

Rural Land Transformation along Chandigarh-Kharar Road

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Abstract

Original Research Article

Chandigarh being one of the well-planned cities in the country have attracted the folks of the nearby states to come to the city for better standards of living and improved sources of livelihood. The city in recent past have been developing as an educational and commercial hub. Although the city centre or one can say the planned portion of the city is unchanged and untouched from the rapid transformation with the time but the periphery is not so lucky in this manner. People coming from near and far places get settle in the periphery and they commute on daily basis from the surrounding regions to the city and its periphery. This have resulted in the large-scale development of educational and commercial hubs growing day by day along the major roads connecting the city with its neighbouring towns and villages. Majority of the transformation of agricultural land have occurred along the major roads. Here in the study an attempt has been maid to assess the intensity and direction of the rural land transformation happening in the periphery. For the purposes of the study satellite data is used acquired from Landsat, Indian Remote Sensing Satellite and Google Earth Pro along with other secondary data sources. One-kilometre buffer zone along the Chandigarh – Kharar road falling in Chandigarh periphery is selected. Data for the year 2003 and 2017 is analysed and compared. The results are presented in the forms of maps and figures.

Keywords: livelihood, People, well-planned cities, commercial hubs, transformation.

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INTRODUCTION

Chandigarh is one of the most well-planned cities in India. It is located in foothills of the great Himalayas which makes it favourable in terms of weather and climate. Since many years Chandigarh is developing as an educational hub and reservoir of various commercial and housing projects consequently attracting individuals seeking higher education and occupation in the city. The lack of space in the city centre have forced the rapid expansion and structural transformation of the periphery of Chandigarh. People residing in the periphery now commute regularly to the city centre and other parts of the city for various purposes. This daily travelling have imposes extra pressure on the present transportation network. The major roads especially those roads are under excessive burden which connect city centre with the proximal urban regions. This in turn encouraged the rapid transformation of the area adjacent to major roads linking Chandigarh with the areas in its suburbs. It is a need of time to thoroughly investigate the land use along with its social economic and environmental

implications. Therefore, the present study is designed to understand the spatial-temporal changes in the land use and land cover along the Chandigarh-Kharar road.

METHODOLOGY

To evaluate the changes, satellite data from various sources such as Landsat, Indian Remote sensing Satellite (IRS) and Google Earth Pro was used. A buffer zone of half a kilometre on both the sides of the road linking Chandigarh with Kharar (part of National Highway 21, Chandigarh – Manali), is delineated to map and evaluate changes in land use and land cover transformation. GPS based field survey was also conducted to generate additional data. Other collateral data retrieved from secondary sources such as land records were also amalgamated in the study. Geographical Information System (ArcGIS) was used for processing, analysing and interpretation of the land use and land cover maps.

Aim of the study

The primary aim of the present investigation is to first delineate the space evolved from rural to urban

or semi-urban during 2003-2017. Further, the study was also designed to illustrate the development of urban land use into the urban peripheral region of the Chandigarh.

Periphery surrounding the urban centres, show quintessential rural and urban attributes. This mixed land use areas have always been difficult to assess for the quantity and direction of land use transformation. The land use transformation is the change in the use of the land with the time. In other words, land transformation can be defined as the “inter-category change of land use land cover classes with the time.” The process of land transformation is extremely dynamic in nature and the rate of change is driven by ample extrinsic and intrinsic determinants. Chandigarh-Kharar road connects capital city with its state, is one of the major and oldest roads, hence, endured swift land use transformation. In the coming section one and a half decade of time period is taken to assess the changing characteristics of the region. This section focuses on highlighting the changing characteristics of the land use categories along the Chandigarh – Kharar road.

Land Transformation

During the last one and a half decade, the peripheral region of Chandigarh situated in Panjab and

Haryana sub regions have witnessed hasty land transformation. Greater Mohali Region on the western side of Chandigarh in Punjab has evolved as a satellite or sub city of the Chandigarh. For the growth and development, the Greater Mohali Region relies on Chandigarh and its periphery. After the partition of India, Chandigarh was planned as the joint capital of Panjab and Haryana. It was decided that the area of sixteen kilometres surrounding the city will be kept as periphery in order to preserve the environment and ecology of the region. The swift growth of Chandigarh required more infrastructure, services and utilities as the result two satellite towns viz. Panjab and Sahibzada Ajit Singh (S.A.S) Nagar have developed.

