

WHAT IS LULC (LAND USE AND LAND COVER)?

- Land Use/Land Cover data refers to data that is a result of classifying raw satellite data into "land use and land cover" (LULC) categories based on the return value of the satellite image.
- There are not very many LULC datasets because
 - a) Satellite data acquisition is usually very expensive
 - b) The classification process is very labour intensive.
- Most LULC data products are released several years after the satellite images were taken, and thus out of date to a certain extent when they are released.
- Nonetheless, LULC provides a very valuable method for determining the extents of various land uses and cover types, such as Shifting Cultivation, Gullied and ravenous land, scrubland, Grazing land etc.

HOW DID WE START THEN?

The first and foremost thing was to know about the Visakhapatnam district for which we took help from online resources to observe the changes in the LULC of the various districts present in Visakhapatnam from various satellite images so as to cover and distinguish the main portions in the QGIS software.

Our team's main goal was to let the user know the most probable regions of the various types of land present throughout the Visakhapatnam district. By most probable regions we mean that a person could easily identify the land types present depending on various factors such as the port regions, waterlogged regions, climatic regions and the terrain regions.

After making an overall layout of the land types taking help from Bhuvan and ISRO's satellite data's, we proceeded as explained below-

1. To find the Visakhapatnam's shape file to make the land type's on
2. Using temporary sketch layer tool → Polygon tool → We started making different polygons and coloured them to separate different land type's
3. To make our map more attractive we filled the colour's with gradients which is based on the land type. Taking an example, we covered Gullied and Ravinous Land (Gully is a narrow channel when surface water flow increases in response to clearing and excessive use of land) where we coloured it with a gradient of brown and blue depicting land and water.
4. We tried covering the 43 mandals of Visakhapatnam city and concluded our map with the legend and the cardinal direction.
5. The main problem that we were facing was the data were obsolete according to which we tried making the polygons in the best possible manner to meet our layout.

Mapping land use/ land cover and change detection using remote sensing and GIS techniques is a method for classifying Maximum Classification method whose results show that Scrubland constituted the most extensive type of land use/ land cover in the study area. The increasing population and economic activities were noted to be putting pressure on the available land resources.

Planning the land use and deriving additional thematic layers to support land management applications such as:

1. Impervious quantifications for stormwater runoff prediction and drainage requirements
2. Irrigated and non-irrigated water use calculations for arid areas
3. Environmental assessment of undeveloped and vacant land identification
4. Planning green space and trails for recreational purposes
5. Urban planning assessment