



Journal Homepage: www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20848

DOI URL: <http://dx.doi.org/10.21474/IJAR01/20848>



RESEARCH ARTICLE

URBANIZATION IN INDIA: TRENDS, CHALLENGES AND STRATEGIES FOR SUSTAINABLE GROWTH

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Manuscript Info

Manuscript History

Received: 18 February 2025

Final Accepted: 22 March 2025

Published: April 2025

Key words: -

Urbanization, Sustainable Growth,
Inclusive Growth, Sustainable Urban
Living, Urban Planning Strategies
Environmental Challenges

Abstract

Urbanization is an inevitable consequence of economic growth and development, a trend observable in both developed and developing nations. However, countries like India have experienced a particularly rapid rise in urban populations, intensifying the demand for housing, infrastructure, transportation, and other vital services. This surge has contributed to urban congestion and presents serious challenges to sustainable development. In particular, unplanned urban expansion has worsened environmental degradation and placed immense pressure on natural resources.

This research paper investigates the growth of urban centers in India in general, with a focus on the changing share of the urban population since 1950. Using secondary data and employing basic statistical techniques, the study analyzes urbanization trends, examines their various implications, and addresses the challenges posed to urban life. Additionally, the paper outlines strategies to promote safe, inclusive, and sustainable urban environments, and offers policy suggestions to embed sustainability into urban planning practices.

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Introduction: -

The world has been witnessing exceptional changes as it passes through various stages of growth. Growth resulting from increasing industrialisation and service sector expansion has led to rising urbanization. Cities are becoming the hub of human activity, with over half of the global population now living in cities (UNDESA, 2019). Urbanisation has become a universal phenomenon in both developed and developing nations, resulting in several critical issues impacting the environment and society. These problems need to be addressed on priority basis by countries as development should not be at the cost of the environment and society.

Review of Literature

Unplanned large-scale human settlements are often criticized for their excessive use of natural resources, significant waste generation, and negative environmental impact (Hiremath et al. 2013). Both developed and developing nations have a united approach with respect to introducing some collaborative laws to prevent any further global environmental crisis. The United Nations came up with the Sustainable Development Goals framework consisting of seventeen goals after the Millennium Development Goals (UN, 2015) to foster development across the world by

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2030. The Eleventh SDG Goals emphasize on Sustainable Cities and Communities. Rapid urbanizations and expanding cities can cause environmental degradation, social inequality and strain on infrastructure causing challenges to achieve sustainability. Increased urban growth often leads to the expansion of informal settlements such as slums, with inadequate basic services and are vulnerable to environmental hazards.

Cohen (2006) in his paper tried to describe spatial changes due to urbanization and highlighted some of their implications for sustainable development. As population growth is projected to concentrate mainly in urban areas, particularly in developing countries, the key challenge will be to harness the advantages of urbanization while minimizing its negative impacts. The study also stressed on the importance of local authorities to reduce the negative challenges and take advantage of the potential benefits arising out of urbanization.

As population growth is projected to concentrate mainly in urban areas, particularly in developing countries, the key challenge will be to harness the advantages of urbanization while minimizing its negative impacts.

Hemani and Das (2016) emphasized the social dimension of sustainable development, highlighting the importance of addressing social issues and fostering an environment that supports strong urban communities. The study recommended implementing a blend of bottom-up and top-down approaches.

Haase et.al (2018) discussed the different perspectives of urbanization and the trend in urbanization across the world. They also described the emerging challenges that countries worldwide are expected to face due to urbanization in the 21st century.

Datta, Pranati (2006) examined the trends, patterns, and challenges of urbanization in India from 1901 to 2001 using Census data. The study emphasized the need for proper urban planning and recommended redirecting investments to strengthen the economic base of neglected small and medium-sized cities as a means to manage and address the growing urbanization.

Bhagat (2018) investigated the emerging pattern of urbanisation and the key factors driving urban growth, including natural population increase, the reclassification of rural areas as urban, and rural-to-urban migration. It also identified that the areas with low-level economic development witnessed low urbanization. The study suggested that revamping of the municipal governance along with providing autonomy to the urban local bodies both fiscally and politically with adequate technical and human resource support will be able to deal with the urbanisation issues to some extent.

