Smart for Whom? Evaluating the Distributional Equity of Smart-City Investments in Urban India

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Abstract:
India's Smart Cities Mission (SCM) was designed to combine core infrastructure, quality of life, sustainability, and 'smart' solutions through a mix of area-based development and pan-city interventions. A decade of implementation has generated an important question for urban planning: whether the spatial and sectoral distribution of smart-city investment has advanced inclusion or produced highly visible enclaves within cities characterized by persistent infrastructure deficits. This article synthesizes policy documents and scholarship on the SCM, with particular attention to Pune, Bhubaneswar, and Chennai. It develops a Smart City Equity Evaluation Framework that distinguishes procedural, spatial, infrastructural, digital, mobility, and fiscal equity. The review finds that the Mission's formal language is explicitly inclusive, yet area-based implementation can concentrate capital in a small share of urban territory, while technology-centered participation can privilege digitally connected groups. The article argues that smart-city performance should be evaluated against the distribution of public value, not the visibility or technological sophistication of projects. It concludes with planning reforms for citywide equity mapping, minimum inclusion tests, transparent beneficiary analysis, and stronger integration between smart-city projects and statutory metropolitan planning.

Keywords: India; Smart Cities Mission; urban equity; area-based development; smart cities; urban planning; infrastructure.

1. Introduction

India's Smart Cities Mission (SCM), launched in 2015, became one of the world's largest national experiments in state-supported smart urbanism. The Mission's stated objective was not limited to digital technology. Official guidance described smart cities as places that provide core infrastructure, a decent quality of life, a clean and sustainable environment, and smart solutions, with core elements including mobility, housing, governance, safety, health, and education (Ministry of Urban Development, 2015). This broad formulation is important because it establishes inclusion and basic urban services as central standards against which the program can be assessed.

The implementation model, however, created an inherent spatial tension. Cities were encouraged to combine pan-city smart solutions with area-based development (ABD), including retrofitting, redevelopment, and greenfield strategies. Concentrated investment can be defensible as a demonstration strategy: a bounded area may permit coordinated infrastructure upgrades that would be difficult to deliver simultaneously across a large metropolis. Yet concentration also raises a distributional question. If public resources disproportionately improve already advantaged or strategically selected districts, the 'lighthouse' model may produce islands of high-quality infrastructure rather than broad-based urban transformation.

This article asks: smart for whom, and smart where? It reviews the Mission through an equity lens and develops a framework for evaluating the distribution of smart-city benefits. Pune, Bhubaneswar, and Chennai are used as recurring cases because they were among the first cities prioritized and have been examined in comparative scholarship on place-based outcomes, governance, and informality. The article does not attempt a project-by-project impact evaluation. Instead, it synthesizes existing evidence to identify planning principles for a more equitable post-Mission smart-city model.

2. From Smart Technology to Public Value

Smart-city discourse is frequently organized around technology, efficiency, innovation, and competitiveness. In India, however, the policy architecture was deliberately broader. Prasad and Alizadeh (2020) show that the first twenty Smart City Proposals expressed diverse understandings of smartness across governance, citizens, infrastructure, environment, and economy. This diversity suggests that the Mission should not be judged by a single technological metric.

An equity-oriented interpretation begins with public value. A traffic-management platform may be technologically advanced, but its equity value depends on whose trips improve, whether buses benefit, whether pedestrian safety is addressed, and whether the investment displaces more urgent needs. A beautified public realm may increase amenity, but its distributional effect depends on accessibility, displacement, maintenance, and the relationship to informal livelihoods. A digital citizen-engagement portal may increase the volume of feedback while still underrepresenting residents with limited digital access.

This distinction matters because smartness can become performative. Visible command centers, sensor networks, streetscape projects, and app-based services are legible symbols of modernization. Basic drainage, affordable housing, feeder transit, pedestrian continuity, and maintenance may be less visually associated with the smart-city brand even when they generate greater welfare for disadvantaged residents.

3. Area-Based Development and the Geography of Benefit

Area-based development was one of the Mission's defining mechanisms. The model sought to demonstrate integrated transformation within selected areas and then generate replicable lessons. Yet research has consistently questioned whether the spatial concentration of investment can be reconciled with citywide inclusion. Praharaj (2021) found that the emphasis on selected precincts can deepen polarization when digitally oriented urban renewal is concentrated in limited areas. More recent appraisal of all 100 cities similarly reports cases where a very small proportion of municipal territory received a substantial share of area-based investment (Praharaj et al., 2025).

