

## **Changing Pattern of Urban Land Use in Raipur City (Chhattisgarh State, India): 1976-2011**

Rajib Jana<sup>1</sup>, Anil Kumar Sinha<sup>2</sup>

<sup>1</sup> Ph.D. Research Scholar, Department of Geography, Sant Gahira Guru Vishwavidyalaya,  
Sarguja, Ambikapur (C.G.), India

<sup>2</sup> Associate Professor (Department of Geography) & at present NSS Programme Co-ordinator,  
Sant Gahira Guru Vishwavidyalaya, Sarguja, Ambikapur (C.G.), India  
Corresponding Author: Rajib Jana

---

**Abstract:** Urban morphology of a city is governed by proper disposition of activities expressed as land use pattern. The urban land use pattern determined to a great extends the functional efficiency of a city. In urban morphological studies, changes in the urban land use pattern are an important aspect. The urban land use change in a specific city at particular time and space is determined by the human intervention with the environment through rapid growth of population, Raipur city in Chhattisgarh state being no exceptional. Raipur city is an outcome of physical growth process. This research paper is mainly focused on attempt to analyze the changing pattern of urban land use in Raipur city from 1976 to 2011 and to find out the urban land use change in Raipur city as well as to Comparative analysis of different urban land use categories in the study area. The present study is based on both the primary data and secondary data which are obtained through field survey method and from the Master plan of Raipur city respectively. Raipur city has been experiencing a lot of urban land use change due to increasing population (major cause of urban land use change). The main findings of these research paper is that, on the basis of comparative study of urban land use categories in between two selected study years is seen that the Residential use has been increased from 34.95% to 55.3%, Commercial increased from 2.2% to 4.8%, Industrial decreased from 16.4% to 11.6%, Public & Semi-public decreased from 32.4% to 12.1%, Recreational increased from 2.2% to 2.7%, Transportation increased from 11.9% to 13.5%. The main cause of the changing pattern of urban land use in Raipur city from 1976 to 2011 is that, the rapidly growth of urban population and unrestricted development of Slums areas. The proposed urban land use plan of the Master plan is to have the best possible uses of urbanisable land and fulfill the present as well as future requirement and also to meet aspirations of its citizens.

**Key words:** Raipur city, Physical growth, Changing pattern of urban land use, Master plan

---

Date of Submission: 20-08-2019

Date of Acceptance: 04-09-2019

---

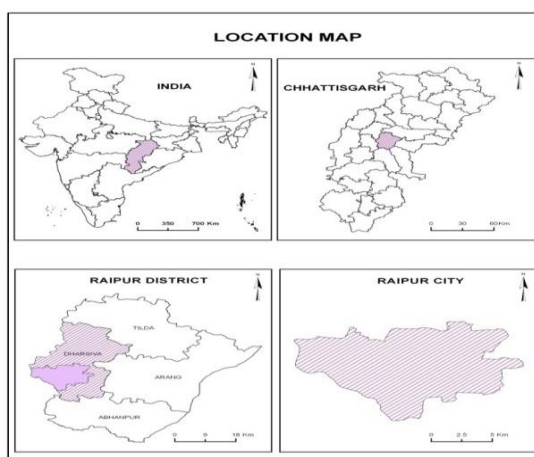
### **I. INTRODUCTION**

Urban morphology of a city is governed by proper disposition of activities expressed as land use pattern. The urban land use pattern determined to a great extends the functional efficiency of a city. In urban morphological studies, changes in the urban land use pattern are an important aspect and it is a dynamic physical growth process which has been continuously taking place over time and space. The urban land use change in a specific city at particular time and space is determined by the combinational interaction of socio-economic and natural factors through rapid growth of urban population as well as urban sprawl, Raipur city of Chhattisgarh state is the best example of above phenomena. One of the most impacts of increasing urban population is on the cultivated land which experiences a decline on accounts of industrial, residential, commercial, institutional activities and urban infrastructural activities. Raipur city is unique in the respect of site and situation, geographical setting, historical growth and population characteristics. These factors collectively affect the shaping of urban land use change and its future growth as well as development.