Several studies have looked into various aspects of urbanisation across the world. But there are very few studies relating to India, which have taken into consideration the trend in growth of population ranging from 1950 to 2050 by forecasting growth in urban population beyond 2020. Limited studies relating to urbanisation and its aftereffects on sustainable urban development with respect to India have been undertaken. The present study aims to contribute to this area.

Problem

Developing countries like India have been experiencing rapid urban growth leading to significant growth in urbanisation and expansion of cities, which can be understood from the trend in growth of urban population in the country. This rapid expansion of urban centres has intensified the demand for infrastructure, housing, and essential services, driving up costs and making these necessities increasingly unaffordable for lower-income groups of populations. As a result, many economically disadvantaged individuals have been forced to reside in informal settlements with restricted access to water, sanitation, and healthcare services.

Further, the rapid increase in urban populations has led to congestion in cities and the insufficient public transportation facilities has hindered the full potential of these urban centres adversely affecting the sustainable growth of urban areas. Additionally, unplanned and poorly managed urbanization has contributed significantly to environmental pollution, water contamination, air pollution, noise pollution, and solid waste issues, all of which pose serious sustainability challenges. The study aims to understand the trend of urbanisation, its associated issues and impacts, and explores ways to address these challenges by promoting more sustainable urban growth.

Objectives of the study are:

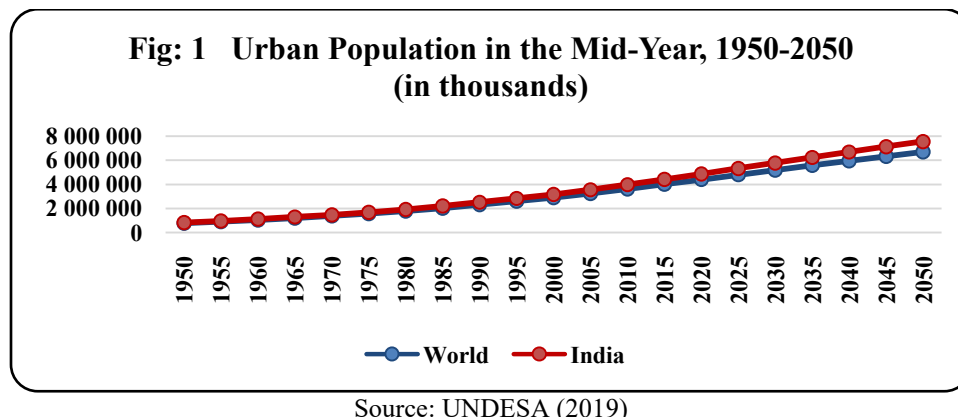
1. To analyse the trend and level of urbanization in India during 1950 to 2050
2. To identify the issues, challenges and implications of urbanization in India
3. To propose strategies to achieve sustainable urban growth.

Methodology

The study utilized secondary data from multiple sources, including the Census, government reports, online databases of national and international agencies, and academic literature, to analyze the issues. Secondary data from the United Nations Department of Economic and Social Affairs (UNDESA) was specifically used to understand the urbanization trend between 1950 to 2050. Simple statistical methods like percentages and urban-rural ratios were used to analyse the trend and level of urbanization.

