VIVEKANANDA COLLEGE
THAKURPUKUR
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NAAC ACCREDITED 'A' GRADE

Topic: Preparation and Interpretation Land Use Land Cover Map

Course Title: Thematic Mapping and Surveying

Paper: 4

Unit: Number 5

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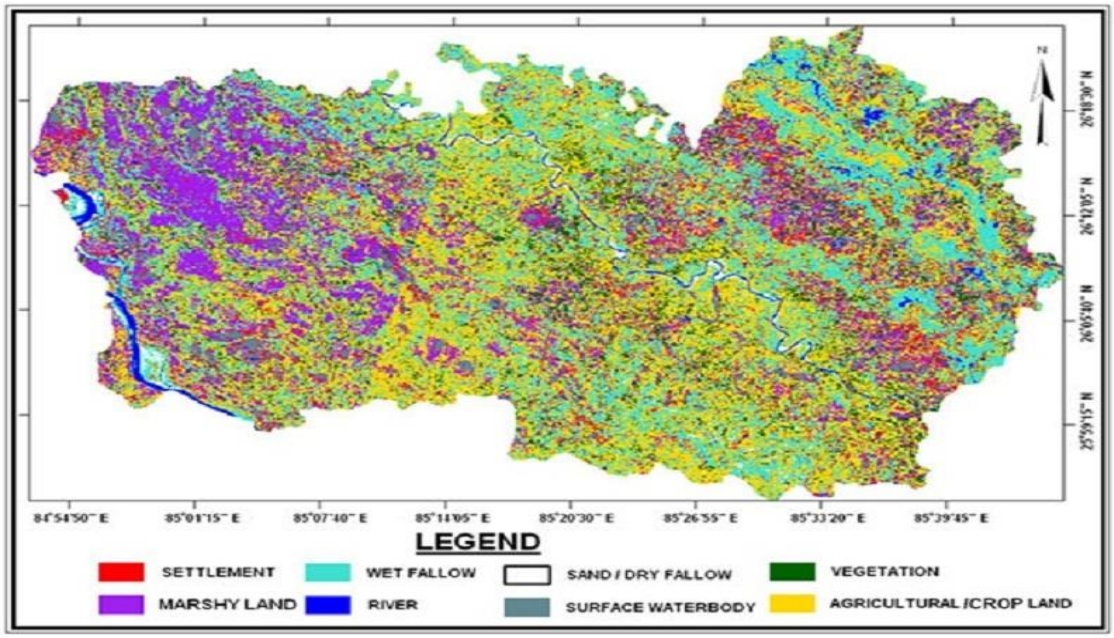
Name of the Department: Geography

Significance of Land Use / Land Cover (LULC) Maps

Introduction

The terms land use and land cover are often used interchangeably, but each term has its own unique meaning. Land cover refers to the surface cover on the ground like vegetation, urban infrastructure, water, bare soil etc. Identification of land cover establishes the baseline information for activities like thematic mapping and change detection analysis. Land use refers to the purpose the land serves, for example, recreation, wildlife habitat, or agriculture.

When used together with the phrase Land Use / Land Cover (LULC) generally refers to the categorization or classification of human activities and natural elements on the landscape within a specific time frame based on established scientific and statistical methods of analysis of appropriate source materials.



Digital mapping of soil organic and inorganic carbon status in India

Land cover is the physical material at the surface of the earth. Land use is the description of how people utilize the land for the socio-economic activities.

Why do we need LULC Maps?

The growth of a society totally depends on its social and economical development. This is the basic reason why socio-economic surveys are carried out. This type of survey includes both spatial and non-spatial datasets. LULC maps play a significant and prime role in **planning, management and monitoring programmes** at local, regional and national levels. This type of information, on one hand, provides a better understanding of **land utilization aspects** and on the other hand, it plays an important role in **the formation of policies and programme required for development planning**. For ensuring sustainable development, it is necessary to **monitor the on going process on land use/land cover** pattern over a period of time. **In order to achieve sustainable urban development** and to **check the haphazard development** of towns and cities, it is necessary that authorities associated with the urban development generate such planning models so that every bit of available land can be

used in most rational and optimal way. This requires the present and past land use/land cover information of the area. LULC maps also help us to **study the changes** that are happening in our ecosystem and environment. If we have an inch by inch information about Land Use/Land Cover of the study unit **we can make policies and launch programmes to save our environment.**

Following are some of the LULC types and their respective classes

Urban or Built-up Land	• Residential • Commercial and Services • Industrial • Communications and Utilities • Mixed Urban or Built-up Land • Other Urban or Built-up Land
Agricultural Land	• Cropland and Pasture • Orchards, Groves, Vineyards, Nurseries, and Ornamental Horticultural Areas • Confined Feeding Operations
Rangeland	• Herbaceous Rangeland • Shrub and Brush Rangeland • Mixed Rangeland
Forest Land	• Deciduous Forest Land • Evergreen Forest Land • Mixed Forest Land
Water	• Rivers • Streams and Canals • Lakes • Reservoirs • Bays and Estuaries
Wetland	• Forested Wetland • No forested Wetland
Barren Land	• Dry Salt Flats • Beaches • Sandy Areas Other than Beaches • Bare Exposed Rock • Strip Mines, Quarries, and Gravel Pits • Transitional Areas • Mixed Barren Land
Perennial Snow or Ice	• Perennial Snowfields • Glaciers

Agricultural Land

Wetland

Barren Land

Applications of LULC maps

- Natural resource management
- Wildlife habitat protection
- Baseline mapping for GIS input
- Urban expansion / encroachment
- Routing and logistics planning for seismic / exploration/resource extraction activities
- Damage delineation (tornadoes, flooding, volcanic, seismic, fire)
- Legal boundaries for tax and property evaluation
- Target detection - identification of landing strips, roads, clearings, bridges, land/water interface

Summary

Land Use / Land Cover (LULC) generally refers to the categorization or classification of human activities and natural elements on the landscape within a specific time frame based on established scientific and statistical methods of analysis of appropriate source materials. It has various methods of classifications. Various type of LULC elements is there like Urban or Built-up Land, Agricultural Land, Forest Land and many more. LULC maps has there wide applications like Natural resource management, Baseline mapping for GIS input, Legal boundaries for tax and property evaluation and many more. LULC mapping is not possible without the help of other geospatial datasets.