

IMPACT OF URBAN GROWTH ON LAND USE- LAND COVER IN HYDERABAD CITY

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Abstract

The evolution, growth and development of any city is the sum total of a series of processes that have been operative in that area over a period of time. The problems created by the haphazard and unrestricted growth of a city give rise to problems like unhygienic slums, polluted environment, uncoordinated development of residential, industrial, and commercial areas resulting in traffic bottle necks and many other problems all known and felt by the residents of the city. A particular process leads to a particular pattern. In turn the process itself is dependent on several factors like, the history of the region, its site and situation, social customs, population, planning laws, administration and so on and so forth. The Spatial growth of the city has been looked at from the land use point of view. Land use is the product of Ecological balance of various parameters existing over any space. Utilization or usage of land keeps changing based on the actions of mankind, the physical aspect 'Land' and cultural aspect 'Use' go hand in hand to frame 'Land use' and its study involves principles, factors, classification, techniques, conservation, reforms and planning. Hyderabad is one of the leading metropolitan cities of India. The city has undergone considerable socio cultural change in the past. Today also it is undergoing rapid and dynamic changes due to accelerated phase of Industrialization and urbanization. These changes had a deep impact on the pattern and developmental trends in the city.

Keywords: *Uncoordinated, residential, social customs, spatial growth, Ecological balance*

INTRODUCTION

Land use and land cover is an important component in understanding the interaction of the human activities with the environment. Land use / Land cover (LULC) changes play a major role in the study of global change. Land use/land cover and human/natural modifications have largely resulted in deforestation, biodiversity loss, global warming and increase of natural disaster-flooding. These environmental problems are often related to LULC changes. Therefore, available data on LULC changes can provide critical input to decision-making of environmental management and planning the future. Land resources are being exploited faster than they are renewed, as a result ecosystem are degraded, life support processes are threatened and biodiversity, being the key factor in maintaining biosphere resilience is decreasing at an alarming rate. Land use Land cover is an important component in understanding the interaction of the human activities with the environment. Soil, water, flora and fauna are the important land resources, which together influence in the survival of human beings by supporting food production and providing a congenial living environment. The Government of

India has accorded highest priority to the holistic and sustainable development of rain-fed areas through integrated watershed development approach.

OBJECTIVE

- To study the impact of urban growth on LU/LC in Hyderabad city.

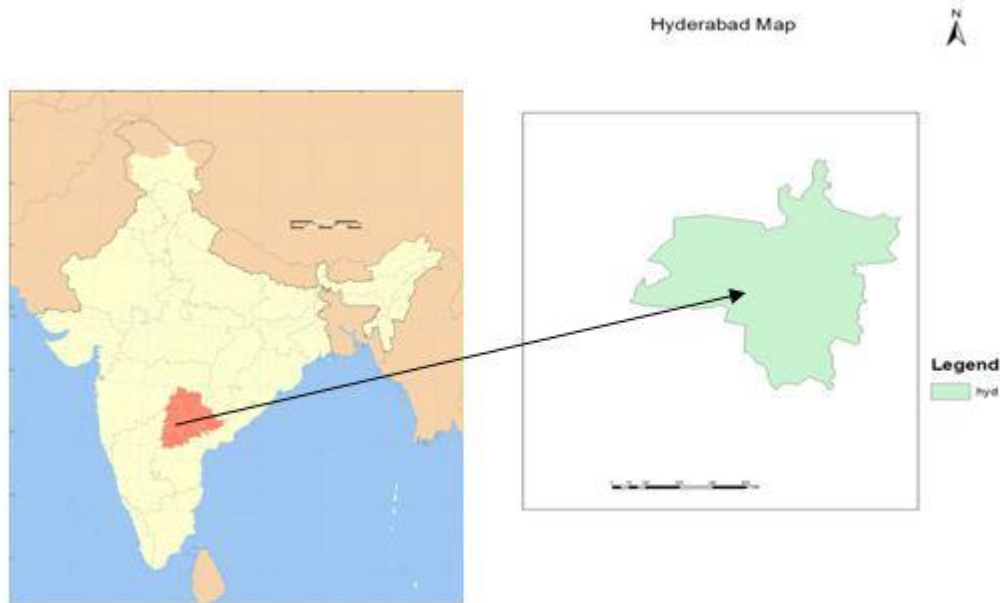
LITERATURE REVIEW

Urbanization is crucially linked to migration. Based on **Bhagat and Mohanty** (2009), whether migration is a strong or weak force in the urbanization process depending upon the nature and pattern of migration. From the research conducted by **Drewett and Rossi** (1981) on more than 100 towns in Western Europe classified into groups according to the stage of development, for the period of 1960-1970, and analyzed with respect to the component of population change between core and rings, migration is clearly the predominant force responsible for steering the patterns of change. In the early stages, it was the migration loss in the rings that produced the stage of population concentration, and in later stages the migration loss in the core triggered the decentralization.

