**GREEN COVER MAPPING - CHANGE DETECTION**

**ABSTRACT:**

Green cover spaces are an integral part of landscape and offer numerous benefits related to quality of urban and rural life. However, due to various factors, the distribution of green spaces among neighbourhoods is often skewed. This study adopts a geospatial green cover distribution assessment approach that encompasses quantity of green cover. The data for this study were collected from the ISRO-BHUVAN geoportal which facilitates the green cover assessments in desired time scales. In this study, the approach is demonstrated in Tiruppur district in Tamil Nadu. The green change detections were made for the years 2013, 2015, 2018.

**STUDY AREA:**

Tiruppur district

AREA - 5087.26 Sq.km

LAT - 10° 12' 47" N to 11° 22' 26" N

LONG -77° 04' 30" E to 77° 56' 00" E

**DATA DESCRIPTION:**

In this study the following data were used,

1.Shape file of Tirupur District (provided by mapathon)

2.LISS -III data for tiruppur district from BHUVAN geo portal

|  |  |
| --- | --- |
| Year | Month |
| 2013 | February and March |
| 2015 | February and March |
| 2018 | February and March |

**METHODOLOGY:**

1. **Pre-processing of Remote Sensing Data:**

LISS – III data with resolution 24m is downloaded from Bhuvan geoportal for the Tiruppur district for 2013,2015,2018 years. 18 tiles of data were required to cover the area of interest. The 18 tiles of data are opened on top of the shape file of Tiruppur district in QGIS. Then the tiles were merged and clipped to the extent of the vector layer of Tirupur district using QGIS. The above process is done with Band-3(red) and Band-4(NIR) which is very useful in greenery detection.

**2.DETECTION OF GREEN COVER:**

This study adopted the commonly followed definition that considers all areas which are naturally found within the boundary as green cover spaces. The green space cover for 2013,2015,2018 are calculated by calculating the Normalised Difference Vegetation Index (NDVI) value. The index is given as (NIR-R)/ (NIR + R) and varies from -1 to +1.

The NDVI values are reclassified by using reclassify by table in QGIS.

|  |  |
| --- | --- |
| NDVI<0.2 | Very Poor |
| 0.2 to o.4 | Poor |
| 0.4 to 0.6 | Medium |
| 0.6 to 0.8 | High |
| 0.8 to 1.0 | Very High |

And the area for the particular ranges of NDVI are calculated by Raster layer unique values report. And at last the layout is prepared for three years (2013,2015,2018).

**Inference:**

The amount of green spaces can be assessed for other years between 2013 and 2018. If the value is below 0.2 it shows the lack of vegetation and if NDVI value is above 0.2 then it shows good quality vegetation is present. So urbanisation, deforestation or afforestation can be done with this greenery mapping.

**Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | NDVI Range | NDVI class | Area (sq.km) | NDVI Mean |
| 2013 | <0.2 | Very Poor | 1646.694 | 0.281 |
| 0.2-0.4 | Poor | 2307.085 |
| 0.4-0.6 | Medium | 836.726 |
| 0.6-0.8 | High | 107.620 |
| 0.8-1.0 | Very High | 0 |
| 2015 | <0.2 | Very Poor | 1176.08 | 0.287 |
| 0.2-0.4 | Poor | 2849.559 |
| 0.4-0.6 | Medium | 819.892 |
| 0.6-0.8 | High | 51.504 |
| 0.8-1.0 | Very High | 0 |
| 2018 | <0.2 | Very Poor | 1385.098 | 0.304 |
| 0.2-0.4 | Poor | 2313.484 |
| 0.4-0.6 | Medium | 898.185 |
| 0.6-0.8 | High | 299.621 |
| 0.8-1.0 | Very High | 0.8 |

