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# Collaborative Urban Financing under India's Smart Cities Mission: Examining Government-Corporate Partnerships for SDG 11

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## Abstract

India's Smart Cities Mission (SCM), launched in 2015, is a flagship program aimed to transforming urban environments in line with the UN's Sustainable Development Goals, specifically SDG 11, which focuses on making cities inclusive, safe, resilient, and sustainable. This paper explores the financing structure of the mission, with a specific focus on government-corporate partnerships such as public-private partnerships (PPPs) and innovative funding mechanisms like municipal bonds and land monetization. The study is completed using secondary data from government reports, policy documents, and official mission updates; the paper evaluates how financial strategies have been implemented across cities and to what extent they have succeeded. While SCM has made notable progress, including establishing integrated command and control centers, upgrading transportation, and improving waste and water management, it also faces significant challenges. These include unequal distribution of money, minimal private sector engagement, and project delays. The report highlights the structural and governance obstacles that have limited the mission's ability to fully explore the potential for collaborative financing. It concludes by stressing the need for better institutional coordination, stronger financial accountability, and more inclusive planning to realize SCM's potential in building sustainable urban futures.

## Keywords

- Sustainable Urban Development
- Smart Cities Mission,
- Collaborative Financing
- SDG 11

# Introduction

Urbanization is reshaping India's social and economic landscape. Over 31% of India's population lived in urban areas, contributing more than 63% of the national GDP, according to the 2011 census report. This is expected to rise significantly, raising major concerns for cities to deliver inclusive growth, quality infrastructure, and environmental sustainability. In response, the Smart Cities Mission (SCM) was introduced by the Government of India in 2015, a comprehensive urban renewal initiative aimed at transforming 100 cities into models of efficient, eco-friendly, and livable urban ecosystems.

The SCM was designed not only to address urban infrastructure gaps but also to align with the United Nations' Sustainable Development Goal 11, which seeks to make cities inclusive, safe, resilient, and sustainable. Cities are hubs of economic growth and innovation, but they also face issues like inequality, poverty and environmental deterioration. In order to make cities future proof, Goal 11 builds inclusive, secure and resilient cities. Slums or slum-like conditions have increased due to rapid urbanization which outpaces the housing construction and lack of infrastructure and services. The mission focused on the interventions of transportation, waste management, water supply, public safety, education, and health, supported by data-driven technologies and institutional innovation. A range of funding sources, including state and urban local bodies (ULB) resources, such as land monetization, beneficiary fees, and user fees, are used to fund Smart City initiatives. The proposals of the Fourteenth Finance Commission (FFC) provide more funding. Additionally important are cutting-edge financial tools, including municipal bonds, pooled financing methods, and tax increment financing (TIF) which basically fixes the base tax value and allocating additional taxes from the new value for infrastructure projects like sewerage, roads, or job training, so underdeveloped areas can grow that would not otherwise occur. Funding is provided by other government initiatives, including Heritage City Development and Augmentation Yojana (HRIDAY) complementary to the mission with a focus on smart development while maintaining the distinctive qualities of heritage cities, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) which concentrates on supplying water, providing sewerage, and park facilities in the cities. Along with the Swachh Bharat Mission, key urban development with focus on sanitation. The National Investment and Infrastructure Fund (NIIF) is another resource available to states and Union Territories (UTs) and financial institutions, including bilateral and multilateral sources, offer loans. Lastly, public-private partnership (PPP) leveraging private sector capital, technology, and expertise for infrastructure development. This helps to achieve public goals with private sector efficiency and innovations. Also funding strategies were intended to reduce dependence on government budgets and promote long-term financial sustainability.

There are no certain definitions for smart cities; each definition depends on the country's perspective. In this regard, India's mission focuses on concepts like communities at the core of planning, fewer resources, more outcomes, cities selected through competitions, flexibility in implementations, integrated methods through innovative and sustainable solutions, relevant technologies based on needs, and sectorial and financial convergence.

However, despite these promising frameworks, several difficulties have emerged. The uneven allocation of funds across cities, project implementations delayed due to administrative and financial constraints, and underutilization of PPPs. Smaller Union Territories and less-developed cities often received only partial allocations, and a significant share of planned PPP-based projects failed to provide measurable outcomes. These incidents raised critical questions about the effectiveness of India's collaborative financing model in achieving large-scale urban transformation.

