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# Land and Infrastructure Development in Peri-Urban Areas: Case Study of Gomti Nagar, Lucknow, India

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Additional information is available at the end of the chapter

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## Abstract

The objectives of the paper is to determine the status of land and infrastructure in the peri-urban areas of Lucknow Municipal Corporation (LMC). Lucknow, being the capital of most populated state of the country, has lots of migration in search of jobs and better education. The growth of Lucknow peri-urban areas has propelled by the economic growth and demographic pressure. The growth of peri-urban areas has of the city has to sustain over a period of time. However, the predominance of growth form over the period of time has significant harmful impacts. It has thwarted mass transit development, separated rich and poor, caused unnecessary travel, consumed fragile land, and generated excessive public expenditures. The paper has tried to pursue three key objectives of the development of land and infrastructure in peri-urban areas of the Lucknow city. The first was to elaborate the main conceptual and theoretical debates concerned with peri-urban areas. Second, the paper considered planned development of land and infrastructure as an option for sustainable development of peri-urban areas. Third, how planned development of land and infrastructure would help other Indian cities in providing better services to their citizens.

**Keywords:** economic growth, demographic pressure, sustainable development, transit development, peri-urban infrastructure

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## 1. Peri-urban development—an introduction

The peri-urban area is an area of mixed rural and urban population and land uses. It begins at the point where agricultural land uses appears near the city and extends up to the point where villages have distinct urban land uses or where some persons, at least from the village community commute to the city daily for work or other purposes [7]. The term is used to

describe the built up area just outside the corporation limits of the city [11]. The term fringe suggests a borderline case between the rural and urban and actually lies on the periphery of urban areas, surrounding it and distinguishing it from the truly rural countryside [6].

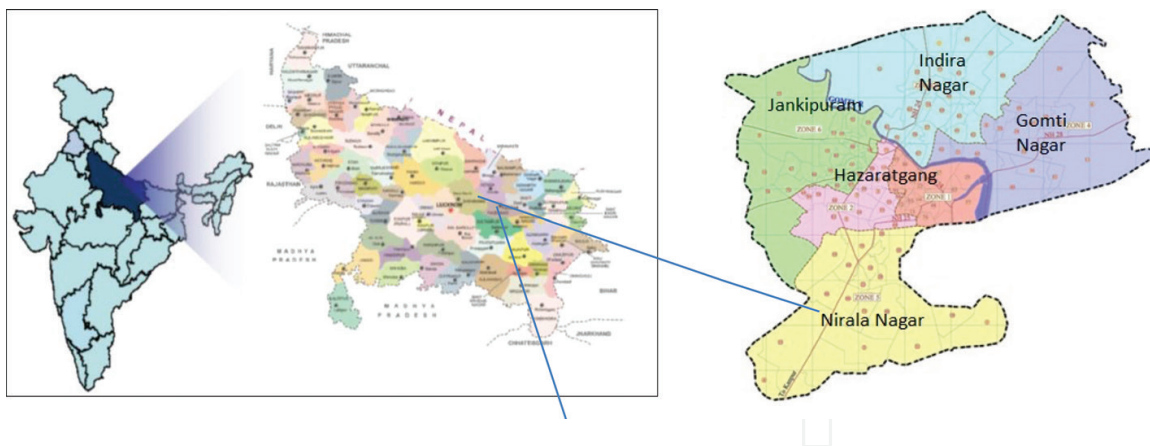
The peri-urban development has arguments for and against it. However, it is evident that it alters the urban spatial structure to bring about negative externalities that affect the functioning of the city [2]. This implies that causes are to be treated to lessen the negative impacts. The growth of an urban area are being propelled by the economic growth and demographic pressure. The sociocultural characteristics of the context and preferences exhibited, shape growth into growth patterns. In the wake of rapid expansion of metropolitan cities, the local governments can barely cope up with only operation and maintenance of the existing services within their jurisdiction. While serviced urban land may indeed be far below the requirement of the urban area, the processes of speculative purchase and land conversion from agriculture to nonagricultural use continue unabated in the peri-urban areas. However, the form this growth takes and its after effects are contributed to the institutional inefficiencies and land management mechanisms within their legal framework. However, the benefits include access to a wider choice of neighborhoods with required levels of stimulus and rest, access to more natural environments, affordable land market and subsidized services [3]. Within the neighborhoods, congestion levels are lower and security is higher.

