

Chapter -3

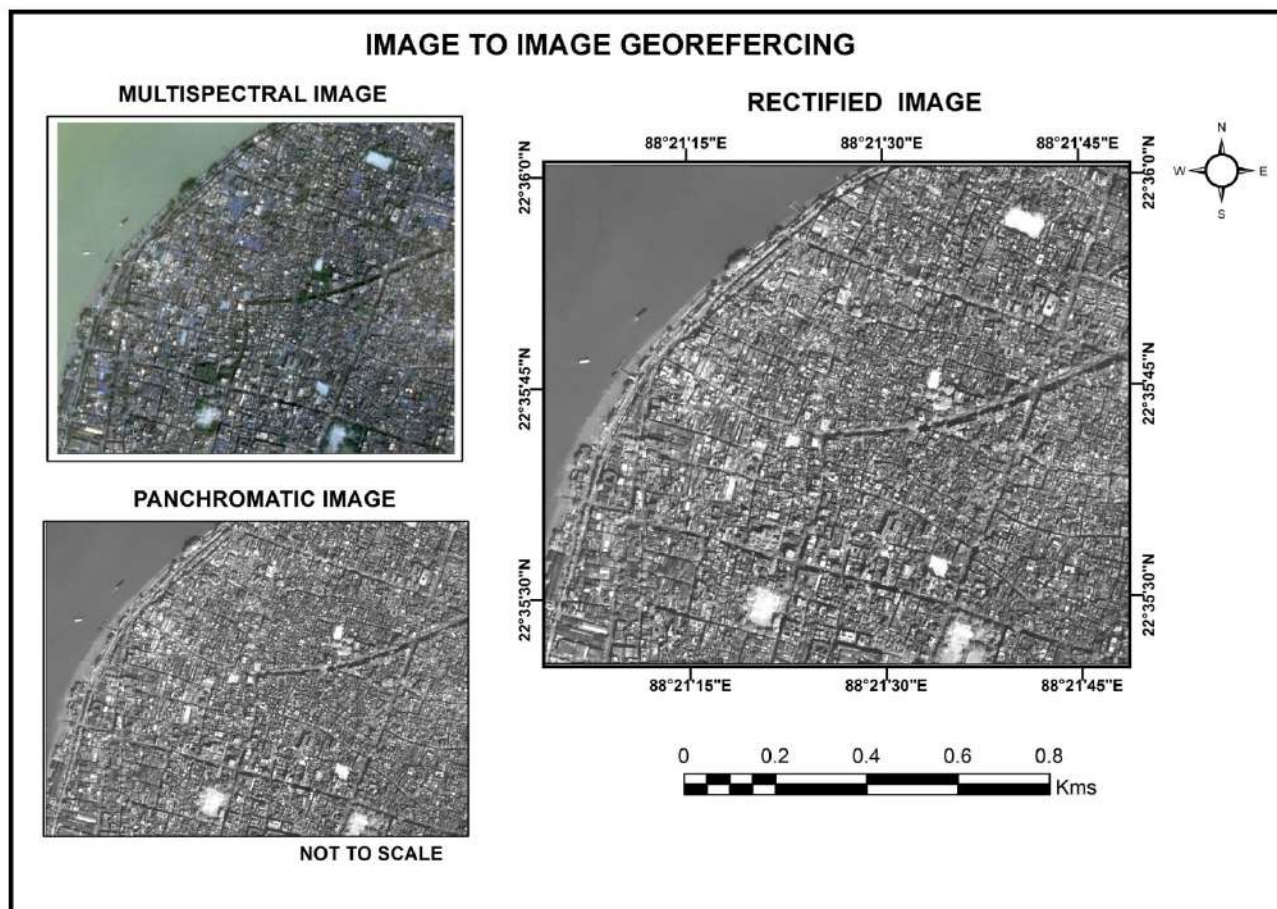
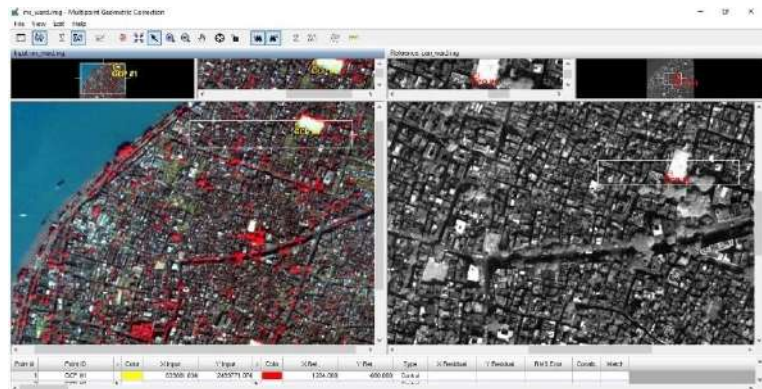
INTERPRETATION AND ANALYSIS

3.1 Image Rectification

Rectification is a process of projecting the data onto a plane and making it conform to a map projection system. Assigning map coordinates to a image data is called georeferencing. Since all map projection systems are associate with map coordinate, rectification involves georeferencing.

