PERI-URBAN DYNAMISM IN INDIA: A CASE OF LUCKNOW CITY

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Abstract
Rapid urbanization and economic development are causing the cities to expand in size and structure. This expansion often leads to the development of a new area surrounding the city, known as a peri-urban area. The peri-urban areas are characterized by the co-existence of urban and rural elements and are very dynamic and undergoing continuous changes concerning land use, population characteristics, and social systems. This paper assists in understanding and defining peri-urban areas, the process of peri-urbanization, their relevance to planning, and explaining why it is important to understand peri-urban areas, what are the changes seen in their jurisdiction and governance. The paper also highlights various issues and challenges in peri-urban areas of Lucknow city and suggests some policy measures and strategies for the sustainable development of these areas.

Keywords: Peri-urban, Drivers, Development strategies, Governance.

Introduction

Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050. Projections show that urbanization, the gradual shift in residence of the human population from rural to urban areas, combined with the overall growth of 90% of this increase taking place in Asia and Africa. The report notes that future increases in the world's urban population are expected to be highly concentrated in just a few countries. Together, India, China, and Nigeria will account for 35% of the projected growth of the world's urban population between 2018 and 2050. By 2050, it is projected that India will have added 416 million urban dwellers, China 255 million, and Nigeria 189 million. *(World Urbanization Prospects, WUP, 2018).*

India is now the most populous country in the world and has a vast geographic expanse. 34% of India's population currently lives in urban areas, with a growth of 2.4% from 2010 to 2018*(World Urbanization Prospects, WUP, 2018)*. Urbanization is progressing rapidly around the world. Villages near the city are being converted to suburban land. At the city limits between the urban hinterland and the countryside, areas comprising a significant portion of the population have emerged. It manifests as a place of great dynamism and a highly differentiated area often called a peri-urban area.

The city's radial expansion has progressively absorbed the cantonment of Lucknow. New housing colonies are being built in the city's south and southeast, connected by a newly constructed ring road. The city has seen an influx of private developers, resulting in a real estate boom. The city has resulted in migration from the surrounding region. Because of the city's high cost of living, residents tend to relocate to the city's outskirts. This sort of population movement, spurred by economic factors such as land speculation, has resulted in people residing in peri-urban regions. This type of peri-urban development comes with various issues and challenges at different levels, as discussed in this paper.

Study Area

Lucknow is about centrally positioned in the state. It is in the Lucknow Division, which includes Lucknow, Unnao, Rae Bareli, Sitapur, Hardoi, and Kheri districts. Lucknow is located between 26`

30`N and 27` 10`N latitude and 80` 30`E and 81` 31`E longitude, in the middle of Gangetic Plain on the banks of river Gomati. It is approximately 110 meters above sea level. The district is flanked by Sitapur in the north, Barabanki in the east, Rae Bareli in the south, Hardoi in the northwest, and Unnao in the southwest. The River Sai forms a natural boundary for the southwest part of the area for a short amount.

The district is split into 4 tahsils: Malihabad, Lucknow, Bakshi Ka Talab, and Mohanlalganj. The district is split into 8 development blocks: Mal, Malihabad, Bakshi-Ka-Talab, Chinhat, Kakori, Sarojaninagar, Gosainganj, and Mohanlalganj. These blocks are responsible for implementing and monitoring development schemes. The district's total size is 2528.0 square kilometres. The rural area covers 2057.3 Sq. Km., whereas the urban area is 470.7 Sq. The district has 498 Gram Panchayats, 807 Revenue Villages, 803 inhabited villages, and 4 unoccupied villages. There are ten statutory towns and two census towns in the urban area. Statutory Towns comprise one municipal corporation, eight panchayats, and one cantonment board.

