



## Land Use/ Land Cover Change in Nuh Block (Mewat District): A spatio- Temporal Analysis

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### ABSTRACT

*This study analysis the land use land cover change between 2000 to 2011. Nuh block situated in the Mewat district of Haryana. This study has been conducted based on the remote sensing satellite imageries. Study shows that area under agriculture was 416.119 sq km or 90.690 percent in 2000 this reduced to 414.520 sq km or 90.350 percent in 2011, built up area increased slightly from 6.399 sq km to 7.268 sq km during 2000 to 2011. Land use map will help the planners for making development plan for the entire region.*

**KEYWORDS :** Built up, Land use, Remote sensing

### Introduction

Land is the most important resource of a country and this fixed asset and cannot be expanded to meet the needs of an increasing population (Gautam & Rastogi, 2001). Land cover considered the type of feature present on the surface of the earth such as corn fields, lakes, maple trees, and concrete highways. On the other hand the land use relates to the human activity or economic function associated with a specific piece of land. A knowledge of land use and land cover is important for many planning and management activities and is considered an essential element for modeling and understanding the earth as a system (Lillesand, T.M., Kiefer, R.W., and Chipman, J.W. 2013).

Stamp (1967), stated that the pattern of land utilization varies greatly from one part of the country to the other; and if one attempts to analyze the overall picture presented by generalized map of the whole country, the physical or geographical features are of the greatest importance. Economic factors like monetary systems, capital, trade, commerce and irrigational facilities affect the use and development of land profoundly. The cultural factors representing the length of occupancies of the area, demographic and socio-economic conditions, attitude, values and legal systems determine the extent to which land can be utilized (Nath, 1968).

It is evident that land cover / land use changes are very dynamic in nature which should be monitored at regular intervals for sustainable environment development. Remote Sensing satellite imageries are very useful because of its synoptic view, repetitive coverage and real time data acquisition. The digital data in form of satellite imageries, therefore, enable to accurately compute various land cover / land use categories and helps in maintaining the spatial data infrastructure (SDI) which is very essential for monitoring urban expansion studies (Lo, 1981; Mukherjee, 1987; and Quarmby & Cushine, 1989). The present study makes an analysis of land use/ land cover changes in course of one decade (2000 - 2011) of Nuh block of Mewat district.

**Objective:** to analyze the land use/ land cover change between 2000 – 2011 in Nuh.

### Data Base and Methodology:

To achieve the objectives of the study following data base and methodology have been adopted:

This study has been conducted based on the remote sensing satellite imageries which has been obtained from the Global Land Cover Facility website and ISRO Geoportal 2D Bhuvan. Landsat ETM+ (2000) and LISS-III (2011) satellite imagery have been used for mapping and identifying the surface features. Onscreening digitization method has been applied to see the land use change over the period of time with the help of GIS and remote sensing software's (Arc GIS 9.3, Erdas Imagine9.3).

### Study area

Nuh block situated in the Mewat district of Haryana which is the headquarter of the district also (Figure 1.1). The nuh town assumed importance in the time of Bahadur Singh of Ghasera because of the trade in salt which was manufactured in the neighbouring villages. To the west of the town is a fine masonry tank of red sandstone with a chhatra possibly connected with the name of Chuhli Mal, adorned with beautiful floral designs. The tomb of Sheikh Musa, an example of the combination of Muslim and Rajput architecture, is at a distance of about two kilometres and a half from the town. It is famous for its shaking minarets. The shaking of the minarets can be distinctly felt. The beauty lies in the fact that if one minaret is shaken, the other automatically gets shaken.

Nuh block has a rolling plain and interspersed by extensions of Aravallis. Aravalli ranges offshoot along the western part of the block. These rocks are one of the oldest mountain system in the Country. The hillocks are dissected by rainfed torrents. Physiographically we can sub-divide the study area into Nuh-Punahana Plain. These landforms make a series of flat topped ridges. Due to offshoots of Aravalli ranges, the region is undulating. There is little cultivation owing to rocky areas, poor soil cover and roughness of surface. Nuh-Punahana Plain covers parts of Nuh tahsil and area between Alwar and Ajabgarh rock formation and eastern part of Ferozepur Jhirka tahsil. Ferozepur Jhirka Dissected Upland divides the Nuh-Punahana Plain into eastern and western parts and it covers central and southern part of Ferozepur Jhirka tahsil. The climate of the district is characterised by its dryness and extremes of temperature and scanty rainfall.