## Review of literature

1. Anand, Sreevatsan, and Taraporevala (2018), from their study state that the Smart Cities Mission is an urban regeneration program that builds on the JNNURM framework, with a strong focus on physical infrastructure. They argue that the mission promotes market-based financing models while allowing cities to bypass detailed, project-level financial disclosures.
2. Aggarwal and Solomon (2020) highlight financing challenges in India's Smart Cities Mission, noting that most projects are government-funded, while the expected 30% private contribution through PPPs remains unmet.
3. Sagara (2020) who conducted a study of the mission in Gujarat argues that slow implementation, limited funding, and weak city-level readiness have hindered the Smart Cities Mission. He notes that benefits are often restricted to select urban zones, leading to "islands of smartness" and growing inequality between smart and non-smart cities.
4. Hoque and Prakash (2023), in their study, explore the components, progress, and challenges of the Smart Cities Mission using secondary data. Their study found that Tamil Nadu and Uttar Pradesh were the states the received highest allocations under the mission. While they affirm that smart cities are crucial for sustainable development, they advise that transformation be gradual and require long-term commitment. The authors mention the mission as a flagship initiative of the government, with its full implementation expected by 2030.
5. Saxena and Singh (2024) emphasize that the smart city concept in India lacks a universal standard and is shaped by local needs and aspirations. They argue that while the mission aims to improve urban quality of life through infrastructure and services, rapid urbanization has strained resources and impacted livability. The study underscores the importance of context-specific planning and inclusive evaluation criteria for city selection.

# Methodology

This is a qualitative and descriptive paper based on secondary data from official government reports and existing literature. The three major focuses of the study are achievements under SCM, financial mechanisms used and challenges faced in mobilizing and collaborating financing models.

## Achievements of Smart Cities Mission

The Smart Cities Mission (SCM), established on June 25, 2015, with the aim to enhance urban living in India by implementing smart, sustainable, and inclusive solutions. With a total investment of ₹1.64 lakh crore, 94% of the 8,067 projects under SCM have been completed as of May 2025. This marks a substantial progress in transforming urban landscapes across the country. The mission employs both Area-Based Development (ABD) and Pan-City Project approaches: ABD focuses on targeted zones within cities as replicable models, while Pan-City Projects implement technology-driven solutions citywide.

One of the significant achievements of the mission is the creation of Integrated Command and Control Centers (ICCCs), a smart city hub using tech to centralize city operations by combining data from several agencies, such as garbage, traffic, water, and police, for better coordination, quicker decision-making, real-time monitoring, and enhanced services (safety, efficiency, disaster response). It is essentially the "brain" of smart urban management, facilitating integrated data visualization and teamwork for comprehensive city governance. It was implemented in each of the 100 Smart Cities under the mission, which improved the municipal administration by utilizing data-driven technologies like artificial intelligence (AI), the Internet of Things (IoT), and data analytics. These ICCCs served as war rooms during the COVID-19 pandemic, enabling improved municipal operations management, including trash management, transportation, and water supply. The installation of more than 84,000 CCTV cameras, 1,884 emergency call boxes, 3,000 public address systems, and traffic enforcement technologies like automatic number plate recognition and red-light violation systems has improved public safety and security by enhancing crime monitoring.

Installing SCADA technology has improved the water supply system by monitoring more than 17,026 kilometers of infrastructure and greatly lowering leaks and non-revenue water. With 66 cities using cutting-edge technologies for better route management and efficiency, solid waste management has evolved. Currently, 9,194 vehicles equipped with RFID technology aid in improved garbage collection monitoring and administration. In terms of transportation, 713 kilometers of bike tracks and more than

1,740 kilometers of smart roads have been constructed. Traffic operations have been enhanced, infractions have been punished, and travel times have decreased with the installation of an Intelligent Transport Management System (ITMS), which is overseen by ICCCs.

The mission has also advanced social infrastructure. Education has benefited from 9,433 smart classrooms across 2,300 schools and 41 digital libraries, while healthcare has been expanded with 172 e-health centers, 152 health ATMs, and 15 cities implementing e-health record systems. Public spaces and inclusivity initiatives, such as 'Cycles4Change' and 'Streets4People,' promote active lifestyles and accessibility for vulnerable groups. Heritage conservation and redevelopment projects, like the waterfronts, heritage monuments, and public markets have strengthened cultural identity while improving urban livability.

SCM's accomplishments show a multi-sectoral and technologically driven transformation, Integrating Special Purpose Vehicles (SPVs) acting as dedicated companies to plan and execute complex urban projects, Urban Local Bodies (ULBs), Public-Private Partnerships (PPPs), Tax Increment Financing (TIF), and the National Investment and Infrastructure Fund (NIIF) to mobilize funding and governance support. Collectively these efforts highlight the mission's role in establishing dynamic and sustainable cities.

## Financing of Smart Cities Mission

Finance for the mission is a centrally sponsored scheme. The central government proposes to provide an amount extended to 48000 crores over five years to each city. The project cost distributed for each city varies upon its level of ambition, model, and capacity to borrow and repay. Government grants from both the center and the state are used to attract more sources from internal and external. Many state governments, including those in Tamil Nadu, Gujarat, Orissa, Punjab, Maharashtra, Karnataka, Madhya Pradesh, and Bihar, have established financial intermediaries that are available for assistance. Funds rather than by governments and urban local bodies mobilize funds through other means. Such as,

1. States/ULBs own resources from the collection of user fees, beneficiary charges and impact fees, land monetization, debt, loans, etc.
2. Additional resources transferred due to acceptance of the recommendations of the Fourteenth Finance Commission (FFC).
3. Innovative finance mechanisms such as municipal bonds with credit ratings of ULBs, pooled finance mechanism, Tax Increment Financing (TIF).
4. Other Central Government schemes like Swachh Bharat Mission, AMRUT, National Heritage City Development and Augmentation Yojana (HRIDAY).