Many scholars have tried to distinguish the major determinant factors of migration from rural area to urban area. **Jansen and Paelinck** (1981), **Kaida** (1992) and **Mazumdar** (1987) conducted researches to identify the determinants to be pull factors (from the urban area) and push factors (from the rural area), whereas **Jansen and Paelinck** (1981) analyzed the major determinant along with the improvements in communication between rural and urban areas. The main pull factor of migration from the urban area is the expectation of better chances of income improvement or wage (**Jansen and Paelinck**, 1981; **Mazumdar**, 1987), and the main push factors of migration from the rural area are conditions in the rural area due to over population and low agricultural productivity (**Kaida**, 1992). Strong push factors and weak pull factors of migration in the Asian countries caused rapid growth of the urban informal sector and resulted in expanded slums area around big cities (**Kaida**, 1992).

STUDY AREA:

The study area covers Hyderabad City situated in the heart of the Deccan plateau at an average height of 540 mts (1760 feet) above mean sea level. The city is located at 17° N to 17.5° N and 78° E to 78.5° East Longitude, covering an area of 240 Sq.Kms. On the North it has Nagpur city, in the South it has Bangalore city, in the East it has Vishakhapatnam city, in the west Mumbai city beside many other cities around. Hyderabad is one of the fastest growing cities in the country with a potential to become the Cyber capital of India. The city is witnessing a rapid expansion, industrial boom, increased trade opportunities coupled with high population growth rate (decadal growth rate of 40 percent) accelerated due to migration from rural areas.



Although built-up area is predominant only in the city center and accounts for 7.3% of the entire region, its impact on the natural resource base in the region is massive. Urbanization has alternated the land-use –land cover in the region with agricultural land being converted into settlements, roads, railways and commercial complexes.

Table 1 Percent share of various land use–land cover in the region

Zones (Distance from centre)	Percent share in zones					
	Built-up area	Urban vegetation	Agriculture land	Road (km)	Other land	Water body
Rural Area (25-50 km)	4.5	21.5	51.4	5182.9	22.1	0.4
Rural Belt (10-25 km)	9.9	16.7	53.6	2187.7	17.9	1.9
Urban Belt (5-10 km)	34.8	22.6	31.6	840.2	9.4	1.6
City Centre (0-5 km)	75.9	15.9	0.0	748.1	2.5	5.7

This trend indicates an increase in urban sprawl in rural belt and rural area at the cost of agriculture which is the main source of livelihood of rural poor. Such a trend is unsustainable as the rural population is ill-equipped to the changed circumstances. With loss of agricultural land, they are forced to migrate to urban areas to look for jobs and slums springing up in urban areas, thus degrading the environment in urban centres.

Land use conversions

In order to study land use change, a change detection was performed which indicated that while there was no perceptible change in an area of 3903.4 km² out of the total of 8000 km² of study area but there were changes in other categories. The extent of built-up area, 'other land' and vegetative cover increased by 355.6 km², 351.6 km² and 1215.8 km². While area under water body and agriculture decreased by 248.5 km² and 1474.5 km², respectively.

A major change entitling shift of agricultural land to 'other land use, category is owing to rapid urbanization in the region. Another reason which has fuelled this shift is the recurrent drought forcing farmers to opt for long fallow. This trend has affected the socio-economic condition in the region where large-scale migration of farming families to urban centers in search of livelihood, recurrent crop failure, high value of land, availability of credit facility, decreasing water resource, education, market economy, etc. have given rise to an unsustainable manner of economic development. In peri-urban area or rural belt, a number of fruit orchards and tree plantations have been established by large business houses that have brought land from small farmers and consolidated them into large holdings. These plantations and orchards account for the increase in vegetative cover in rural belt. Area under water body has decreased as tank bottom and riverbeds are encroached for cultivation using conserved moisture. A few tank beds have been encroached upon to set up residential colonies – a most undesirable trend, compounding the problem of water shortage in the study area. In view of these changes, the Government of Andhra Pradesh has promulgated the Andhra Pradesh Water, Land, Tree Act (2002) in order to safeguard all water body from encroachment by declaring a buffer zone of 5 km mandatory.

