CHAPTER 15

URBANISATION: MAKING INDIA'S CITIES WORK FOR ITS CITIZENS

India's cities shape how millions of people live, work, travel, and earn their livelihoods every day. They are engines of growth, magnets for talent, and crucibles of innovation. At the same time, they are sites of daily strain: long commutes, uneven services, and shared spaces that often fall short of collective expectations. This chapter argues that India's urban story is therefore neither one of decline nor adequacy, but of unfinished promise.

The central idea is simple: cities are not merely habitats; they are a form of critical economic infrastructure. Density and proximity power productivity, deepen labour markets, and enable learning. Yet the same forces that create dynamism also generate congestion, environmental stress, and institutional complexity. India is already deeply urban in economic terms, with the majority of its national output generated in cities and in urban areas. The task now is to make that urbanisation work better for citizens in tangible and intangible ways.

Many urban pressures stem from persistent supply-side constraints in land, housing and mobility. Restricted density, unclear titles and limited land recycling constrain affordable housing, while transport systems remain overly reliant on private vehicles. Core services such as sanitation, waste, and water services have expanded markedly but must now evolve from expansion to reliability, circularity and efficiency. However, beneath these sectoral stresses lies a deeper institutional issue: fragmented metropolitan governance and limited fiscal autonomy for cities – to plan, finance and deliver at scale.

Beyond infrastructure, there is a need to improve the intangible foundations of urban life, such as civic norms, shared responsibility, and respect for public spaces. As Elinor Ostrom's work on the commons reminds us, shared spaces and services depend as much on norms, trust, and collective behaviour as on formal rules. Similarly, Indian economic thought echoes this insight: D. R. Gadgil argued that development outcomes are ultimately shaped by institutions and social organisation, not investment alone. The quality of urban experience depends as much on collective behaviour as on budgets and bridges. Strengthening civic consciousness, alongside better institutions, is essential to creating cities that feel not only efficient but also welcoming.

Across all these themes runs a common optimism: India's cities can work better for their citizens. If planning, finance, and governance align around people-centric outcomes, India's cities can move from managing growth to truly benefiting from it, turning urbanisation into a visible source of opportunity, well-being and everyday ease for citizens.

INTRODUCTION

15.1. Throughout history, economic and social progress have depended on people clustering in settlements. From early river civilisations and market towns to modern metros, humans have grouped together to benefit from proximity. These agglomerations arose not just as homes, but also as responses to economic needs, such as exchanging goods, coordinating production, sharing resources, and transmitting knowledge. This reduced interaction costs, fostered specialisation, and supported infrastructure development impossible in dispersed areas. Over time, settlements became centres of economic activity, innovation, and power, making spatial agglomeration a key aspect of human progress.

15.2. These agglomerations, over time, assume the role of a 'city' when they cross three thresholds simultaneously: 1) Demographic scale and density sufficient for sustenance of multiple non-agrarian livelihoods 2) Economic diversification in terms of presence of multiple avenues of non-agrarian livelihoods, and 3) Institutional recognition through presence of an urban local body, statutory boundary, or formal planning authority. In India, urban agglomerations of different population sizes are defined as Statutory and Census Towns; and RBI[1] classifies 'cities' as per population (Table XV.1)

Table XV.1: Classification of Cities with different population sizes

Classification	Size of Population
Tier 1	1 lakh and above
Tier 2	50,000 to 99,999
Tier 3	20,000 to 49,999
Tier 4	10,000 to 19,999
Tier 5	5,000 to 9,999
Tier 6	Less than 5,000

15.3. Agglomeration economies underpin the economic logic of urbanisation. The density emanating from people and firms settling in proximity becomes productive. Larger and denser cities enable more efficient matching between workers and jobs, accelerate learning through frequent interactions and knowledge spillovers, and allow for the sharing of infrastructure, services, and specialised inputs. These mechanisms translate density into higher productivity, greater firm dynamism, and stronger

1 https://tinyurl.com/mrcxmn4w

innovation outcomes. Globally, and increasingly in India, the most productive sectors—modern services, advanced manufacturing, knowledge-intensive activities—are disproportionately urban, precisely because they rely on these agglomeration forces. A meta-analysis of agglomeration economies in developing economies by Grover, Lall, and Timmis (2021)[2] finds that doubling city size typically boosts productivity by 12 per cent in India. Therefore, it becomes imperative that cities be viewed not only as habitats but as vital economic infrastructure. Edward Glaesar in his book "Triumph of the City" says, Cities are humanity's greatest invention because they make us more productive, more innovative, and ultimately richer.