STUDY AREA MAP OF LUCKNOW DISTRICT
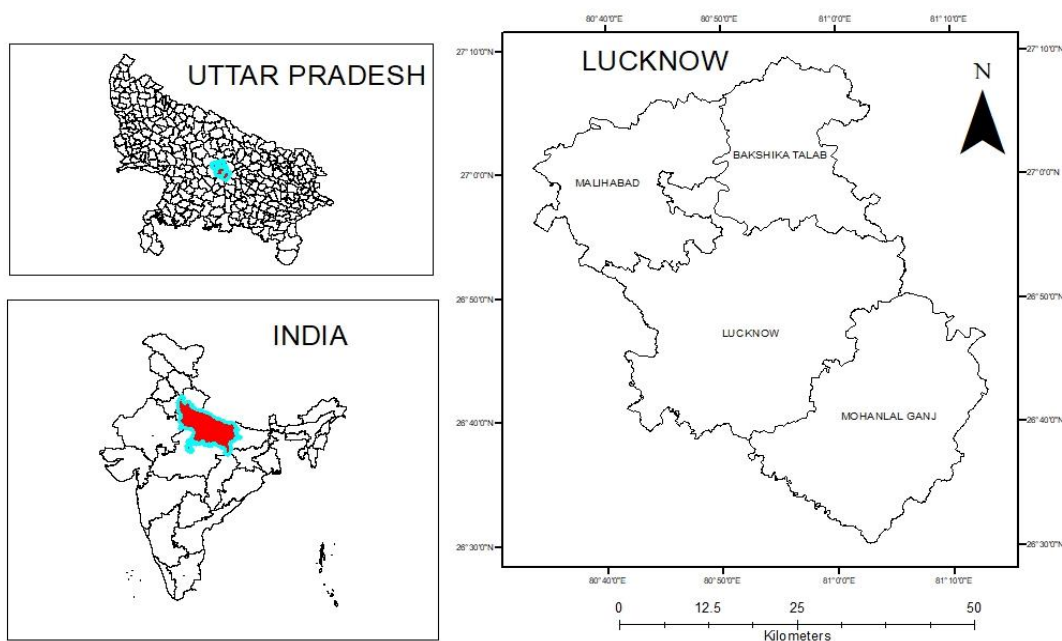
Objective
1. To define and understand the Peri-urban areas and their importance.
2. To highlight the changes seen in their jurisdiction and governance.
3. To highlight various issues and challenges in peri-urban areas of Lucknow city.
4. To suggest some policy measures and strategies for the sustainable development of these areas.

Methodology
The present study is based on an extensive review of the relevant literature. This study includes primarily secondary sources of data which comprise various government reports, Town & Country

Planning Organization reports, papers, articles, census data, etc. The study is descriptive and analyses the different literature to meet the demand of the said objectives.

Results and Discussion

Peri-Urban Areas

The term Peri-Urban originated from the word `peripheral', which means it is situated on the periphery of the urban centre. Peri-urban areas are physically defined transitional areas that border a city and have a mix of rural and urban forms and functions. Peri-urban areas are defined as areas around cities within daily commuting distance of the city core. In some parts of Asia, these districts might extend up to thirty kilometres from the city centre. Peri-urbanism is a unique phenomenon within the greater trend of urbanization. Thus, peri-urbanization refers to the process of urban change on the outskirts of cities, which is becoming an important spatial phenomenon in today's globalized world. This process can be initiated by the spread of uneven settlements, new towns, industrial estates, and other forms of large-scale urban development activities on the outskirts of big cities.