It has been two process-

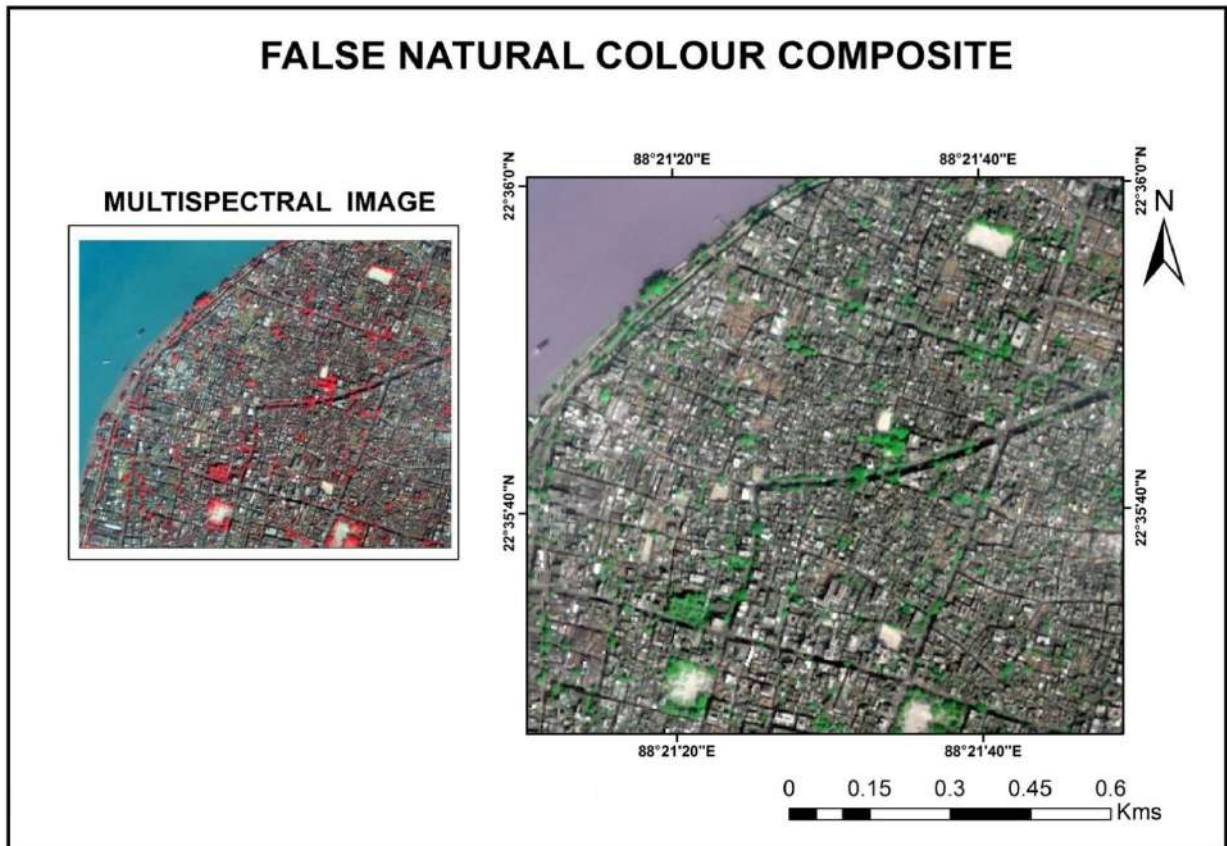
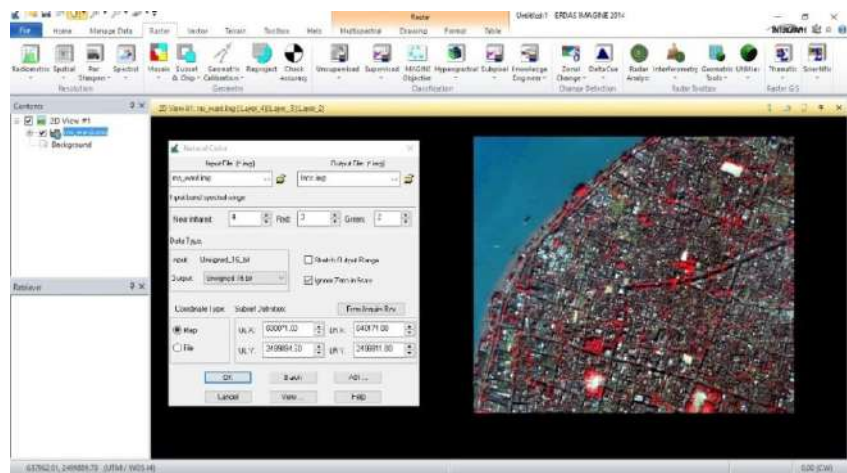
- Image To Image Georectification
- Image To Ground Georeferencing



3.2 Image Enhancement

Image enhancement can be defined as the conversion of the image quality to be better and more understandable level for feature extraction or image interpretation. False natural colour composite is one a spectral enhancement process.

3.2.1 False Natural Colour Composite- colour combination generate in such manner often called False natural colour composite. The concept of generating False natural colour composites from Green Red and NIR can also be applied in the cases where we already have the original blue band .the artificially generated natural colour composite is visually more realistic than the composite generated by using the original blue band.

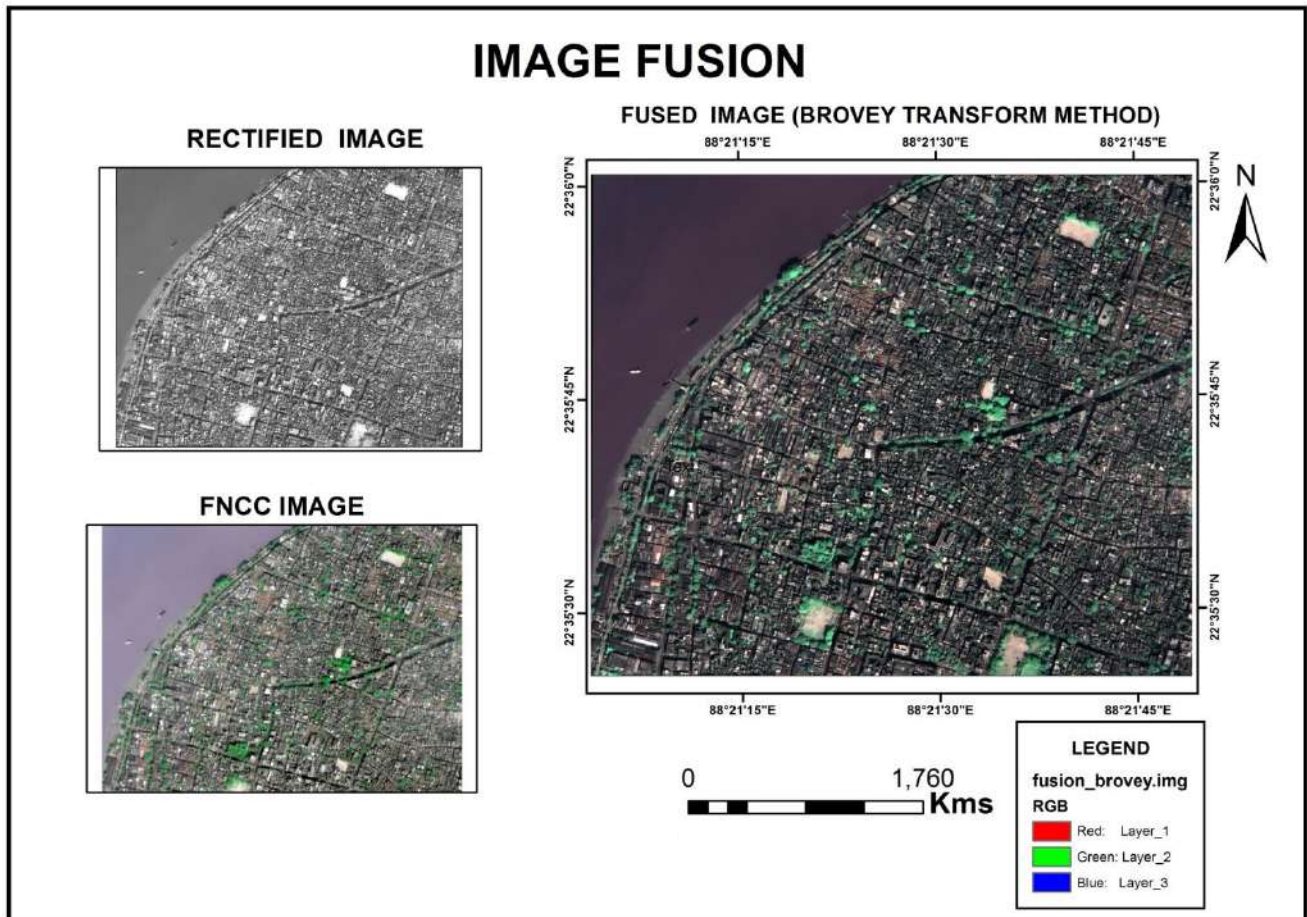
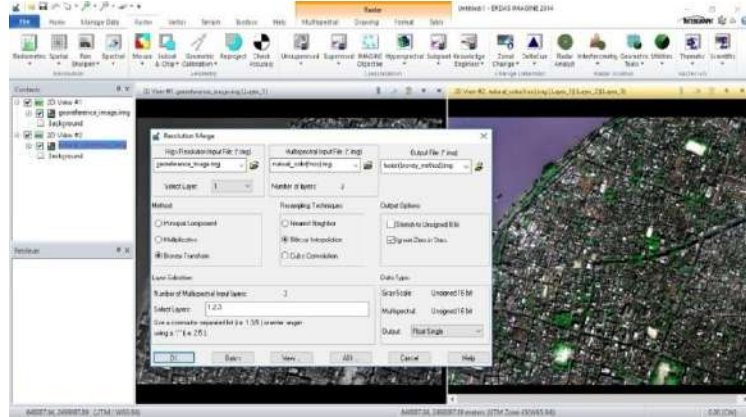


