Urban Sprawl and its Changing Paradigms: A Case Study of Jaipur City

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Abstract

There is widespread concern about understanding and curbing urban sprawl, which has been cited for its negative impacts on natural resources, economic development and quality of life of the society. There is not, however, a universally accepted definition of urban sprawl. It has been described using quantitative measures, qualitative terms, attitudinal explanations, and landscapes patterns. The increasing pace of urbanization is usually associated with and driven by the population concentration in an urban area over the periods. The extent of urbanization and its growth drives the change in land use land cover patterns results to urban areas continue to expand over the periods. So, this present study deals with the quantifying the spatial patterns in Jaipur city, analysis based on primary and secondary data collected from different sources, using the spatial analysis technique like Entropy Model for the detection of change in spatial and temporal variability of urban sprawl and the degree of spatial concentration or dispersion of geospatial variable. The boundary less cities are the new paradigms of development and Jaipur is no exception. The process of urban sprawl has been resulted due to the continuous industrial and economic development in the rural – urban fringe of the study area.

Keywords: Urbanisation, Urban Sprawl, Paradigm, Entropy Model

I. INTRODUCTION

The urban sprawl is mainly occurring over the expenses of productive agricultural land. Most areas come under coarse and loamy soils with good to moderate moisture retention capacity have been converted to urban use, leaving less fertile land for agriculture. Over the years, area under cultivable wasteland has also increased. Furthermore, there is an increase in land value due to urban sprawl which has made agriculture less profitable, and the cultivable land is kept fallow prior to merging it with the urban areas. Besides, the designated urban land use practices are also not being followed, though various urban development plans delineated in the past. Therefore, with the expansion of economic activities by the multi-national companies and transport network, there is fast pace of urban sprawl. At present, Jaipur is one of the well planned, spacious and greenest cities.

The district lies eastward in the state and occupies an area of 14,068 sq. km with the geographical extension between 26°-23’N to 27°51’N latitudes and 74°-55’E to 76°-55’ E longitudes. Expansion of the City toward the north and east was restricted because of the existing hill ranges. Further development therefore continued towards the south and south-west. The development of the city also gave birth to some dedicated industrial zones like Mahindra World City, a Special Economic Zone based on public – private partnership model, located off the Delhi –Jaipur –Mumbai NH-8 and Sitapura Industrial Area 15-20 kms to the south of the city.

II. METHODOLOGY

- Primary data is collected by the field survey method using questionnaire as a tool. Pilot survey was conducted to get the information’s from the villagers of the selected village. Random sampling method is used to collect the data.
- Secondary data is obtain from the tehsil office, village census abstract book, Mahindra world city office and RIICO sitapura office.

III. OBJECTIVES

- To study the spatial analyse of urban sprawl in Jaipur
- To detect the land use changes taken place in the study area
- To analyse the changing pattern of infrastructural development in the study area
- To analyse the socio-economic changes in the life of dwellers in the study area

IV. IMPACT OF POPULATION GROWTH ON LAND USE

As the population of Jaipur city is growing with rapid pace and the urban area is also increasing. The decade of 1941-1951 registered a highly accelerated growth in the city’s population with an increase of about 68.22%. This was on account of massive
influx of refugees following partition of country. The growth rates in the subsequent decades were about 34.82% in 1951-61, 15.17% in 1961-71, 59.42% in 1971-81, 49.56% in 1981-91. The decadal growth rate of population is assumed to be 44.34% by 2021 and would be 44.61% by 2025. This is because Jaipur already exhibits a high growth rate looking the fast development of areas around it. Thus a high growth rate is anticipated for the future.

V. SPATIAL ANALYSIS IN THE ANALYSIS OF CHANGING PARADIGM SPACING & DISPERSION

With growth of urban population and increased internal congestion, the utilisation of land has changed drastically, especially in the peripheral zone. The residential demand of growing population has increased, due to which area under residential zone has increased many fold during last three decades from 1971 to 2011. Since, Jaipur city is covered by hills to the north and east, hence no expansion is possible, and therefore the agricultural area of south and west is threatened by construction activity. As we can see from the following figure every revised master plan of the city added more towns and revenue villages to the city during 1991 to 2011.
The following graph depicts the Land Use pattern of Jaipur City from 1971 to 2011 by using Entropy Model which Comprise a standard line for measuring the concentration of development in different zones as in this graph the residential area is very close concentrate to the line means it has more developed year by year as same with the industrial area, as the agricultural land is reducing year by year that’s why it is more dispersed from the standard line.

Graph 1: Entropy Model 1

The land use pattern of study area Sitapura Industrial area in also reveals some interesting facts as there are eight main zones EPIP, Sitapua(I & II), Sitapura- III, Sitapura IV, Institutional area, SEZ (Phase I), SEZ( Phase II) and Ramchandrapura, each zone have different classification as the industrial development is growing year by year in EPIP zone the total land acquired in 2005 was 360.83 acres in this total land there was further segmentation in plots production was 47 in 2005 which increased by 232 in 2012, in Sitapura(I & II) total acquired land was 518.65 acres in 2005 in which plots allotted area was 299.7 in 2005 which increased by 311.07 in 2012, if we take the overall developed zone during eight years from 2005 to 2012 considering Graph which is given below the plots developed area is more and plots vacant area is very dispersed from the standard line.

