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A Comparative Study of Classification Algorithm with the help of ERDAS IMAGINE

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1. Introduction

ERDAS IMAGINE is a Remote Sensing application with raster graphics editor abilities aimed mainly at Geospatial Raster data processing or we may define it as a software package which allows users to process geospatial and other imagery as well as vector data. Thus it is a toolbox allowing the user to perform numerous operations on an image and generate an answer to specific geographical questions.

2. Objectives

The objectives of the present study are as follows

1. To prepare Land Use and Land Cover Map of Siwani Block, Bhiwani
2. To compare Supervised and Unsupervised Technique of Area Classification
3. To get acquainted with GPS and GIS for map preparation.
4. To interpret the physical features of Siwani Block through GIS

3. Methodology

1. Preparation of Base Map from SOI Topographic Sheet
2. Land Use/Land Cover and Landform Classification from Satellite Imagery
3. Pre-field Visual Interpretation of Satellite Data
4. Ground Truth Verification
5. Post-field Visual Interpretation and Finalization
6. Scanning, Geo-referencing, Rectifying and Digitization of Map using ArcGis.
7. Comparison between Supervised and Unsupervised Classification of LULC Map of Siwani Block.

4. Study Area

The Study Area constitutes a part of Siwani block of Bhiwani district, Haryana. The area lies between 28.41' N to 29.57' N latitudes and 75.30' E to 75.49' E longitudes. It is bounded in the north by Hisar District, in the west by Churu District of Rajasthan and the east and south by parts of Siwani Block.

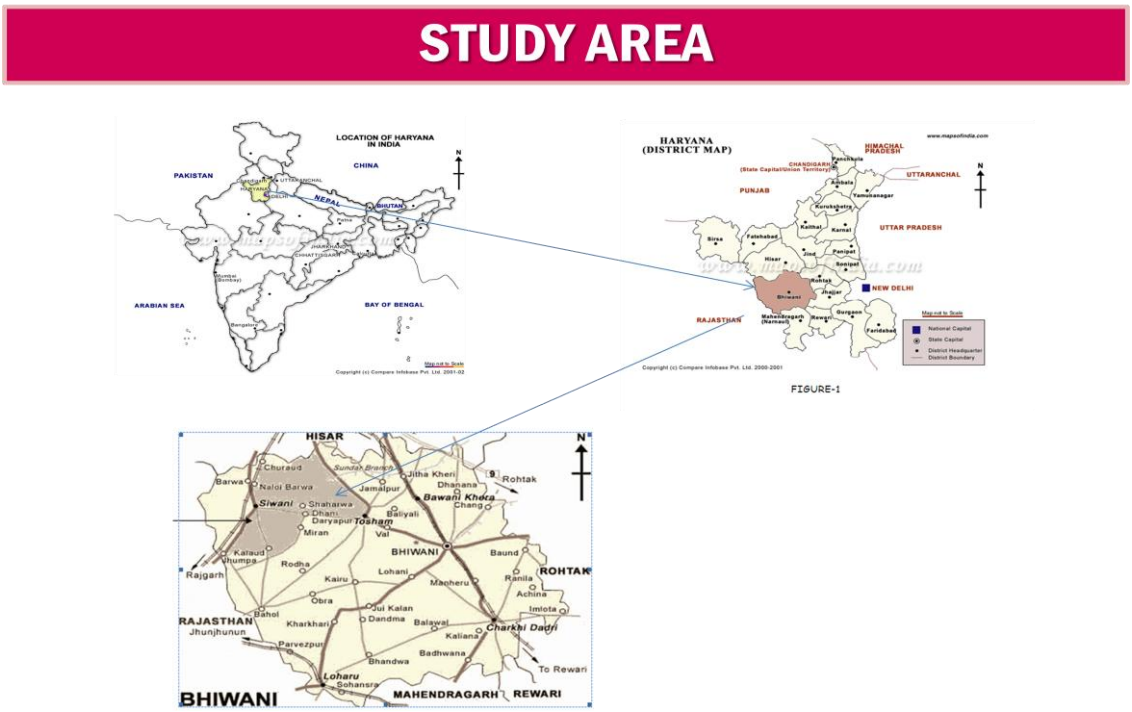

FIGURE-1

4. Ground Control Points taken by GPS

5. Data Used

1. Satellite Imagery Sheet No. H43V9 IRS LISS-III Date of Pass 23/03/2017
2. SOI Topographic Map Sheet no.- H43V9
3. Secondary Data, Ground Truth Data

6. Procedure:

In order to classify the land use /land cover of Siwani Block of Bhiwani District, Top sheet of the concerned study area was arranged to manual digitization. Simultaneously LISS- III and