3.3 Image Transformation

3.3.1 Image Fusion or Resolution Marge- Resolution Marge is a process of combining two image to yield an output image that provides the best characteristics of both sensors.it aims to obtaining information of better quality.

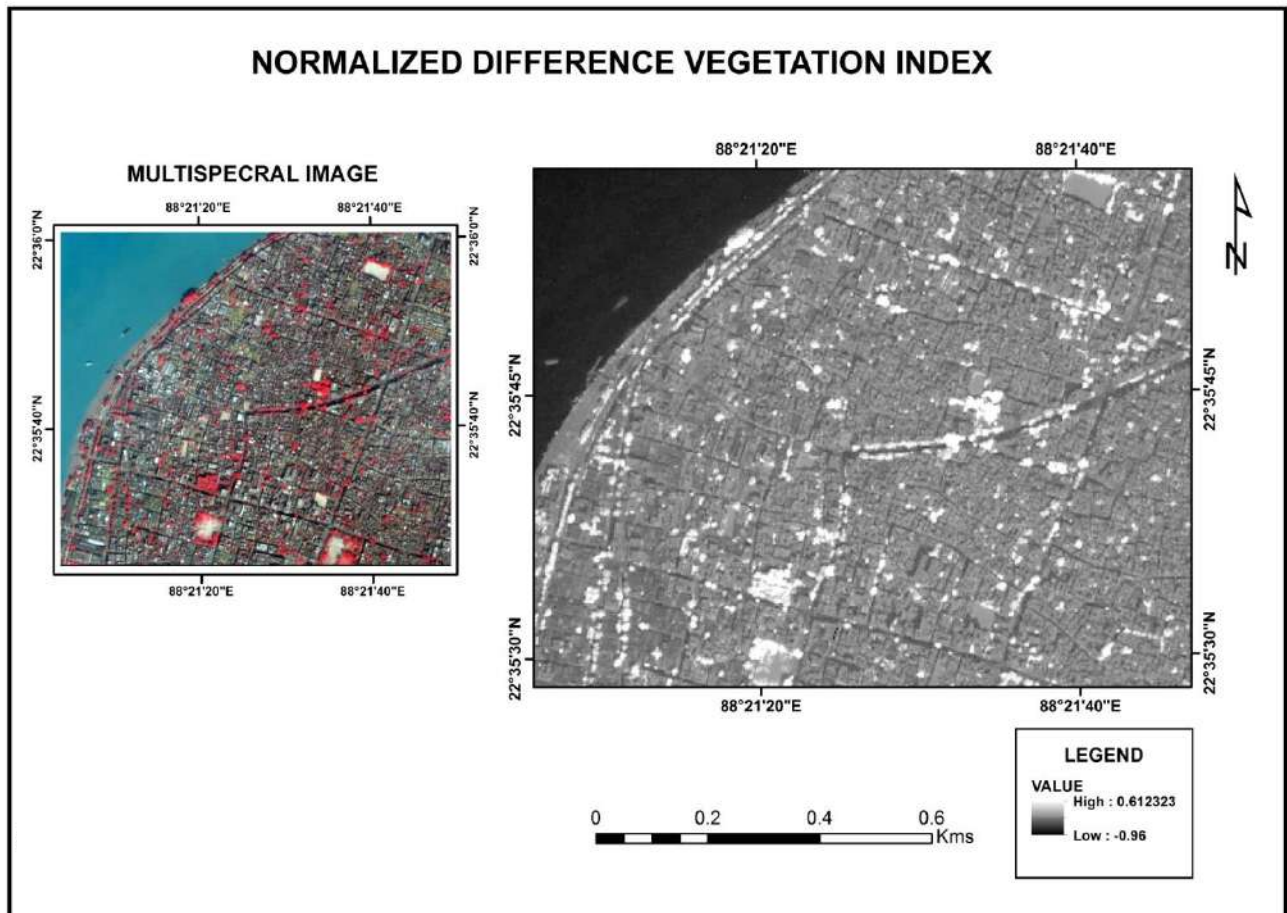
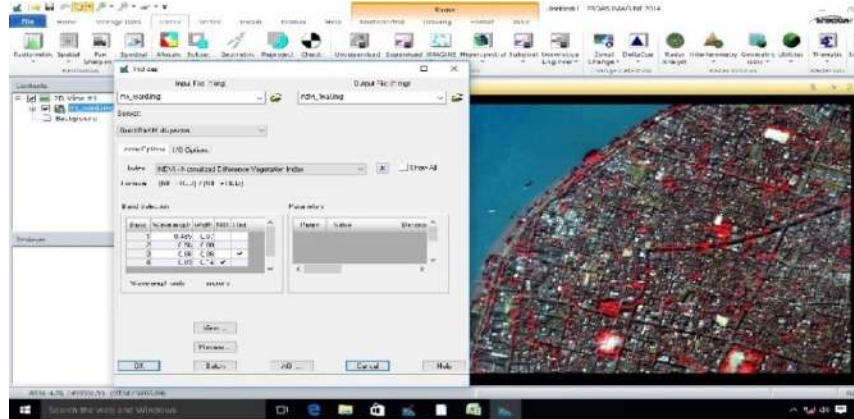
Basically five method used to image fusion:

- i. PCA Transform Fusion
- ii. Multiplicative Fusion
- iii. Brovey Transform Fusion
- iv. Ihs Transform Fusion
- v. Wavelate Transform Fusion