There is remarkable accessibility and connectivity between Sahibzada Ajit Singh (S.A.S) and the neighbouring areas, due to which S.A.S Nagar has been rapidly emerging as the desirable location for the IT companies as well as for the Housing and urban infrastructure related investments. The extensive reformation in urban infrastructure, development of law and policies and urban residential areas have aided in emergence of S. A. S Nagar as independent urban area in the region.

Table 1: Land Transformation along Chandigarh-Kharar Road, 2003-2017 (Area in Ha.)

		2017				
	Category	Built-up Land	Water Body	Agricultural land	Vacant Land	Total
2003	Built-up Land	105.30	0.05	0.46	12.16	117.96
	Water Body	0.81	0.43	0.01	1.63	2.88
	Agricultural land	103.20	0.00	80.53	108.39	292.12
	Vacant Land	76.96	0.00	5.83	51.57	134.36
Total		286.27	0.48	86.82	173.75	547.32

Source: Generated from the Digital Image Analysis, 2003-2017.

Along the transport line in S.A.S Nagar, most of the development took place. The region has excellent transportation network especially road network. The areas which have availability and accessibility of major roads have evolved as the desirable locations for commercial and institutional hubs. Various national and

multinational companies make investments in these regions. The government of Punjab have clearly expressed its intentions to develop the region as the centre for excellence of IT, industries and allied services.

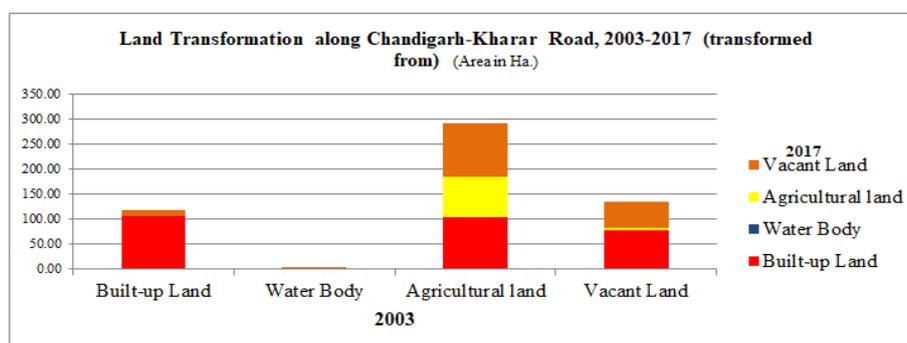


Figure 1

Source: Calculated from classified satellite images, 2003-2017.

These have caused in the large-scale countryside to built-up terrestrial conversion of the areas within the space of Greater Mohali Region and Chandigarh periphery in general and along the Chandigarh-Kharar road in specific. Sahibzada Ajit Singh Nagar District was carved out from the Ropar

District in 2006 as the eighteenth district of the state of Punjab. This formation of the separate district has altered the complete landscape of the region as both the government and private sectors industries and residential projects started to settle around the city that too along the major roads.

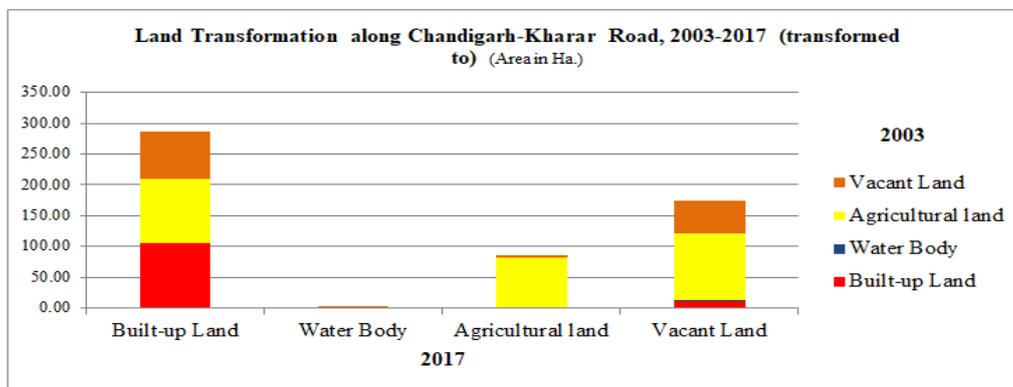


Figure 2

Source: Calculated from classified satellite images, 2003-2017.