Critics of peri-urban areas are to maintain that the predominance of growth form over the period of time has had significant harmful impacts. It has thwarted mass transit development, separated rich and poor, caused unnecessary travel, consumed fragile land, and generated excessive public expenditures. On the other side, there are those who believe that citizens are getting what they want: single-family homes on large plots, safe communities with good school systems, and metropolitan locations far from the pace and problems of urban populations.

## **2. An empirical case study of Gomti Nagar peri-urban areas of Lucknow**

This case study is concerned with Gomti Nagar peri-urban area of Lucknow Municipal Corporation (LMC). Lucknow is rapidly growing metropolis and capital city of Uttar Pradesh state of India. The city is famous for its Nawabi culture and traditional values. Gomti Nagar is located in north-east part of Lucknow Municipal Corporation. It consists of both residential and commercial settlements. Gomti Nagar is one of the largest and most preferred commercial destinations in the city along with hectic residential development [1].

The city of Lucknow is gradually wearing a look of modern city with its swank commercial properties, sprawling shopping malls, and modern residential real estate and metro rail. The city has attracted a large number of migrants from smaller towns and villages of state in search of education and employment and higher-order services; therefore, it is estimated that there is an additional population of 100,000 in every 5 years [9], which needs to be incorporated in additional areas in the city. The agricultural lands in close proximity of



**Figure 1.** Location map of Gomti Nagar and Lucknow Municipal Corporation.

the built up areas of the city are slowly being converted to urban use. However, some of the conversion is a part of the planned growth; the rest of it is haphazard and is being carried out by private developers, property agents, land speculators, and individual owners (**Figure 1**).

The speculation of urban land by private developers for vested interested is leading to haphazard, unplanned, and illegal development in city. This is also resulting into a reduction in supply of serviced land for the public sector. The increasing population and aspirations of the peoples in new peri-urban areas like Nirala Nagar, Indira Nagar, Jankipuram, and Gomti Nagar are coming. Out of these peri-urban areas, Gomti Nagar is coming up as one of the most preferred commercial destinations in the city along with hectic residential development. This paper would elaborate the process of land development and its impact on peri-urban land and infrastructure in the Gomti Nagar of Lucknow city [10].

### **3. Land and infrastructure development in Gomti Nagar: peri-urban area of Lucknow**

A Gomti Nagar peri-urban area is situated on the north-east side of the city in trans-Gomti river area, consisting of both residential and business settlements. It is situated on the banks of river Gomti, which flows through Lucknow, hence its name. It is one of the largest and upcoming areas of Lucknow. Gomti Nagar is an organized settlement developed by Lucknow Development Authority (LDA), taken up by the LDA in 1980s. LDA works as an autonomous body to fulfill the growing demand of housing in the State. It is home to high-end premium residential projects, malls, IT parks, commercial property, plots, business centers, multiplexes, clubs, banks, food courts, entertainment centers, and finance institutions.

Gomti Nagar is now developing as the commercial and IT hub of mainland Lucknow. Till now, the central Lucknow consisting of Hazratganj, Vidhan Sabha Marg, and Ashok Marg was the main commercial area. Realty of Gomti Nagar is growing at very fast. It has the software technology park, Reserve Bank of India building, NABARD, and many other important

offices and commercial centers. It boasts of some important national and state level headquarters of SONY, Reliance retail, etc. It also has a developed industrial area with several factories and industrial units. The Sahara city is also situated in Gomti Nagar.

As earlier stated that the development of Gomti Nagar is divided into three phases:

1. Gomti Nagar—Phase-I
2. Gomti Nagar—Phase-II and
3. Gomti Nagar extension.

Phase-I and II have good occupancy rates, Gomti Nagar extension is still under construction (**Table 2**).

For development of colony, primary survey of the land was carried out by the LDA and Uttar Pradesh Housing Board (UPHB) has prepared plan and sent Government of Uttar Pradesh with a request for acquisition of land, after having been passed the state government issued a notification for preliminary intention to acquire land around 1080 ha (approx.) [8] (**Table 1**).

The Lower Income Groups (LIG) and Economic Weaker Section (EWS) houses are mostly located in Vinay Khand and in 1995 onwards, people started living and high income groups (HIG) colonies are mostly in Vipul Khand of Gomti Nagar [4]. The basic infrastructure and construction was carried out by the LDA and finally handed over to LMC for further maintenance (**Table 3**).