5. Leverage borrowings from financial institutions, including bilateral and multilateral institutions and both domestic and external sources.
6. States/UTs may also access the National Investment and Infrastructure Fund (NIIF), which was announced by the finance minister in his 2015 Budget Speech and is likely to be set up this year.
7. Private sector through PPPs. (Ministry of Urban Development 2024).

The mission was launched in 2015; in that year the union budget of India allocated ₹2,020 crore (US\$240 million). It was initially a five-year plan, but later it was extended, and in 2023 the union budget was ₹16,000 crore (US\$1.9 billion). As of 2023, around 7378 projects have been completed with an allocated amount of 147668, which accounts for 91% of the total project. There are 698 projects ongoing with the amount 17039. More than 50 cities are developing or developed about 199 projects through PPP worth ₹9200. The private-public partnership model, has applied various elements of the pomission, including infrastructure development, service delivery, technology implementation, and financing. These are some important PPP features in Indian smart cities. PPPs alleviate the pressure on public budgets by facilitating finance through private resources. Domestic and international private investors engage in project finance through multiple mechanisms like Build-Own-Operate-Transfer (BOOT) and other public-private partnership models such as Build-Operate-Transfer (BOT). These collaborative frameworks include revenue-sharing plans, Special Purpose Vehicles (SPVs), and municipal bonds. The PPP framework is regulated strictly with compliance to legal and contractual obligations, risk allocation, dispute settlements, and performance monitoring.

## Challenges of Smart Cities Mission

The mission was supposed to end in 5 years, but it was extended to June 2024 to finish pending projects. Some cities, including Port Blair, Puducherry, Daman and Diu, and Lakshadweep, received less than half of the central funding that was pledged. Only 18 cities received their full share by state or urban development bodies, and 14 cities only received less than 60% of their share. About 21% of funds were decided to be raised by PPP, but only 6% of projects funded through public private partnership. Funding through loans was also not met. Lack of a robust mechanism for ensuring coordination and monitoring, which resulted in the delay of some projects. Ineffective advisory forum meetings in some cities the state-level bodies did not conduct any regular meetings, and they lacked a master plan.

## Conclusion

India's Smart Cities Mission has undeniably pushed the boundaries of urban transformation, ntroducing Integrated Command and Control enhancing service

delivery, and building smart infrastructure in over 100 cities. However, the mission's potential to truly revolutionize urban governance and sustainability remains only partially realized. The persistent gaps in financing, especially the underwhelming private sector participation and unmet loan targets, expose structural weaknesses in India's collaborative financing model. While government allocations have carried much of the load, the mission's long-term success depends on how effectively it can mobilize and manage diverse funding streams, particularly from Public-Private Partnerships (PPPs), municipal bonds, and innovative financial instruments.

Equally important is strengthening the institutional capacity of Urban Local Bodies (ULBs), enforcing financial transparency, and ensuring inclusive citizen engagement, not just in rhetoric, but in practice. To achieve SDG 11, Indian cities must move beyond isolated success stories and scale sustainable, equitable, and accountable urban development. This will require shifting from fragmented, top-down execution to a more decentralized, well-coordinated, and finance-smart governance approach, where cities are not just project sites but active agents in designing and funding their own futures.

## Actionable Recommendations

- 1. Strengthen PPP Frameworks:** Introduction of clear standards, uniform contracts, and risk-sharing mechanisms to attract more private sector investment and ensure timely project execution.
- 2. Capacity Building for ULBs:** Provide training and support to local bodies on technical and institutional activities to improve fund management, project planning, and individual participation.
- 3. Enhance Financial Monitoring:** Improving accountability and transparency through centralized tracking systems.
- 4. Diversify Funding Sources:** Encourage greater use of municipal bonds, blended finance, and international development funds to reduce dependence on central and state allocation.
- 5. Promote Equitable Resource Allocation:** Prioritize funding and interventions for smaller, under-resourced cities and vulnerable urban populations to reduce inequality between smart and non-smart urban zones.
- 6. Foster Citizen Participation:** Integrate participatory planning mechanisms and digital feedback systems to ensure that urban development aligns with local needs and sustainable development goals.
- 7. Encourage Technology-Driven Governance:** Expand the use of AI, IoT, and data analytics beyond pilot cities to enhance operational efficiency, predictive planning, and disaster resilience.

By implementing these measures, India's Smart Cities Mission can move from isolated urban successes to a replicable, scalable model of sustainable, inclusive, and financially resilient urban development, fully aligned with the vision of SDG 11.

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