In the beginning of the twenty first century (in 2003) the area covered under the category of constructed or built-up land was merely 117.96 hectares that grown to almost double to 286.27 hectares in the span of just fifteen years. The quantity of housing and manufacturing unites situated sideways the road amplified speedily during the same period. Almost twelve hectares of land was cleared where the structures were found to be old or were hampering the progressive projects. Small workshops positioned on the road in

Mundi-kharar, Ballo-majra and Daun village were demolished for the road broadening project. Some impermanent shelters on the farming grounds were also removed from the field to bring almost half hectare of land under agricultural land use in the Ballo-majra and Balongi village.

Satellite view of Chandigarh – Kharar road in 2003 and 2017



Source: Satellite images, Google Earth Pro, 2003-2017.

The status of the water bodies has declined rapidly in the span of just fifteen years in the region. Due to the rapid exploitation of seasonal ponds located in the villages and regular dumping of waste material and liquid waste the areal extent of the water bodies has declined to 0.48 hectares in 2017 from 2.88 hectares in

2003. Only two ponds located in the village Daun are still existing apart from them other ponds in the villages Mundi-kharar, Ballo-majra, Mandi-kharar, Badh-majra, Balongi and Desu-majra have either shrunk in size or have entirely dried out during this period.

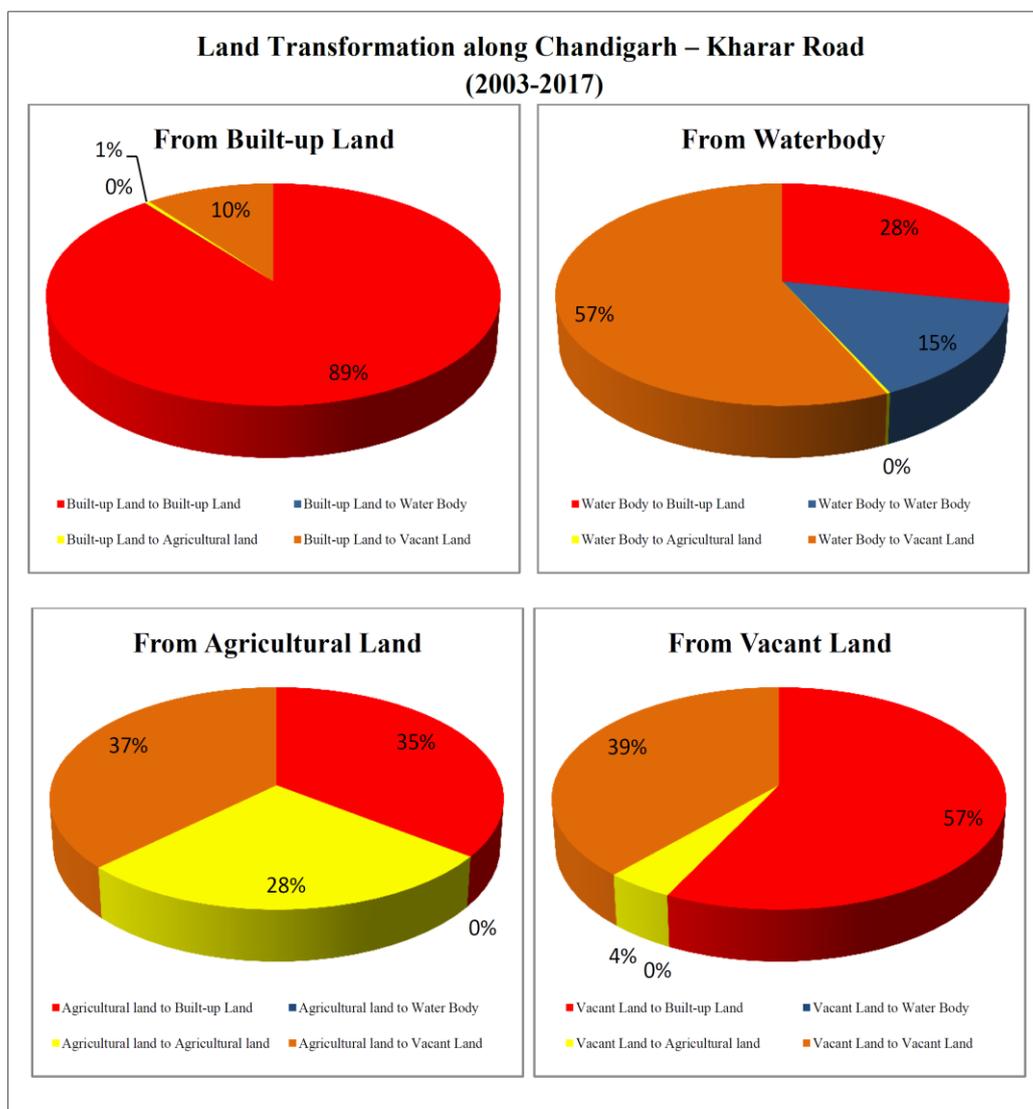
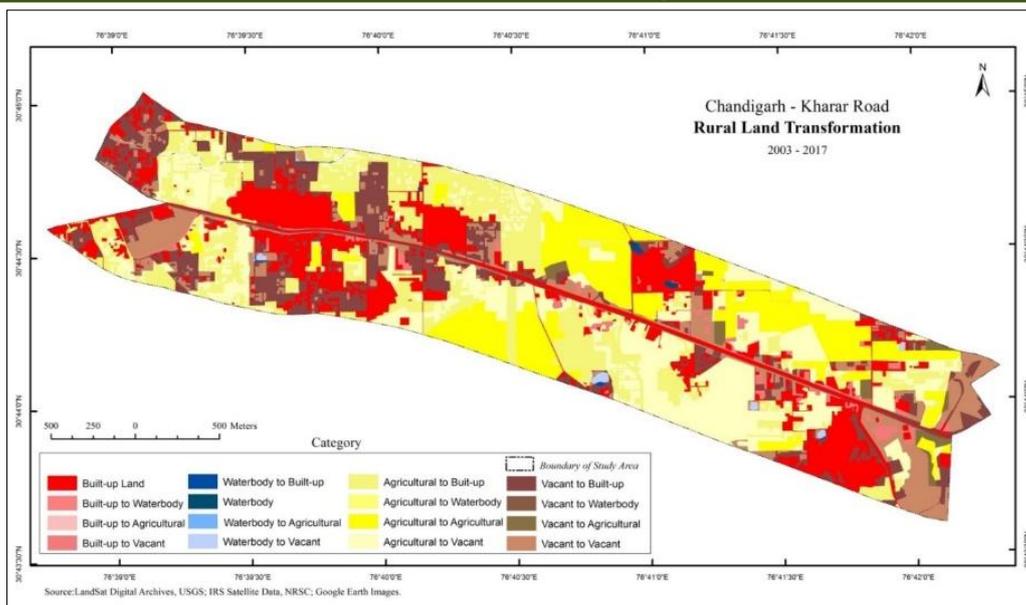