### **II. STUDY AREA**

The study area Raipur city is located in Raipur district of Chhattisgarh state and it is premier city as well as the capital city of Chhattisgarh state, this city is an important administrative centre, commercial Centre and educational hub. The state Chhattisgarh's new capital Naya Raipur is known as Atal Nagar. The established of Bhilai steel plant in close proximity has given a great impetus to its growth. Raipur city (21° 15'4.98" north latitude and 81° 37'46.71" east longitude) is an important junction on the Mumbai-Kolkata trunk line of the south

eastern Centre railway. It is well connected by the air line with Hyderabad, Mumbai, Delhi (via Nagpur), Bhopal, Ahmadabad, Vishakhapatnam, Indore, Bhubaneswar, Kolkata and this nodal location of the city has contributed to its growing importance. Raipur city lies at the convergence of many numerous roads and National Highway -6 joining Kolkata and Mumbai runs through the city. The study area has an altitude of 298.15 mt. above mean sea level. The site of Raipur city is low ridging on the north-west of Kharun River and it is situated in the heart of Chhattisgarh basin. The city having a tropical monsoon climate with seasonal rhythm and total geographical area of Raipur city is 326 sq.km. According to census 2011, the total population of Raipur city is 10, 10,087 persons. The Urban agglomeration point of view, Raipur city comes under metropolitan region because the city having a population of more than 10 lakhs which is governed by municipal corporation. The mushroom growth of slums areas is remarkable concentrated surrounding of a city.



**Fig no.1**

### **III. OBJECTIVE**

The main objectives of the present study are as follows:-

- (1) To analysis the changing pattern of urban land use in Raipur city from 1976 to 2011.
- (2) To find out the urban land use change in Raipur city.
- (3) Comparative analysis of different urban land use categories in the study area.

### **IV. SOURCES OF DATA AND METHODOLOGY**

The present research paper has been based on both the primary data and secondary data. The primary data is collected through field survey method and secondary data is acquired from the Master plan of Raipur city, Chhattisgarh state. The collected data had been processed and analyzed with the help of statistical techniques and cartographically represented by various tables, maps and diagrams.

### **V. DISCUSSION AND RESULTS**

The development of various urban land use categories as well as morphology of the city had been influenced by physical factors and man-made features. A detailed urban land use survey has been conducted with reference to developed area of the Raipur city within the planning area to understand and critically analyze functional relationship between various urban uses and to identify the incompatible and insufficient land uses. In the year of 1976, the land utilization is worked out taking existing population of the city including outgrowth which works out to nearly 2.5 lakhs. The slight varies with urban agglomeration of Raipur city. The existing urban land utilization of Raipur city is at the rate of 7.77 hectares per 1000 persons and the total development area of the city is 1943 hectares giving a town density of 130 persons per hectares which are divided into various urban land use categories such as residential areas cover 679 hectares (34.9 %), Commercial areas cover 43 hectares (2.2 %), industrial areas cover 320 hectares (16.4 %), public and semi-public areas cover 629 hectares (32.4 %), recreational areas cover 42 hectares (2.2 %) and transportation areas cover 230 hectares (11.9 %) which shows in table no.1 & 2 and fig.no.3. In the year of 2011, the existing urban land utilization of Raipur city is at the rate of 6.18 hectares per 1000 persons ,the total existing urban land use area of Raipur city is 3710 hectares which are distributed in different urban land use categories such as residential areas cover 2050 hectares (55.3 %), Commercial areas cover 180 hectares (4.8 %), industrial areas cover 430 hectares (11.6 %), public and semi-public areas cover 450 hectares (12.1 %), recreational areas cover 100 hectares (2.7 %) and transportation areas cover 500 hectares (13.5 %) which shows in table no.1 & 2 and fig.no.4. The comparison of urban land use areas in hectares between two selected study years brings out that the residential use has been increased from 679 hectares to 2050 hectares, commercial increased from 43 hectares to 180 hectares, industrial

increased from 320 hectares to 430 hectares, public and semi-public decreased from 629 hectares to 450 hectares, recreational increased from 42 hectares to 100 hectares and transportation also increased from 230 hectares to 500 hectares which shows in table no.1 and fig.no.2.