Prasad et al. (2022) describe the place-based outcomes in Bhubaneswar, Pune, and Chennai as forms of 'bubble urbanism,' in which large projects, placemaking interventions, and lighthouse developments create fragmented geographies of smartness. The concept is useful because it shifts analysis from whether a project was completed to how projects relate spatially to the rest of the city. A high-performing enclave may still leave citywide infrastructure networks fragmented.

The equity question is not resolved by arguing that pilots will later be replicated. Replication requires identifiable mechanisms, funding, institutional capacity, and evidence that the pilot is transferable. Without those conditions, the demonstration logic risks becoming a permanent justification for unequal geography. An equity audit should therefore distinguish between temporary concentration with a funded scaling pathway and concentration with no credible route to citywide diffusion.

4. Case Perspectives: Pune, Bhubaneswar, and Chennai

Pune provides a particularly useful case because smart-city planning combined mobility, public-space, governance, and digital initiatives with extensive claims of citizen engagement. Yet research on

participation has identified important limitations. Ravi et al. (2025), drawing on survey evidence, argue that digitally mediated engagement can privilege English-speaking, technologically connected, socioeconomically advantaged residents. This does not imply that digital participation is inherently exclusionary. It demonstrates that participation channels reproduce inequalities when they are treated as substitutes for broader deliberative methods rather than as one component of them.

Bhubaneswar, the highest-ranked city in the first Smart City Challenge round, illustrates the appeal of coordinated area transformation. Its smart-city agenda emphasized core infrastructure, mobility, public space, and technology. Comparative scholarship nevertheless places Bhubaneswar within the same broader concern about spatial selectivity and multiscalar governance (Prasad et al., 2021, 2022). The lesson is that a strong proposal and visible implementation do not eliminate the need to examine who is included within the geography of investment.

Chennai adds another dimension: informality. Prasad et al. (2024) show that smart-city planning in Indian cities can struggle to recognize the social and spatial realities of informal urbanization. Informality is not a marginal exception in many Indian cities; it is part of how housing, work, transport, and service access function. Smart-city interventions that rely on formal property, digital identity, standardized streets, or platform-mediated participation can therefore exclude populations whose urban lives do not fit formal planning categories.

5. A Smart City Equity Evaluation Framework

This article proposes six dimensions for evaluating smart-city equity. Procedural equity examines who participates in defining problems, selecting projects, and evaluating outcomes. Spatial equity examines the geographic distribution of investment relative to population, deprivation, infrastructure deficits, and exposure to environmental burdens. Infrastructural equity assesses whether projects reduce disparities in basic services such as water, sanitation, drainage, mobility, housing, public space, and digital access. Digital equity evaluates access to devices, connectivity, language, usability, and non-digital alternatives. Mobility equity examines benefits to pedestrians, cyclists, public-transport users, persons with disabilities, informal transport users, and households without private vehicles. Fiscal equity evaluates who receives public subsidy, who bears user charges or displacement costs, and whether investments create long-term maintenance liabilities.

These dimensions should be operationalized through a beneficiary map. Before approval, each major smart-city project should identify the population directly served, the population indirectly served, the groups potentially burdened, and the relationship between investment geography and indicators of deprivation. A project located in a high-income district is not automatically inequitable, particularly if it delivers citywide network benefits. The burden of justification should nevertheless be explicit.

A minimum inclusion test could complement conventional cost-benefit analysis. Projects would be required to demonstrate either direct benefit to underserved populations, a measurable reduction in a citywide service disparity, or a credible mechanism through which benefits scale beyond the initial project area. This would make equity an ex ante planning criterion rather than an ex post narrative.

6. Governance and the Special Purpose Vehicle Model

The SCM's Special Purpose Vehicle structure was intended to improve implementation capacity and coordinate public and private actors. Yet comparative research identifies tensions between rapid project delivery and democratic local governance. Prasad et al. (2021) find that multiscalar smart-city governance can generate conflicts of responsibility and weaken collaborative governance at the local level. Kesar and Ache (2024) similarly argue that the institutional architecture can concentrate influence among bureaucratic and consultant actors while weakening clear action-outcome relationships.

From an equity perspective, implementation capacity is necessary but insufficient. A delivery institution should also be accountable for distributional outcomes. Boards and project teams need transparent equity criteria, public reporting, grievance pathways, and formal links to elected local government and statutory planning processes. Otherwise, institutional efficiency can accelerate projects without improving the legitimacy of project selection.

