

“Change Detection of Land Use and Land Covers in Buldhana District”

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Abstract

The framework of a national land use and land cover classification system is presented for use with remote sensor data. The classification system has been developed to meet the needs of Federal and State agencies for an up-to-date overview of land use and land cover throughout the country on a basis that is uniform in categorization at the more generalized first and second levels and that will be receptive to data from satellite and aircraft remote sensors. The proposed system uses the features of existing widely used classification systems that are amenable to data derived from remote sensing sources.

It is intentionally left open-ended so that Federal, regional, State, and local agencies can have flexibility in developing more detailed land use classifications at the third and fourth levels in order to meet their particular needs and at the same time remain compatible with each other and the national system. Revision of the land use classification system as presented in U.S. Geological Survey Circular 671 was undertaken in order to incorporate the results of extensive testing and review of the categorization and definitions.

Keywords:- Change Detection, Land use and land cover, remote sensing and GIS, population growth, industrialization etc.

Introduction:-

Land use is obviously constrained by environmental factors such as soil characteristics, climate, topography, and vegetation. But it also reflects the importance of land as key and finite resources for most human activities including agricultural, industry, forestry, energy production, settlement, recreation, and water catchment and storage. Land is fundamental factor of production and through much of the course of human history; it has been tightly coupled with economic growth. Often improper land use is causing various forms of environmental degradation. For sustainable utilisation of the land ecosystems, it is essential to know the natural characteristics, extent and locations, its quality, productivity, suitability and limitations of various land uses. Land use is a product of interaction between society's cultural background, state, and its physical needs on the one hand and the natural potential of land on the other (Balak Ram and Kolarkar 1993). In order to improve the economic condition of the area without further deteriorating the bio environment, every bit of the available land has to be used in the rational way.

Choice of the Topic with Reasoning:-

Buldhana district is known as the “vidharbhacha praveshdwar”. The study is aimed to contribute towards planned development of Buldhana district by way to exact land use land cover (LULC) mapping with Remote Sensing and GIS technologies. The area chosen for the present investigation lies in the south-west part of Buldhana District inclusive 13 tehsils but among these Buldhana tehsil selected for research.

In the present research work aims to finalize the various digital, more accurate and precise maps of study area, which is very useful for plan or estimate to utilize every inches of land for human activities. As per census 2011 of India we have 121, 00, 00,000 population. Hence, we must have to plan available land and this is possible mapping with advanced Remote Sensing and GIS tools only.



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OBJECTIVES OF THE RESEARCH:

- To study LULC type and pattern in study region
- To examine geographical and environmental conditions of study area.
- To analyze the socio- economic impact on land use on study region.
- To find out available LULC and improve LULC in study area.
- To verify the LULC programs and policies of government and NGOs in study area.
- To study their source potentiality of land use land cover in study region with their problems.

METHODOLOGY: -

Field work will be carried out in the Buldhana tehsil to collect the represented samples to suit to study planned.

- 1) Both the actual sampling and data acquired by questionnaires will be attempted to have latest information on human resources, land utilisation, land capability, industrial development, socio-economic status of local peoples etc.
- 2) The data collected from field of exact cropping pattern, and statistical data about settlement area, forest area, waste land etc. And secondary data which in form of top-sheets, satellite imageries (these are Landsat-TM) should be processed in laboratory to suit the requirement for the study planned.
- 3) The remote sensing technique have been used to prepare thematic maps delineate drainage pattern, cropping pattern, slope analysis, vegetation cover, waste land area, barren land as well as settlement area mapping too.
- 4) Data generated through questioner and that by laboratory analysis has been subjected to statistical analysis to evolve significant conclusion. Based on field and laboratory data, thematic maps has prepared and statistical analysis have been used to evolve a model which would be proposed that will be vital for planning the developmental strategy for the study area.