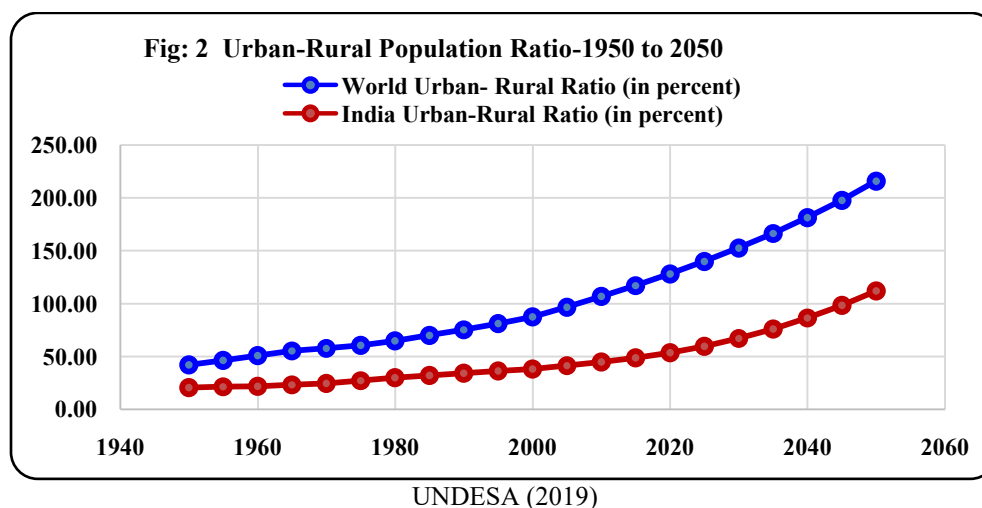
Urbanization Trends

Developed nations have been witnessing increased urbanization with developing countries being no exception to this trend. Developing countries have been undergoing higher economic growth arising out of secondary and tertiary sector growth pulling and pushing the people towards cities resulting in urbanization. Movement of population towards cities and urban centres have been increasing over the years. See Fig: 1



The figure clearly depicts an increasing trend in urbanization both globally as well as in India, during the hundred-year period from 1950 to 2050. Urbanization in India progressed at a faster pace compared to the global trend. The growth in urban population can primarily be attributed to three key factors: natural increase, net migration, and areal reclassification (Bhagat, 1992)

Urban population in absolute numbers will not give a clear idea regarding the extent of urbanisation. To gain a clearer understanding of population growth in both rural and urban areas, and to facilitate more effective comparisons at global and national levels, the urban-rural population ratio over the years has been considered. Urban-rural population ratio is a basic measure that indicates the number of urban residents for every rural inhabitant in a specific area. This ratio has shown a rising trend over the past century, exhibiting the ongoing urbanization process in India. See Figure: 2.



The world urban-rural population ratio in 1950, indicates that against 100 rural people, only 42 urban people were available, which increased to 128 in the year 2020 depicting increased shifting of population towards urban centres. With respect to India, only 21 urbanites were there against every 100 rural people in 1950, which increased to 54 per 100 rural people in 2020. It is expected that by 2050 that is within ten decades, India will be having 112 urbanites for 100 rural people. The above figures clearly show that India has been witnessing an increased degree of urbanisation over the years.

Urban population growth alone cannot drive urbanization; however, the growth rate of the urban population must exceed that of the rural population for urbanization to advance. In other words, urban-rural growth differential is very crucial for the process of urbanization (Bhagat, 2018).

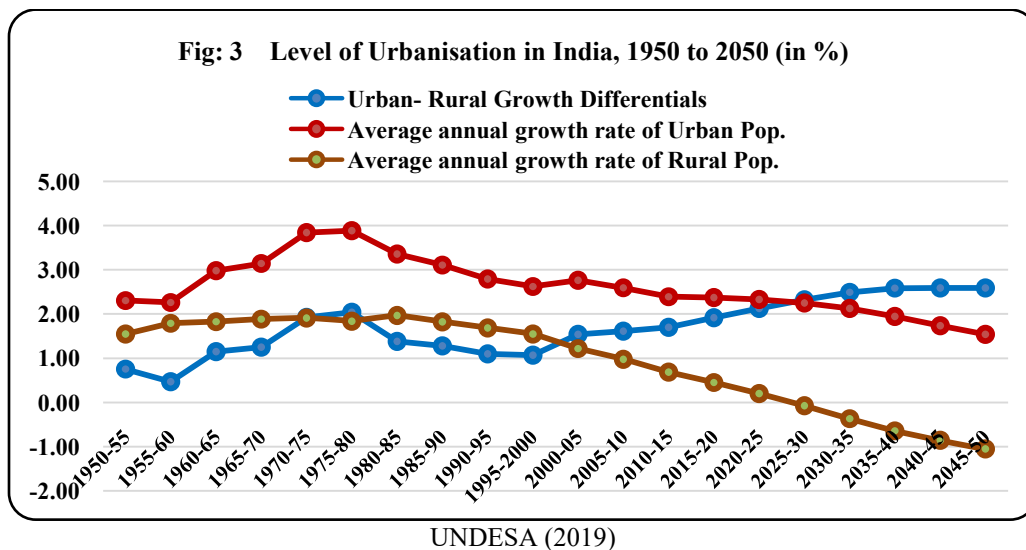


Fig: 3 clearly throws light on higher urban-rural growth differential over a hundred-year period depicting a positive trend in growth differentials. This positive trend is driven by the urban population growing at a faster rate than the rural population. The rural population over a period of decades shows a negative trend pointing out on increased urbanization which is taking place in India.