The Paradox

15.4. India's urban population has expanded rapidly in absolute terms, with large metropolitan regions such as Mumbai, Delhi, Bengaluru, Chennai, and Hyderabad now ranking among the world's largest urban agglomerations by population. However, population scale has not translated proportionately into urban productivity, liveability, or global economic influence.

15.5. In advanced and emerging economies alike, a small number of metropolitan regions function as nodes in global production networks, financial systems, logistics chains, and knowledge ecosystems. Despite India's economic scale today, its cities struggle to perform this role at the level of established global cities such as New York City, London, Shanghai, or Singapore.

Chart XV.1: Top 10 fastest growing cities in the world 2019-35

Rank	Growth (%y/y, 2019-35)	City	GDP 2018 ($ billion, constant 2018 prices)	GDP 2035 ($ billion, constant 2018 prices)
1	9.17	Surat	28.5	126.8
2	8.58	Agra	3.9	15.6
3	8.50	Bengaluru	70.8	283.3
4	8.47	Hyderabad	50.6	201.4
5	8.41	Nagpur	12.3	48.6
6	8.36	Tiruppur	4.3	17.0
7	8.33	Rajkot	6.8	26.7
8	8.29	Tiruchirappalli	4.9	19.0
9	8.17	Chennai	36.0	136.8
10	8.16	Vijayawada	5.6	21.3

Source: Oxford Economics

2 Timmis, Jonathan; Grover, Arti; Lall, Somik V.. 2021. Agglomeration Economies in Developing Countries: A Meta-Analysis. Policy Research Working Paper;No. 9730. © World Bank. http://hdl.handle.net/10986/36003

15.6. International evidence suggests that urbanisation delivers growth dividends when cities are able to internalise agglomeration economies through efficient labour markets, infrastructure networks, and institutional coordination. In India, urban infrastructure investment in domains such as transport, housing, water, sanitation, or governance capacity has lagged behind the economic importance of cities. This has led to high population density manifesting as congestion, informalisation, and infrastructure stress, diluting potential productivity gains. This divergence raises an important structural question: why has India's economic growth not translated into globally competitive cities, and what constraints prevent Indian cities from fully realising agglomeration-led growth?

15.7. This chapter proceeds from that premise. It positions cities not as problems to be managed or welfare burdens to be contained, but as economic assets that require deliberate investment and strategic planning. Recognising cities as economic infrastructure is a necessary first step toward aligning public policy, fiscal priorities, and planning frameworks with India's development trajectory.

Trends in India's urbanisation

15.8. The Census of India requires settlements to be marked by three conditions to be classified as urban: (a) The settlement population must be greater than 5,000; (b) 75 per cent of male employment should be non-agricultural; (c) Minimum population density of 400 persons/square kilometre. The definition also adds those towns that have been administratively classified as statutory towns[3]. India's urbanisation pattern is strongly shaped by its largest cities. Over 70 per cent of the urban population resided in Class I cities (those with more than one lakh people) in 2011, and the country's 52 metropolitan cities (more than 10 lakh population) alone accounted for 42.3 per cent of all urban residents. Higher population growth rates in these large agglomerations have driven rapid metropolitan expansion, highlighting India's distinctly top-heavy urban system[4].