Result and Discussion:-

In the present research paper only secondary data has used. According to secondary data result and discussion should be analysed. They are presented in the below:

Table 1 – Land use pattern of the district (Area in "000" ha)

Geographical area	Cultivable area	Forest area	Land under non agricultural use	Permanent pastures	Cultivable waste land	Land under miscellaneous tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
967	740	54	41	29	32	10	42	14	17

Source:- www.dacnet.nic.in/lus

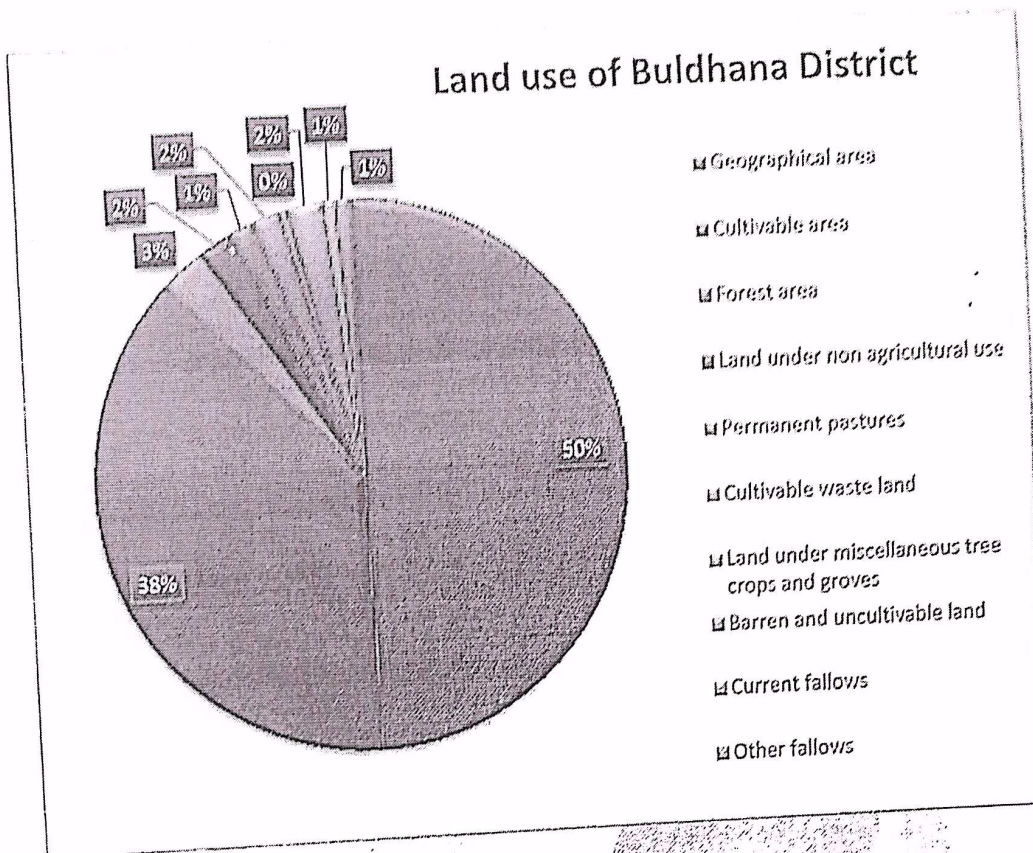
Table 1 present the land use pattern of Buldhana district. It can seen from the table that out of geographical area, about 740 hectare land is under cultivable. About 14 and 17 hectare land under current and other fallows. The details of the land use in Buldhana district are shown in a pie chart below.



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Handwritten text in purple ink: Principal, Govt. College of Arts & Science, Buldhana.

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CONCLUSIONS :-

In the study of land use and land covers there is need of strong institution, awareness about the govt. schemes. People engage in the activities of cultivation and also adopt modern techniques for land development which is beneficial to the farmers. Land use in Buldhana district and the surrounding Settlements has changed during research period. These environmental changes, which include a decrease in the number of agricultural parcels and an increase forested areas and urban growth, may influence levels of physical activity. Overall land use and land cover reflect the pattern of human land use.