Average annual rate of change in urban and rural population is an alternative method to understand the level of urbanization over the years. The average annual growth rate in urban areas was significantly higher than that of the rural population. Since the 1980s, both the urban and rural population growth rates have exhibited a slight downward trend. However, the annual rate of change in rural population has been showing a negative trend after 2020 for both India and the world as a whole. This clearly shows that rural-to-urban migration has become one of the most prominent forces driving urbanization. Urbanization was influenced by factors like natural increase, migration and classification of areas (Bhagat, 2018).

Issues, Challenges and Implications of Urbanization

The extensive expansion of the urbanization process posed serious challenges to the urban living environment (Bai et al., 2017) in various ways.

1. Environmental Degradation: Urbanization has its after effects on air and water quality, green spaces, and natural habitats causing degradation of the environment in several ways.

- **Air Quality:** Increased industrial activities, transportation pollution and infrastructural and construction activities release polluted gasses into the atmosphere leading to poor air quality (Liang et.al, 2020) causing health issues in the form of respiratory illness and also contributing to climate change via greenhouse gas emissions.
- **Water quality:** Unregulated waste disposal and congestion in sprawling slums contaminate water bodies, reducing the water quality. Polluted water sources lead to health risks, disrupt the aquatic ecosystems, and strain the availability of clean drinking water.
- **Green Spaces:** The expansion of cities due to urbanization has led to the conversion of green spaces into gray spaces, especially in densely populated areas, thereby reducing access to natural environments that offer air

purification, cooling, and recreational benefits (Gavrilidis et al., 2022). The loss of green spaces aggravates the urban heat and limits biodiversity within cities.

- **Natural Habitats:** The continuous expansion of cities and infrastructural growth infiltrate into the natural habitats, obstructing the ecosystems and harming the biodiversity (Hernandez et.al 2024). Habitat destruction also contributes to the extinction of species, impacting the ecological balance.

These environmental challenges call for sustainable urban planning approaches, stricter pollution controls, and proactive conservation efforts to protect and restore the natural resources essential for urban and ecological health.

2. Social Implications: The rapid urbanization has its impacts on quality of life, public health, and social equity. Key social implications include:

- **Quality of Life:** Urban sprawl, leading to overcrowding, traffic congestion, destruction of vegetation, limited access to green and recreational spaces, and shifts in climate and environmental conditions, can significantly diminish the overall quality of life in urban settings (Ramachandra et al., 2012). Additionally, the shortage of affordable housing and essential services—such as clean water, reliable electricity, and proper sanitation—negatively impacts residents' well-being, particularly in low-income communities, further compounding their hardships.
- **Public Health:** Urban populations face various health risks such as respiratory diseases, waterborne illnesses, and mental health problems due to poor air quality, insufficient sanitation, and limited access to healthcare facilities (Tay & Ocansey, 2022). Additionally, noise pollution and lack of safe public spaces can contribute to stress and anxiety among city residents, further impacting health outcomes.
- **Social Equity:** In rapidly expanding urban areas, marginalized communities often bear the brunt of inadequate infrastructure and environmental degradation (Saaida & Saaidah, 2023; WHO, 2025). Access to resources like quality education, healthcare, clean water, and safe housing is frequently unevenly distributed (Widyaningsih et. al., 2022), widening socio-economic gaps and reducing opportunities for upward mobility. This inequality can also lead to social tensions and hinder efforts to create inclusive, resilient communities.

Addressing these issues requires a commitment to inclusive urban planning that prioritizes affordable housing, accessible healthcare, and green public spaces, ensuring that all residents share in the benefit of urban development and enjoy a better quality of life.

