# Accuracy assessment of land use/land cover classification in parts of Kadapa district (Andhra Pradesh, India), using remote sensing and GIS

**M. Rajasekhar, G. Sudarsana Raju*, R. Siddi Raju, M. Ramachandra and B. Pradeep Kumar**

Dept. of Geology, Yogi Vemana University, Kadapa, Andhra Pradesh, India-516005.
*Corresponding author: gsraju05@gmail.com

**ABSTRACT**

This study assesses land use/land cover (LULC) with Accuracy Assessment (AA) in Chennur mandal of the Kadapa district (Andhra Pradesh), using satellite images and socio-economic data. Spatial and temporal elements of LULC were measured using Landsat 8 OLI/TIS images, following a supervised classification algorithm technique in ERDAS Imagine software. Accuracy of the Landsat-derived LULC maps are about 84%. The study indicated that considerable evolution of built-up areas and barren/waste lands in the study area of the Kadapa district resulted in significant decrease in the area of water bodies, agricultural land and the forest cover. The built-up land growth has been large due to rising population growth. Fast urban development through infilling of low-lying zones and clearing of forest regions affected the environment, as well as its economic development. The major LULC groups include agricultural land (55.28%), water bodies (5.45%), and built-up land (6.65%), forest (2.61%) and wastelands (30.01%). The present study can be used by decision makers to develop economically sustainable plan for the protection of environment.

**Keywords:** Land use/Land cover, Accuracy Assessment, Remote Sensing, GIS, Kappa coefficient, Kadapa district

## INTRODUCTION

LULC are two unique advances in recent past, which are being consistently used (Rawat, et.al., 2013). Land cover deals with the physical characteristics of the Earth's surface, like forest, water bodies, soil and other physical features, including those made by man-made activities. While, Land use, insinuates the way by which individuals and their characteristic environment, uses the land for beneficial needs (Rwanga and Ndambuki, 2017) The LULC case of a region is a result of characteristic and financial related factors and their utilization by the man in all actuality. LULC is also related to the demands of increasing urbanization and thus, resulted into increase of population in present's years. Changes in LULC use, don't really always suggest a degradation of the land (Rajasekahr et.al , 2017). In any case, LULC is driven by collection of social causes, impact biodiversity, water, and radiation spending plans, pursue gas releases and distinctive methodology, that get together to impact the air and biosphere and affects the regular environment (Rajasekhar et al., 2018a).

The current technology of Remote Sensing (RS) incorporates both, aerial as well as satellite-based frameworks, which gather physical information on a redundant premise with speed alongside Geographical Information System (GIS), which encourages us to break down the information and streamlining the entire planning process. Application of RS data has made it possible to study the changes in land cover in lesser time, at low cost and with better accuracy (Rawat, 2015). Further, geospatial methods are used to determine precise and convenient data on the spatial appropriation of LULC changes over a large region