Pune District Land Cover Map (2018)

Data Used: Resourcesat-1/Resourcesat-2 : LISS III raster tiles (2018 datasets) from Bhuvan

Methodology:

1. 35 tiles covering the Pune District was downloaded. The band layers for each tile were merged using merge tool in QGIS. All the tiles were merged and then clipped with Pune district Shapefile to get a raster image of Pune District
2. Over 350 polygons were generated to be used a straining polygons for the classification.
3. LULC Classification was carried out using Tools like Compute Image Statistics Tool , Train Images Classifier Tool and Image Classifier Tool in the Orfeo-Toolbox in QGIS
4. Orefeo Toolbox is a plugin available in QGIS. The tools used the Support Vector Machine which is a Machine Learning Algorithm for classifying the raster image to 4 land cover typologies i.e: Urban land, water, vegetation(Forest& agriculture) and barren/vacant land.
5. This classification is a method of Pixel-based Classification
6. Here, each individual pixel is assigned a class and its spectral signature is assigned to the class.
7. Then the remaining pixels are assigned a class based on which their spectral signature fits in.
8. This method was carried out multiple times by adding more polygons each time to improve accuracy

Application of Map:
   ❖ **Landcover Maps enable Planners in identifying:**
•Available water sources
•Growing hotspots and their typology
•Direction of growth
•Current state of green cover (agriculture & forest)
•Available barren land for further development
•Spatial positions of hotspots with respect to main Metropolis.

   ❖ The use of training polygons and the support vector machine algorithm helps in classifying any given raster image.
   ❖ Once the qgis system is trained with pre-defined polygons and their spectral signature, and piece of land can be classified immediately
   ❖ This helps in generating accurate land cover maps and identify hotspots which could have otherwise been overlooked

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