

Land Use and Land Control of Gudur Area, Andhra Pradesh

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ABSTRACT

The main objective of this paper is to study the Land Use & Land control of Gudur Area, Andhra Pradesh. Changes in land use and land cover (LULC) are vital for sustainable development, planning and management. A study has been carried out in order to monitor changes in land use and cover with the help of geographic information systems and remote sensing techniques. Land cover refers to the physical characteristics of the land surface, captured in the distribution of vegetation, water, soil and other physical characteristics of the land, including those created solely by human activities, where Land use refers to the way in which the land has been owned by humans and their inheritance. It is important to distinguish this difference between land cover and land use, and the information that can be obtained from each. The measures offered with telecommunication techniques are related to the maintenance of the soil, from which it is possible to establish the use of the soil, especially with auxiliary data or a priori recognition.

KEY WORDS: Change detection, Land use land cover, Remote sensing and GIS, Deforestation, Agriculture.

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I. INTRODUCTION

Land cover / use studies are multidisciplinary in nature, and the participants involved in this work are many and varied, from international nature and nature conservation foundations to government researchers and forestry companies. In addition to facilitating sustainable land management, information on land cover and use can be used for planning, monitoring and evaluation of development, industrial activity or reclamation. Detection of long-term changes in land cover can reveal a response to a shift in local or regional climatic conditions, the basis of terrestrial global monitoring. Resource managers involved in parks, oil, timber and mining companies deal with both land use and land cover, as well as local resource inventories or natural resource agencies. Changes in land cover will be examined by environmental monitoring researchers, conservation authorities and municipal departments, with interests varying from tax assessment to mapping exploratory vegetation. Governments are also concerned with the general protection of national resources and engage in publicly sensitive activities involving land use conflicts.

Earth remote sensing applications include the following:

- Management of natural resources
- protection of natural habitats
- basic mapping for GIS input
- urban expansion / interventions
- Routing and logistical planning for seismic / exploration / mining activities
- Legal limits for tax and property valuation
- Target detection - identification of landing lanes, roads, clearings, bridges, land / water interface
- Routing and logistical planning for seismic / exploration / mining activities

II. STUDY AREA

The present study area is included in the toposheet no.57 N/11 and covers an area of area of 247.29 km². It is located between longitudes 79°42'30"E - 79° 54'30"E and latitudes 14°13'00"N -14°16'30" N. The study area has a subtropical climate with a mean annual temperature of 24.3oC to 32.9oC. The humidity is usually in the range of 6-84 %. The annual normal rainfall of the study area is about 1084 mm. The mean daily maximum temperature in the district is about 42°C in May and the mean daily minimum temperature is about 20°C in December/ January. ^{1}

III. CLASSIFICATION SCHEME

There are three levels of classification, viz., Level-I, Level-II, Level-III. Level-I is used on 1:100000, Level-II is used on 1:250000 and Level-III is used on 1:50000 scale. In the Level-I, the broad classification is shown Agricultural land, Forest. In the Level-II category is further sub divided into indicating Crop land. The classification that is followed in the classification levels based on NRSC and ISRO (2011). In this level- III on 1:50000 scale is adopted that is acknowledged below. ⁽¹⁾

LEVEL -I	LEVEL-II	LEVEL=III
Built-up	Built up (Urban)	Built-up/core urban/peri- urban
	Built UP (Rural)	Village/hamlets/dispersed house hold
	Mining/Industrial area	Industrial mine/quarry
Agriculture land	Agriculture plantation	Agriculture plantation
	Cropland	Cropland
Forest land	Forest	Forest
Water bodies	Reservoir/tanks	reservoir /tanks
	River/stream/drain	River/stream/drain
waste land	Barren rocky	Barren rocky

Table.1 Land use/land cover classification levels based on NRSC and ISRO (2011).