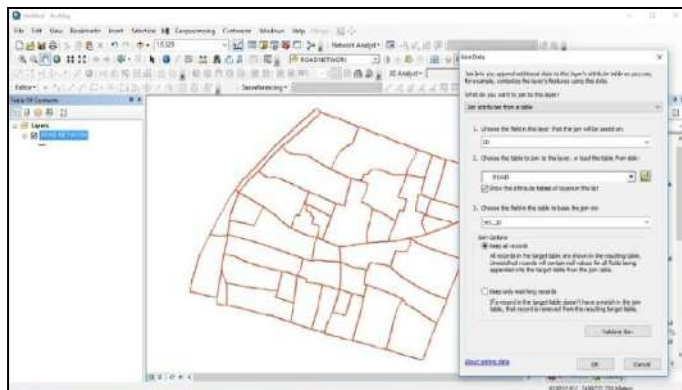
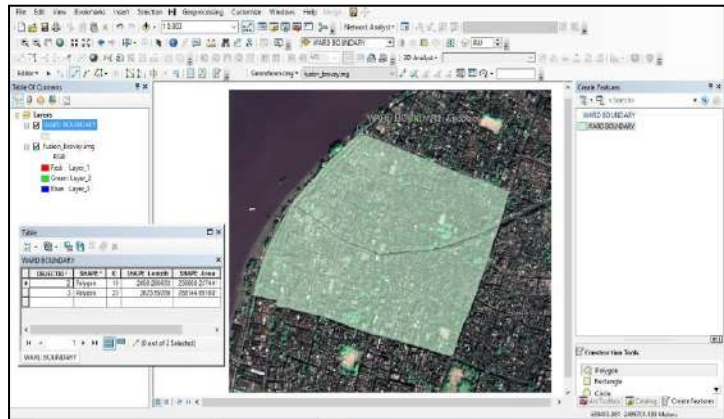
3.3.2 Normalised Difference Vegetation Index (NDVI)-

NDVI is an image transformation technique used to monitor the vegetation conditions. NDVI is a combination of addition, subtraction and division :

$$NDVI = \frac{(NIR - R)}{(NIR + R)}$$


3.4 R to V conversion (Shapefile)

Shapefiles are simple non-topographical vector format for storing the geometric location and attribute information of geographic feature. A shapefile is one of the spatial data formats that we can work with and edit in ArcGIS. Geographic features in a shapefile can be represent point, line and polygon. Shapefile is process of Raster to Vector (R toV) conversion.



Tabular information is the basis of geographic features, allowing to visualize, query, and analyze the data. Data can also be join in any shapefiles, to help us represent the any thematic, chart, graph ets on the map.

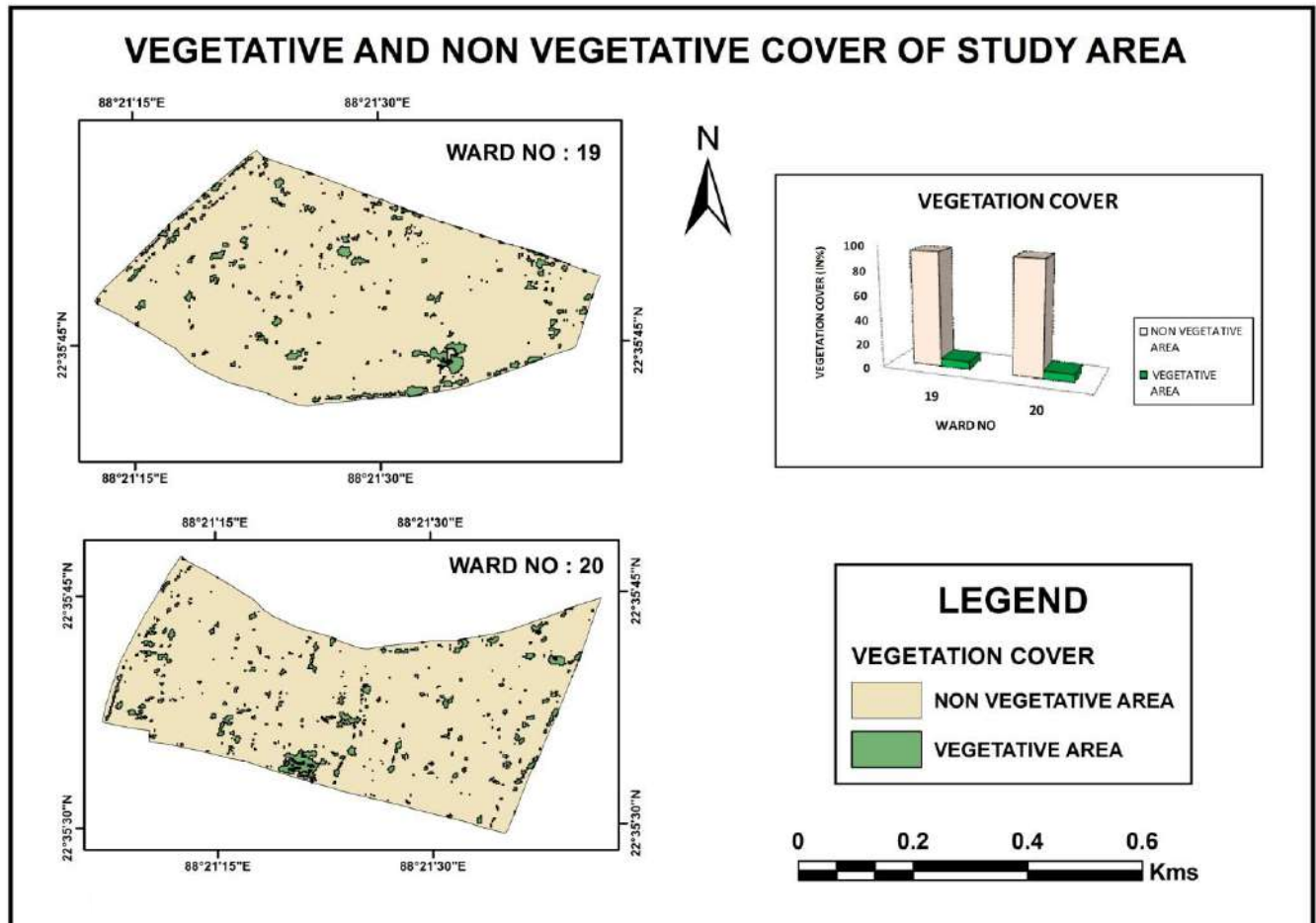
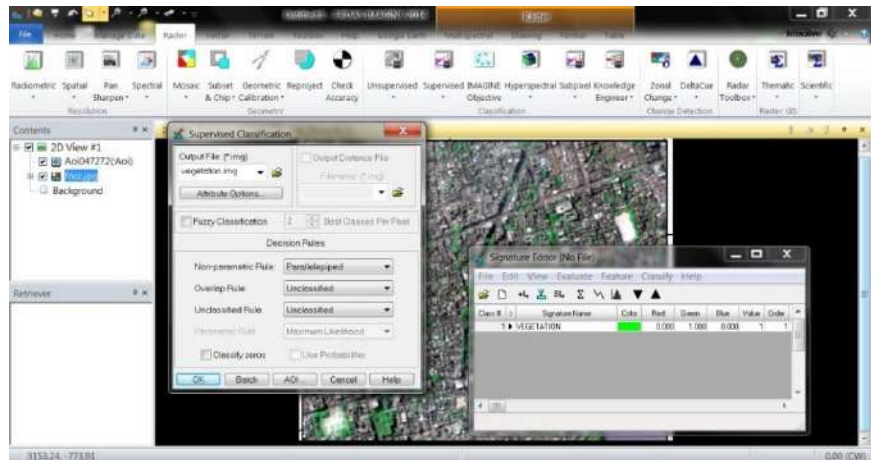
Analysis of Vegetation – In this project we had to find out vegetation cover of the study area, i.e ward no. 10 and 20 of KMC. Since it is difficult to identify vegetation with visual image processing, so we have choose to perform NDVI, and the use to Supervised Classification process of better understand to vegetation pattern.