Graph 2: Entropy Model 2

In nearby area of Mahindra SEZ zone the land use pattern have different characteristics as because of rapid industrialization the agricultural land use has changed as the Irrigated land was 52.76 hectares in 1991 which drastically decreased by 41.4 and 7.48 hectares in 2001 and 2011 respectively, Unirrigated fellow land was 385.5 hectares in 1991 and it increased by 426.29 and 466.94 hectares respectively, Cultivable waste including gaucher & groves was only 56.55 hectares which increased drastically 255.34 and 315.44 hectares in 2001 and 2011 respectively, Area not available for cultivation was 37.47 hectares in 1991 which increased 52.08 hectares in 2011.
VI. IMPACTS OF SOCIO-ECONOMIC AMENITIES ON DEVELOPMENT

Based on the field survey results the socio-economic profile of the households revealed some interesting facts such as the 77% of household’s family size more than 6 persons in urban villages of Jaipur city. All most all of them had their own accommodation because they were the original inhabitants. More than 77% households are engaged in agricultural activities and had own shops, only 4% were in government job. The distance to work place was ranging 5 to 10 km of 62% of the households. The majority of peoples were having their own means of convenience. Around 50% respondents truly replied that the purpose of construction was for commercial development and 38% was for industrial and 12% residential purpose.

While dealing with the urban amenities, there almost every respondent was not satisfied with education facilities as there was only one government school till 5th standard which was also do not have basic facilities. Almost a similar proportion of residents were availing of inadequate health services such as the primary health centre as there was not any government hospital in the village. Most of the residents were not connected by the municipal tap water supply in their houses and because of that 62% respondent were depended on tankers for water supply at their own expenses. The post office telephone centres and commercial bank facilities were also not satisfied. The shopping complexes were in the range of less than 3kms. The recreational facilities and playground were also not developed by the respective authorities.

A majority of 62% replied that there were medium scale industries and rest of them accounted for 38% as large scale industries. The Gems & Jewellery were in majority as it accounts 38% responses. The rest of them accounted 35% for IT Zone, 15% engineering zone and 12% for other types of industries. The proximity of Jaipur has been one of the advantageous location factor.

As jaipur is a major urban centre and capital city in the state with the addition to bring a metro train, it attracts vast number of persons from other districts as well as the hinterland for the purpose of employment. Hence connectivity with the hinterland need special focus. The southern portion i.e.; from Agra road to Ajmer road which is very near to study area and provides the good connectivity because of Nh-8 and helps to develop the infrastructure.

VII. CONCLUSION

The rapid urbanisation growth of boundary less cities are a new paradigm of the growing cities and Jaipur is no exception. Areas abutting the planned areas always remain under pressure for new avenues due to close proximity and easy accessibility taking into account the environmental consideration, physiographic existing development, directions of growth, requirement of land to accommodate the expected increase of population development resulting into urban sprawl in the rural-urban fringe of Jaipur city. Consequently, the process of urban sprawl is mainly occurring over the expense of productive agricultural land in the peripheral areas of Jaipur City. Furthermore, there is increase in land value which has made agriculture less profitable, and cultivable land is kept fellow prior to merging it with the urban areas. Besides, the designated urban land use practices are also not being followed through various urban development plans have been delineated in the past. There are number of factors as the government policies, educational institutions, health services and other amenities along with the national and multinational company’s establishment particularly the electronic industries, IT zones, the transport infrastructure development of roads, and
availability of skilled workers from the adjoining areas are largely responsible for the urban sprawl in the adjoining areas of Jaipur city. The process of urban sprawl has been resulted due to the continuous industrial and economic development in the rural – urban fringe of the study area.

VIII. RECOMMENDATIONS

The extension of Jaipur city on the fertile agricultural land is not seems to be economically viable and environmentally sustainable; because the growing urban expansion further swallows the productive agricultural land of the adjoining villages. For instance, the development in the study area was fully developed by acquiring the fertile agricultural land. So, the urban expansions are to be planned in the non-fertile agricultural land for sustainable urban and environment development. There is a growing need for the spatial distribution of population, which can reduce the pressure in the adjoining villages of the Jaipur city. It can only be possible with the help of decentralization of industrial and economic development activities in the rural-urban fringe in those areas where the land is less productive and economically not viable in the longer period.

There are occurring a number of socio-economic problems. The original inhabitants of the area are denied to avail the basic socio-economic amenities as electricity, power, water supply, roads, education facilities, health facilities, as the respondent Omprakash told that he gave 4bighas land to RICO before 15 years and only got Rs. 1,40,000 and still not getting basic amenities. They don’t have any sewerage facilities and proper roads and water supply. There is not any school and health centre near their houses. This has ultimately resulted into the spurious urban development as is observed in the urban villages of Jaipur city.

Consequently, the above mentioned recommendations must be taken into considerations in the development planning processes for sustainable development. So the development should take place without compromising to the deterioration of productive agricultural land resources and to the destruction of fragile natural environment.

REFERENCES