**Land Use/Cover Detection & Change Analysis Map and NDVI Map 2008-2018 of Dhubri District, Assam**

**[Details, Methodology and Application]**

**Introduction**

Dhubri district located in West part of Assam. The latitudinal and longitudinal extension is 89°52’48” E-90°18’E & 25°37’12” N -26°27’36” N.

**Methodology**

Multi dated images From ***Resourcesat-1/Resourcesat-2; Sensor LISS III, Spheroid / Datum: GCS, WGS-1984 , Number of Bands: 4 , Date of pass : oct 2008 and jan-feb 2018 [website : bhuvan.nrsc.gov.in]*** were used for Land Use And Land Cover Classification.

13 individual data sets [2008 & 2018 individually] were imported in GIS Software ***QGIS 3.10 [A Coruna] version***. These 13 sets of satellite images {2018-2018 individually] were MERGED together by depending on the band set [2,3,4,5] and each Merged Band set CLIP by a Masking vector boundary(.shp) of Dhubri district, which is GEO REFERENCED and DIGITISED with the help of the given data in MAPATHON website.

After getting the clipped district image, each band set (Band 2,3,4,5) were loaded into ***SEMI AUTOMATIC CLASSIFICATION*** [plugin] and by running the file got *a VIRTUAL BAND SET* of *False Colour Composition (FCC) image (band composition: 3-2-1)* developed.

In the SCP DOC make a training input and with help of ROI polygon select each class from FCC image depending on their Signature Value and classified in CID classes.

6 land use / landcover classes are identified in the study area *1. Vegetation 2. River Bed And Lakes 3. Sand Bar 4. Agricultural Land 5. Barren Land 6. Buildups* and in post processing generate a *classification output file*(.csv), where each class Area computed in Meter². Same process was repeated for another year Band set.

After generate 2008 and 2018 supervised classification lastly create a project layout where the map, Legend, scale, title, data source, north line etc., added and exported this layout into JPG format.

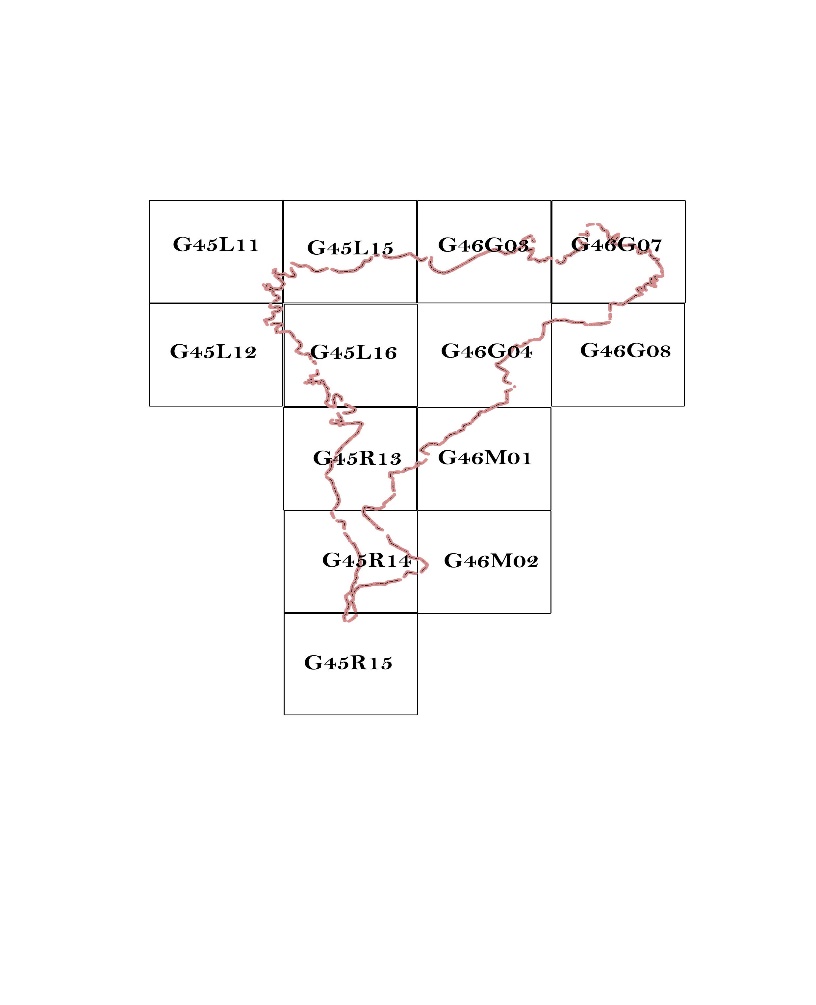
***NDVI map [normalized difference vegetation index]*** also create by this band sets combination for better clarification in the classified areas. For a single year with the help of ***RASTER CALCULATOR*** *band no 4 and band no 3* are put into the NDVI formula [(NIR - R) / (NIR + R)]and in output get a NDVI Map of 2008 and 2018. The high value of NDVI indicate dense vegetation areas and less value of NDVI indicates more presence of water bodies.

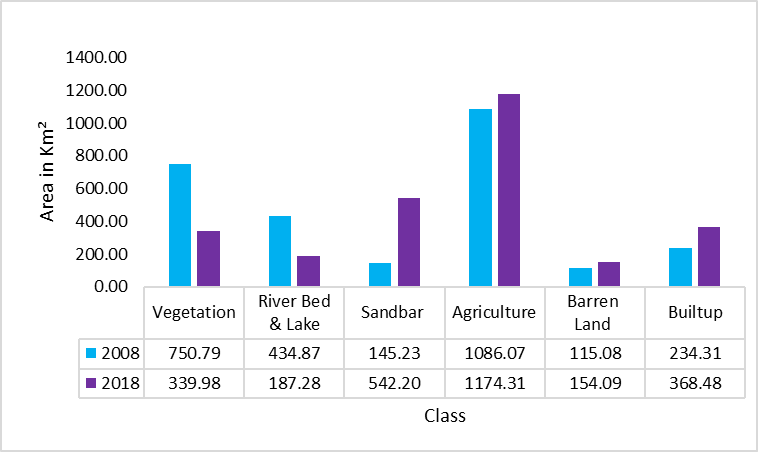
**Application**

For application of these maps are quite flexible in different perspective or different problem. From this particular map of Dhubri District it's pretty clear that the changes between 10 years- 2008 to 2018 is very significant. The data says that the Brahmaputra River sand bar is massively increased which impacted over the river ecology not only that its create a barrier in to river flow which caused flood occurrence. We already know that assam is very much flood-prone state

The vegetation in this district is decreased. Northeast India is a global biodiversity hotspot, the deforestation harming the biodiversity .so for better sustainable plan for afforestation we need each year /month monitoring and planning for these areas not only that we must need to control them by controlling anthropogenic unplanned activities in this region. For analyses these activities land cover and land use map of multi-temporal imageries are very much useful.

**13 set of LISS III Imageries details**





**LU/LC change variation 2008 & 2018**

**Team name: Nakschitra**

**Team Id: mapathon2603**

**Name: Sibalika Kundu**

**Email Id:** [**sibalika.kundu@gmail.com**](mailto:sibalika.kundu@gmail.com)