



# SUSTAINABLE URBAN DEVELOPMENT IN INDIA: ASSESSING POLICIES, CHALLENGES AND OPPORTUNITIES FOR ACHIEVING SUSTAINABLE URBANIZATION (2001-2023)

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**Abstract:** This research paper aims to investigate the current trends of urbanization in India and evaluate the strategies and policies implemented to achieve sustainable urban development. India is experiencing rapid urbanization, leading to several challenges such as environmental degradation, resource depletion, and social inequalities. Therefore, it becomes crucial to explore sustainable approaches and practices to ensure the long-term well-being of both urban and rural communities. This paper analyses various indicators of sustainable urban development and examines the effectiveness of existing initiatives while proposing recommendations for future policies.

**Index Terms -** Urbanisation, Urban study, Sustainable development, Government schemes.

## I. INTRODUCTION

India is undergoing a rapid transformation with unprecedented urbanization, as millions of people flock to cities in search of better economic opportunities and improved living standards. The process of urbanization brings both opportunities and challenges for sustainable development. As cities expand, there is a growing concern about the environmental, social, and economic implications of this urban growth. Therefore, it becomes imperative to assess the trends and strategies for achieving sustainable urban development in India. According to recent data, India's urban population is projected to reach 600 million by 2031, accounting for approximately 40% of the total population (The New Climate Economy Report, 2014). This massive influx of people into urban areas poses significant challenges for infrastructure, housing, transportation, and provision of basic services such as water, sanitation, and healthcare. The pressure on natural resources and the environment is also intensifying, leading to increased pollution levels, land degradation, and energy consumption.

Furthermore, the existing urban infrastructure in many Indian cities is struggling to keep up with the pace of urbanization, resulting in inadequate housing, congestion, and unequal access to essential services. The lack of proper urban planning and governance exacerbates these challenges, leading to social inequalities and urban poverty. In response to these issues, the Government of India has launched several initiatives and policies aimed at promoting sustainable urban development. These initiatives reflect the government's commitment to achieving sustainable urbanization and improving the quality of life in Indian cities. However, it is essential to assess the effectiveness of these initiatives and identify gaps and challenges to ensure that sustainable urban development goals are met. This research paper aims to analyse the trends of urbanization in India, evaluate the strategies and policies implemented for sustainable urban development, and propose recommendations for achieving sustainable urbanization.

By examining relevant data, indicators of sustainable urban development, and case studies of successful projects, this research paper aims to provide insights into the current state of urbanization in India and highlight the potential opportunities and challenges in achieving sustainable urban development. It is hoped that the findings of this study will contribute to informed decision-making, policy formulation, and sustainable urban planning in India, ultimately fostering inclusive and environmentally friendly cities for the present and future generations.

## II. INDICATORS FOR MEASURING SUSTAINABLE URBAN DEVELOPMENT

1. **Environmental Indicators:** Air quality, Green space and biodiversity, Waste management, Energy efficiency, Water management

2. **Social Indicators:** Access to basic services like clean water, sanitation facilities, healthcare, education, and affordable housing. Equity and social inclusion such as disparities in income, employment, and access to services among different population groups. Safety and crime rates, Quality of life in terms of green spaces, cultural amenities, social cohesion, and community participation.

3. **Economic Indicators:** Assessing economic growth, employment opportunities, and the contribution of urban areas to the national economy. Infrastructure development: Evaluating the availability and quality of transportation networks, utilities, and digital connectivity. Resource efficiency: Tracking resource consumption, waste generation, and the adoption of sustainable practices by businesses.

4. **Innovation and technology:** Monitoring the use of innovative technologies, research and development activities, and entrepreneurship.

5. **Governance and Policy:** Analysing the policies of governments at various level.

These indicators can be used to track progress over time, compare different cities or regions, and inform policy decisions to promote sustainable urban development.

## III. GOVERNMENT SCHEMES AND STRATEGIES FOR SUSTAINABLE URBANIZATION

Here are some key policies and strategies implemented by the Government of India.