Impact on Environment

Due to high concentration of urban population in Hyderabad, agricultural activity has suffered great losses by way of shrinking areal extent and falling productivity. For obvious reasons the percentage share of population in agriculture in the city centre of Hyderabad is a meager 0.2% while the peripheral regions of Mahabubnagar, Medak and Nalgonda have over 23 % of its adult population engaged in agriculture.

Due to rapid pace of urbanization, agriculture -the mainstay of AP state economy has been relegated to the background. Prime agricultural lands around the city are converted into residential, commercial or industrial use. Apart from this large tracts are left fallow owing to various reasons like lack of adequate irrigation sources, failure of tube wells owing to fall in groundwater level, erratic rainfall, migration of land owners to urban centers, ineffective laws of tenancy, lack of input with farmers owing to poverty and shortage of labour during critical phases in cropping season, etc. As a consequence, agricultural workers in Hyderabad Urban District constitute less than 0.2 % of total workforce. On the other hand agriculture is an important economic activity and source of livelihood in rural areas in Medak (30%), Mahabubnagar (42%) and in Nalgonda district (23.5%) while Rangareddy with over 16% workers depend on agriculture for a livelihood.

Impact on residential space

Despite massive increase in built up area in HUA region, the high density of population makes available residential space scarce. In city centre, available built-up area per person in 2001 was 16.3 m² while in urban belt it was 23.9, in rural belt 81.9 and in rural areas about 234 m².

Table 2 Percent share of built-up area, urban green, agricultural land and other land (m²)

Zones (Distance from centre)	Total population (million)	Share (m ² / person)				
		Built-up area	Vegetation	Agriculture land	Other land	Water body
Rural Area (25-50 km)	1.13	234	1117.3	2665.9	1146.9	21.8
Rural Belt (10-25 km)	1.98	81.9	138.2	443.8	148.6	15.7
Urban Belt (5-10 km)	3.41	23.9	15.5	21.7	6.4	1.11
City Centre (0-5 km)	3.63	16.3	5.9	0.0	0.5	1.27

Reduction in green cover

Share of area under vegetative cover increases outward from city centre making quality of life poorer at the centre. While in city centre available green cover / person is meager, i.e., 5.9 m², it increases to 15.5 m² in urban belt, 138.2 m² in rural belt and over 1117.3 m² in rural areas. Urban planners are hard pressed to preserve available green lung space within the city.

Impact on land use

Although built-up area is predominant only in the city center and accounts for 7.3% of the entire region, its impact on the natural resource base in the region is massive. Urbanization has alternated the land-use –land cover in the region with agricultural land being converted into settlements, roads, railways and commercial complexes.

Inadequate supply of water is causing hardship to people and stalling economic development. The number and extent of water body is decreasing rapidly owing to recurrent drought, improper use of land resource and encroachments on tank bed for shortsighted gains.

Table 3 Percent share of various land use–land cover in the region

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Water conflicts:

Water an essential natural resource for human kind often cause conflict among stakeholders and regions. Although Hyderabad is located within the catchments of Godavari and Krishna – two major rivers of southern India, inadequate supply of water is causing hardship to people and stalling economic development. The number and extent of water body is decreasing rapidly owing to recurrent drought, improper use of land resource and encroachments on tank bed for shortsighted gains. Besides, Musi river which traverses through the middle of Hyderabad, has been polluted owing to urban waste and several schemes have been initiated to clean and restore the river. Recurring drought events is accentuating the situation in the region.

Analysis of growth in built-up area over a 30-year period (1970 – 2001) indicates highest maximum increase in the 10-25 km rural belt by 428.8 %. In rural area, (25-50 km belt) area under settlement increased by 305.5 % during the corresponding period while in 5-10 km urban belt, this increase was only 37.8 % and in the city centre this growth was only 1.02 %. Overall growth in extent of built-up area in the study area was 167.89 %. This trend indicates an increase in urban sprawl in rural belt and rural area at the cost of agriculture which is the main source of livelihood of rural poor. Such a trend is unsustainable as the rural population is ill-equipped to the changed circumstances. With loss of agricultural land, they are forced to migrate to urban areas to look for jobs and slums springing up in urban areas, thus degrading the environment in urban centres. Spatial analysis indicates that urban growth is eastward along the highways. Dispersed growth is observed in NW sector around Patancheru. Growth is however, constrained in SW sector owing to presence of hillocks and an undulating topography.