The infrastructure facilities provided by the Government agencies are adequate and able to sustain with the future growth of the area. The layout of the colony is cosmopolitan—with

S. No.	Name of colony	Gomti Nagar
01	Land area	1080 ha (approx.)/10.8 km <sup>2</sup>
02	Project cost	Rs. 900 crore (approx.)
03	Location	Situated in trans-Gomti river area and along Faizabad road

Source: Lucknow Development Authority [5].

**Table 1.** Details of Gomti Nagar peri-urban area project, Lucknow.

Position	EWS	LIG	MIG-I	MIG-II	HIG	Total
Total taken up in Phase-I and Phase-II	5245	4686	5838	6597	4925	27,291
Completed	5245	4686	5838	6628	4908	27,305
Allotted	5010	4557	5691	6322	4450	26,030
Possession	5010	4526	5604	6162	4218	25,520

Source: Lucknow Development Authority [5].

**Table 2.** Details of plotted development for different income groups Gomti Nagar Phase I and Phase II.

Name of colony	Total scheme area (sq.m.)	Total no. of houses	Total built-up area (sq. m.)	Road area (sq.m.)	Open space (sq.m.)	Other amenities area (sq.m.)	Assessment of infrastructure facilities	Other facility
Gomti Nagar	1,080,000	27,305	3,800,000 (60%)	940,000 (17%)	900,000 (12%)	600,000 (11%)	Water supply, electricity and sewerage line available, internal roads in good condition	Street light, parks and community center

Source: Lucknow Development Authority [5].

**Table 3.** Infrastructure status in Gomti Nagar peri-urban areas.

roads running parallel and at the right angles to each other and services placed at vantage points. All basic amenities, like, shopping centers, schools/colleges, parks, hospitals and dispensaries, community centers, petrol pumps, bus stop, and also is stadium provided by the Government agencies.

All these development activities of peri-urban land development and infrastructure development by public sector agencies are carried out with respect to the existing policies of Lucknow Development Authority. However, access to land is made through the acquisition of land act, which has major drawbacks of procedural delay and encroachment on land by other interest groups.

### 3.1. Comparison of land and infrastructure of Gomti Nagar peri-urban area with other part of the cities

Gomti Nagar area witnessed a growth in property prices as development of Lucknow city started spreading outside its limits. The area being near to city limits experienced growth and soon captured the rising property prices. With the current property prices in the city rocketing toward sky, the land rate in the Chowk area is high as it is the center of the informal commercial market and the price varies 6000–9000 per sq. ft. While the land rate are higher in Hazratganj than the Chowk area because it has better infrastructure and comparatively new development than the Chowk so the land price over here are 7000–9000 per sq. ft. on main road area as there are virtually no place for further development of the rate of land, which are available are very high. On the other hand, in case of new area development like in Indira Nagar, Nirala Nagar, and Gomti Nagar, land prices are comparatively lower than the city and these are affordable. In Gomti Nagar area, the land prices are as high as 6000 per sq.ft., while in the Nirala Nagar it is up to 5000 per sq.ft. In the new peri-urban areas, the infrastructure is better than in comparison to old areas, more open spaces and better living environment, and comparatively affordable price and this also shows that the old city center areas are getting more and more congested due to various reasons, and hence, people are preferably moving outside the city center toward the periphery, which has livable environment and also affordable to mass.



### 3.2. Comparison between open vs. built spaces

The graph number shows that Chowk area has highest built-up in comparison to other areas as this one is older development and quite congested than the Hazaratganj and other new areas, the open space is also very less and that is why this area is very much suffocating than the other areas. The other amenities and facilities are also not good in old areas such as road and basic infrastructures and this may be the reason why people who can afford are moving toward outer periphery along with migrating population. The data shows that all three peri-urban colonies namely Indira Nagar, Nirala Nagar, and the Gomti Nagar are newly developed areas basically after late 1970s and in 1980s in response to the congestion in the central city area, population increase and increasing aspirations of people. These three areas have wider road, better infrastructure, and housing with medium and low density built-up (Figure 2).

