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## Research Article

### LAND USE /LAND COVER CHARACTERISTICS IN KAMAREDDY DIVISION IN NIZAMABAD DISTRICT

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Land use; urban planning; remote sensing;  
GIS; Town

#### ABSTRACT

The land use/land cover pattern of the region is an outcome of natural and socio-economic factors and their utilization by man in space and time; land becoming a scarce resource due to immense pressure on agriculture and demographic. Hence information on land use/land cover and possibilities for their optimal use is essential for the selection, planning and implementation of land use schema to meet the increasing demands for basic human needs and welfare. Remote sensing techniques provide valuable and up to date information on natural resources. GIS with the capability of integration multi-layer information obtained from both Satellite remote sensing and other conventional sources has proved to be effective tools in planning and detecting land use/land cover changes for Land Use development. The High Resolution Satellite Data is IRS-P6 LISS-IV is used for getting quick and useful base line information on the parameters like land use/land cover, Drainage, Roads etc. The main objective of the study is to produce the Land Use map, detecting various units and make it use for future planning. About 82.85% of the total area is covered by agriculture; 7.52% under waste land; 6.70% is covered under water bodies; Mining and Industries by 1.32% and Kamareddy urban agglomeration is covered by 1.60%. The city will become a trade Centre in future as it is connected well by road network. NH-47 is passing through the town. In future the industrial activity may be proposed in waste lands on the north side of the town. The sites for Waste dumping may be selected in future by using other ancillary data like wind direction etc. Further Infrastructure development may be proposed towards eastern side of the town. As it is proposed to be the district headquarters in near future, hence a detailed planning will be possible in projecting future land use/land cover scenarios using appropriate models.

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#### INTRODUCTION

The concept of land utilization is as old as human civilization. Its utility and management in the studies of geographical literature could be traced to the recent past. The influence of physical factors, especially, morphological factors on Landuse was emphasized by Deshpande, Bhatt and Mavinkurve (1959). The importance of Landuse Surveys has been explained in detail by the micro-studies carried out by Ganguli (1964), Karimi (1950) and Lahiri (1950) to highlight the need of proper utilization of land and the connected agricultural problems. All these studies also suggest ways and means of improving the Landuse for the ultimate betterment of human welfare. Chakroborthy (1962) has given a statistical method to analyses Landuse pattern of any region. M. Shafi (1965) has selected Ganga-Yamuna Doab. In the context of the alarming increase of population and relatively slow rate of economic growth, it is increasingly being accepted that the proper and efficient

utilization of land resources could be the answer to the problems faced by the country.

##### Study Area

Kamareddy is located at 18.316°N, 78.350°E it covers an area of 3652.00 square kilometres. It is 110 Km northwards from the state capital Hyderabad and 55 Km south from the east while district headquarters of Nizamabad. Population (2011)-972,625, sex ratio is 1000:1036. Literacy-65% and climate is tropical climate. Avg.annual rain fall is 1081mm and avg. Temp 33°C. Division is mainly sandy loams and red chelka soils. Natural slope of the division is from North to South. Kamareddy division occupation is main Agriculture.

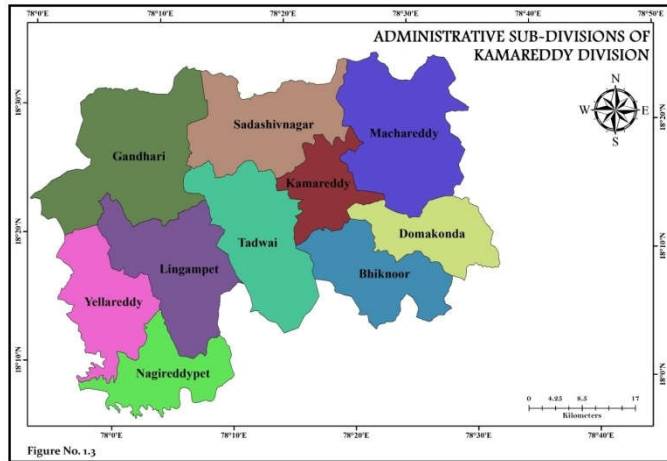
##### Scope and study

The scope of the study involves preparation of the report on land use/land cover details of the Kamareddy Revenue division. Using latest possible satellite imageries and studying the topography and the drainage pattern.

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**Location of the Project**

The Kamareddy division is located in Southern part of the Nizamabad District. This division covered in Kamareddy, Sadashiv nagar, Tadwai, Bhiknoor, Gandhari, Lingampet, Yellareddy, Nagireddypet, Domakonda and Machareddy mandals.

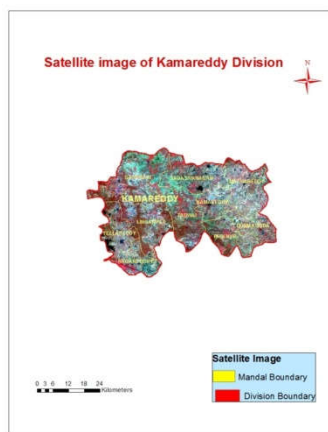


**Objectives**

To analyse the Land use and Land Cover of the division.

**METHODOLOGY**

The Digital Image Processing has been performed using ERDAS Imagine software tools and Geographical Information system. The IRS Resource sat 2 Liss IV multitemporal (Kharif and Rabi) satellite data has been geometrically corrected with respect to the survey of India Toposheets. To carry out the geo-referencing, ground control points were identified on the maps and raw satellite data. For the present study secondary data have been applied which is published in Agricultural Statistical Abstract of Nizamabad District.

