

# Inclusive Growth in Smart Cities: Addressing Socio-Economic Inequalities in India

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## Abstract

Smart cities are crucial for achieving urban development goals, as they provide a framework for creating sustainable environments. However, each country has its own unique approach to implementing smart cities, tailored to their specific ecosystems. In the case of India, a vast subcontinent with approximately 17% of the global population, improving the delivery of its Smart City Mission (SCM) is essential. This article explores the current state of India's smart city mission and examines the factors that contribute to its progress and challenges. By addressing these issues, India can enhance its sustainability and continuously strive to create a better climate for urban development.

**Keywords:** Smart Cities, Urban Development, Sustainability, Smart City Mission.

## INTRODUCTION

The present challenge in urban development arises from factors such as population growth and migration, leading to a decline in essential amenities like adequate physical and social infrastructure. This is compounded by issues such as increased pollution rates, inadequate road infrastructure, excessive resource consumption, uncontrolled economic growth, and the need to comply with stricter energy and environmental regulations. According to the United Nations, urban population growth is driven by both overall population increase and improvements in living conditions. Developing regions are experiencing faster urban development rates compared to developed regions. In 2016, there were approximately 512 urban centers globally with at least 1 million inhabitants, along with 31 megacities exceeding 10 million inhabitants. By 2030, these numbers are projected to rise to 662 urban centers and 41 megacities, primarily concentrated in developing regions.

While there is no universally accepted definition of a smart city, the concept was introduced to tackle the challenges faced by urban areas by leveraging innovative techniques and approaches. The aim is to find intelligent solutions that can effectively address the complexities of urban living and enhance the overall quality of life. The concept of smart cities involves various aspects such as improving transportation networks, upgrading water and drainage facilities, creating safer public spaces, and fostering responsive administration. Its goal is to strengthen urban infrastructure and services to meet the evolving needs of the population.

### **The Intersection of Sustainable Development and Smart Cities**

Sustainability encompasses the concept of meeting present needs without jeopardizing the ability of future generations to meet their own needs. It encompasses principles of social justice, conservationism, internationalism, and other historical movements. Achieving sustainability in the context of urban development requires not only access to sufficient natural resources but also the generation of social and economic resources. This is crucial in creating a conducive environment for sustainable urban development.

The concept of Smart City encompasses various perspectives from academia, industry, and government, resulting in different interpretations. Academic literature emphasizes knowledge development, while technological aspects like self-alignment, self-mitigation, self-protection, and self-optimization are highlighted. Industrial literature links 'smart' to intelligent products, services, artificial intelligence, and thinking machines. Government documents focus on managing urban development and view 'smart' within the context of urban planning theory. These diverse perspectives indicate that 'smart' can vary across different sectors. Smart cities are often described as resilient and inclusive cities that leverage technology and data to improve the quality of life for all residents. Evaluating smart cities can be based on parameters such as environment, economy, mobility, people, living conditions, and governance. A smart city can be defined as a knowledge-intensive approach that aims to enhance socioeconomic, ecological, logistic, and competitive performance by leveraging human, infrastructural, social, and entrepreneurial capital. Investments in human development, transportation and information and communication technology (ICT) infrastructure, social capital, and sustainable resource management are central to the smart city concept.

### **Assessing the Sustainability of Smart Cities**

Smart City Assessment (SCA) is an emerging field that holds significant potential for future development, as stated by Sharif. SCA tools provide a means to evaluate cities and generate rankings based on various parameters, enabling a better understanding of the strengths and weaknesses of different locations. These rankings can serve as a guide for cities to improve their positions and enhance their overall performance. A city with a favorable ranking can enhance its international image and effectively incorporate it into its marketing strategy. The benefits of smart cities can be examined from the perspectives of various stakeholders such as researchers, investors, funding agencies, and citizens. The subsequent section outlines some of these benefits:

Researchers are interested in exploring smart city issues to develop strategies for improving performance, simplifying the concept, and addressing complexities in the development of sustainable smart cities. They aim to provide procedures that streamline city governance and enhance control through authorities. Investors seek improvements in monitoring performance to enhance the image and competitive position of a city, which in turn attracts better investments [12]. They also look for comprehensive SWOT (Strengths, Weaknesses, Opportunities, and Threats) analyses to support improved town planning and stimulate discussions among various stakeholders. Funding agencies require evidence-based evaluation of projects, including assessments of public-private partnerships (PPPs) [13]. Smart City Assessment (SCA) plays a crucial role in allocating funds to investors and ensuring effective project implementation. Citizens benefit from SCA by gaining enhanced awareness about the advantages of smart city projects.

