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Smart Cities In India: Progress, Challenges, And The Road Ahead (2025)

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Abstract: This research brief is an updated review of India Smart Cities Mission as of 2025 and involves equity build-up on the work of *Ms. Priyanka Gupta* & *Dr Rajan Gupta* (2018). It re-views the Mission framework, monitors its progress and assess the progress within key metrics and evaluates existing and new challenges, including financial sustainability, institutional governance, cybersecurity risks, and climate resilience. With newer statistics provided by the Ministry of Housing and Urban Affairs (MoHUA), World Bank reports and independent research, this paper gives a brief of why India requires a citizen-centered, climate-friendly, and cost-effective model of smart cities construction.

Index Terms - Smart Cities Mission, Urbanization, Governance, Cybersecurity, Climate Resilience, Public-Private Partnerships.

I. INTRODUCTION

The introduction of the Smart Cities Mission by the Government of India in 2015 was not just an infrastructure building exercise, the government also wanted to transform the way people live, move and communicate within their city. The simplicity and power of this vision were to transform 100 cities into places that would be safe, green and technology-empowered, with access to improved services and cleaner environment, inclusive growth, so that citizens with opportunities to go out and see and experience all this. Ms Priyanka Gupta & Dr Rajan Gupta (2018)1 who examined the role of digital technologies in the processes of governance transformation, pointed out to the fact that digital technologies could become the foundation of this change at the same time mentioning that such barriers as the complicated system of governance, institutional deficiency, and absence of citizen participation could impede the change.

Proceed several years into the future in 2025, and the outcomes are uneven yet practical. Most cities, today, enjoy better public transportation systems, smarter traffic coping, safer open areas or highways, online complaint redressal systems or improved municipal waste disposal services, which all have had a direct positive impact on the lives of millions of people. An example of this is that the resident is able to track the buses in real time, access utilities bills of the municipality online, or enjoy an improvement in the municipal health facilities, which was very scarce ten years ago. More than 7,800 projects have been started and thousands of them are completed or on the verge of completion demonstrating that the mission as progressed much more off paper and onto the drawing board.

However, to a lot of the citizens, the commitments of the Smart Cities Mission remain unfulfilled yet. Deficiencies in financing have delayed such critical projects, and the harmonization of numerous authorities between different agencies usually acts as a stumbling block. In addition, the urban centres are also being put to the test by climate-related threats, like urban flooding and the stress of heat, at the same time as concerns about inclusivity start to come into play as to whether the benefits are trickling down to those who need them the most, the urban poor, migrant workers and marginalised groups. The paper puts them into perspective, re-examining the observations of Gupta & Gupta written just a few years ago, and comparing them to how much we have accomplished and how much further to go.

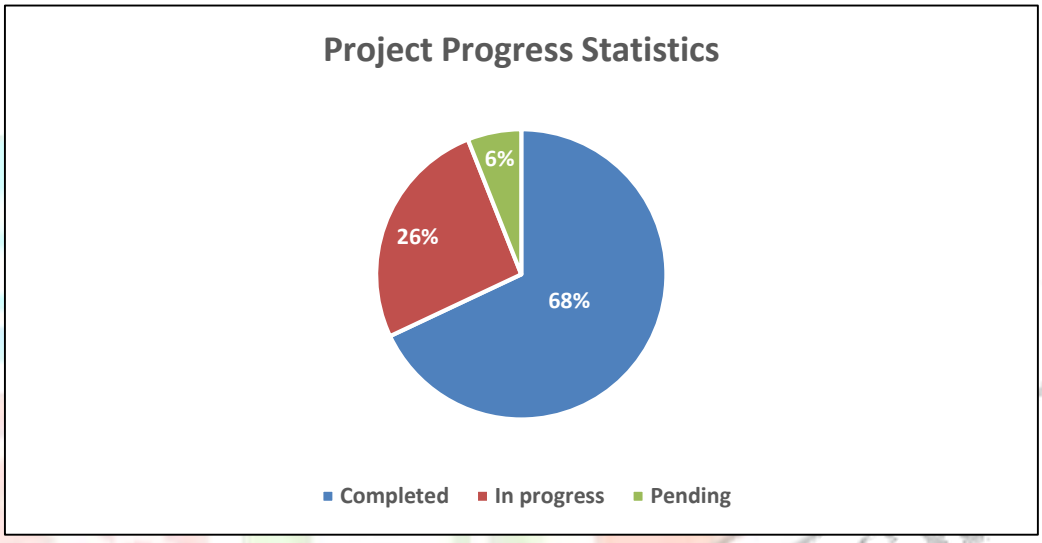
Progress of Smart Cities Mission (2018–2025)