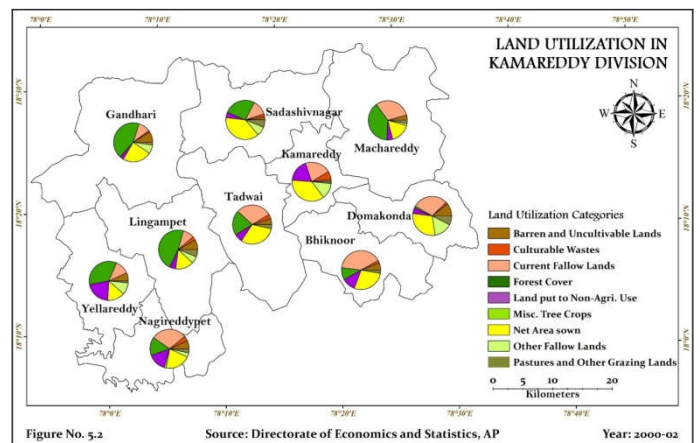


The present study deals with the various Land use data available on the following categories. It encompasses: i) Forest, ii) Barren and Uncultivable land, iii) Land put to Non-Agricultural uses, iv) Cultivable waste, v) Permanent pastures and other grazing lands, vi) Land under miscellaneous tree crops and groves not included in net area sown, vii) Current fallows, viii) Other fallow lands, ix) Net area sown. In this chapter, an attempt has been made to oversee the land utilization pattern in Kamareddy Division. The main objective of the study is to examine the agriculture development under

different sources along with the intensity of irrigation. An attempt has been made to locate the growth of agriculture with the help of land utilization patterns. The total geographical area of Kamareddy Division was 225475Ha.

**Land use/Land Cover details of Kamareddy Division**

Digital image processing and Geographical Information System was carried out to delineate various land use/land cover categories in the Kamareddy Division Viz, Forest Land use, Barren and Uncultivable Land Use, Land Put to Non Agriculture Land use, Permanent pastures and other Grazing Land use, Misc trees crops, Culturable waste land use, Other Fallow Land use, Current Fallow Land Use and Net Area sown by assigning necessary training sets, which were identified based on tone, texture, size, shape pattern and location information.



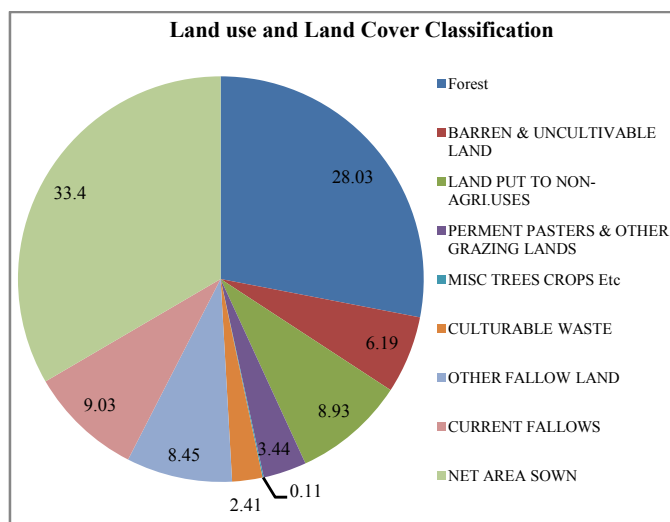
The image of the Study area from the Kamareddy division as captured by satellite is presented in the figure. The land use and land cover in this study area is depicted by in About 82.85% of the total area is covered by agriculture; 7.52% under waste land; 6.70% is covered under water bodies; Mining and Industries by 1.32% and Kamareddy urban agglomeration is covered by 1.60%. Kamareddy division surroundings Ricemill Industries, Poultry and Sugar Industries and Corn Product Industries in establishment.

The various classes and their respective areas with percentage of coverage are given below in table 1 and figure:

**Table No 1** Land Utilization of Kamareddy Division

Sl. No.	LULC Categories	LuLc % wise	
		Area (In Ha.)	% to the Division
1	Forest Cover	63208.00	28.03
2	Barren and Uncultivable Lands	13954.00	6.19
3	Land put to Non-Agri. Use	20139.00	8.93
4	Permanent Pastures and Other Grazing Lands	7764.00	3.44
5	Misc. Tree Crops	251.00	0.11
6	Culturable Wastes	5441.00	2.41
7	Other Fallow Lands	19062.00	8.45
8	Current Fallow Lands	20354.00	9.03
9	Net Area sown	75302.00	33.40
10	Total	225475.00	100.00

Source Directorate of Economics and Statistics, AP



Pie diagram for LU/LC Details

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## CONCLUSION

The main objective of the study is to produce the land Use Map, detecting various units and make it use for future planning. About 82.85% of the total area is covered by agriculture; 7.52% under waste land; 6.70% is covered under water bodies; Mining and Industries by 1.32% and Kamareddy urban agglomeration is covered by 1.60%. The city will become a trade Centre in future as it is connected well by road network. NH-47 is passing through the town. In future the industrial activity may be proposed in waste lands on the north side of the town .The sites for Waste dumping may be selected in future by using other ancillary data like wind direction etc. Further Infrastructure development may be proposed towards eastern side of the town. As it is proposed to be the district headquarters in near future, hence a detailed planning will be possible in projecting future land use/land cover scenarios using appropriate models.

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