It allows them to participate in informed decision-making processes and motivates their engagement in smart city development activities [14].

### An Introduction to India's Smart Cities Mission

The urbanization trend in India has witnessed a significant rise in the number of large cities throughout the country, serving as crucial indicators of development. According to the 2011 Census, approximately 377.1 million Indians, accounting for 31.16% of the population and contributing around 60% of the country's GDP, reside in urban areas, acting as engines of economic growth. It is projected that the urban population will reach approximately 600 million by 2031, as stated in the Twelfth Plan Document of the Government of India. As urban areas continue to expand, the challenges of this rapid growth become evident in the need to enhance the quality of urban services such as water supply, sanitation, and urban transportation. Additionally, economic challenges cannot be overlooked, including concerns regarding urban poverty reduction, planned development of land resources, and the proliferation of slums.

On 25 June 2015, the Government of India (GoI) introduced its flagship program, the "Smart Cities" initiative, with the goal of enhancing governance and infrastructure facilities across the country. The initiative aimed to develop 100 cities as smart cities by 2024, with financial assistance shared between federal structures from 2017 to 2022 for city development. The objective of the smart city initiative is to create sustainable and inclusive urban communities that prioritize essential infrastructure and ensure a high quality of life for residents. This includes access to reliable utility services such as water and electricity, a robust transportation system, job opportunities, and livelihoods for inhabitants. Moreover, smart cities focus on providing adequate facilities for entertainment, ensuring citizen safety and security, state-of-the-art healthcare and education, efficient waste management through energy conservation, water preservation, and proper recycling [17, 18]. The proposed investment for the phased development of sustainable smart cities in India is approximately USD 28 billion. The allocation of funds and the phased development plan can be seen in Table 1.

Table 1. Shows the sustainable smart cities phased development and allocation of fund  
Total Area Based Development Cost

Round selection	of	Year of selection	Cost of Projects (in billion dollars)	(in billion dollars)	Total Urban Population Impacted (in millions)
Round (20 cities)	1	January, 2016	7.31	5.64	37
Fast-track (13 cities)		May, 2016	4.53	3.94	10
Round (27 cities)	2	September, 2016	8.19	6.46	26

Round 3 (30 cities)	June, 2017	8.71	7.12	24
Round 4 (9 cities)	January, 2018	1.94	1.61	4
(Source: <a href="https://smartcities.gov.in/">https://smartcities.gov.in/</a> )				

### The Sustainable Smart City Mission in India

#### *The Planning and Design Process*

Regarding funding, each city participating in the Smart City Mission in India receives INR 5 billion from the central government over a 5-year period. Additionally, the state government is required to match this grant amount, resulting in a total corpus of INR 10 billion for each city over the same 5-year timeframe, as stated by the Ministry of Urban Development. The central government has allocated a budget of INR 480 billion to support the Mission [19]. To oversee and manage the smart city projects, a Special Purpose Vehicle (SPV) is established for each city, through which the funds are channeled.

#### *The operations*

The implementation of the smart city concept in India has undergone iterations. Initially, there was a shift from ambitious financial plans and market-driven funding approaches towards more cautious city proposals with smaller budgets, relying on conventional sources of funding such as government grants. However, several challenges hinder the smooth operation of the Smart Cities Mission. One significant issue is the lack of transparency and clarity in funding sources, which continues to impact the mission. The financing structure and resource acquisition responsibilities lack a clear framework, overshadowing the genuine intent to develop the cities. Furthermore, India's societal structure exhibits inequalities across different cities, as highlighted during the pandemic [20]. The implementation of the Mission could potentially exacerbate urban inequality in the selected cities. Additionally, the emphasis on revenue-generating projects within the smart cities mission risks neglecting the existing structure of urban development, which encompasses various aspects beyond physical infrastructure. Another concern is the shift of power from decentralized structures to a more centralized approach, causing local bodies and state governments to feel marginalized. Moreover, citizen participation in the operational aspect of the Smart Cities Mission can inadvertently amplify the influence of urban elites in the decision-making process. The successful implementation of the Smart Cities Mission in India necessitates a careful approach that considers the interests of all segments, including local and central governments, diverse cities, and different socio-economic groups, while effectively allocating and utilizing funds [20].