References:-

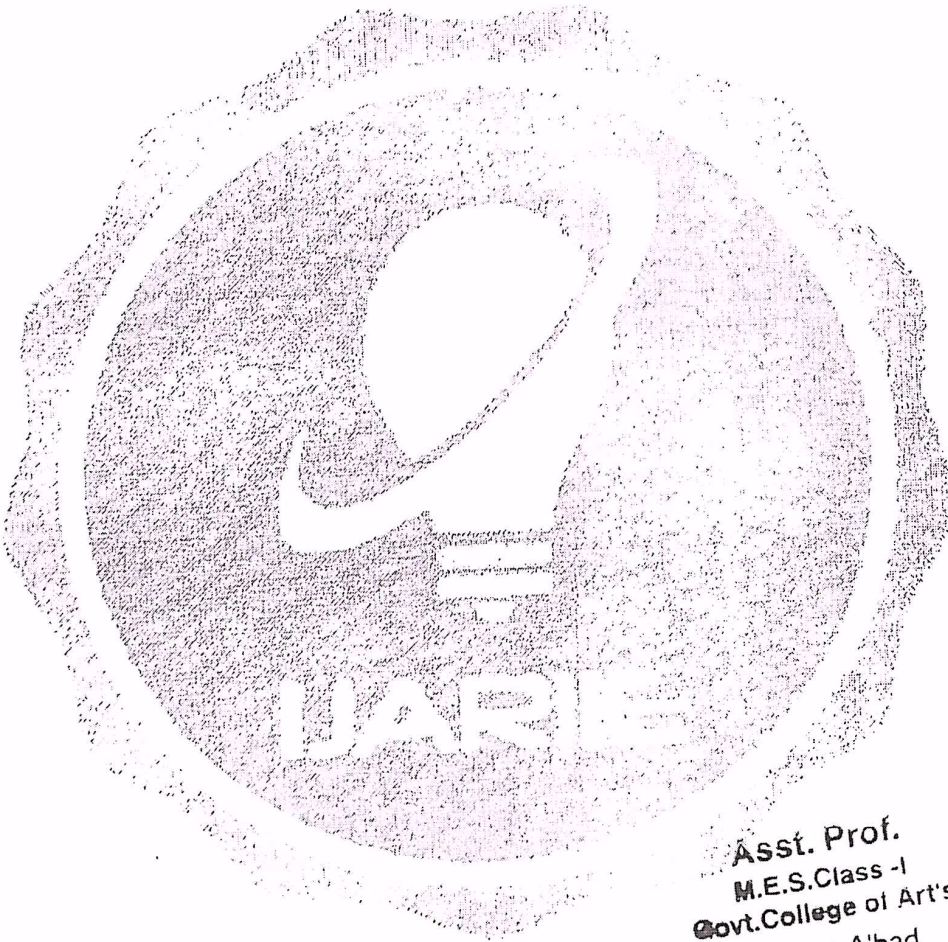
1. Adegoke, J. O., Pielke, R. A. Sr., Eastman, J., Mahmood, R. and Hubbard, K. G. 2003. Impact of irrigation on midsummer surface fluxes and temperature under dry synoptic conditions: A regional atmospheric model study of the U.S. High Plains. *Mon. Wea. Rev.*, 131, 556-564.
2. Adegoke, J. O., Pielke, R. A. Sr. and Carleton, A. M. 2006. Observational and modeling studies of the impacts of agriculture-related land use change on climate in the central U.S. *Agric. Forest Meteorol., Special Issue*, 203-215.
3. Alapaty, K., Pleim, J. E., Raman, S., Niyogi, D. S. and Byun, D.W. 1997. Simulation of atmospheric boundary layer processes using local- and Non local-closure schemes. *J. Appl. Meteorol.*, 214-233.
4. Albrecht, B. A. 1989. Aerosols, cloud-microphysics, and fractional Cloudiness. *Science*, (4923), 1227-1230.
5. Alpert, P. and Mandel, M. 1986. Wind variability - An indicator for Meso climatic change in Israel. *J. Climate Appl. Meteorol.* 1568-1576.
6. Andreae, M. O., Rosenfeld, D., Artaxo, P., Costa, A. A., Frank, G. P., and co-authors. 2004. Smoking rain clouds over the Amazon. *Science*.
7. Anthes, R. A. 1984. Enhancement of convective precipitation by

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- Meso scale variations in vegetative covering in semiarid regions.
J. Appl. Meteor, 541-554.
8. Archibold, O. W. 1995. Ecology of World Vegetation, 1st Ed., Chapman and Hall, 510 pp.
 9. Arnfield, A. J. 2003. Two decades of urban climate research: A review of Turbulence, exchanges of energy and water, and the Urban heat island. Intl. J. Climate, 1-26.
 10. Asner, G. P., Elmore, A. J., Olander, L. P. Martin, R. E. and Harris, A. T. 2004. Grazing systems, ecosystem responses, and global change. Ann. Rev. Environ. Resources, 261-299.
 11. Atlas of Canada (2006) Accessed from(available on-line at http://atlas.gc.ca/site/english/learningresources/theme_modules/borealforest/index.html)



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