Figure 1: PLUREL concept of Peri-Urban areas
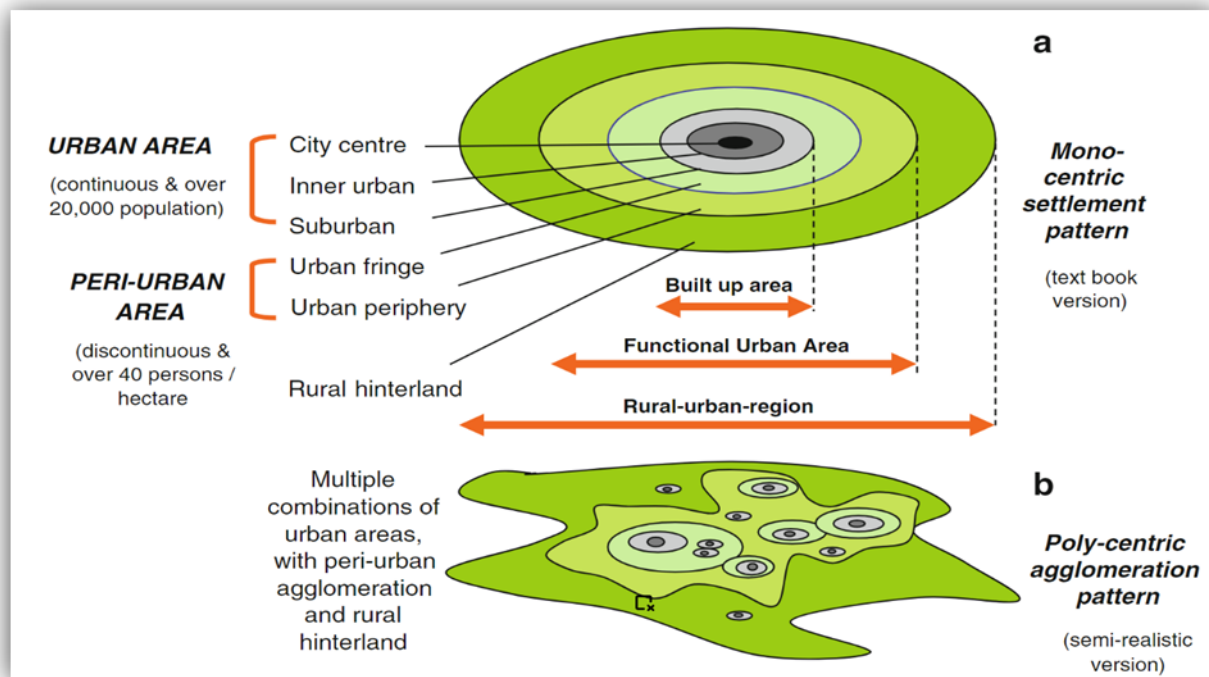
Source: PLUREL Project, 2013

These areas may be divided into two parts:

1. **Urban fringe:** Areas adjacent to and in contact with city boundaries are directly impacted by urbanization and undergo rapid transformation.

2. **Urban periphery (Area beyond the fringe):** In these areas, creating new towns to maximize profits from the periphery by converting farmland to non-agricultural uses is a primary concern.

The growth of cities provides numerous push and pull factors that encourage people to relocate from rural to urban areas and the hinterland. Because this location is in the middle of two unique character

spaces (urban and rural), peri-urban experiences the issues of both urban and rural areas. However, peri-urban areas are frequently disregarded because they are neither urban nor rural.