### 3.3. Comparison of problems in Gomti Nagar peri-urban area with other part of the cities

The residents of Gomti Nagar and other part of cities rated the problems in the area and majority of the peoples rated traffic as the major problem in the old city areas followed by

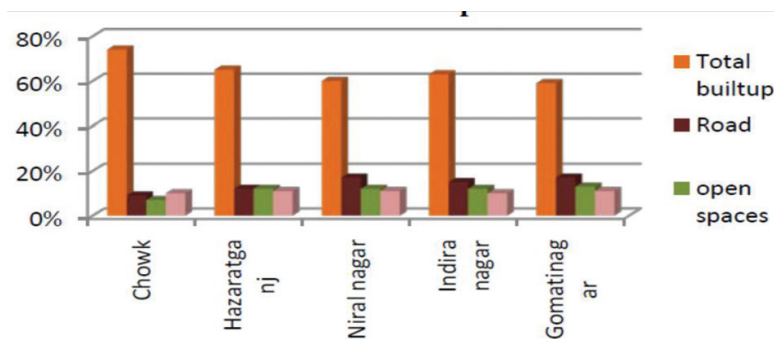


Figure 2. Comparison between open vs. built spaces of Gomti Nagar with other areas of city. Source: Lucknow Development Authority and filed visit.

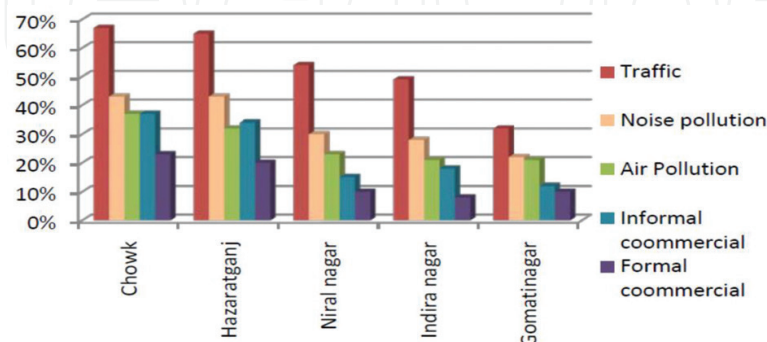


Figure 3. Comparison of problems in Gomti Nagar peri-urban area with other parts of the cities. Source: Lucknow Development Authority and filed visit.

noise pollution and air pollution, which create congestion graphs. Residents in the Chowk area had rated traffic congestion as a major problem because the roads are very narrow and the informal activities are spread across roads. This creates lots of hassle and traffic jams for long hours, and therefore, lots of noise pollution and air pollution in the area. Hazaratganj has also face the same problems because of lots of formal and informal activities and conversion of residential units into office spaces and for commercial purposes. This also creates lot traffic jams, congestion, noise, and air pollution. While in Nirala Nagar, Indira Nagar and Gomti Nagar area this problem is very less because these area are new development and away from the central hub of the city and roads are also wide so has less traffic jams, noise and air pollution (**Figure 3**).

The Gomti Nagar peri-urban area has very less problems as roads are wider and area is well planned and newly developed.

## **4. Status of infrastructure in Gomti Nagar peri-urban area**

### **4.1. Water supply**

The River Gomti continues to be the main source of water supply to city, though a number of tube-wells have been bored to exploit ground water. Water supply in Gomti Nagar is through the household's water supply with metered connection, and water supplied to people is 3 h in the morning and 2 h in the evening. The houses sentiments which do not have household's level, municipal water supply have their own bore wells for water.

### **4.2. Sewerage and solid waste management**

In Gomti Nagar, most of the households have septic tanks and few of them are connected with the sewer line. The door to door solid waste collection system is exist in Gomti Nagar peri-urban area. However, in some areas, usually waste from the households is thrown on the streets. Some households have begun to contact private collectors to deposit the waste into the nearby depots.

### **4.3. Roads and public transportation**

The road network is wide and efficient to cater optimal traffic in Gomti Nagar. This was done in a planned manner keeping mind of future growth of the city. The roads of Gomti Nagar, Jankipuram, Aliganj, Indira Nagar, Nirala Nagar, and Sahara city are wide. The internal roads are 10 m wide and are enough to cater to traffic volume generated peak time in these areas. The infrastructure development activities in Gomti Nagar peri-urban areas has carried out by the public sector agencies like Lucknow Development Authority. Access to the land is made under the land acquisition act. The objectives of development of housing for HIG and MIG and land development process through private agencies are to earn maximum profit and developed the infrastructure for urban poor who cannot afford housing and other facilities.



Overall, in Gomti Nagar peri-urban area, the process of peri-urban land and infrastructure development is controlled by the public and private sector agencies.