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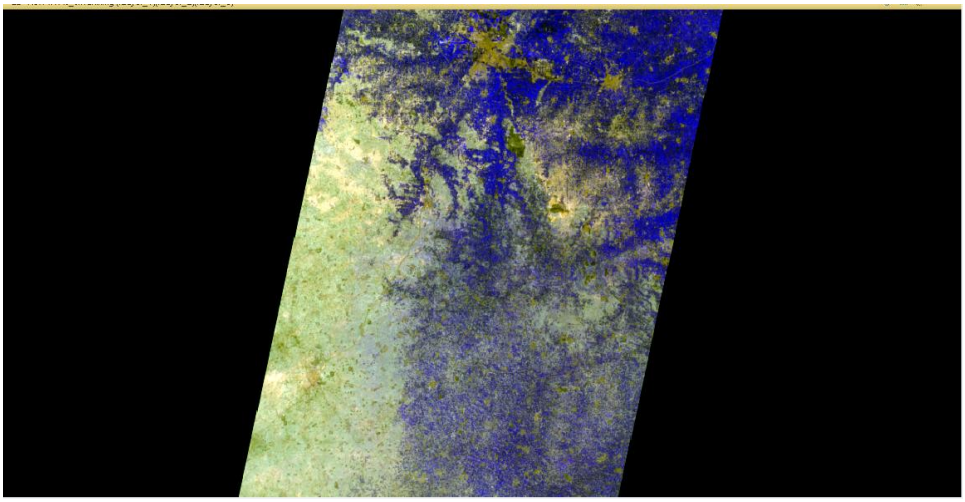
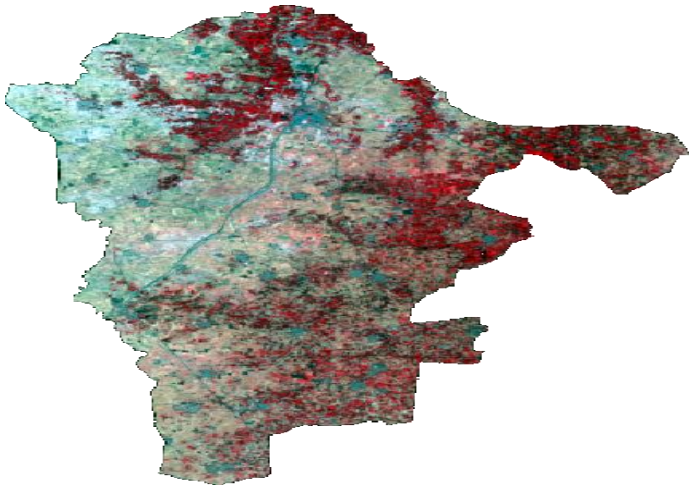
LISS- IV satellite imageries of the same area were also manually digitized. After that the SEEN taken by Satellite Imagery Sheet No. H43V9 IRS LISS-III Date of Pass 23/03/2017

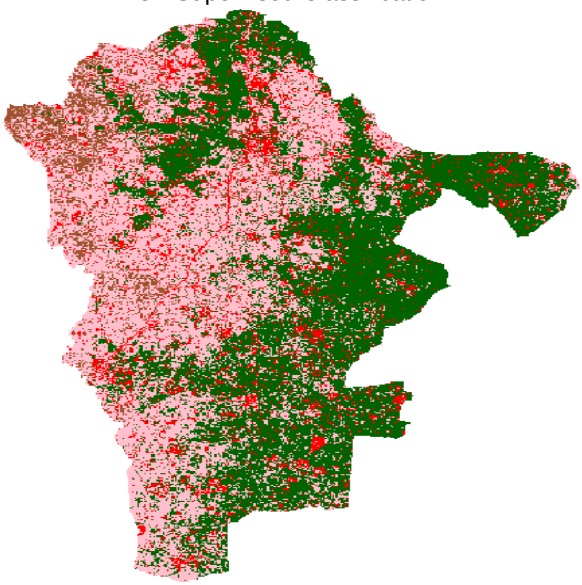


Area of Interest was taken from the "SEEN" in the form of vector file and a subset created for further work. While doing subset file converted to TIFF format and all three bands were taken for layer stacking in multispectral band. By doing this false color composite generated for further classification and interpretation.