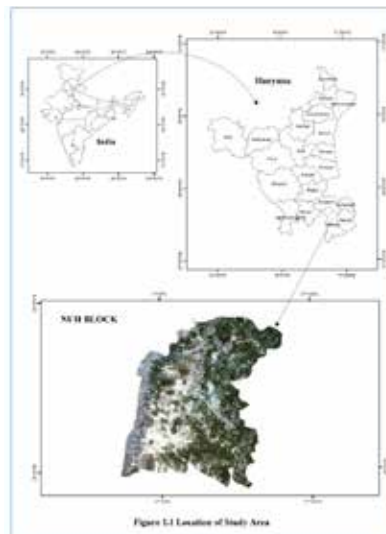


Figure 1.1 Location of Study Area

**Discussion and results**

Physical, economic and cultural factor are eminent for land use change in any region. Physical factors such as geology, topographic features, drainage, climate and soil limit the use of capability of land to a large extent. According to Stamp (1967), the pattern of land utilization varies greatly from one part of the country to the other; and if one attempts to analyze the overall picture presented by generalized map of the whole country, the physical or geographical features are of the greatest importance. Whereas, economic factors like monetary systems, capital, trade, commerce and irrigational facilities affect the use and development of land profoundly.

Analysis shows that study area is less developed and poor for the point of view of economic development.

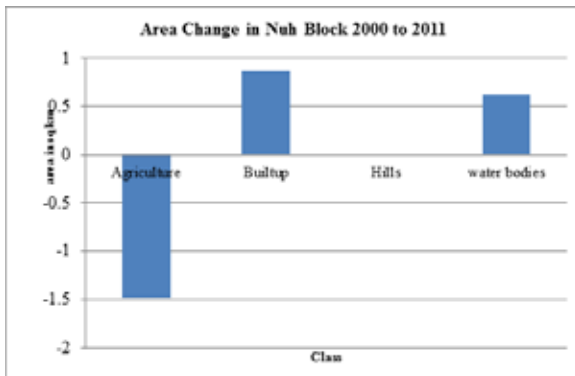
**Table: 1.1 Land use/ land cover in Nuh Block (Mewat)**

Class	2000		2011		Area change 2000 to 2011
	Are in sq km	Area in percent	Area in sq km	Area in percent	
Agricultural land	416.119	90.690	414.631	90.366	-1.488
Built up	6.399	1.360	7.268	1.50	0.869
Hills	31.141	6.771	31.141	6.771	0
Water bodies	6.281	1.366	6.900	1.500	0.619
Total	459.940	100	459.940	100.000	

Source: based on satellite imageries

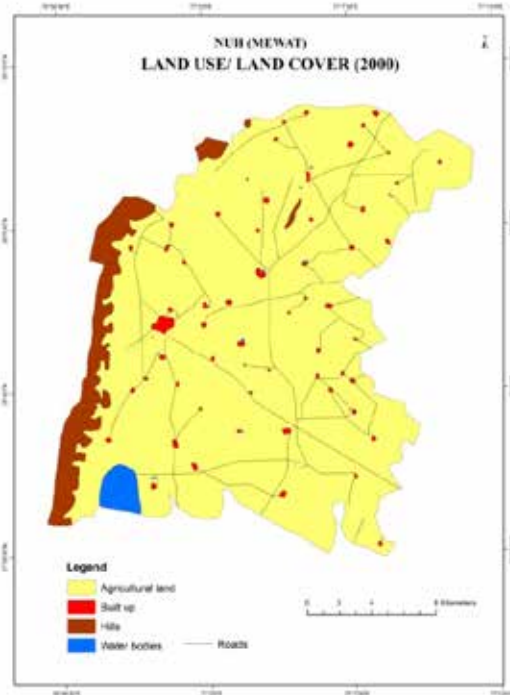
Table 1.1 shows the landuse/ land cover change in Nun block of Mewat district from 2000 to 2011. Study area is agricultural dominated. The major crops are Rabi such as wheat, mustard and Kharif such as Bajra, Jwar. It has been found that area under agriculture was 416.119 sq km or 90.690 percent in 2000 this reduced to 414.520 sq km or 90.350 percent in 2011. Agricultural area reduced due to increase in built up area and water bodies. On the other side built up area increased slightly from 6.399 sq km to 7.268 sq km during 2000 to 2011 in the study area. Built up area includes the all human infrastructure facilities including their residential sites.