## **5. Issues in development of land and infrastructure in Gomti Nagar peri-urban area**

It is observed that Gomti Nagar peri-urban area has planned developments. However, still LDA is facing issues of development. These has its negative effects along with its positive benefits and its impacts can be seen in different heads like physical, legal, organizational, and financial issues and these are:

### **5.1. Land speculation in Gomti Nagar area**

Gomti Nagar peri-urban area of Lucknow is one of the fastest growing peri-urban areas of the city. However, issue of land speculation is one of the major issue as real estate developers enters into the market the land rate in Gomti Nagar area getting highest in the city. It is being unaffordable for lower income and EWS people of the cities. The land rates are reaching the sky and caused problems of land speculation in Gomti Nagar areas.

### **5.2. Development in low lying area of trans-Gomti river**

The Gomti Nagar is getting developed in the trans-Gomti river area, which is very low lying and marshy land. However, it is as risky for development as of the risk of floods from the river and other hazardous diseases such as water borne diseases can occur due to the dirty water quality. Development in low lying area is also a costly affair in Gomti Nagar area.

### **5.3. Restricted development permission in Gomti Nagar**

In the Gomti Nagar area, permissible FSI is one which is very less as this area has the potential to absorb extra population of the city, development activities should be encouraged within this area, by giving benefits of extra FSI and Transfer of Development Rights.

### **5.4. Less developed physical infrastructure**

Despite this area has planned development but still there is a lack of inadequate physical infrastructure facilities like water supply system, sewerage, and solid waste management etc.

Though, Gomti Nagar peri-urban area is developed by Lucknow Development Authority in a planned manner but still there are many milestones, which should be unturned for maximum benefits of the development and future growth of the area. The peri-urban must absorb the growing population and their aspirations. The model of Gomti Nagar peri-urban development could be a role model for other cities if this area would addressed the issues in a proper away. In larger context, there is a need of careful slight attention from development

and implementation authority to control haphazard development in peri-urban area so that Gomti Nagar will be a living role model of peri-urban development to other Indian cities.

## 6. Way forwards and learning to other Indian cities

Gomti Nagar peri-urban area of Lucknow has come as one of the most planned development in Lucknow city with boasts of modern and Hi-tech residential and commercial complexes. The city is growing very rapidly and its boundary limit is changing. The villages located at surrounding often come under the influence of urbanization and pressure depending on the direction and intensity of growth of the city. The growth of a city is triggered by growth of the population by natural processes and indirectly by the ability of the city to offer economic potential in its context through the influx of migrant population. This outcome manifests itself in space and evolves over time to produce a growth pattern in the form of peri-urban development to fulfill the growing aspirations and this growth pattern along with the evolution of the spatial structure of the city gives clues on the efficiency of the city structure in fulfilling its functions. Much of the urban growth is taking place along transport corridors, and unrestrained by municipal jurisdictions; the distinction between urban and rural is getting blurred. As there is no place in the central city, the growth may decline but in the peripheries, there will be new growth because these areas are the new hopes for city. New peri-urban areas like Jankipuram, Nirala Nagar, Indira Nagar, Aliganj, and Gomti Nagar area etc. are coming very fast along the various trunk roads of the city and therefore they are very well connected with the central part of the city.

The Gomti Nagar area of Lucknow city is the modern development by Lucknow Development Authority where infrastructural facilities along with other facilities are good and development of this area has happened in planned manner, and it will become a role model for the other peri-urban land development in the city. For the cities of similar size like Kanpur, Allahabad, Meerut, and Moradabad, there is a need of an effective local government and sensible legal framework for the operation.

The presence of a legal mechanism, which facilitates action, autonomous central institution, and a regulated land market, and all these will make a planned development of the city without emergence of sprawl. This will ensure efficient utilization and equitable distribution of resources that enhance economic growth and secure environmental sustainability. In the recent past, the LDA has been proactive in plan preparation and implementation. Not only the development plan proposals have been projected for implementation but also the servicing of land for residential development have been phased out in the plan document. As the organization is able to involve stakeholders of various kinds, its intentions to facilitate development come with the minimal delays and encumbrances. The city has intended to achieve a more efficient urban form, support, and promote vitality of the urban economy, integrate urban poor into the urban fabric by providing them place to stay and live, plan for a sustainable urban environment in terms of better infrastructure, sanitation, open spaces, wide roads, and living places etc. and for this, the authority has started implementing plan for peri-urban

development so that they will become a potential place for growth and development. The inclusive planning and infrastructure development in Gomti Nagar has set an example to other Indian cities that the peri-urban area must have good accessibility with the other parts of the cities.

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