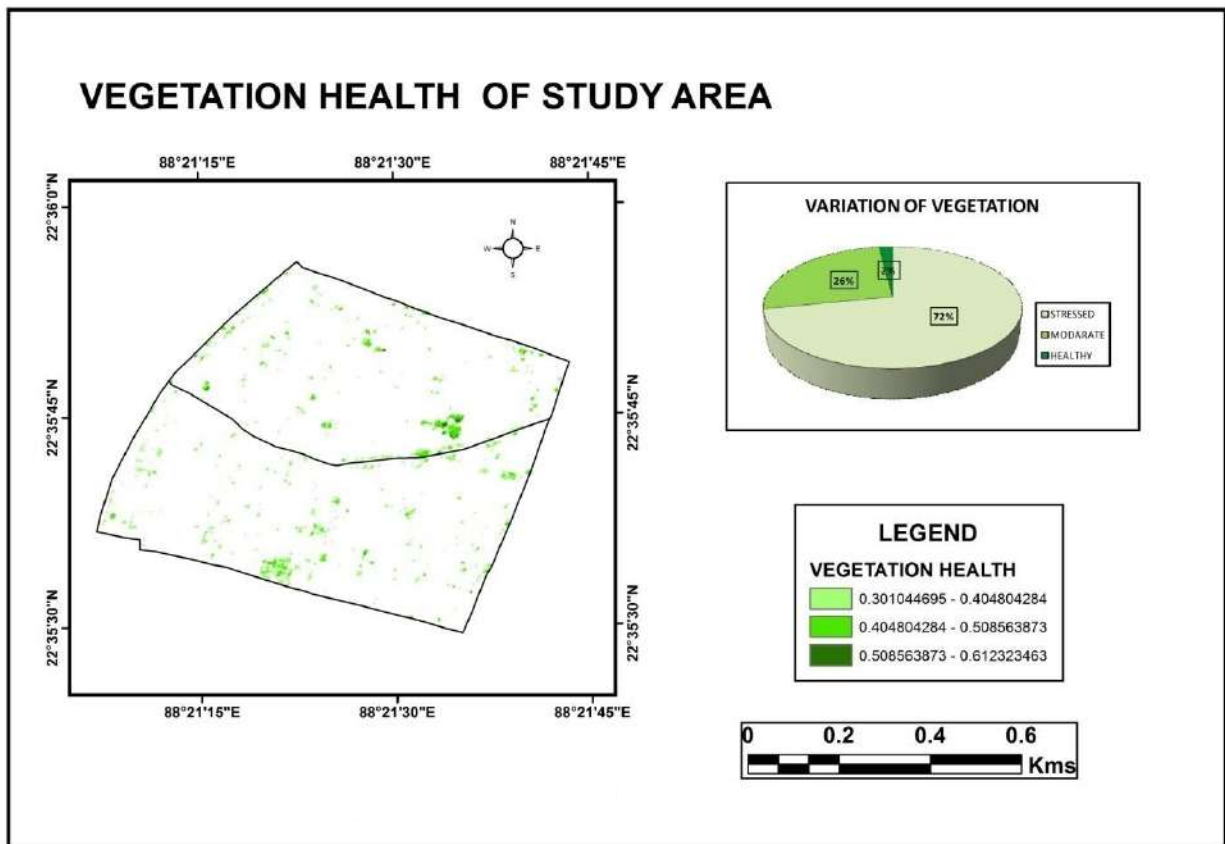
3.5 Image Classification

Classification is a process of sorting pixels into a finite number of individual classes, or categories of data based on their data file values. If a pixel satisfies a certain set of criteria, then the pixel is assigned to the class that corresponds to those criteria.

There are two types of ways to classify pixels into different categories:

- Supervised
- Unsupervised





Analysis of Vegetation cover and health

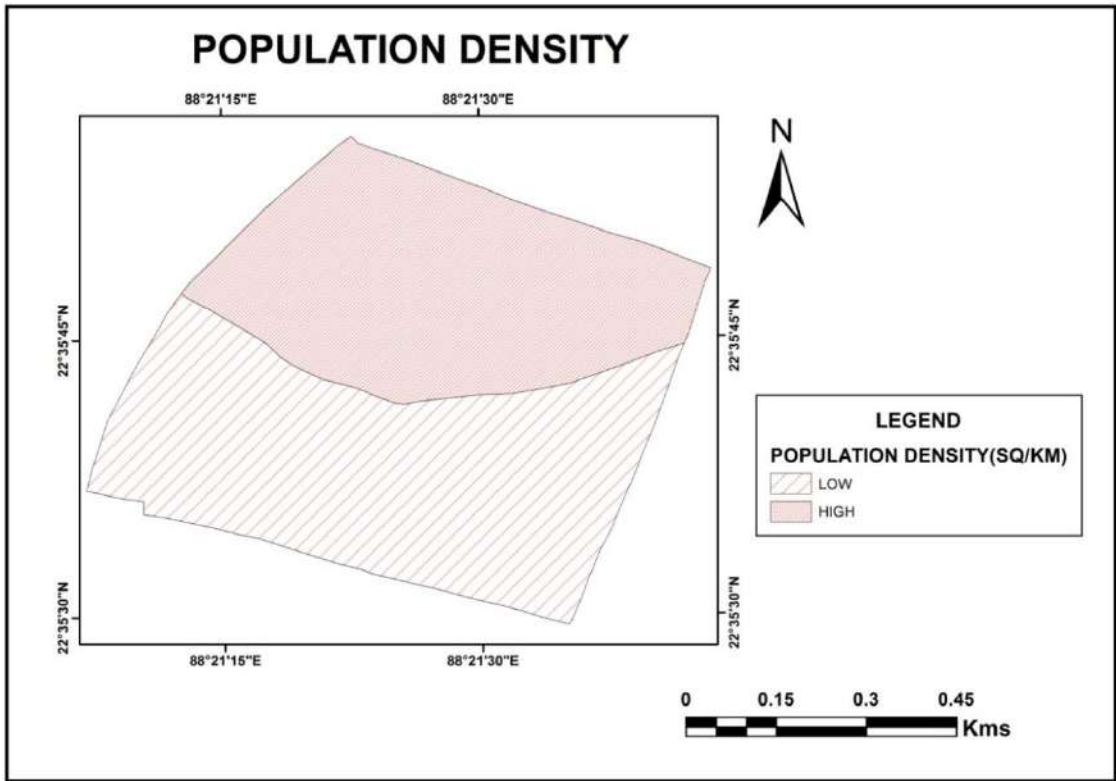
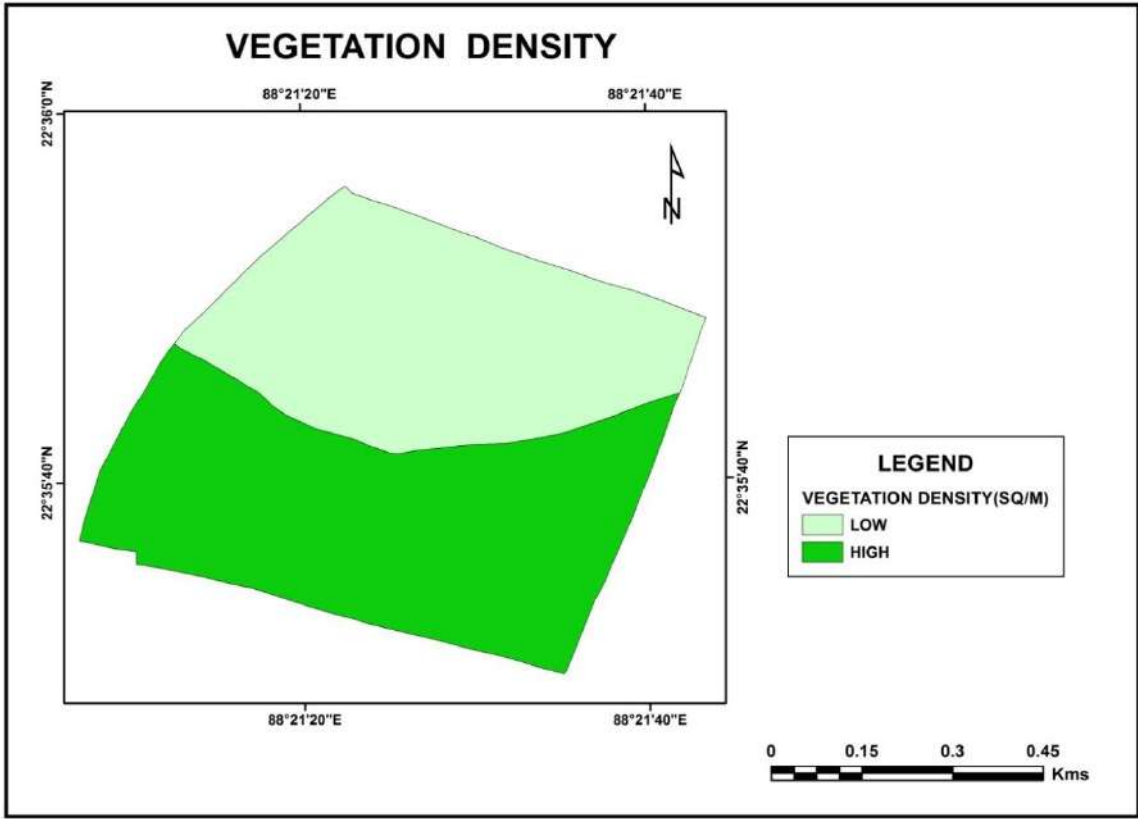
WARD NO	VEGETATION COVER		TOTAL
	NON VEGETATIVE AREA(SQ/M.)	VEGETATIVE AREA(SQ/M.)	
19	221321.43	14738.8	236060.23
20	269427.64	18717.05	288144.69