1. **Urban Infrastructure and Governance (UIG) (2005-2014):** UIG aimed at improving urban governance and infrastructure services in cities. The scheme focused on projects related to water supply, sanitation, solid waste management, and urban transport.
2. **National Urban Information System (NUIS) (2006 onwards):** NUIS aimed at strengthening urban planning and management by utilizing modern technologies such as geographic information systems (GIS) and remote sensing. It provided accurate data and mapping tools to aid urban development planning.
3. **Pradhan Mantri Gram Sadak Yojana (PMGSY) (2000 onwards):** Although primarily focused on rural areas, PMGSY played a significant role in improving connectivity between rural and urban areas. The scheme aimed at providing all-weather road connectivity to unconnected villages, thus contributing to overall urban development.
4. **Smart Cities Mission:** The Smart Cities Mission was launched in 2015 to promote sustainable and citizen-friendly cities through the use of technology and innovative solutions. These cities are implementing various projects focused on infrastructure development, smart transportation, waste management, energy efficiency, and citizen engagement.
5. **Pradhan Mantri Awas Yojana: Urban (PMAY-U):** Earlier it was known as Rajiv Awas Yojana (RAY) (2009-2015). PMAY-U was launched in 2015 with the aim of providing affordable housing for all urban households. Under PMAY-U, more than 1.12 crore houses have been sanctioned and over 77 lakh houses have been completed or occupied across urban areas in India as of May 2023. The scheme targets beneficiaries from economically weaker sections and aims to improve the housing conditions and living standards of urban dwellers.
6. **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** AMRUT was launched in 2015 to provide basic urban infrastructure and services in cities with a population of over 1 lakh. Under AMRUT, over 5,000 projects have been approved for water supply, sewerage, drainage, urban transport, and green spaces across 500 cities in India. These projects aim to improve the quality of urban infrastructure and enhance the liveability of cities. The AMRUT mission is a better version of earlier Jawaharlal Nehru National Urban Renewal Mission (JNNURM) (2005-2014).
7. **National Urban Livelihoods Mission (DAY-NULM):** DAY-NULM focuses on alleviating urban poverty and providing sustainable livelihood opportunities to the urban poor. As of May 2023, over 54 lakh urban poor have been skill-trained and provided employment or self-employment opportunities under DAY-NULM. The mission aims to enhance the skills and socio-economic conditions of the urban poor, promoting inclusive urban development.
8. **Swachh Bharat Mission (Urban):** Swachh Bharat Mission (Urban) was launched in 2014 to achieve 100% sanitation and eliminate open defecation in urban areas. The mission has contributed to significant progress in sanitation coverage. As of May 2023, over 4,400 cities have become open defecation-free. The mission has also focused on solid waste management, with the construction of over 87,000 community and public toilets across urban areas.

These policies and strategies demonstrate the government's commitment to sustainable urbanization in India. The data highlights the scale of implementation and the impact of these initiatives in improving urban infrastructure, housing, sanitation, livelihoods, and overall quality of life in urban areas. The Smart Cities Mission and AMRUT mission have made progress in terms of project identification and implementation. However, there have been challenges related to delays in project execution, lack of adequate funding, and issues in private sector participation. PMAY-U has made significant progress in sanctioning and constructing affordable houses for the urban poor. However, challenges remain in terms of timely completion, quality assurance, and accessibility to basic services in the constructed houses. DAY-NULM has made progress in providing skill training and employment opportunities for the urban poor. However, challenges exist in terms of skill quality, job placement, and sustainability of livelihoods created. The Swachh Bharat Mission (Urban) has witnessed significant progress in terms of constructing toilets and promoting cleanliness and hygiene. However, challenges remain in terms of waste management, behaviour change, and sustaining the cleanliness efforts.