## **Challenges and the Path Ahead for Sustainable Smart Cities**

### **Differences in Smart City Budgets Across India**

The budgets allocated to the top 99 cities in India exhibit a wide range, ranging from slightly over INR 5 Billion in cities like Kavarati, Lakshwadeep, to nearly INR 60 Billion in cities like Chandigarh. Among these cities, 57 primarily focused on budgets below INR 20 Billion, while 38 cities had budgets ranging between INR 20 Billion and INR 40 Billion. Only a few cities opted for budgets exceeding INR 40 Billion. On average, the cities had a budget of INR 20 Billion for the 99 cities.

### **Lack of Clarity Regarding Funding Sources**

#### **Addressing Inequality in Smart City Development**

The Smart Cities Mission places significant emphasis on 'Area Based Development' (ABD), which involves concentrating substantial funding on a small portion of the city. On average, the ABD projects cover a little over 7% of the total area of the 99 cities, while the funding allocated to these projects accounts for over 80% of the Smart City Mission (SCM) budget for each city. Consequently, more than 90% of the city area receives less than 20% of the SCM budget. This distribution raises concerns as some of the selected ABDs may already have better infrastructure and services, potentially exacerbating existing inequalities within the cities. It is crucial to consider developing areas that have been neglected in the past rather than solely investing resources in the same areas that are already relatively well-serviced.

### **The Leveraging of Economic Returns through Innovation**

An examination of the top 60 cities reveals that the development sectors largely align with those of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), with a few additional areas of focus. The five primary development categories - Transportation, Energy and Ecology, Water and Sanitation, Housing, and Economy - account for approximately 80% of the Smart City Mission (SCM) budget. These categories largely resemble projects implemented under the JNNURM. The remaining categories, including IT, Governance, Culture and Heritage, and Health and Education, which are specifically emphasized for smart city progress, receive less than 15% of the SCM funding. The remaining projects fall under the "miscellaneous" category, encompassing various components related to water and sanitation, renewable sources, housing, and IT that do not fit into a single category.

### **Centralization of Power through the Establishment of New Special Purpose Vehicles (SPVs)**

The Smart Cities Mission in India requires the creation of Special Purpose Vehicles (SPVs) under the Companies Act 2013, which are responsible for managing the implementation of projects under the Mission. The incorporation of SPVs involves the transfer of "rights and obligations" from the local municipality to the SPV. However, in the Indian context, there is ambiguity regarding the specific terms of the relationship and hierarchy between the SPV and the municipality, which poses challenges to collaborative efforts.

### **Integration of Smart City Development with Other Government Schemes**

The integration of physical, institutional, social, and economic infrastructure leads to comprehensive development in various areas. The analysis presented below highlights the influence and implementation of different schemes by the Indian government, aiming to make the smart city mission more sustainable.

### Citizen Engagement and Participation

Limited Civic Engagement in India creates a gap in representing citizens' concerns and addressing critical issues, as compared to more developed nations. This lack of active civil society participation results in the underrepresentation and suppression of important societal issues.

### Conclusion

To achieve sustainable urban development in India, it is crucial to assume clear responsibility for extending the sustainable development initiative to smart cities. This entails determining the appropriate extent of public-private partnership involvement. It is essential to address the specific needs of each city within a stakeholder framework, considering how to foster sustainable growth. The implementation of these initiatives must adhere to strict timelines. It is important to eliminate the political influence that favors allocating more funds to certain states, and instead promote nationwide application of private partnerships. In cities with a highly educated population and higher per capita income, such as Pune, the Smart City concept has been embraced more effectively due to greater public participation. Conversely, in some cities, development has been limited to symbolic gestures rather than comprehensive implementation of smart urbanization. For instance, the city of Lucknow announced plans for complete internet connectivity in a specific zone, but these plans failed to materialize beyond mere publicity. Overall, significant efforts are required to achieve smart urban development across India.

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