3. Economic Considerations: Urban growth offers significant economic opportunities; however, it also involves substantial costs which require sizable investment to achieve sustainable development. Key economic considerations include:

Costs of Urban Growth:

- **Infrastructure Investment:** Rapid urbanization demands extensive investment in infrastructure, such as transportation systems, water supply, waste management, and power generation Athar et.al (2022). Building and maintaining these infrastructures can strain municipal budgets, especially in developing cities with limited funding.
- **Environmental and Health Costs:** Degradation of natural resources, air and water pollution, and poor public health associated with overcrowded urban areas (Eckert & Kohler, 2014) create economic burdens through higher healthcare costs, low labour productivity, and loss of ecosystem.
- **Affordable Housing and Social Services:** Providing affordable housing and essential services like education, healthcare, and clean water often comes with high costs, especially if the governments seek to ensure equitable access for all residents.

Strategies for Sustainable Urban Development

1. Green Infrastructure

Green infrastructure—such as parks, green roofs, and urban forests—helps mitigate urban heat, enhance air quality, regulate greenhouse gas emissions, manage stormwater, and boost biodiversity. (Akbari et al., 2001; Tzoulas et al., 2007). By integrating Green Infrastructure practices in cities can contribute to energy saving by providing a cooling environment ((Akbari et al., 2001). Examples include rooftop green spaces on high-rise buildings, rain landscapes in neighborhoods, and tree planting throughout urban green spaces.

2. Energy Efficiency

Adopting renewable energy sources and constructing energy-efficient buildings reduces greenhouse gas emissions, lowers energy costs, and conserves natural resources. Incentivizing the installation of solar panels and the use of energy-efficient appliances can greatly decrease energy consumption (Chen et.al, 2024, Sagar et.al, 2025). Passive

solar design, LED lighting, transition to renewable energy sources (Chel and Kaushik, 2018) and various energy saving methods should be popularised.

3. Sustainable Transportation

Promoting use of public transport, cycling and pedestrian-friendly urban planning can reduce traffic congestion, decrease emissions, and improve public health. Expanding two-wheeler lanes, pedestrian paths, and reliable public transport networks and connectivity makes sustainable transportation a more viable option (Giles-Corti et al., 2016). Creating car-free zones and reducing parking in certain areas can further encourage alternative transportation.

4. Waste Management

Better waste management and segregation systems should be devised to deal with the wastes in urban areas. Implementing bans on single use plastics, encouraging recycling of wastes, segregation of wastes into dry and wet wastes and promoting composting of wet wastes will enable to manage wastes in a better manner (Arteaga et al. 2023). Awareness among city dwellers regarding the importance of waste management and its segregation helps the municipal authorities in managing the wastes effectively. Reusable materials should be reused to reduce waste through promoting circular economy practice.

Suggestions and Conclusions

Urbanization is an inevitable outcome as a country progresses to achieve higher economic growth. However, it brings with it various challenges in the form of increased demand for housing, transportation and infrastructural facilities. The influx of poor migrants into major cities has led to the expansion of overcrowded slums, often characterized by inadequate sanitation and drinking water, which in turn causes immense pressure on the environment. The rapid urbanization also has socio-economic implications leading to unsustainable urban growth. Hence, it becomes pertinent to adopt environment friendly measures to enable urban development to be more sustainable.

The government should devise policy measures to attract more investment in renewable energy sources, especially solar energy, given India's huge solar energy potential. Providing incentives to both industrial and residential users of green energy can promote a shift towards cleaner power generation. Achieving this vision demands a transition to scientifically designed and well-structured urban development policies and frameworks that give priority to environmental conservation and efficient resource utilization.

Policies should be designed towards encouraging investment in sustainable public transportation systems, promoting green infrastructure, controlling pollution and contributing to the creation of healthier, more sustainable urban environments. Sustainable urbanization must focus more on the development of pro-poor dwellings, improved basic services, and stronger rural-urban linkages to tackle unemployment and reduce poverty driven migration. Inclusive policies are vital to support marginalized sections of the population often residing in congested and unsanitary slums, ensuring that cities can grow in a healthier and more sustainable manner.

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