**Table no.1**

Comparison of urban land use areas in hectares between 1976 and 2011

URBAN LAND USE CATEGORIES	AREAS IN HECTARES	
	1976	2011
Residential	679	2050
Commercial	43	180
Industrial	320	430
Public & Semi-public	629	450
Recreational	42	100
Transportation	230	500
<b>TOTAL</b>	<b>1943</b>	<b>3710</b>

**Source:** Master Plan of Raipur city (year: 1976, year: 2011)

The comparison of urban land use areas in percentage between two selected study years shows that the residential use has been increased from 34.9 % to 55.3 %, commercial increased from 2.2 % to 4.8 %, industrial decreased from 16.4 % to 11.6 %, public and semi-public decreased from 32.4 % to 12.1 %, recreational increased from 2.2 % to 2.7 % and transportation also increased from 11.9 % to 13.5 % which shows in the table no. 2 and fig. no. 3 & 4. On the basis of above comparative study of urban land use Areas in hectares and urban land use Areas in percentage in between the study year 1976 and year 2011 is mainly found that most of the urban land use categories are increased in 2011 than the selected study year 1976 because-

- (a) Construction of Naya Raipur.
- (b) A rapidly urbanization over the year 2011 due to the proportionally increased of urban population.
- (c) Population migrating from rural areas to urban areas due to employment opportunities.
- (d) Development of slums areas and development of many commercial centers.

**Table no.2**

Comparison of urban land use areas in % between 1976 and 2011

URBAN LAND USE CATEGORIES	Areas in %	
	1976	2011
Residential	34.9	55.3
Commercial	2.2	4.8
Industrial	16.4	11.6
Public & Semi-public	32.4	12.1
Recreational	2.2	2.7
Transportation	11.9	13.5
<b>TOTAL</b>	<b>100</b>	<b>100</b>