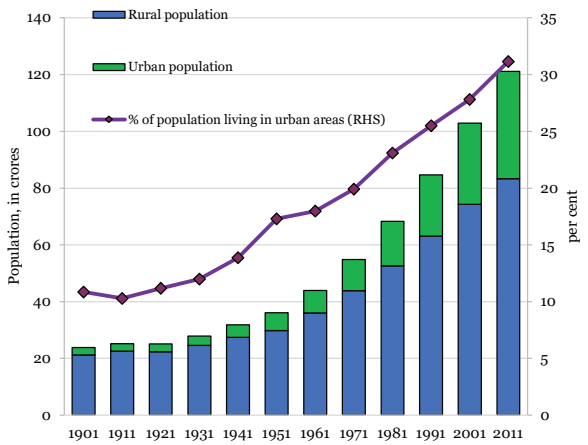
15.9. According to the census definition, India's urbanisation has been slowing – the proportion of the population living in urban areas in India, a lower-middle-income country (LMIC) as defined by the World Bank, is marginally lower than the average in LMICs and low-income countries (LICs). Mohan (2025)[5] hypothesises that this could be due to the "ruralisation of industry" whereby rural areas account for a significant chunk of manufacturing output. This is compared to the experiences of China, East Asia, and Southeast Asia, where urban areas emerged as the major contributors to manufacturing, thereby driving rural-urban migration.

3 Statutory towns are urban areas in India that are officially recognised and governed by specific local bodies like municipal corporations, municipalities, cantonment boards, or notified town area committees.

4 Bhagat, R. B. (2011). Emerging Pattern of Urbanisation in India. Economic and Political Weekly, 46(34). https://www.epw.in/journal/2011/34/commentary/emerging-pattern-urbanisation-india.html

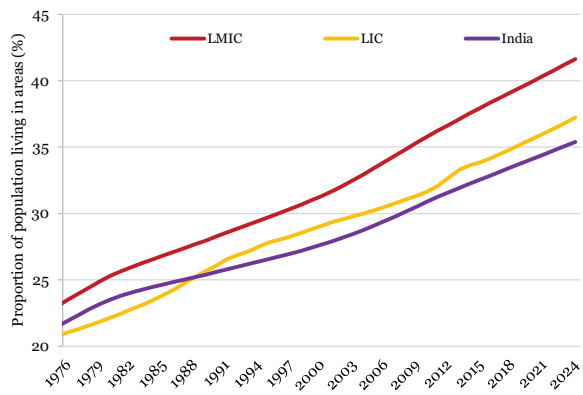
5 Mohan, R. (2025). Indian Urbanisation is Slowing Down: What Can be Done About It? (CSEP Working Paper 86). New Delhi: Centre for Social and Economic Progress

Chart XV.2: Evolution of the rural and urban population in India



Source: Census of India (2011)

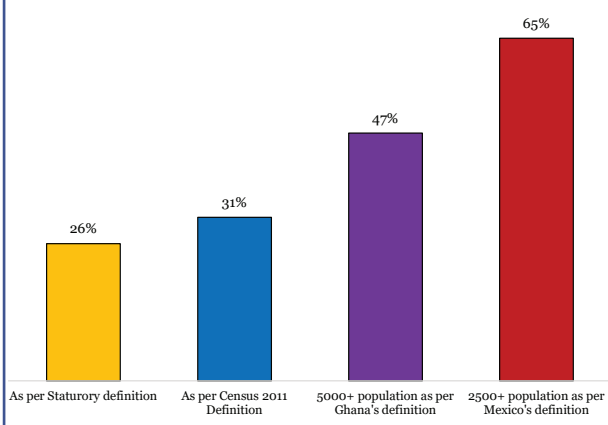
Chart XV.3: Urban populations – India vs LMICs and LICs



World Bank World Development Indicators database (accessed on 18 December 2025)