The vegetation cover in ward no.19 is 14738.80 sq.m and ward no.20 18717.05 sq.m. This map represent the amount of vegetation cover is more than word 20 to ward 19.

From this map clear found that vegetation health of the study area is destriod. Health vegetation found ward no. 19 , moderate and steesed vegetation pattern highly found ward no. 20.

Healthy vegetation cover are 408 sq.m, moderate vegetation 5363.12 sq.m and stressed vegetation are 0.0147 sq.km.

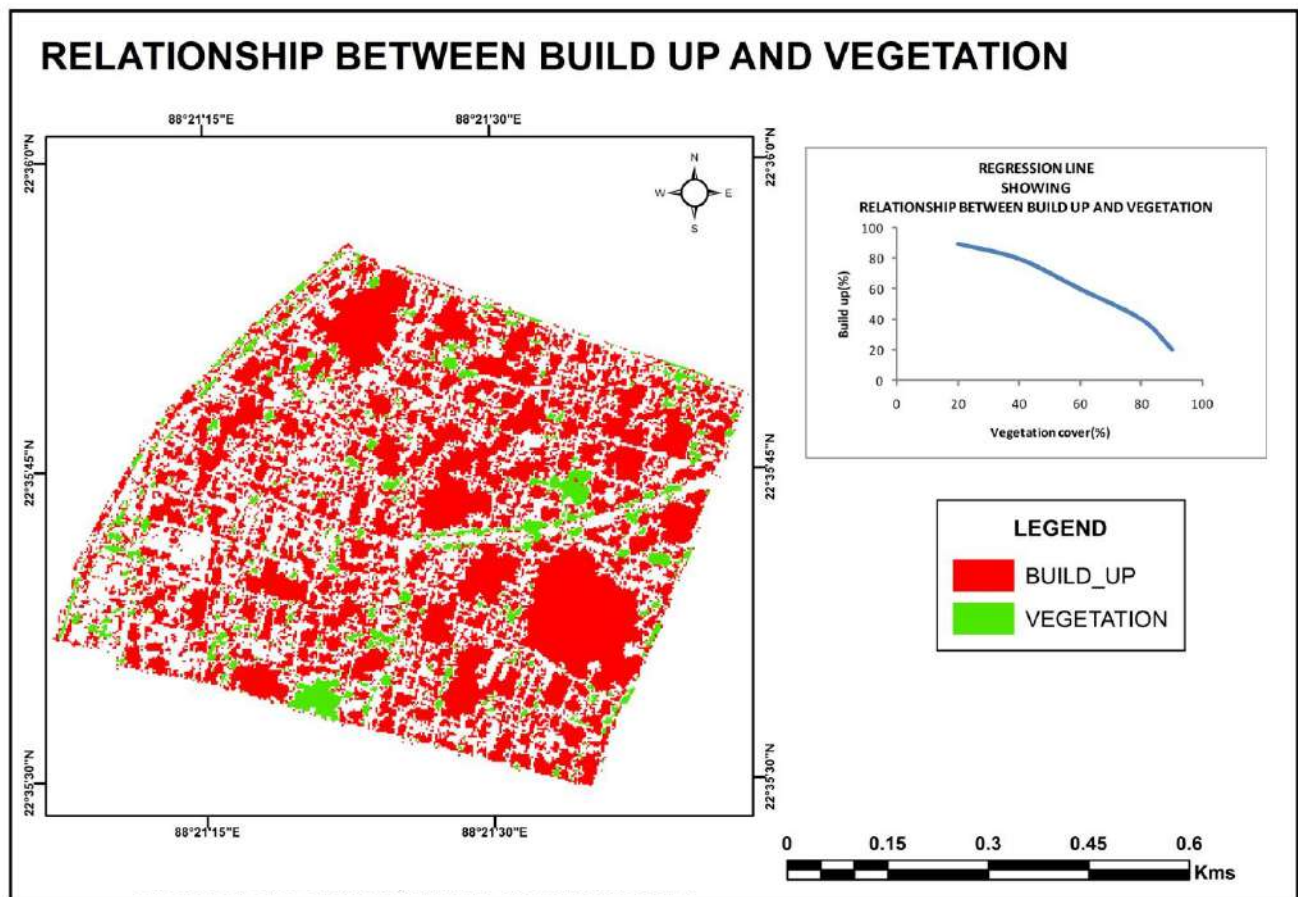
SL NO	VEGETATION VARIATION	AREA_SQ/M
1	STRESSED	14700
2	MODARATE	5363.12
3	HEALTHY	408
TOTAL		20471.12