MoHUA and press information bureau (June 2025):

- So far 8,067 projects have been sanctioned, amounting to an out-lay of 1.64 lakh crore of rupees.
- 94 percent of projects are either at final stages or completed but percentage of projects that have delay is about 10 percent because of land acquisition and clearances.
- The urban surveillance, disaster management and e-governance facilities have also been augmented with Integrated Command and Control Centres (ICCCs) in action in all the 100 cities.
- The most significant measures are smart mobility solutions (e-buses, metro integrations), water SCADA system, and IoT-enabled city waste management in cities such as Indore, Pune, and Surat.

I.Project Progress (as of June 2025)

By 2025, the Smart Cities Mission has already had significant advances in project implementation on the territory of the 100 identified cities. The percentage of the completion and completed projects stands at about 68 with tangible changes experienced in improvement on urban mobility, waste management, e-governance and infrastructure on the people. Another 26 percent of projects are underway as there are activities aimed at improving the urban infrastructure by increasing service delivery. Nevertheless, disproportionately, an average 6 percent of all projects in existence remain uncompleted, mostly because of factors like funding delay, land acquisition problems, inter-agency coordination problems and unexpected logistical problems. This allocation



shows that The Mission has already made satisfactory achievements but special attention must be given to accelerating planned and underway projects so that the scheduled benefits could accrue to the citizens in a timely and effective manner.

figure 1: project progress statistics

II.Smart Cities Mission – Fund Utilization

By 2025, the Smart Cities Mission will assume so much development in terms of financial distribution and deployment. The total outlay of 1.64 lakh crore of the Mission is set to transform urban India through 100 priority cities that have been listed. Out of this approved amount, the government has even mobilized 1.52 lakh crore so far and this clearly shows the seriousness they have in facilitating the timely completion of the projects. Notably, an amount of 1.39 lakh crore has effectively been used in diverse projects where the sectoral focus has been oral mobility, housing, public infrastructure, environment management, and technology-enabled governance. This however also means, there exists a funding gap of about 0.25 lakh crore and thus talks about the need of additional financial mobilization and enhanced fund absorption capacities both at the city and the state level. This gap will be important to fill in order to complete current projects on time, as well as meet the Mission objective to provide the creation of sustainable, inclusive and technology-based urban environments.

(*Source: Ministry of Housing & Urban Affairs Smart Cities Dashboard; PIB, 2025).*

Persistent and Emerging Challenges

I. ***Governance & Institutional Capacity***

Although Special Purpose Vehicles (SPVs) were under construction to guarantee the independence of a given project, they usually exist in silos, without any links to the ordinary Urban Local Bodies (ULBs). The reckless turnover of leadership, shortage of competent personnel has also affected the pace of execution (Drishti IAS, 2025).

II. Financial Sustainability

Although large amounts are being allocated only 6 percent of projects exploit Public-Private Partnerships (PPPs), compared to the target, which is 21 percent. The contribution of the municipal revenues to their budget is less than 0.6 percent of GDP, which restricts the operational capacity of municipalities (Policy Circle, 2024).

III. Cybersecurity & Privacy Risks

Issues of data misuse and cyber-attacks abound, as ICCCs are rapidly deployed alongside AI-enabled surveillance and detection of facial recognition systems are employed. There is now a series of extensive cyber audits in some states (Times of India, 2025).

IV. Climate Resilience & Sustainability

Urban flooding, heatwaves and air pollution need to be addressed now. City ICRR Review titled- 'Estimated Infrastructure Gap for cities-Rural, based on WB last data (2013). (Reuters, 2025).

V. Inclusivity & Citizen Participation

The focus of smart interventions is usually affordable housing and business areas and exclude slums and informal settlements. Citizens still fall short of using citizen engagement platforms (Smart Indian City, 2024).