Land Values

Collection of secondary data from the all concerned departments like, Registration Department, GHMC, Revenue and Urban Development's etc and other officials involved in this process. Collection of primary data (sample survey of rented buildings) through random sampling method. For wider interaction on the study results, group discussions with stake holders, officials, builder community etc was done with the help of all stakeholders besides focus group discussions among the rental households, and discussions with project authorities, functionaries involved in this programme. Preparation of maps / plans for a clear understanding of the area, where Field study was undertaken and also to find out the boundaries of the sample circles / wards. This can help if any changes are made in the wards / blocks / localities.

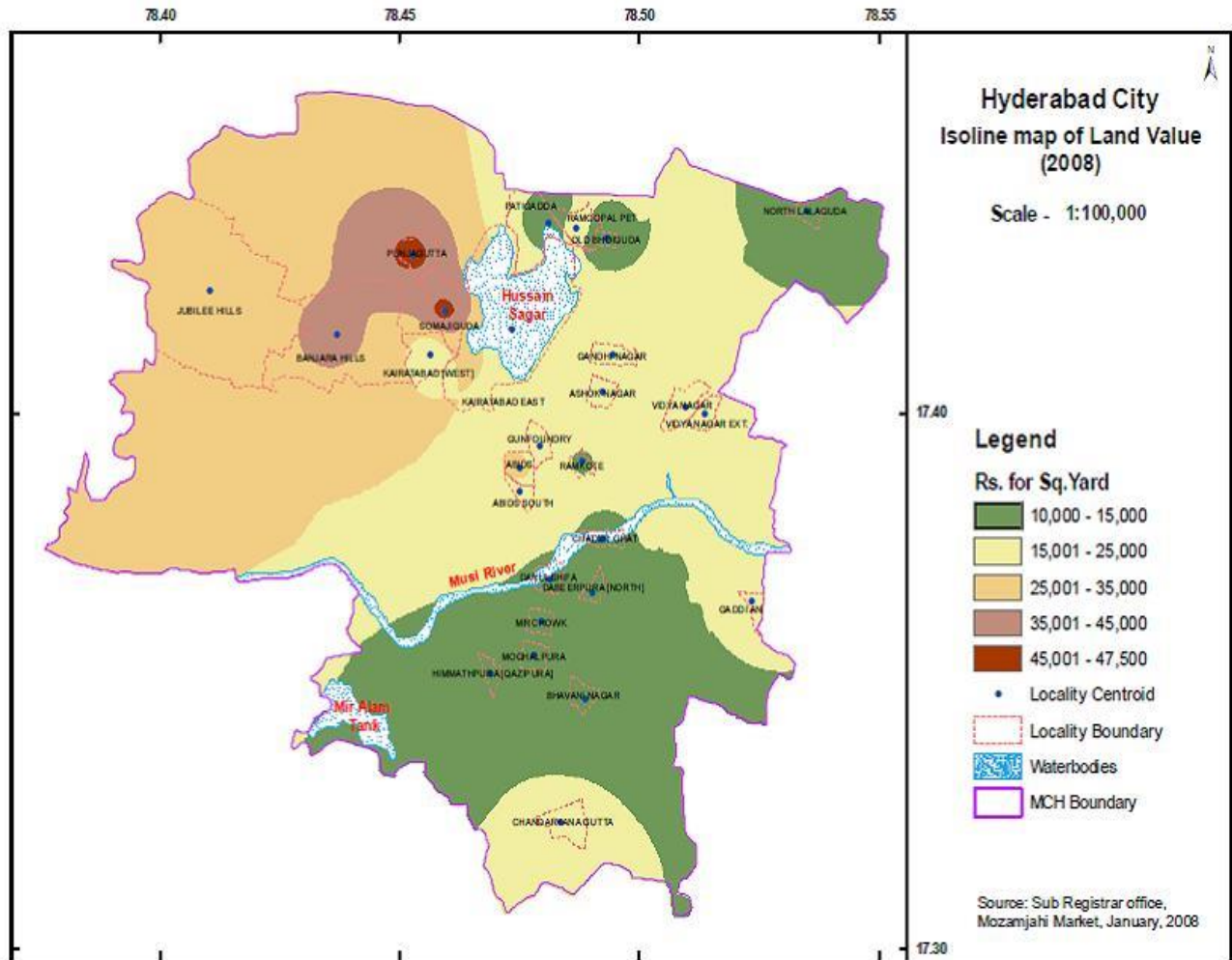
The sample survey of structures covered the Information regarding the zones, Circles, circles / wards, area, number of houses, households, population, and providing details like type of structures (house, Malls, Commercial establishments etc), were collected for each individual structures and studied from secondary as well as primary sources in the study area. This was studied in 5 zones i. e North, South, Central, East and West zones and 18 Circles and 86 wards selected randomly.