Density Analysis

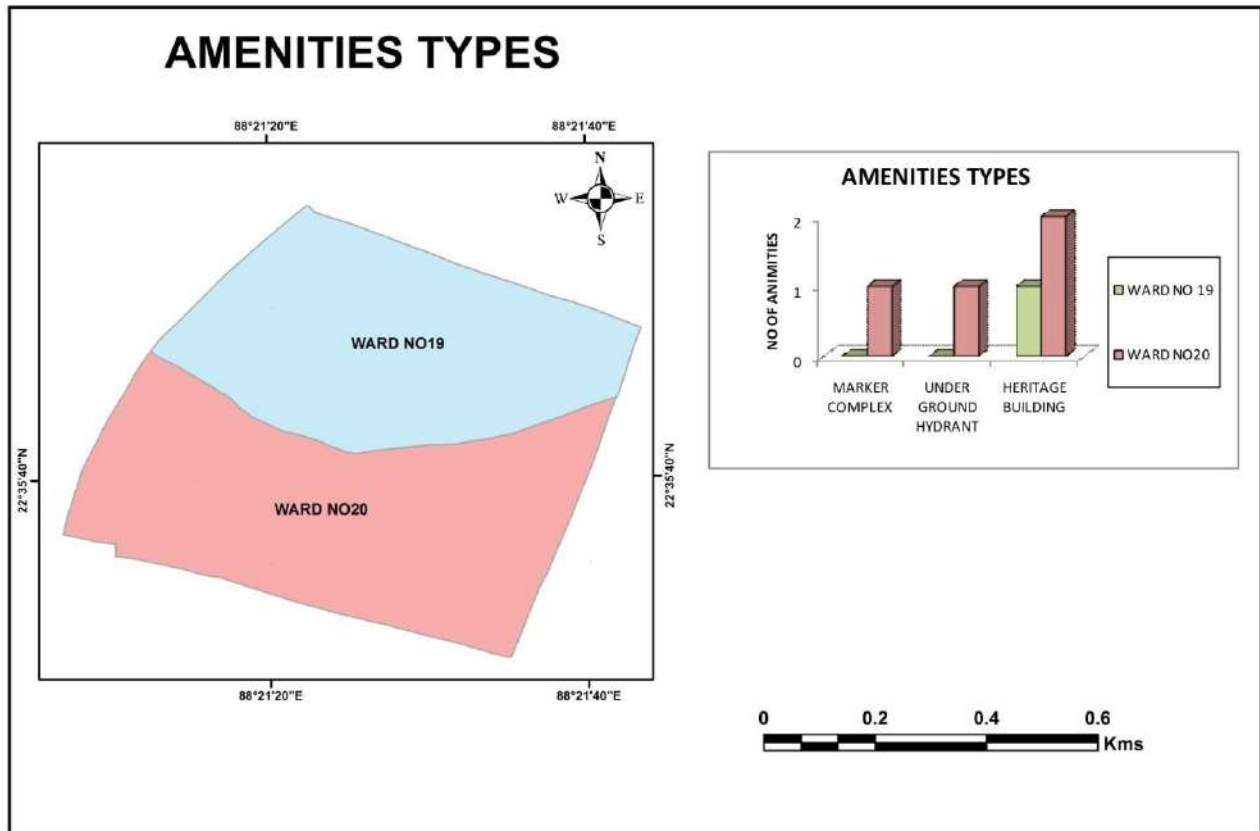
This map represent to vegetation density. Vegetation density is very high in ward no. 20 and lowest vegetation density in ward no. 20

From this map is very clear that population density not equal of the study area. High Population density in ward no. 19(103647 sq.km) and lowest population density in ward no.20(67625.7 sq.km).



Generally vegetation and build up inversely related in this area of rapid urbanization. Here in our study tried to analysis the relationship between build up and vegetation. This map is clear found that where vegetation density is high there population density low, and where vegetation density low there population density high.

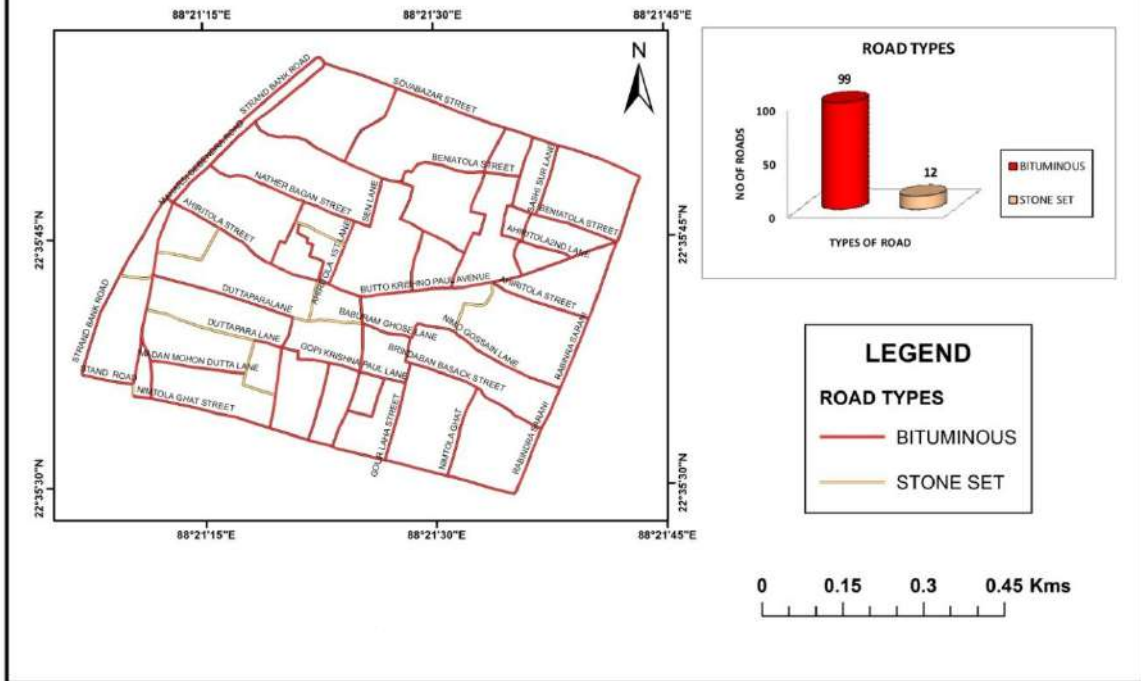
So this map represent to the negetive relation in this two elements.