FCC of LISS_IV



Un-Supervised Classification



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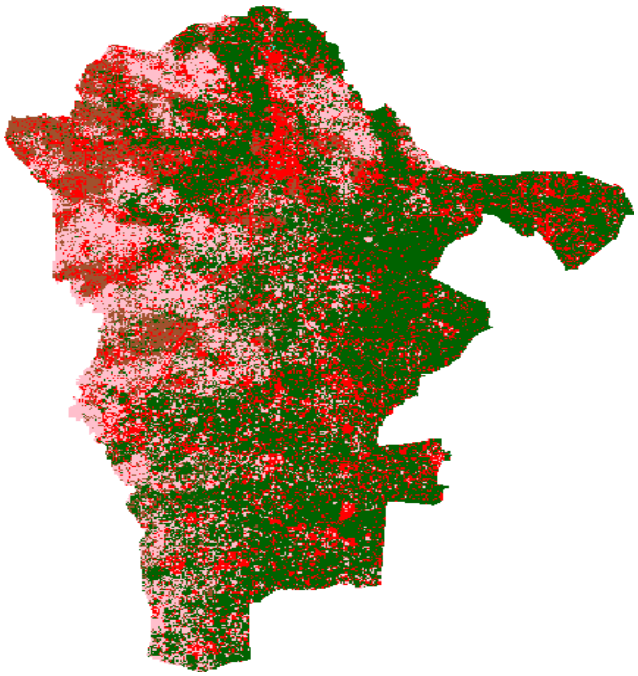
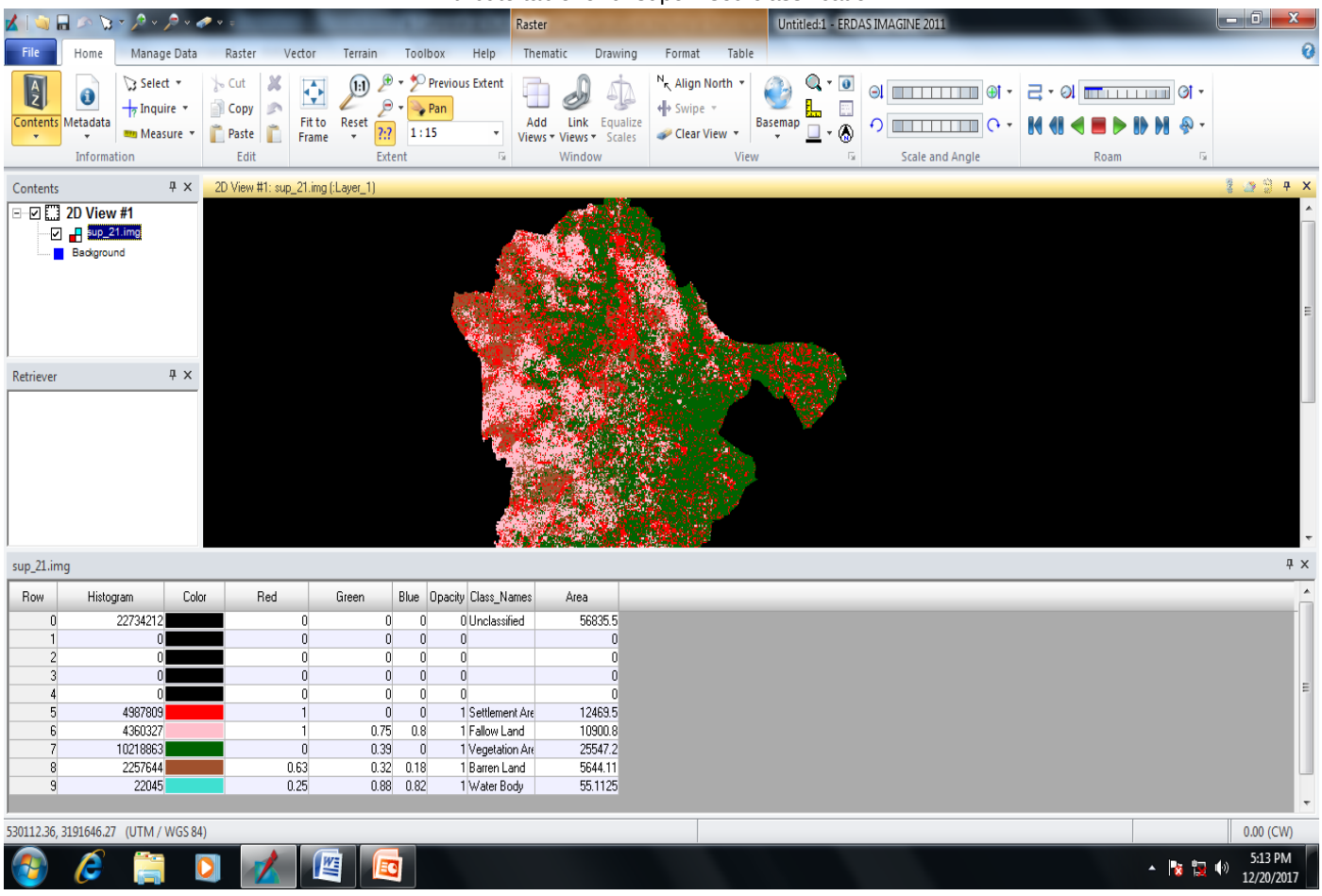
Supervised Classification