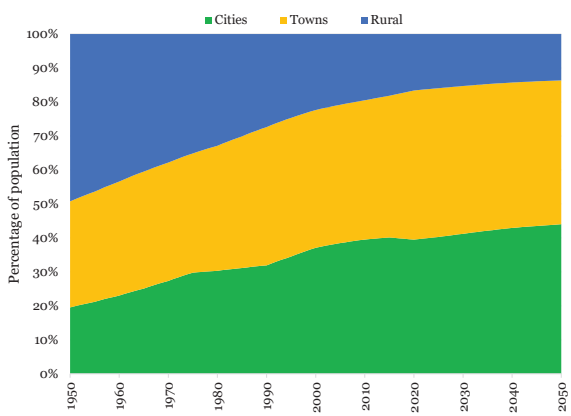
15.10. While the Census of India definition of an urban area facilitates appropriate comparisons over the years, there is a growing acknowledgement of the importance of measuring urbanisation using data on mobility, labour markets, density, built-up areas, and night-time light data. The Janagraha Foundation's Annual Survey of India's City Systems (ASICS) 2023 report suggests that India may be far more urban than the Census indicates. This is also supported by the estimates of urbanisation presented in the United Nations Department of Economic and Social Affairs' (UNDESA) World Urbanisation Prospects 2025 revision using their Degree of Urbanisation (DEGURBA) methodology[6]. Based on satellite data from the Global Human Settlements Layer (GHSL) of the Group on Earth Observations at the European Commission, India was 63 per cent urban in 2015, which is nearly double the urbanisation rate reported in the 2011 Census.

Chart XV.4: India could be far more urban



Source: Annual Survey of India's City Systems 2023, Janaagraha Foundation

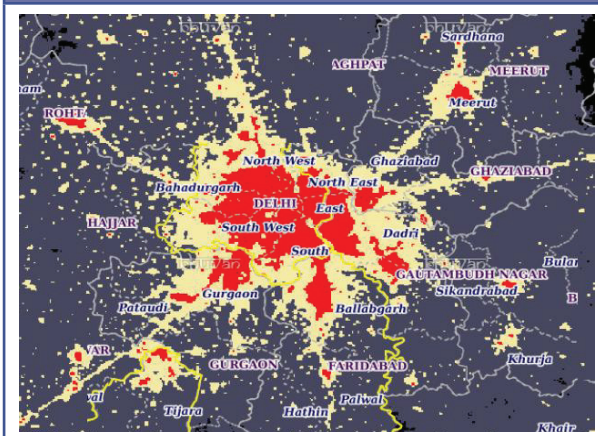
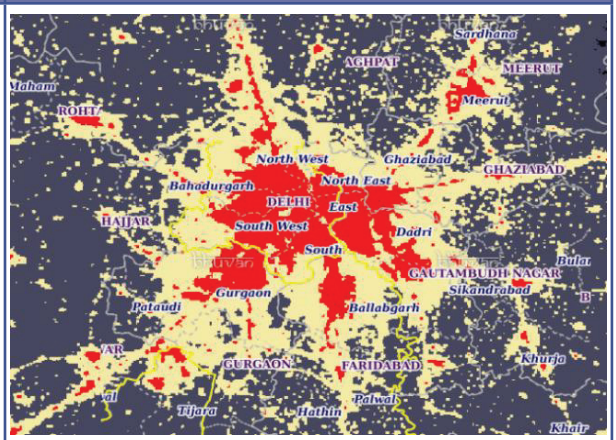
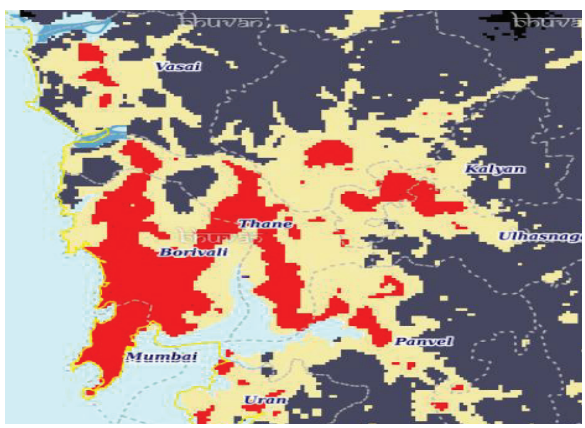
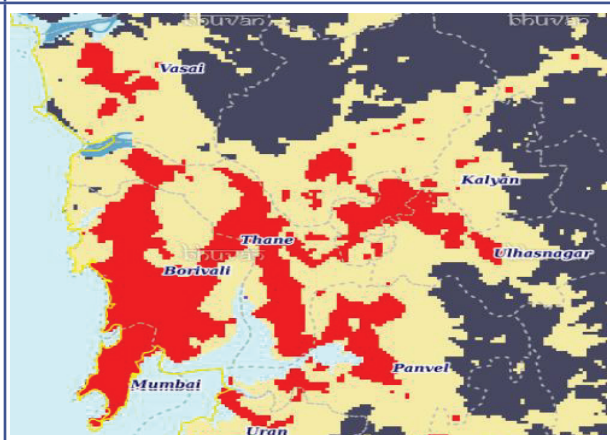
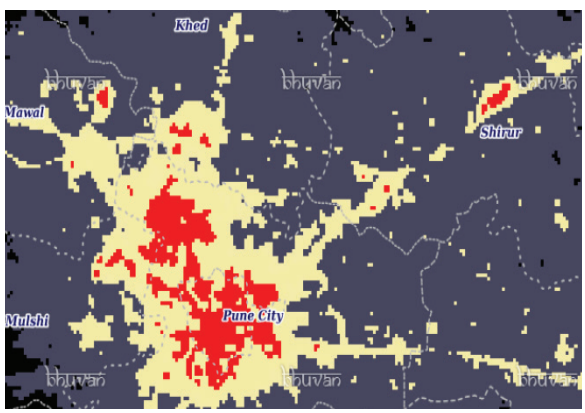
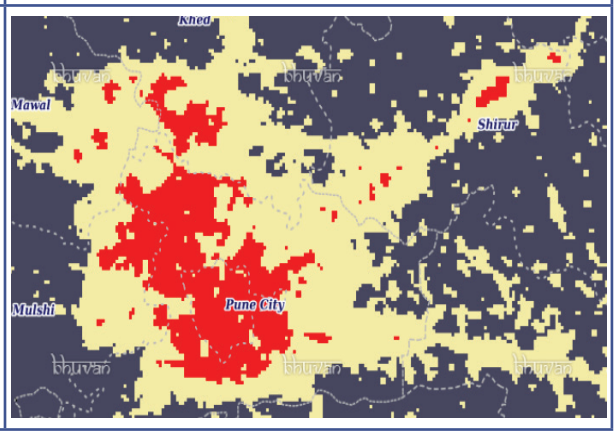
Chart XV.5: UN projections of urban India