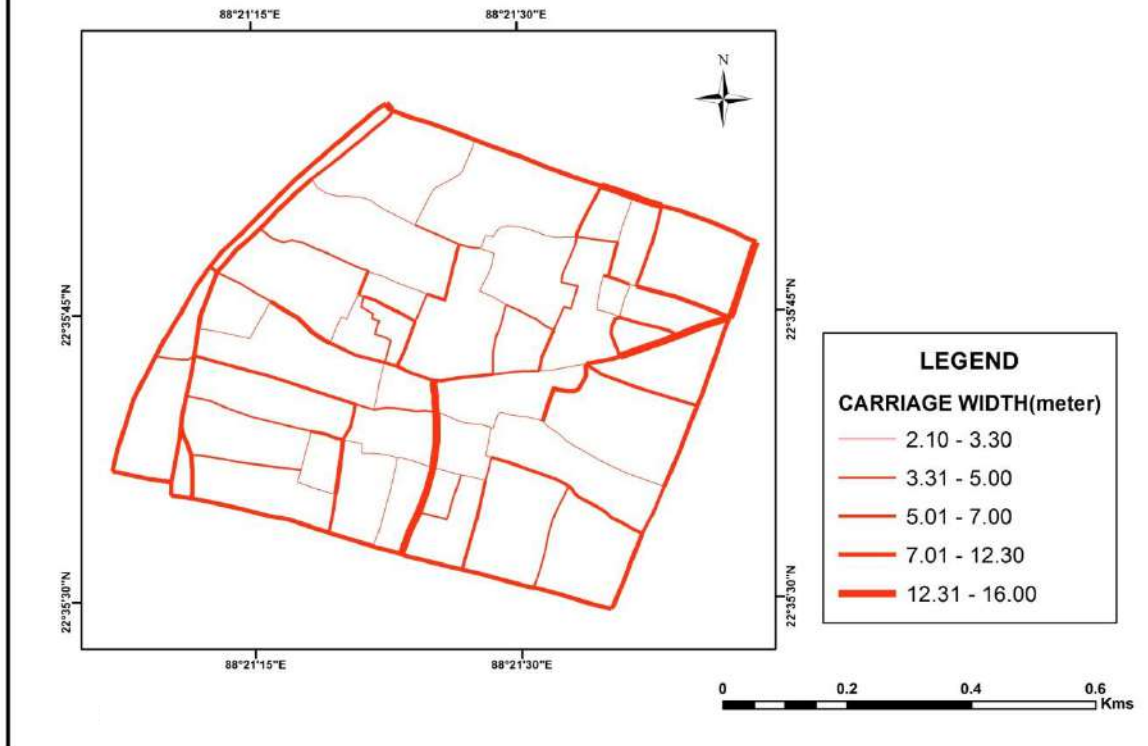
WARD NO	AMINITIES		
	MARKET COMPLEX	UNDER GROUND HYDRANT	HERITAGE BUILDING
19	0	0	1
20	1	1	2

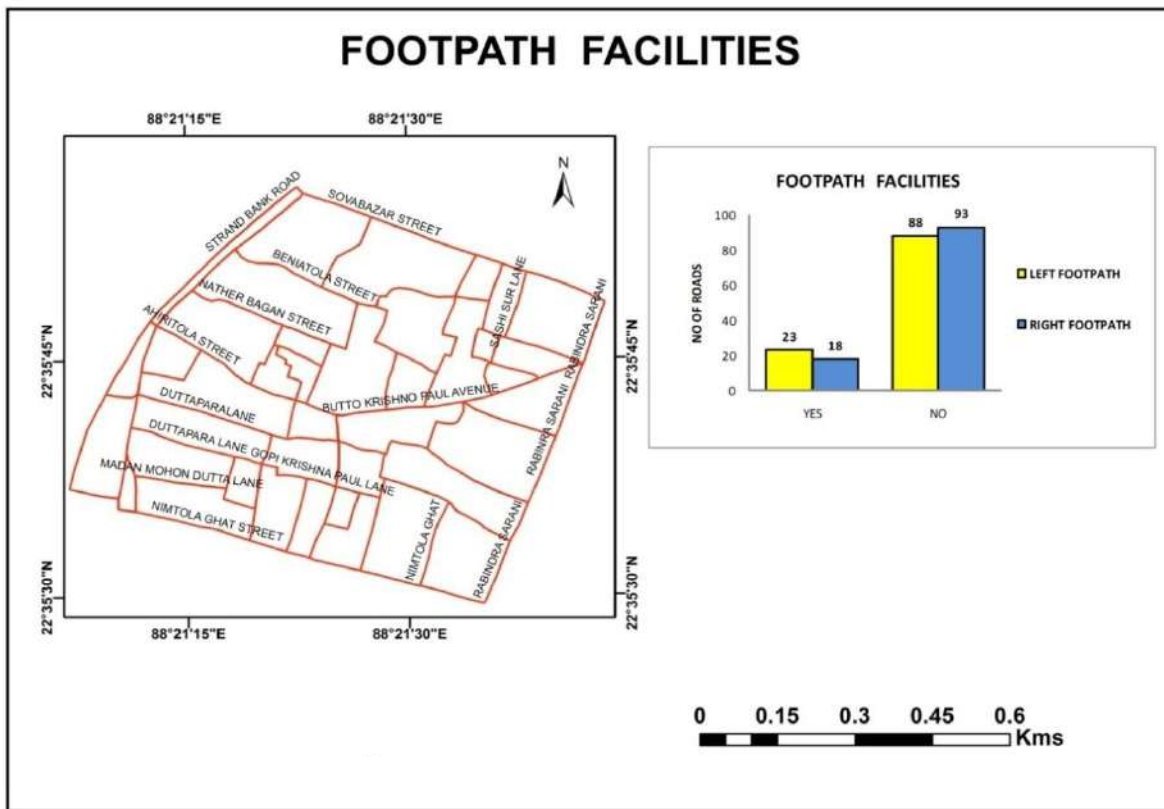
Types of Amenities – In this study area three types of Amenities are there, i. Market Complex ii. Under Ground Hydrant And iii. Heritage Building. Ward 19 have no any Market Complex and Under Ground Hydrant, just only one Heritage Building is there. But Ward 20 have one Market Complex, one Under Ground Hydrant and two Heritage Building is there.

TYPES OF ROAD



ROAD MAP BASED ON CARRIAGE WIDTH





Analysis of Road Network

- **Road types** – Two types of road have is this study area, i. Bituminous and ii. Stone Set. The Bituminous Road(99) id more than Stone Set(12) Road. Only 12 stone set roads in this area.

ROAD TYPE	NO. OF ROAD
BITUMINOUS	99
STONE SET	12
TOTAL	111

- **Road categories on Carriage Width** – The study area is having 111 roads varing carriage width. Here the roads have been classified based on carriage width into 5 different classes, the roads carriage width 2.1 to 16 meter. The maximum carriage width refer to second calss and minumam is an fifth class.

- **Foothpath Facilities** - Foothpath Facilities represent whare foothpath are or not. Right side foothpath facilities are available 18 and not available 93, also Left side Foothpath facilities are available 23 and not available 88.

FACILITIES	YES	NO
LEFT FOOTPATH	23	88
RIGHT FOOTPATH	18	93
TOTAL	41	181