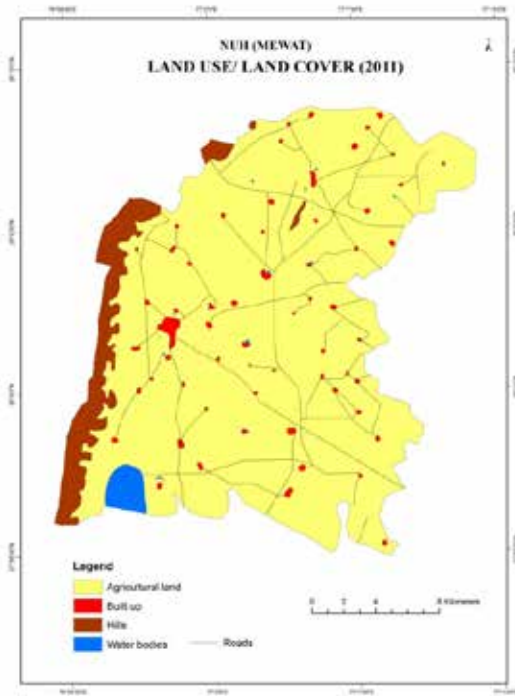
While hills show same area both of the years. Similarly, water bodies increased from 6.281 sq km to 6.900 sq km during the period. There is no perennial river in the Nuh. Seasonal streams are only a few, smaller in size and are inland. The drainage of the block is typical of the arid and semi-arid areas. Because of topographic diversity, the streams do not flow in any uniform direction.



**Fig. 1.2**

There is decreased of 1.488 sq km area from agriculture land from 2000 to 2011. On the other hand built up area increased 0.869 sq km and water bodies increased 0.619 sq km between 2000 to 2011 (Fig 1.2). Land use change pattern shows that there is a lack infrastructure activity in the study area and witnessed the characteristics of the backwardness. Landuse/ land cover change map for the year 2000 and 2011 are shown in figure 1.3. Map showing the low built up area and small patches can be identified in the entire map of the Nuh block.

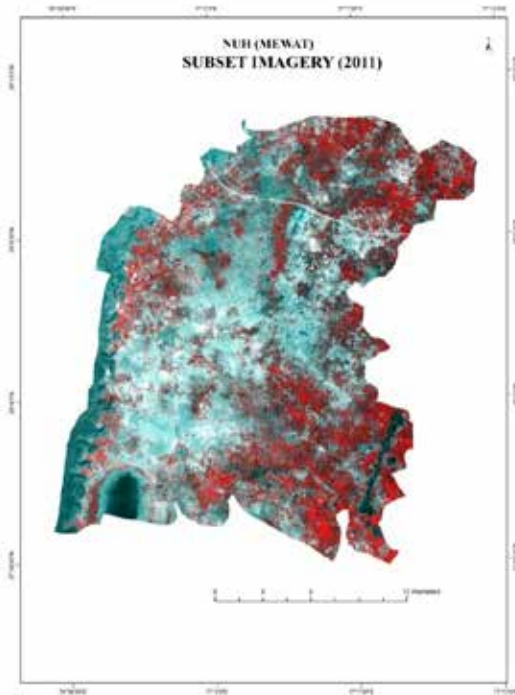




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**Figure 1.3**



**Conclusion**

Study shows that there is a minor land use change between 2000 to 2011 because of less infrastructure development and study area is very backward from the economic point of view. Area under agriculture was 416.119 sq km or 90.690 percent in 2000 this reduced to 414.520 sq km or 90.350 percent in 2011, built up area increased slightly from 6.399 sq km to 7.268 sq km during 2000 to 2011. Land use map will help the planners for making development plan for the entire region.