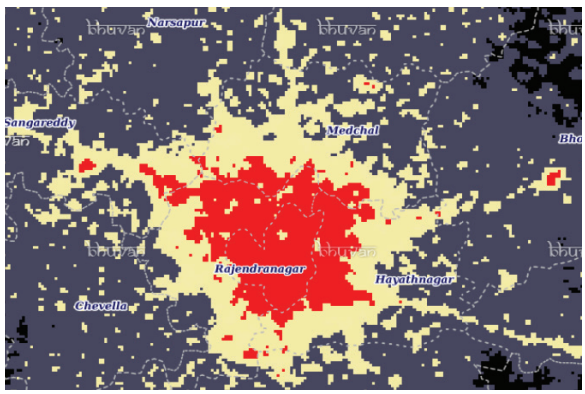


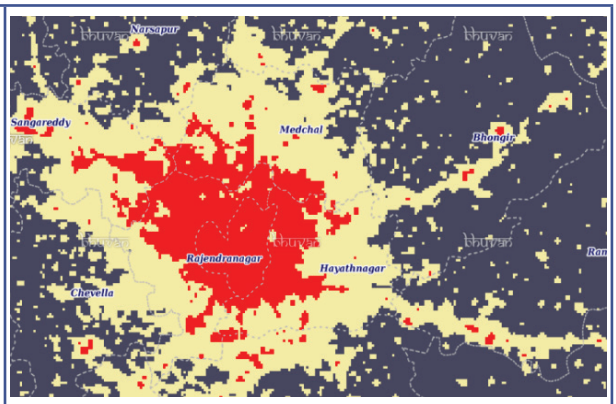
India Country Profile - UNDESA World Urbanisation Prospects 2025 revision