Lessons from Global Benchmarks

The examples of other cities such as Singapore and Barcelona are strong indicators that smart urban development could do more than improving the infrastructure and transform structures of governance, resilience, and citizen engagement. Singapore, as an example, has managed to integrate open-data governance systems that display live information, ranging in topics, including public transport timetables, energy-use patterns, etc., to citizens and companies alike to promote the concept of transparency, as well as innovation. Examples of its climate adaptation measures, including large green corridors, urban cooling systems, flood resiliency infrastructure, demonstrate the proactive nature with which cities can address climate risk. On the same note, Barcelona has become a global pioneer in participatory budgeting where residents have direct voice in investing in public money, which enhances credibility and increases the responsiveness of the urban interventions.

These experiences provide a good lesson in the case of Indian cities. When the models of inclusive planning are brought on board, local governments can be able to achieve inclusion in the needs of the projects in urban development where all classes of people should have a say in what goes on to them. The incorporation of climate-smart infrastructure e.g. permeable pavements, green public spaces and heat resilient building designs in long-term urban planning will be important in protecting cities against the risks of climate change e.g. urban flooding, water shortage and heatwaves. In addition, implementation of the open-data platform can increase the levels of transparency, so that it leads to enhanced service delivery in the country, and the empowerment of the citizens to co-create solutions with local authorities.

Shifting these best practices of the world to the Indian context, which emphasizes participatory governance, climate adaptability, and utilizing technology to achieve transparency would help the Smart Cities Mission to progress toward its goal of establishing urban centres, which are not only smart but also inclusive and resilient to climate risks, and actually responsive to the needs of its citizens.

Recommendations

There should be a number of strategic interventions to facilitate the attainment of the long-term goals of Smart Cities Mission. First, Special Purpose Vehicles (SPVs) have to be made stronger, and this means that they should be brought closer to Urban Local Bodies (ULBs) so that, governance mechanisms involve both elements of the administrative beating coupled with a ground contact. Simultaneously, it will also be essential to increase the involvement of the Public-Private Partnership (PPP) that can be done with the help of attracting investments of the private sector with the assistance of fiscal reforms, risk-sharing, and clear regulation. Considering the ever-increasing dependency on the digital platform, it is also highly necessary to build an effective cyber security system and that must involve making cyber audits mandatory, adoption of strict data protection laws, and capability training of municipal organizations to protect sensitive data of citizens. In addition, the priority areas need to focus on climate-smart development by increasing the Climate Smart Cities

Assessment Framework (CSCAF) implementation to all mission cities, where urban planning is climate change resilient to risks of flooding, heat stress, and others. The other idea to implement is to institutionalize citizen participation, to achieve this, they should establish an inclusive and non-discriminative digital and offline platform which will enable people to be directly involved in making decisions resulting into transparency and trust. Lastly and most importantly, greater emphasis must be laid on marginalized communities, such that development projects must speak directly to the needs of low-income communities, as well as informal settlements, and vulnerable populations, visualizing urban change as being, indeed, equitable and inclusive.

Conclusion

Provoking the progress and development of the Smart Cities Mission, in the course of a decade, it has successfully evolved and transformed itself, enabling the projected notion to be transformed and emanate into an operation reality, with thousands of projects in place, still, in different phases of construction or completion, in the areas of transportation, digitalized governance, distribution of services, and overall urban infrastructure. This is a major progress in the urban development agenda of India. The current dilemma however has been how these investments can continue to be supported even in the long run since most investments have stagnated or rather increased funding has not been able to achieve more because of funding cuts, institutional inefficiencies or the absence of stakeholders. It is also imperative that citizen trust should be won through showing tangible returns, enhanced service delivery as well as instituting more transparency in relation to decision making and resource allocation.

Furthermore, cities are becoming denser and more tightly connected, which makes defending against climate-related shocks and cyber threats a burning topic. The fact that cities are out in the open due to the increasing frequency of floods, heatwaves, and extreme weather events is only one item on a list that includes the rapid digitalization of municipal services that make them subject to data breaches and cyberattacks. Thus, the new Mission should focus on a multi-dimensional approach, which does not only aim at providing technological interventions but inclusive growth, financial sustainability, and climate-proof urban planning. This will involve instilling equity considerations in city planning and hence not leaving the marginalized communities behind, examining new ways of financing to overcome the funding gaps, and implementing climate-smart infrastructure to improve the resilience in the long term.

After all, what is needed is the need to go beyond mere technology exhibitions to building genuinely innovative urban ecosystems transformed cities, which are no longer merely smart but they are also inclusive, resilient, citizen-driven and represent a new standard of sustainable urbanization processes in a sustainable world.

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