Peri-urban regions see a high influx of natural resources, goods, and migration. They also serve as a link between urban, rural, and natural areas, with relatively fast and dynamic expansion and varied land use in terms of physical and socioeconomic characteristics. The peri-urban area is known for its high population density, diversified income sources, pollution, environmental issues, resource exploitation, economic activity, and limited service supply. These areas offer a compromise between urban conveniences and rural lifestyles, attracting people seeking a balance between city amenities and natural environments.
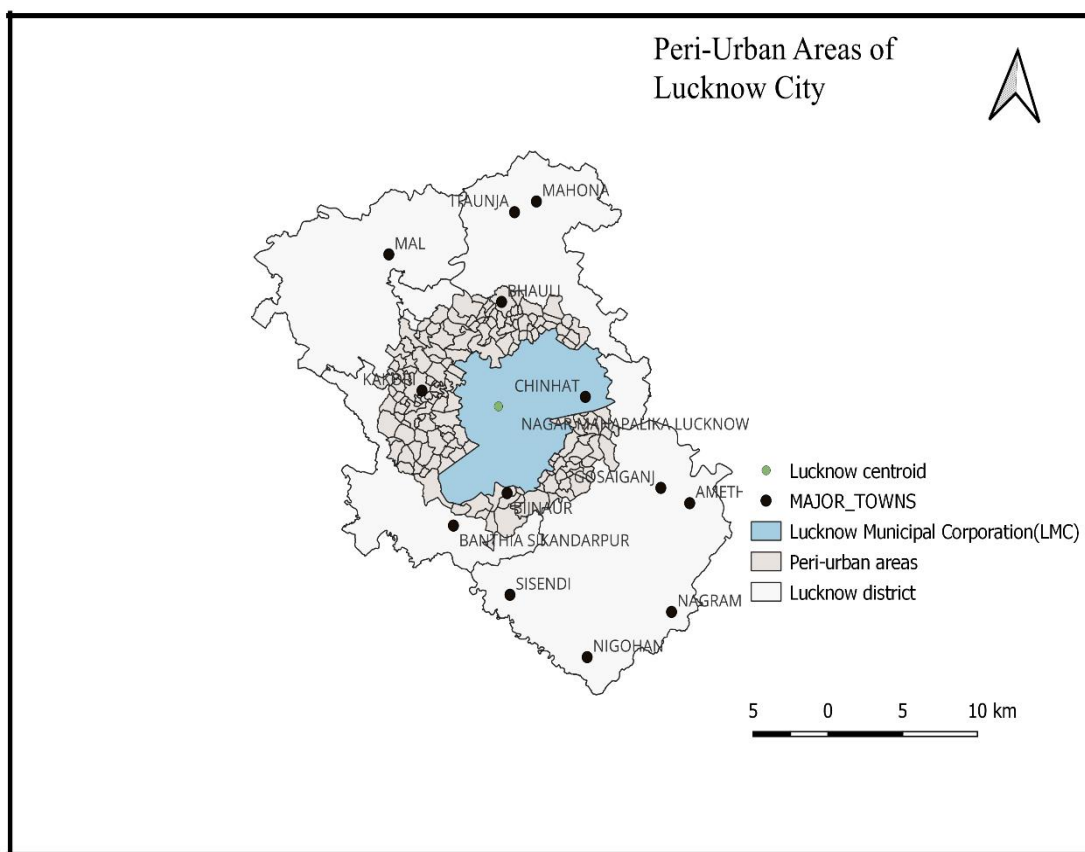
Source: Made by Author

Importance of Peri-urban Areas:

Peri-urban areas, the transition zones between urban and rural areas, hold significant importance for several reasons:

1. ***Economic opportunities:*** These areas often serve as hubs for agriculture and food production, contributing to local and regional food security. Also, peri-urban areas can provide opportunities for small-scale entrepreneurship and employment, especially in agribusiness, eco-tourism, cottage & handloom industries, agro-product-based industries, dairy product-based industries, and other small & medium-scale industries. It also provides opportunities in

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renewable energy production and logistic services. Additionally, these areas often attract businesses looking for low land costs and access to urban markets and rural resources.

2. *Educational and Health Facilities:* Peri-urban areas provide a good number of educational and health centers for the native as well as migrant populations of these areas. In comparison to the rural areas, the peri-urban areas have more accessibility to large public & private hospitals and educational institutions, located in the central part of the city.

3. *Infrastructural facilities:* These areas observe a change in land use from agricultural to non-agricultural purposes, which include the development of various infrastructure facilities like roads, and bridges, new factories, water supply systems, sewerage treatment plants, electricity grids, etc. Due to low-cost land availability, these areas offer affordable housing options, making homeownership more accessible to a broader range of individuals.

4. *Employment opportunities:* Peri-urban areas offer a range of employment opportunities across different sectors like agribusiness, which includes farming, livestock rearing, food processing, packaging, and distribution; manufacturing & construction; service and tourism sector, etc.

5. *Environmental health:* Peri-urban areas are crucial in environmental conservation and ecosystem services. They can serve as buffers against urban sprawl, preserving natural habitats, biodiversity, and green spaces. By promoting sustainable land management practices, peri-urban areas mitigate environmental degradation and support ecosystem resilience.

Overall, recognizing the importance of peri-urban areas is essential for fostering balanced regional development, ensuring sustainable resource management, and improving the quality of life for both urban and rural populations.