Figure 3

Source: Calculated from classified satellite images, 2003-2017.

The land under the vacant category grew from 134.36 hectares to 173.75 hectares from year 2003 to 2017. The area falls under the jurisdiction of Greater Mohali Area Development Authority and is governed by the Punjab Regional and Town Planning and Development Act of 1995. The master plan of the region was created in the year 2001 which provided the roadmap for any future development in the region. The regional maps plan was created in 2001 but the sub regional master plans (Mullanpur, Kharar, Banur,

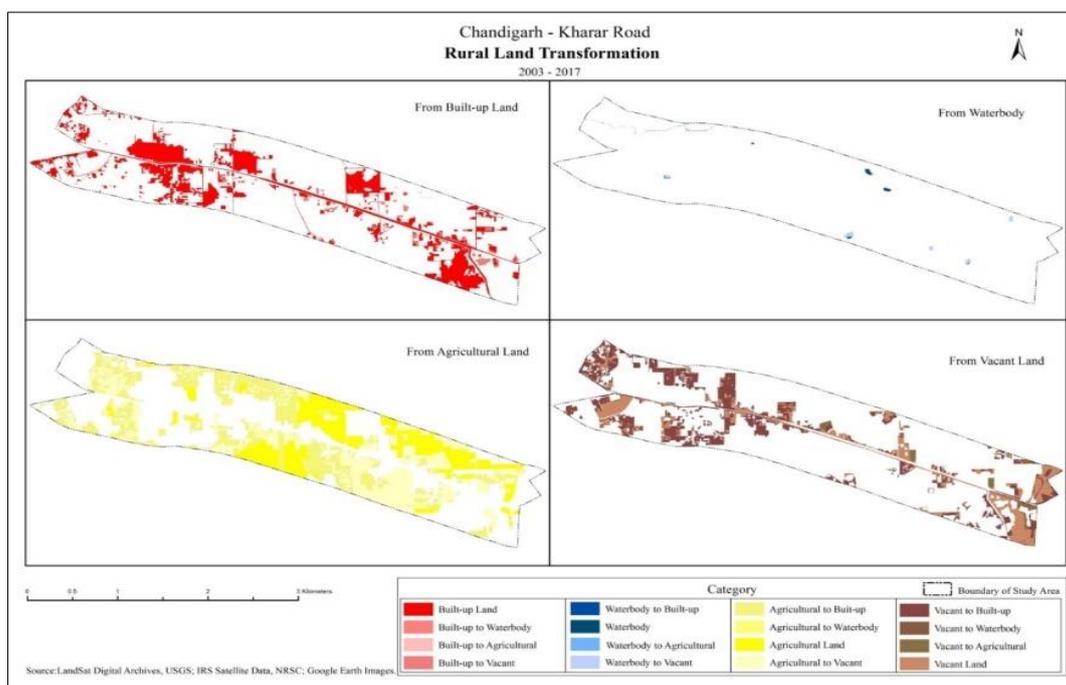
Zirakpur, and S.A.S. Nagar) were implemented in 2008. This lag in the implementation of the individual sub regional plans provided enough time to the private developers to construct illegal and haphazard structures along the road. During the period of fifteen years from 2003 to 2017 almost 108 hectares of agricultural land was cleared from the farmers and brought under different types of developmental activities. This area currently falls under the vacant land as the structural developments is in its initial stage.