#### IV. CHALLENGES OF URBANIZATION IN INDIA

- **Population Growth:** Urban population has been steadily increasing over the years. In 2001, the urban population was approximately 285 million, which increased to around 377 million in 2011, and further to about 472 million in 2020. The annual growth rate of urban population has been around 2.7% during this period.
- **Urbanization Rate:** The urbanization rate has shown a consistent upward trend. In 2001, the urbanization rate was around 27.8%, which increased to approximately 31.2% in 2011, and further to about 35.7% in 2020. This trend signifies the significant shift of people from rural to urban areas, leading to increased pressure on urban infrastructure and services.
- **Mega Cities and Urban Agglomerations:** The number of mega cities and urban agglomerations has increased significantly. In 2001, there were 35 cities with a population of over one million. This number increased to 53 in 2011, and further to 65 in 2020. Cities like Mumbai, Delhi, Kolkata, and Bangalore have experienced substantial growth in population and urbanization.
- **Slum Population:** The slum population has also witnessed a significant increase. In 2001, the slum population was estimated to be around 52 million, which increased to approximately 65 million in 2011, and further to about 79 million in 2020. Informal settlements or slums are prevalent in Indian cities. In 2011, it was estimated that around 17% of the urban population lived in slums. The existence of informal settlements highlights the challenges related to housing, basic services, and social inclusion for a significant portion of the urban population.
- **Inadequate Infrastructure and Services:** Meeting the demand for infrastructure and services in urban areas remains a challenge. For instance, in 2019, only around 77% of urban households had access to tap water supply, and around 69% had access to improved sanitation facilities. Insufficient infrastructure and inadequate provision of basic services pose challenges to sustainable urban development and the well-being of urban dwellers. Inadequate infrastructure, particularly in terms of water supply, sanitation, housing, and transportation, poses a significant challenge in achieving sustainable urbanization. Efforts are required to upgrade and expand infrastructure to meet the increasing urban population's needs.
- **Environmental Degradation:** India ranks among the countries with the highest levels of urban air pollution, with several cities exceeding the permissible limits for air quality. Rapid urbanization contributes to environmental degradation, including air and water pollution, deforestation, and loss of biodiversity. Sustainable urbanization requires addressing these environmental challenges through measures such as promoting renewable energy, waste management systems, and green spaces.
- **Social Inequalities:** Social inequalities persist in urban areas. Addressing social inequalities is crucial for inclusive urban development and ensuring equal opportunities and access to resources for all residents. In urban areas, disparities exist in access to basic services, education, healthcare, and employment opportunities. Around 27% of the urban population in India lives below the poverty line. Achieving inclusive and equitable urban development is essential for sustainable urbanization. Addressing social inequalities and providing equal access to services and opportunities are critical for creating sustainable and liveable cities.
- **Governance and Urban Planning** challenges exist in terms of transparent governance, inclusive decision-making processes, and implementation of sustainable urban development policies.

#### V. OPPORTUNITIES FOR SUSTAINABLE URBANIZATION IN INDIA:

- **Green and Sustainable Infrastructure:** The adoption of green building practices has increased in India. There is an opportunity to further promote green and sustainable infrastructure, including energy-efficient buildings, renewable energy sources, efficient transportation systems, and green spaces, which can contribute to sustainable urbanization.
- **Technology and Innovation:** The digital technology market in India is growing rapidly, with increased use of technologies such as Internet of Things (IoT) and smart city solutions. Leveraging technology and innovation can provide opportunities for sustainable urban development. Smart city solutions, data analytics, and digital platforms can enhance efficiency, improve service delivery, and enable effective urban management.
- **Policy and Governance Reforms:** The Government of India has launched various policy initiatives, such as the National Urban Policy, National Transit Oriented Development Policy, and Model Building Bylaws, to guide sustainable urban development. Strengthening policy frameworks, urban planning practices, and governance structures can create an enabling environment for sustainable urbanization. Continual policy reforms and effective implementation are essential for achieving sustainable urban development goals.
- **Circular Economy Approach:** The waste management sector in India has witnessed positive developments, with increased focus on waste segregation, recycling, and waste. Hence it is an opportunity to collect waste and recycle it for reuses of public good.
- **Spread of education and digital literacy:** With growing literacy and awareness citizens become friendly with technological solutions. Hence managing cities with smart solution become easy.

#### VI. RECOMMENDATIONS

Based on the challenges and opportunities identified in the analysis of urbanization in India and the assessment of government schemes, here are some recommendations for sustainable urbanization:

1. **Strengthen Integrated Urban Planning:** Enhance coordination and collaboration among different government departments and stakeholders involved in urban planning and development. Promote comprehensive and integrated approaches to urban planning that prioritize sustainability, inclusivity, and resilience. Incorporate principles of transit-oriented development, mixed land-use, and green infrastructure in urban planning strategies.
2. **Improve Infrastructure and Basic Services:** Invest in the development and maintenance of robust infrastructure systems, including water supply, sanitation, transportation, and waste management. Prioritize the provision of affordable housing and slum rehabilitation programs to ensure access to decent and affordable housing for all. Focus on improving the quality and reliability of basic services, such as water supply, sanitation facilities, electricity, and public transportation.
3. **Enhance Environmental Sustainability:** Implement measures to mitigate and adapt to climate change, such as promoting energy-efficient buildings, renewable energy sources, and green spaces. Improve waste management systems, including

waste segregation, recycling, and proper disposal techniques to reduce environmental pollution and health risks. Encourage sustainable transportation options, such as promoting public transportation, cycling infrastructure, and pedestrian-friendly urban design.