IV. COMPARISION OF DIFFERENT LAND USE

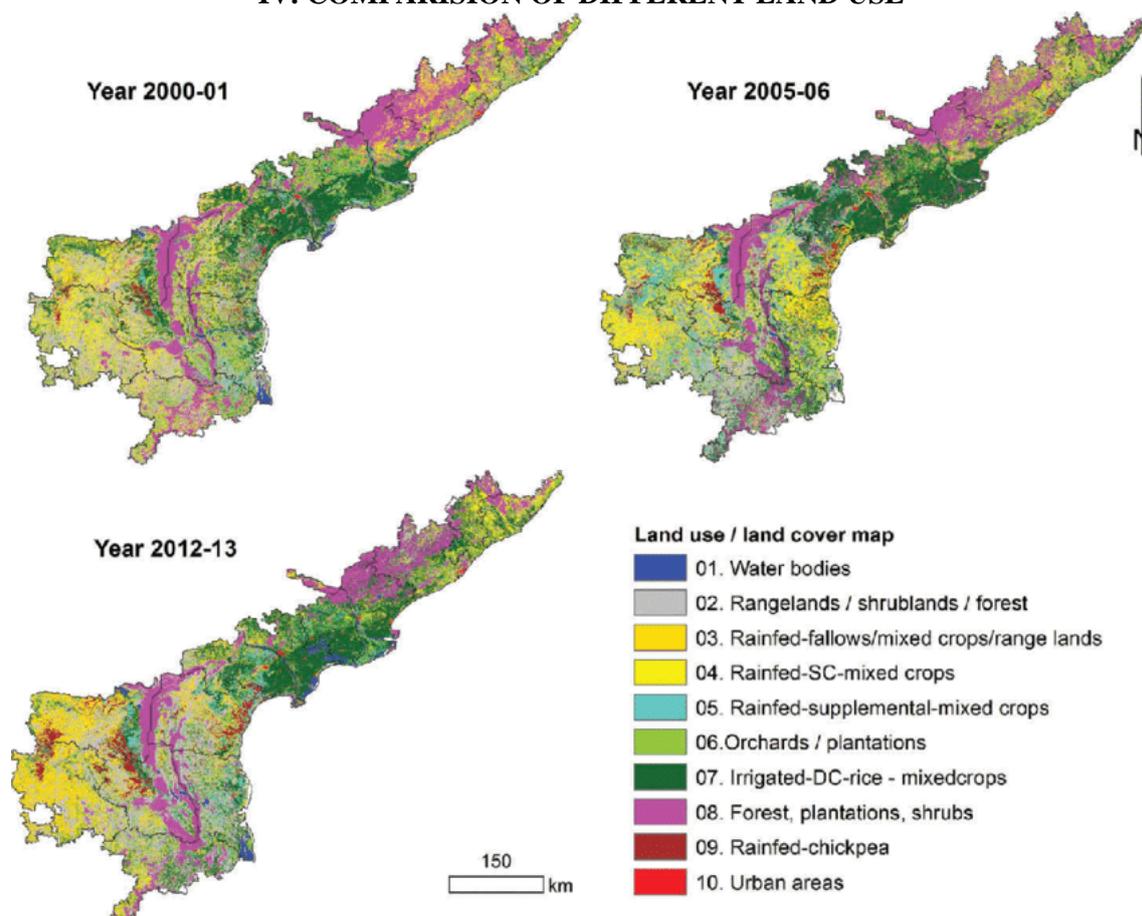


Fig Land Use Land Cover Map of The Gudur Area

Source : https://www.researchgate.net/figure/Spatial-distribution-of-land-use-land-cover-in-Andhra-Pradesh-and-major-chickpea-growing_fig4_298438264

V. CLASSIFICATION OF AREAS

Classification	Area In Sq Km
Agricultural Land-Aquaculture	0.206369452
Agricultural Land-Crop Land-	41.12869958
Agricultural Land-Crop Land-Kharif	3.480533699
Agricultural Land-Crop Land-Rabi	37.18715492
Agricultural Land-Crop Land-Zaid	0.116369383
Agricultural Land-Fallow	28.32390644
Agricultural Land-Plantation	49.38721669
Built Up - Compact (Continuous)	2.928798014
Built Up - Sparse (Discontinuous)	2.384689138
Built Up (Rural)	6.567393798
Built Up- Quarry	1.787151132
Built Up-Industrial	0.436058372
Forest-Deciduous (Dry/Moist/Thorn)-	4.978164952
Forest-Deciduous (Dry/Moist/Thorn)-	7.86101246
Forest-Forest Plantation	0.22212239
Forest-Scrub Forest	1.740493456
Vegetated / Open Area	0.426081008
Wastelands-Salt affected land	3.124320273
Wastelands-Scrub land-Dense scrub	18.38915096
Wastelands-Scrub land-Open scrub	11.78090571
Water bodies-Canal/Drain	0.650015805
Water bodies-Reservoir/Tanks-	4.636056226
Water bodies-Reservoir/Tanks-	16.01727949
Water bodies-River/Stream-Non	3.320698389
Wetlands-Coastal - Lagoon, creeks,	0.213589242
Grand Total	247.294231

TABLE 2. DATA CITED FROM ^[1]

VI. CONCLUSION

This study has shown that recent advances in remote sensing and GIS technologies provide a powerful tool for mapping land cover land use. This research was carried out in part of the Nellore district in the Gudur area of Andhra Pradesh. This study shows that predominantly agricultural land covers an area of about 159.83 km² (65 percent), followed by a wasteland of 33.29 km² (13 percent), built-up urban and built-up rural land, water bodies, quarry forests and an industrial area. They occupy 5.38 square kilometers (3%), 6.56 square kilometers (3%), 24.62 square kilometers (10), 15.22 square kilometers (6%), 1.78 square kilometers (1%) , 0.43 square kilometers. km of the total geographical area. This area is the most occupied agricultural land, where the lowest occupied industrial area.

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