Atribute table for unsupervised classification



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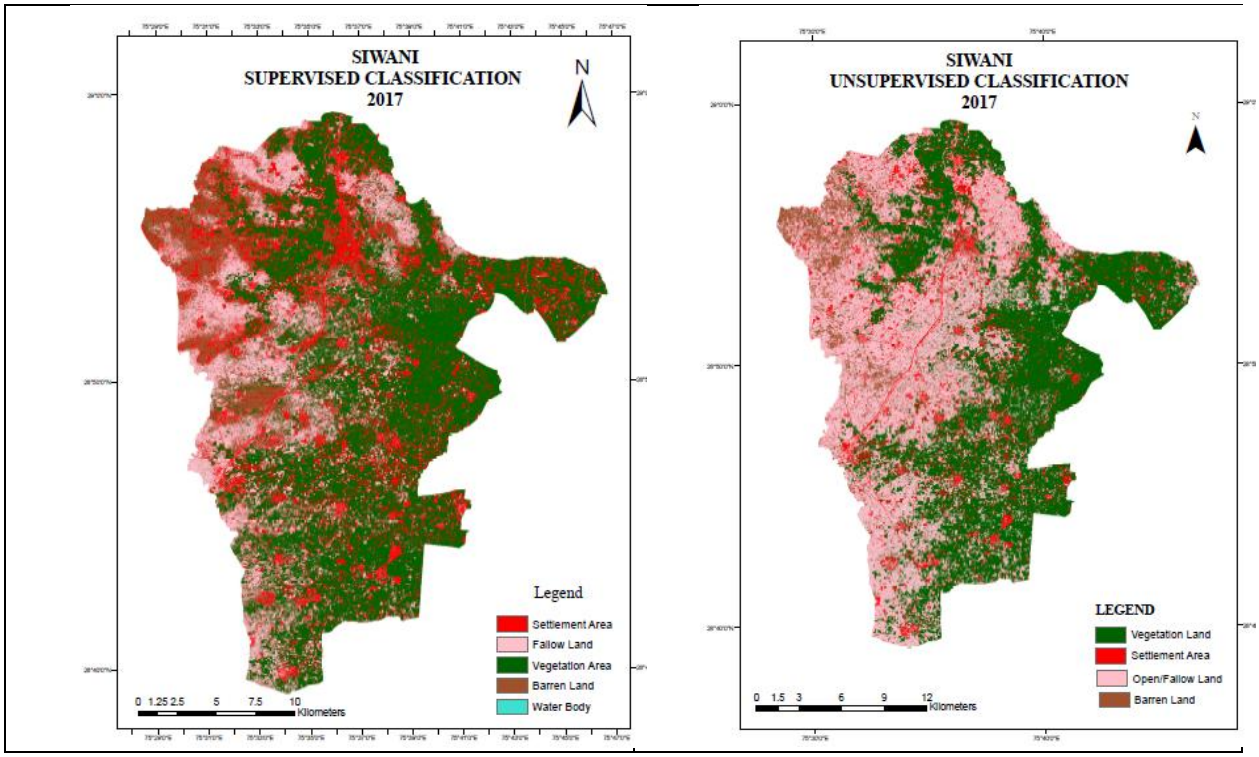
7. Results



8. Accuracy Assessment

Class Name	Unsupervised (% Accuracy)	Supervised (% Accuracy)
Vegetation	75	100
Settlement	75	100
Fellow Land	75	75
Barren Land	50	75
Water Bodies	100	100

9. Conclusion

The above attributes compared by satellite imageries over ERDAS IMAGINE and then Ground Truthing with the help of GPS, it is hereby concluded that supervised classification found more accurate than the unsupervised.

Reference

1. Bhatt, Basudev (2011) Remote Sensing and GIS, Oxford University Press, India
2. Nag P. andKudrat M. (1998) Digital Remote Sensing, Concept Publishing Company
3. Satellite Imagery Sheet No. H43V9 IRS LISS-III Date of Pass 23/03/2017
4. SOI Topographic Map Sheet no.- H43V9

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