As a part of the study, various previous data; market values for land and construction values / reports / maps were collected from various agencies and reviewed to assess the existing scenario in Hyderabad. Secondary data such as households, population, and road network map were collected from various agencies viz., Census Department, Bureau of Economics and Statistics, HUDA, MCH and Inspector General, Stamps and Registration Department, Government of Andhra Pradesh will certainly make for a more detailed analysis.

Though the value of land is an economic aspect, mainly dealt with economists, but the land value is enhanced by its location proximity and the potential utility. It is of great concern to commercial and economic geographers. It can be said that, the greater the economic and commercial activity connected with a location, the greater is the land value of that site. It is evident that land values as per public perception are higher, when compared to Government values. However they show a relative bearing. The maximum land values occurred in Panjagutta-Ameerpet and Somajiguda of ward 6 of study area, for the obvious reasons of the being the current mercantile nerve centers of Hyderabad city. The range in value from an astonishing minimum of Rs. 25,000 to 70,000 Per Sq.Yards. As per public perception and at the Government rate too, they show a value of Rs. 12,000 to 32,000 Per Sq. Yards. At present, Punjagutta may be considered as current CBD of Hyderabad city as major activities are centered here. It can boast of high quality Commercial centers, specialized hospitals, Software firms, training centers, recreation centers, hotels etc. Catering to not only Indian but International markets. Somajiguda on the other hand has print and electronic media, banking activity, major malls, jewellery parks etc.

Banjara hills, Jubilee hills, Abids, Gunfoundry, Khairtabad etc. ranging in maximum values from Rs. 30,000 to 60,000 Per Sq. Yards as per public perception and Rs. 16,000 to 32,000 Per Sq. Yards as per Government rate. Once again, high commercial activity is the sole reason which can be given for Abids, Gunfoundry and Khairtabad etc. However for Banjara hills and Jubilee hills it is purely the social status due to residences of

beaurocrats, politicians, film personalities and high profile social figures which has given rise to exorbitant land values. In contrast Himmatpura, Dabeerpura, Bhavaninagar show the lowest land values, simply because of their site locations, representative of old city.



Land values also show the same fact that the sites near Panjagutta, Somajiguda, Abids stand out as islands exhibiting steep rise in land values in relation to adjoining sites. Infact, the centers of Panjagutta, Somajiguda and Abids show a steep rise in land values to the tune of Rs. 13,000 within a distance of one kilometer. The steepest rise is in Somajiguda, that Abids ranks a close third with the rise not as steep as the earlier two centers. The rates of increase are also more in the map that has been prepared based on people's perception, due to inordinately high figures at the higher end of the scale.

CONCLUSION

Hyderabad is one of the cities identified for funding development projects under JNNURM. As one of India's fastest growing cities, it has transformed from a conventional city and an old age retreat. The city proudly boasts of a strong economy fuelled by its industries – keeping intact the social, cultural and educational strongholds. The civic infrastructure growth and service standards however fall short of the actual requirements. The JNNURM has come as a big opportunity.

Growing urban population and the consequent shortage of infrastructure and municipal services will tend to increase the number of urban poor. Majority of the slums are on private land. Other slums occupy land belonging to government, railways, defence, irrigation and other reserved land. A large number of slums live on riverbeds, hilltops and other environmentally dangerous areas.

Most slum dwellers are daily wage earners (skilled/unskilled workers, vendors, domestic help, etc). Almost all slums have access to basic services. The major slum problems are related to security of tenure, good quality housing and access to social infrastructure. The GHMC has given top priority to slum rehabilitation.

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