**Source:** Master Plan of Raipur city (year: 1976, year: 201)

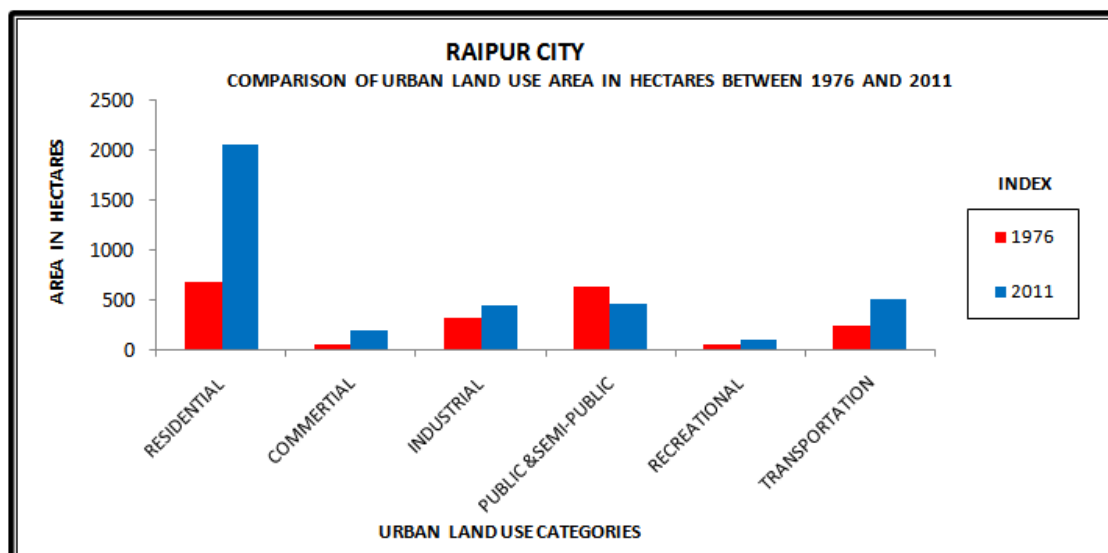


Fig No. 2

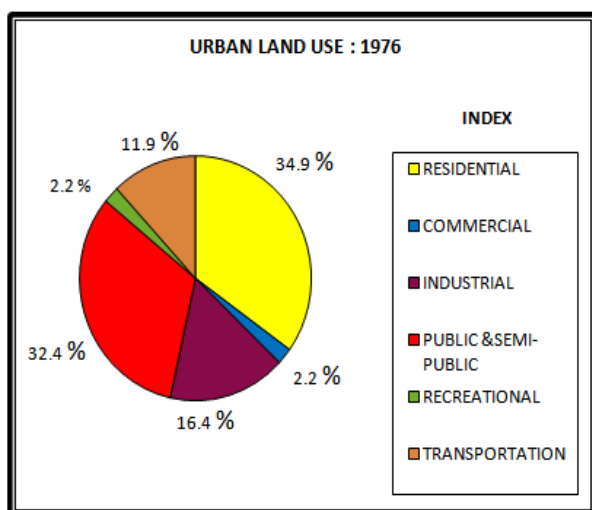


Fig No. 3

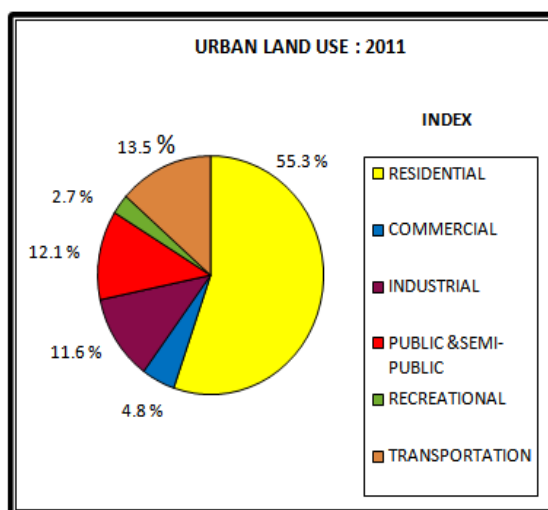


Fig No. 4

**Changing pattern of urban land use in Raipur city:** Raipur city is a fast growing capital city of Chhattisgarh state which is a bi-functional town (commercial and industrial mainly) and the city attracting the many people’s by pull factors as well centripetal forces. The city is spreading outside to accommodate the rapidly growing population by encroaching urban fertile land. The main cause of the changing pattern of urban land use in Raipur city from 1976 to 2011 is that, the rapidly growth of population and unrestricted development of slums areas in fringe zones, In the context of urbanization a large amount of agricultural land has converted to build-up land or urban land uses, Raipur city of Chhattisgarh state has been experiencing a lot of land use changes due to both the socio-economic and natural factors, the land use change is responsible for many environmental problems, Raipur becomes a capital city of Chhattisgarh state, Population is migrating from rural to urban due to pull factors (employment opportunities) and Rapid growth of industrialization. The changing scenario of urban land use pattern of Raipur city in between the two selected study years is shows in the following table.

**Table no.3**  
The changing pattern of urban land use in Raipur city: 1976-2011

Urban land use categories	Study year: 1976		Study year: 2011		Change in hectares	Change in %	Change 1976-2011
	Areas (hectares)	Areas (%)	Areas (hectares)	Areas (%)			
Residential	679	34.9	2050	55.3	+ 1371	+ 20.4	64.51 %

Commercial	43	2.2	180	4.8	+ 137	+ 2.6	6.45 %
Industrial	320	16.4	430	11.6	+ 110	- 4.8	5.18 %
Public & semi-public	629	32.4	450	12.1	- 179	- 20.3	8.42 %
Recreational	42	2.2	100	2.7	+ 58	+ 0.5	2.73 %
Transportation	230	11.9	500	13.5	+ 270	+ 1.6	12.71 %
<b>Total</b>	<b>1943</b>	<b>100</b>	<b>3710</b>	<b>100</b>	<b>2125</b>	<b>50.2</b>	<b>100</b>