Economic Drivers	Urbanization Land Availability and Affordability Economic Diversification Transportation and Connectivity Access to Markets Employment Opportunities Government Policies and Investments	The spillover effect of urbanization, low-cost land availability, diversified economic activities, better connectivity, and access to new & emerging markets, etc. drive peri-urban growth.
Social Drivers	Population Growth and Migration Demand for housing Quality of Life Community and Social Networks Education and Healthcare Cultural Amenities and Lifestyle Choices Employment Opportunities and	Increase in urban population and migration, the demand for affordable housing options, better quality of life (cleaner air & green spaces), access to quality education and healthcare facilities, strong community ties and social networks, etc. drive peri-urban growth.

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	Entrepreneurship Public Services and Governance	
Infrastructural Drivers	Transportation Networks Utilities and Services Housing and Real Estate Development Industrial and Commercial Zones Social Infrastructure Environmental Infrastructure Smart and Green Infrastructure	Improved transportation networks, access to essential utilities and services such as water supply, sanitation, electricity, etc., housing and real estate development, investment in social infrastructure, green infrastructure, etc. drive peri-urban growth.
Environmental Drivers	Natural Amenities Climate and Microclimate Agricultural Land Ecosystem Services Environmental Conservation Water Resources Waste Management	Favorable climatic conditions (including milder temperatures, less air pollution, reduced noise levels, etc.); natural amenities such as scenic landscapes, green spaces, and water bodies; access to clean and reliable water resources, etc. drive peri-urban growth.

Table 1: Drivers of Peri-Urban Growth

Governance of Peri-urban Areas:
Numerous organizations, including Nagar Panchayats, Panchayats, the state government's Town & Country Planning Department, district administration, MPCs, DPCs, and Development Authorities, oversee the growth and development in peri-urban areas. The Panchayats are capable of handling rural areas, but they fall short when it comes to urban issues.

Addressing the issues related to urbanization and land use changes in peri-urban areas requires the necessary resources, institutional ability, and technical expertise. Panchayats generally lack these abilities as they are more familiar with addressing rural issues. Also, the roles and responsibilities of governing bodies are unclear in these areas. These bodies lack clarity regarding their functions, which may overlap and require coordination. The poor governance and environmental conditions in peri-urban areas can be attributed to governmental neglect and lack of recognition as worthy of urban civic status.

To solve these governance-related issues, there is a need for a remarkable shift from a concentric to polycentric model of governance. Polycentric governance ensures the separation of powers and a system of checks and balances, preventing a metropolitan area from being governed by a single organization. Polycentric systems are capable and adaptable in the production and delivery of municipal services and a variety of inter-local agreements.

In a polycentric governance system, services can be provided at different scales, with some at the local level and others at the metropolitan level or through collaboration among local governments in a decentralized manner. For example, providing traffic and transit services, government housing, and water sourcing at the metropolitan level can cut per capita water provision costs by capitalizing on economies of scale. The local authority could handle water distribution at the municipal or village levels. This method addresses both the economic and equity aspects of service provision.

Issues and Challenges in Peri-urban Areas:
Evidence suggests that pushing an ecosystem's carrying capacity beyond its boundaries will have an impact. This is also true in peri-urban settings. India's peri-urban regions are experiencing significant stress from urbanization. This is also the case in Lucknow city.

Some of the major issues and challenges are:
  ❖ The quality of the living environment is declining, particularly in the older residential areas where businesses cohabit with other activities. These places are packed densely, with about 30% of the population living in only 5% of the total area and a density of more than 1000 people per hectare. The cohabitation of administrative/central government offices and retail stores in major commercial centers results in mixed land use, which frequently causes chaotic traffic conditions and obstructs smooth vehicle movement.

  ❖ The unauthorized sector is mushrooming as a result of unlicensed stores being dispersed across sidewalks, which decreases road width, makes parking more difficult, and impedes traffic on various routes. In the busiest residential, commercial, and governmental areas of the city, parking is a major issue.