7. Beyond the Mission: A Citywide Smartness Standard

The strongest lesson from India's experience is that smart-city policy should move from project visibility to citywide performance. A city should not be considered smart because it possesses a command center, sensor network, redeveloped district, or successful demonstration corridor. Smartness should be assessed through measurable reductions in urban disadvantage and improvements in everyday access.

A post-Mission framework could require cities to publish a Smart Equity Atlas integrating infrastructure gaps, public-transport access, pedestrian conditions, affordable housing, flood exposure, air quality, digital connectivity, and socioeconomic vulnerability. Capital projects could then be scored according to how strongly they address mapped deficits. Such an approach would connect digital capacity to distributive planning rather than treating technology as an independent development sector.

Replication also needs to become a budgetary concept. If an ABD project is explicitly presented as a pilot, the proposal should specify the unit cost, institutional requirements, lessons to be tested, evaluation period, and potential funding path for scaling. A pilot without a scaling strategy is a local project, not a citywide transformation model.

8. Discussion

The critique of spatially concentrated smart-city investment should not be interpreted as an argument for uniform spending. Cities need strategic prioritization, and some infrastructure must be concentrated geographically. The relevant question is whether prioritization responds to public need, network logic, and transparent criteria or whether it disproportionately rewards areas with greater political, commercial, or symbolic value.

Equity also requires attention to time. A project can appear unequal at one moment but form part of a sequenced investment program that progressively addresses underserved areas. Conversely, promises of future replication can mask durable inequality. Evaluation should therefore track both current distribution and the trajectory of planned investment.

India's Smart Cities Mission remains valuable precisely because of its scale and diversity. It created a national laboratory of urban governance, technology, infrastructure, and institutional experimentation. The next generation of policy can build on that experience by treating equity not as one objective among many but as a test of whether smart urbanism produces public value.

9. Conclusion

India's Smart Cities Mission placed inclusion, quality of life, sustainability, and smart solutions within the same policy ambition. The evidence reviewed here suggests that the tension between those objectives is most visible in the geography of area-based development, the design of participation, and the treatment of informality.

The Smart City Equity Evaluation Framework proposed in this article shifts assessment toward procedural, spatial, infrastructural, digital, mobility, and fiscal equity. Its purpose is not to reject technological innovation or demonstration projects. It is to ensure that innovation is evaluated by whom it serves and whether it reduces urban disparities. The central planning standard for the next generation of smart-city

policy should therefore be distributive: a city becomes smarter when the benefits of improved governance, infrastructure, mobility, and information become more broadly and fairly accessible.

REFERENCES:

1. Kesar, P., & Ache, P. M. (2024). Past, present and future of the Smart City in India: An institutional perspective. Cities, 146, 104775. https://doi.org/10.1016/j.cities.2023.104775
2. Ministry of Urban Development, Government of India. (2015). Smart Cities Mission statement and guidelines. Government of India.
3. Prasad, D., & Alizadeh, T. (2020). What makes Indian cities smart? A policy analysis of Smart Cities Mission. Telematics and Informatics, 55, 101466.
4. Prasad, D., Alizadeh, T., & Dowling, R. (2021). Multiscalar smart city governance in India. Geoforum, 121, 173–180.
5. Prasad, D., Alizadeh, T., & Dowling, R. (2022). Smart city place-based outcomes in India: Bubble urbanism and socio-spatial fragmentation. Journal of Urban Design, 27(4), 483–503. https://doi.org/10.1080/13574809.2021.2022978
6. Prasad, D., Alizadeh, T., & Dowling, R. (2024). Smart city planning and the challenges of informality in India. Dialogues in Human Geography, 14(3). https://doi.org/10.1177/20438206231156655
7. Praharaj, S. (2021). Area-based urban renewal approach for smart cities development in India: Challenges of inclusion and sustainability. Urban Planning, 6(4). https://doi.org/10.17645/up.v6i4.4484
8. Praharaj, S., et al. (2025). An appraisal of the 100 Smart Cities Mission in India: Lessons for the post-pandemic urban future. Journal of Urban Technology. https://doi.org/10.1080/10630732.2025.2549672
9. Ravi, C., Pathak, P., & Gandhi, P. (2025). Smart urbanization in India: Engagement, participation, and citizenship in Pune Smart City. In Smart cities and urban transformation (pp. 31–39). Springer.