Table no.3 and fig. no. 5,6,7,8 shows that, the **Residential** areas is perceptibly the dominant category of urban land use. In Raipur city the residential area are increased 1371 hectares (20.4 %) and increasing rate is 64.51 % from 1976 to 2011. The rapid growth of population in Raipur city are responsible for increased the residential area. The core of the city is the purani basti which is follow this changing pattern. Many new colonies have sprung up which are situated along the road side. The densities of slums areas are increased day by day in fringe area. The **Commercial** land use refers to the areas which are mainly confined to trade and commerce activities. In Raipur city the commercial area are increased 137 hectares (2.6 %) and increasing rate is 6.45 % from 1976 to 2011. The commercial urban land use are increased due to Raipur becomes a capital city of Chhattisgarh state. In spite of the fact that Raipur is an important trade Centre, the city has no organized or planned commercial area. The main commercial Centre has developed on either side of malviya road and great eastern road and sadar bazar road. The shops in other localities are situated along narrow lanes of the city. In Raipur city the **industrial** areas are decreased 110 hectares (- 4.8 %) and decreasing rate is 5.18 % from 1976 to 2011. The industrial urban land use pattern are decreased due to lack of suitable industrial site and due to the pollution in the city regions and the industrial unit are to be shifted from the central area to fringe area, such as Urla, Bhanpuri and Siltara etc. the most of the industry are situated in the fringe area along the road side.

The **Public & semi-public** categories of urban land use consist of various uses viz; offices, education, health, facilities, social and cultural activities. In modern society the provision of water, sewers, garbage disposals are recognized as important urban services essential for the city. In Raipur city the public & semi-public areas are decreased -179 hectares (-20.3 %) and decreasing rate is 8.42 % from 1976 to 2011. This urban land use pattern is decreased due to public and semi-public facility is not rational distributed, inadequate space, insufficient number and inconvenient approaches are responsible for that. This category of urban land use is used for religious purpose, historical and archaeological monuments, parks, open spaces, botanical garden, picnic spots etc. In Raipur city the **recreational** areas are increased 58 hectares (0.5 %) and increasing rate is 2.73 % from 1976 to 2011. These urban land use patterns are increased because significant development of park, playground, garden and stadium etc. recreational aspects with particular reference to urban land use change. The river kharun flows at a distance of 8 km. from the city in south-west direction, a religious fair/ mela is held in the month of November on Mahadeo ghat on the bank of river. In this category of urban land use the area under major city roads, railway yard, bus terminal and bus stand has been taken into account. In Raipur city the **transportation** areas are increased 270 hectares (1.6 %) and increasing rate is 12.71 % from 1976 to 2011. This urban land use are increased because significant development of transport network. Raipur city is an important junction on the Mumbai-Kolkata trunk line of the south eastern central railway. It is also well connected by air transport system with the major city of India and this nodal location of the city is responsible for the changing pattern of urban land use.