  ❖ Education and healthcare services are concentrated in the city's core area, creating an uneven distribution.
  ❖ The conversion of agricultural land into residential and built-up areas has led to a decline in open spaces.
  ❖ The location of old Agriculture Mandis in peri-urban regions has caused traffic congestion from large trucks loading and unloading. This has caused noise and dust pollution in residential areas.
  ❖ Unauthorised and unplanned colonies have emerged in adjacent areas, resulting in poor services and living conditions resulting in the development of slums.

  ❖ Lack of basic infrastructure and services in peri-urban regions such as inadequate access to conventional water delivery systems, such as piped and metered supplies. Inefficient waste planning and treatment inside institutions is a major challenge. Untreated garbage deposited on agricultural land, water bodies, and highways by locals and city authorities poses major environmental and health risks.

  ❖ The location of old Agriculture Mandis in populated regions causes traffic congestion owing to extensive truck loading and unloading. This has led to increased noise and dust pollution in residential areas.
  ❖ The growth of industrial units has brought them closer to the city, negatively impacting crowded residential areas nearby.
  ❖ Encroachment of heritage and cultural areas/historical buildings by shops, markets, etc.

Figure 2: Issues and challenges in Peri-urban areas
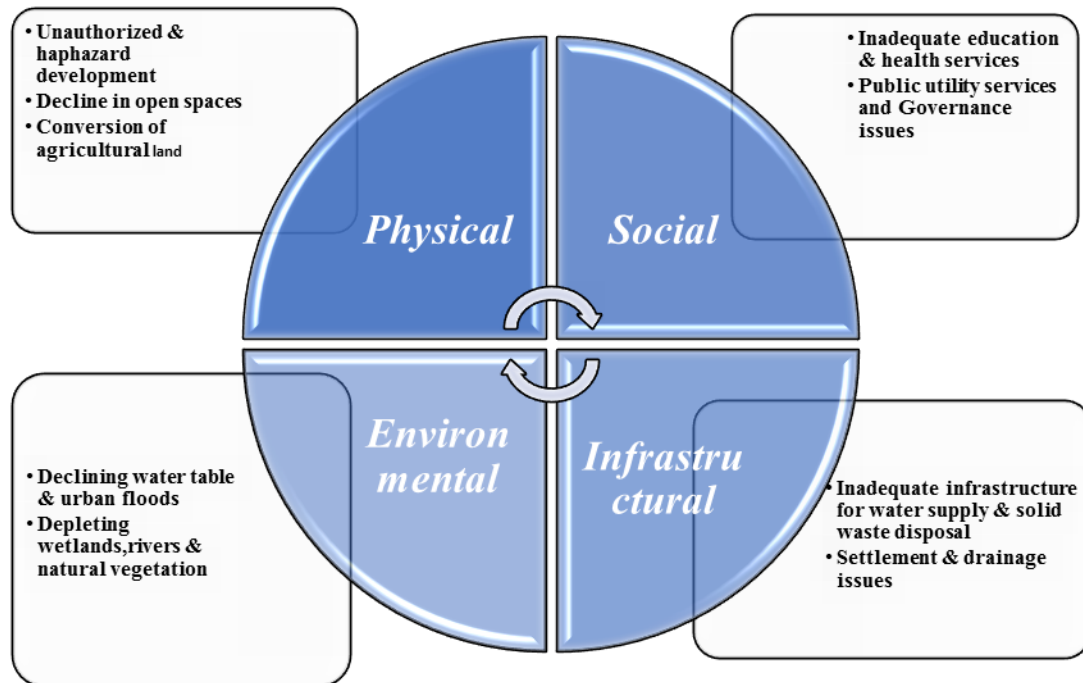
Source: Made by Author

Development Strategies and Suggestions

Lucknow is not alone in experiencing peri-urban issues, as other Indian metropolises face similar challenges. The city's current traffic arrangements have resulted in urban sprawl. To address urban sprawl in rapidly increasing cities, strong zoning restrictions based on land appropriateness and carrying capacity can direct land use toward sustainable results. As urbanization accelerates, it is possible to restore recoverable land cover and shift development focus to underutilized regions inside city boundaries. Older urban areas with intensive horizontal urbanization might be considered for urban regeneration utilizing vertical urbanization techniques. To support healthy and liveable cities, unplanned and unfocused urbanization should be avoided, with little regard for land cover appropriateness or environmental aesthetics. Land use planners and policymakers can utilize the results of urban growth models to foresee and prepare for future spatial expansion, ensuring that growth aligns with municipal development plans and enabling infrastructure.

