in recent years. The city's size has grown in lockstep with its population. The rapid increase in urban population is primarily due to people migrating from rural areas, villages, and other cities to larger cities in quest of better job opportunities and a greater quality of life. As a result of this pressure, cities have grown out of control to accommodate these people, resulting in sprawl, which is a severe problem that must be addressed. The main purpose of this research is to better understand Shivamogga's landuse and landcover, as well as the changes that have occurred over the last three decades. LANDSAT images from 1993, 2003, and 2013-2021 were used to assess the evolution of the city's urban area and how it has changed over time, which has a significant impact on future expansion and can result in a slew of issues if growth is uncontrolled. The satellite pictures are analysed using the ERDAS and ARC GIS software platform.

KEY WORDS: Population, Urban area, LAND USE and LAND COVER, LANDSAT, ERDAS, ARC GIS software

I. INTRODUCTION

Understanding the reasons of urbanisation and researching the urbanisation model can help determine a location's current and future needs. This is crucial in projecting foundation and is particularly critical in provincial planning when resources are limited. India's states and urban communities create monetary and social diversity as a developing country. Growth isn't consistent, resulting in congestion in some areas and immaturity in others. One of the most significant challenges in developing countries like India is population growth, as well as uneven development. In some locations, the population growth rate is unusually high, prompting urbanisation. Assets are used more efficiently when a high number of people gather in a limited area, leading in asset depletion in that area. People travel to better places to start a new life to deal

with this challenge, resulting in population evaporation and dispersion without any preparedness.


In a sensible way, the population and urban areas of metros contribute to the cycle of metropolitan extension. Planning in such a miracle for development demands a knowledge of the development elements. Development is transforming provincial zones into metropolitan areas at an unusually fast rate in the continuous history of humanity's experiences, and it is having a negative impact on ecosystems' regular functioning. A urban climatic characteristic and human-caused ecological changes are of concern nowadays, given the worsening of the climate and human well-being. In order to appropriately organise, use, and manage shared assets, changes in land use and land cover must be evaluated.

Remote sensing and GIS are used in this study for various analysis and management.

A. Need for the study

This sort of research is motivated by the desire to utilise both geographic and non-spatial data. LULC maps are useful for planning, implementing, and monitoring efforts at the local, provincial, and national levels. They also help in understanding land use perspectives and the formulation of plans and programmes. It also keeps track of how ashore usage and land cover design interact. Experts in the field of metropolitan development must develop planning models that allow all available land to be used in a generally rational and optimal manner, as well as in examining the changes that are occurring in our biological system and climate., we can establish plans and dispatch projects to achieve practical metropolitan outcomes and to prevent the haphazard development of towns and cities.

B. Land use and land cover


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