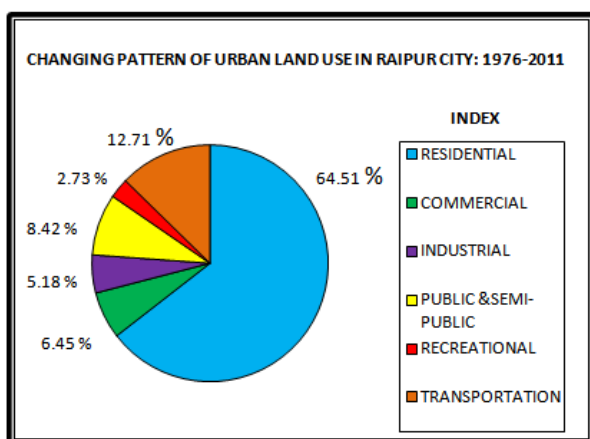


Fig No. 5

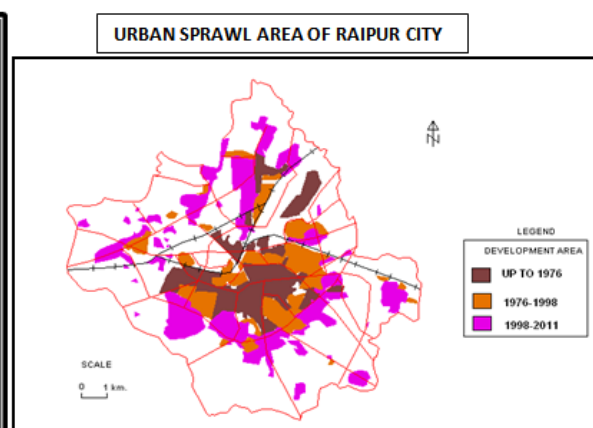
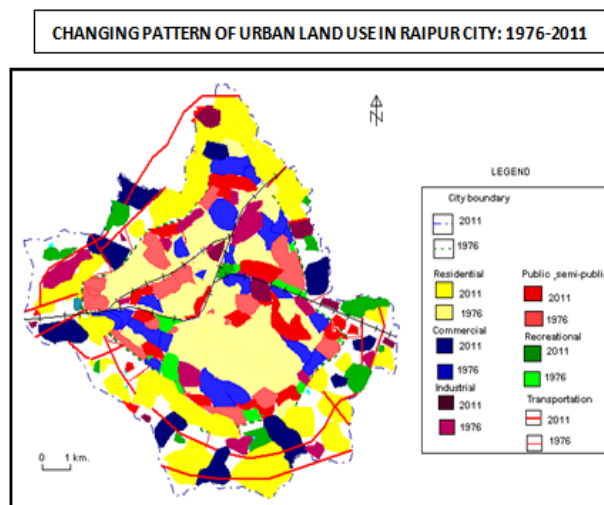


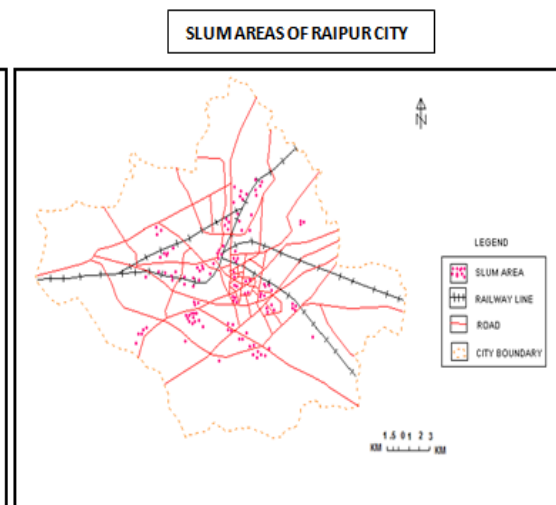
Fig No. 6

Urban sprawl is a remarkable concentrated with reference to the growth of a Raipur city from C.B.D. towards fringe areas with rapid expansion of the geographic extent of cities and towns which characterized by low-density residential housing and single use zoning. Development is patchy, scattered and sprung out, with a tendency to discontinuity because it leap-frogs over some areas of the city. The shape, size and direction of growth of a Raipur city is the result of various forces such as physical, economical and social which have played a significant role in its development. The expanding of study area is very fast in almost in all direction from city centre .The core of the city is the purani basti and development of Naya Raipur which is now in a stage of gradual decay and many new colonies have sprung up which are situated along the major roads side and south-eastern central railway line. Unrestricted growth of slums areas is found surrounding the city along railway line and major roads which are also responsible for changing pattern of urban land uses in Raipur city. The positive relationship is found in between the development of urban sprawl areas and emerging scenarios of urban land use pattern in Raipur city and it is also define the relationship between urban sprawls and socio-economic transformations of the dwellers of a study area. To suggest the suitable planning by the town and country planning department for measuring the undesirable consequences of urban sprawls on the city’s urban land use pattern.