Steadily expanding new settlements on the metropolitan edge have increased transport demand in the metropolis, over the last few decades. To manage urban sprawl, an outer ring road beyond the municipal boundaries must be created to alleviate traffic congestion. As transport planning is an important component of urban planning studies, a complete mobility plan must be developed following the Master Plan/Development Plan. Thus, urban transportation development should be coordinated with traffic reduction efforts. Some of the strategies to control urban sprawl are:

* Smart growth based on rehabilitation of existing land-use/ mixed land uses tomake it more sensitive and flexible, to address issues such as lack of housing
  diversity, traffic congestion, environmental pollution, etc.

- Transit-oriented development (TOD) seeks to create livable communities focused around high-volume routes. Stations inside train/metro systems are major areas of the city that are easily accessible by foot. It increases access to public transit and decreases reliance on automobiles.
- Create housing options for diverse household types, family sizes, and incomes.
- Create walkable communities by offering a range of transport options.
- By developing land use plans at the national, regional, and urban levels, such as zoning land use policies and transportation rules.

Suggestions

- Public-private partnerships should be fostered in peri-urban regions, particularly in initiatives involving e-governance, water supply, sanitation, and solid waste management. Private-sector engagement should be encouraged. Unbundling of services may increase the efficiency of urban municipal governments. Urban municipal organizations should be granted regulatory powers, while other duties may be delegated to the private sector. The private sector may be encouraged to participate in urban infrastructure projects.

- Urban local bodies in peri-urban regions should confine their function to service regulation; however, private sector engagement may be sought for monitoring, direction, auditing, and performance development of Urban Local Bodies.

- Privatizing urban services can enhance service levels in peri-urban regions and attract private resources and management capabilities to provide and maintain these services. However, the local government personnel and officials require sufficient training to implement institutional arrangements for the private sector delivery of urban services.

- Community engagement in urban service delivery may be increased by strengthening non-governmental organizations, local governments, public associations, and self-help groups (SHGs). However, orientation and training will be necessary to raise awareness and sensitize representatives from these groups and organizations.

- Local bodies need to establish innovative financing options for peri-urban infrastructure and services. The private sector and capital markets can augment existing finance systems from plan allocation, institutional finance, and other sources.

- The government might conduct a functional evaluation of service providers to identify challenges in delivering urban services and improve coverage and quality in peri-urban regions.

- Best practices in water supply, rainfall harvesting, water resource management, solid waste management, sewerage, and drainage, among other things, should be recorded and used in the development and execution of urban infrastructure projects in peri-urban regions.

- It should be mandatory for all urban local bodies to charge users for fundamental urban services like parking, street cleaning, sewage, solid waste management, drainage, and water delivery. However, to increase financial resources through user fees, the quality of the service must be increased. Enhancing cost recovery must be connected to financial transfers or grants. Urban local bodies that demonstrate enhanced cost recovery may also receive financial incentives.

➢ To benefit from central and state schemes and projects, the state government should assist urban local bodies in preparing City Development Plans, Detailed Project Reports in peri-urban regions, and prompt approval.

➢ To ensure sustainable urban development, it is essential to establish an enabling legal, institutional framework in peri-urban areas for the planning, financing, management, and regulation of urban development. This framework should aim to provide people with housing, infrastructure, and urban services sustainably.

Conclusion

It is evident from this paper that Per-urban areas are intrinsically linked with the city economy, and experience constant transformation. These transforming areas present both opportunities and challenges, which are of significance to planning for these critical areas. The various issues and challenges highlighted in the paper would help policymakers, researchers, and city planners to devise development strategies for the sustainable development of the peri-urban areas.

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