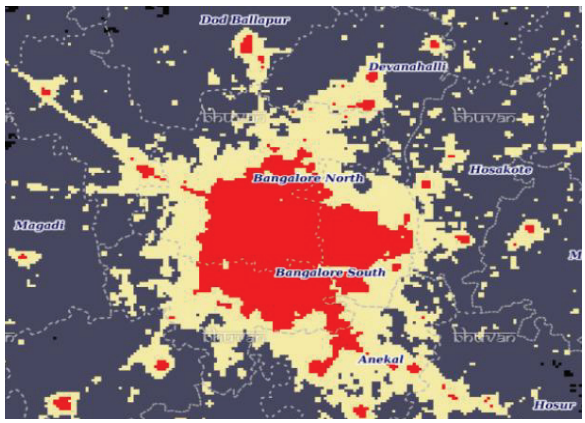
6 https://tinyurl.com/2fv55fnt

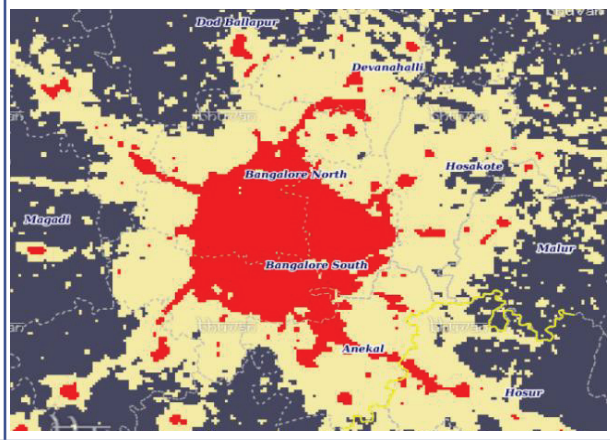
15.11. Night-time lights (NTL) data present a visually striking method to understand the scope and extent of urbanisation. NTL data acquired by satellites has become one of the key indicators for analysing wide-range man-made activities. It serves as a dependable marker for urbanisation, population density and economic activity. Earth Observation data from Bhuvan, the geo-sensing platform of the National Remote Sensing Centre (NRSC), Indian Space Research Organisation (ISRO), is utilised to present the increases in key urban centres. Night light radiance is expressed in nanowatts per square centimetre per steradian (nW/cm²/sr) – broadly indicating the amount of light energy detected over a specific area and angle.

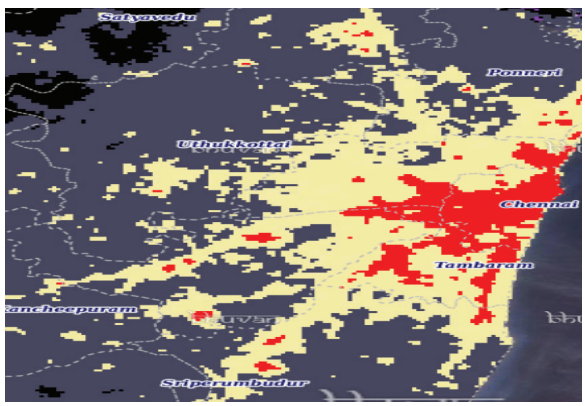
Chart XV.6a: NTL radiance - 2012	Chart XV6b: NTL radiance - 2023
	
	
	