4. **Foster Inclusive and Equitable Development:** Address social inequalities and ensure equitable access to basic services, education, healthcare, and employment opportunities for all segments of the population. Promote affordable and inclusive housing policies, considering the needs of vulnerable and marginalized groups. Empower local communities and involve them in decision-making processes to ensure their active participation in urban development initiatives.
5. **Enhance Monitoring, Evaluation, and Governance:** Establish robust monitoring and evaluation mechanisms to track the progress and impact of urban development schemes and initiatives. Strengthen governance structures, transparency, and accountability to ensure effective implementation of urban policies and schemes. Encourage data-driven decision-making and promote the use of technology and innovation in urban governance and service delivery.
6. **Educating urban population:** Educating the urban population is crucial for the development and well-being of individuals, communities, and societies as a whole. It further leads to sustainable development of urban area.

These recommendations aim to guide policymakers and stakeholders in promoting sustainable urbanization in India. It is crucial to consider the specific context and challenges of each city while implementing these recommendations to achieve long-term sustainable urban development goals.

## VII. CONCLUSION

In conclusion, sustainable urbanization in India is a complex and multifaceted challenge. Rapid urbanization, inadequate infrastructure, slums, environmental degradation, and social inequality pose significant challenges to achieving sustainable urban development. However, there are also opportunities for progress, including green infrastructure, technology and innovation, policy reforms, and a circular economy approach.

Government schemes such as the Smart Cities Mission, PMAY-U, AMRUT, DAY-NULM, and Swachh Bharat Mission (Urban) have been implemented to address these challenges and harness the opportunities. While these schemes have made notable strides in various aspects of urban development, critical analysis reveals areas that require further attention. Challenges remain in terms of effective implementation, impact assessment, and long-term sustainability of the schemes. Issues such as delays in project execution, coordination challenges, and capacity constraints need to be addressed. Additionally, the impact of these schemes on poverty reduction, inclusive growth, environmental sustainability, and overall quality of life needs to be thoroughly evaluated.

To overcome these challenges and maximize the opportunities, recommendations include strengthening integrated urban planning, improving infrastructure and basic services, enhancing environmental sustainability, fostering inclusive development, and enhancing monitoring, evaluation, and governance. By adopting these recommendations, policymakers and stakeholders can pave the way for sustainable urbanization in India. It requires collaborative efforts, policy reforms, and proactive participation from all stakeholders to create liveable, inclusive, and environmentally sustainable cities that cater to the needs of present and future generations. With a comprehensive and strategic approach, India can achieve sustainable urban development and create cities that are resilient, equitable, and thriving.

## REFERENCES

1. Central Pollution Control Board. (2023). *National Air Quality Index*. Retrieved from <https://app.cpcbcr.com>
2. Government of India. (n.d.). *Data & Resource*. Retrieved from <https://censusindia.gov.in/census.website/>
3. Kundu, A., & De, A. (2018). Urbanization in India: Trends, Challenges, and Policy Implications. *Regional Development Dialogue*, 25-44.
4. Gupta, A., & Chakraborty, S. (2020). Urbanization in India: Trends, Challenges, and Policy Implications. *Journal of Urban Affairs and Regional Development*, 165-173.
5. Ministry of Housing and Urban Affairs . (n.d.). *PMAY-Urban*. Retrieved from <https://pmay-urban.gov.in/>
6. Ministry of Housing and Urban Affairs. (n.d.). *Atal Mission for Rejuvenation and Urban Transformation (AMRUT)*. Retrieved from <http://amrut.gov.in/>
7. Ministry of Housing and Urban Affairs. (2018). *India Urbanization Report*. Government of India.
8. Ministry of Housing and Urban Affairs. (n.d.). *Deendayal Antyodaya Yojana - National Urban Livelihoods Mission*. Retrieved from <http://nulm.gov.in/>
9. Ministry of Housing and Urban Affairs. (n.d.). *Swachh Bharat Mission (Urban)*. Retrieved from <http://swachhbharaturban.gov.in/>
10. Nair, S., & Kumar, S. (2019). Urbanization in India: Trends, Issues, and Challenges. *Journal of Urban and Regional Analysis*, 49-64.
11. The New Climate Economy Report.(2014). rep. The Global Commission on the Economy and Climate.
12. Tabassum, S., & Sadashivam, T. (2016). Trends of urbanization in india: issues and challenges in the 21st century. *The International Journal of Information Research and Review*, 2375-2384.
13. US Census Bureau. (n.d.). *World Population Review*. Retrieved from <https://worldpopulationreview.com/>