Map 1

The most harshly affected category of land use is the agricultural land. In the beginning of the twenty-first century the area started to transform at a rapid pace. In the year 2003 more than 292 hectares of land was under the agricultural land use when the rural land transformation started in 2001 with the enactment of Greater Mohali Area Development Plan followed by creation of S.A.S Nagar district as the eighteenth district of the state in 2006. In the year of 2008 regional master plans were prepared in detail and were imposed on the area which changed the land completely and reduced the area under agricultural land use to 86.82 hectares. The land under the agriculture lost almost 200

hectares. 103.20 hectares of the agricultural land went to the current Built-up land and 108.39 hectares are presently lying as vacant land. During the study period only 80.53 hectares of land was unchanged. Large proportions of the agricultural land unchanged was located in Daun, Badh-majra and Ballo-majra village. In village Daun the agricultural land is under the control of the Religious authority that have resulted in preventing the alteration of the land. On the other hand, in villages Badh-majra and Ballo-majra the remaining agricultural land is owned by big and politically influential farmers who are able to keep their land unbroken from the developers and builders.



Map 2

The master plan prepared by the Greater Mohali Area Development Authority for the future development of sectoral grid pattern in the periphery of Chandigarh have turned almost entire area from rural to semi urban. The villages are losing their identity and its just a matter of time when almost all land in the periphery will be transformed into the built-up land. The increasing pressure on the transportation network have compelled the planners and developers to start road widening projects in the region. One of this is the recently started four lane project of Chandigarh – Manali National Highway. Chandigarh – Kharar road (Study area) is also a part of this highway. These types of projects along with the residential a commercial project is turning the entire region away from its initial image of agriculture-based periphery to highly built periphery.

CONCLUSION

The periphery of Chandigarh was intended to serve the purpose of providing food and dairy products to the residents of the city. The initial aim of the planners was to keep it as a buffer zone against the unplanned growing towns in the surroundings. The periphery area was also viewed as lungs of the city providing fresh air to the city. With the passage of the time periphery was disturbed by setting up of two satellite towns (i.e. Mohali by Punjab and Panchkula by Haryana) adjacent to the city. Further development of military areas, cantonments, industrial areas and development of more satellite towns have completely altered the face of the periphery. Chandigarh – Kharar road being one of the oldest roads connecting Chandigarh with its surrounding towns in the Punjab have witnessed tremendous land use transformation in the span of just two decades. In the passage of just two decades the land use and land cover have been completely altered by the political and administrative forces. The land under agricultural land use have shrunk to less than one third of what it was in the beginning. The are under water bodies have declined to mere 0.48 hectares. The built-up area have grown from 117 hectares to 286 hectares in the same period.

The rapid growth of built-up area in the periphery of Chandigarh specially along the Chandigarh – Kharar road have pose threat to not only the people living in the periphery but also to the people living within the city. In the coming future major residential complexes such as New Chandigarh, Aerocity, Omax city, etc are acquiring more and more land and transforming them from rural agricultural to urban built-up land. If the rate of transformation of the periphery continued in the future then shortage of food, water, dairy products and most importantly increase in air, noise, soil and water pollution will become major problem of the residents of both city as well as the periphery.

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