Master plan of Raipur city is to be responsible for determine the urban land use plans and maintain its validity over different time period and be subject to continuous review the changing pattern of urban land use. It is directly related to the physical development of the city in relation to its socio-economic characteristics which is based on comprehensive urban land use surveys and studies on the present condition of the city as well as the future growth prospects. The master plan policy is recommended by the town and country planning department of Raipur city is to provide the necessary guidance for the optimum use of urbanisable land.



**Fig No. 7**



**Fig. No. 8**

## VI. CONCLUSION

Raipur city is an outcome of physical growth process and the urban land use change in Raipur city at particular time and space is determined by the combinational interaction of socio economic factors and natural factors through rapidly growth of urban population. The notable changing variations are found in between the selected study year 1976 and 2011 of urban land uses in the study area. The residential areas are increased 64.51 % due to rapidly growth of population, commercial areas are increased 6.45 % due to Raipur becomes a capital city of Chhattisgarh state, industrial areas are decreased 5.18 % due to lack of industrial site as well as pollution in the city regions, public & semi-public areas are decreased 8.42 % due to not rational distribution of public and semi-public facilities, recreational areas are increased 2.73 % due to significant development of recreational aspects and transportation areas are increased 12.71 % because Raipur city is an important railway junction of south eastern central railway and its nodal location. Remarkable concentration of Urban sprawl and slums area are responsible for urban land use change and to the growth of a Raipur city from C.B.D. towards fringe areas. The master plan policy of Raipur city is to determine the urban land use plan for the best possible use of urbanisable land through comprehensive surveys and studies on the present status of a city and the future growth prospects also.

**REFERENCES**

- [1]. Aditya, D.K. and H.Singh (1995) "The changing morphology of Himalayan Gateway town: A case study Kalka", *ICSSR (Indian Council of social science Research) Journal of Abstracts and reviews geography*, New Delhi, Vol. xxi, No.1, Jan., pp.34-39.
- [2]. Carter, Harold (1979) *The Study of Urban Geography*, Arnold-Heinemann Publishers, London.
- [3]. Chaurasia, B.P. (1987) *Urban Land Use and Planning*, Chugh Publication, Allahabad (Uttar Pradesh).
- [4]. Dubey, K.K. (1971) "Urban Land Use – A Critical Review", *The Indian Geographical Journal*, The Indian Geographical Society, Madras-5, Vol. XIIIV, No.1&2, Jan. - March, pp.45-51.
- [5]. Gupta, Rupesh (2012) "Pattern of Urban Land Use Changes in India", *The Deccan Geographer*, Vol. 50, No.1, June, pp.1-15.
- [6]. Guha, M. (1953) "The Morphology of Calcutta", *Geographical Review of India*, Calcutta, Vol. XV, No.3, September, pp.12-17.
- [7]. Mandal, R.B. (1999) *Urban Geography: A Text Book*, Concept Publishing Company, New Delhi.
- [8]. Pandey, Dharendra K. and V.N. Sharma (2012) "Land use Pattern in Saryupas Plain Uttar Pradesh: A Geographical Analysis", *National Geographical Journal of India*, Vol. 58, No.4, Dec.
- [9]. Singh, B.N. and Varsha Singh ((2009) "Changes in Land use Pattern in Chakia Block, Chandauli District", *National Geographical Journal of India*, Vol. 55, No.4, Dec., pp.35-46.
- [10]. Singh, M.M.P. (1974) "The Impact of Urbanization on Land use in the Rural-Urban Fringe –A Case Study of Patna", *The Indian Geographical Journal*, Vol. 3, pp.28-32.

*IOSR Journal of Humanities and Social Science (IOSR-JHSS)* is UGC approved Journal with Sl. No. 5070, Journal No. 49323.

Rajib Jana. "Changing Pattern of Urban Land Use in Raipur City (Chhattisgarh State, India): 1976-2011", *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, Vol. 24, No. 09, 2019, pp. 43-49.