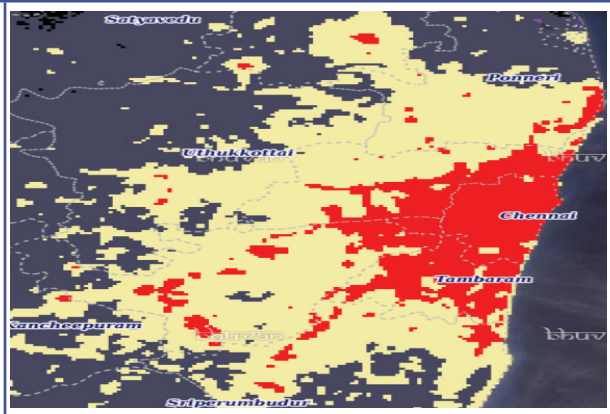

Narsapur
Sangareddy
Medchal
Rajendranagar
Hayathnagar
Chevella

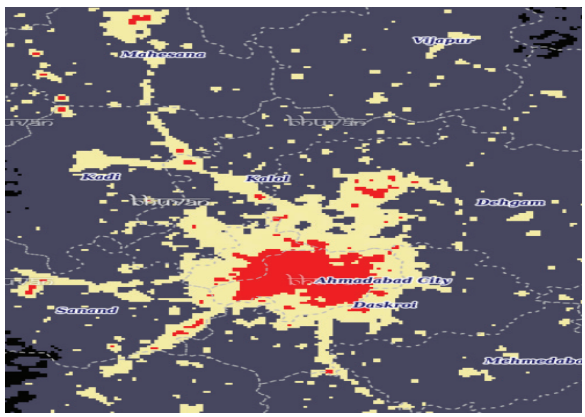

Narsapur
Sangareddy
Medchal
Bhongir
Rajendranagar
Hayathnagar
Chevella

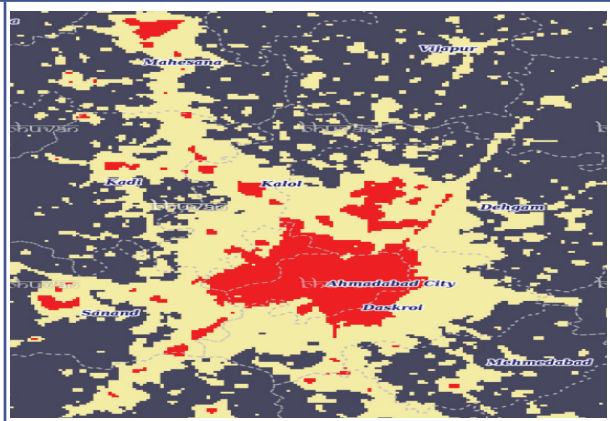

Doddaballapur
Devanahalli
Hosakote
Bangalore North
Magadi
Bangalore South
Anekal
Hosur

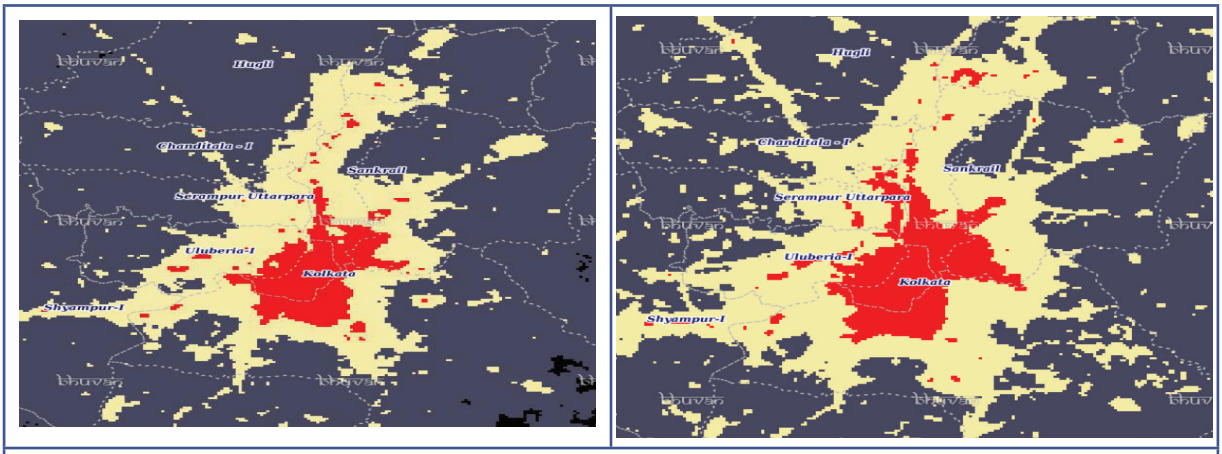

Doddaballapur
Devanahalli
Hosakote
Bangalore North
Magadi
Malur
Bangalore South
Anekal
Hosur


Satyavedu
Ponneri
Uthukkottai
Chennai
Tambaram
Sriperumbudur


Satyavedu
Ponneri
Uthukkottai
Chennai
Tambaram
Sriperumbudur


Mahesana
Vijapur
Kadi
Dehgam
Ahmadabad City
Sanand
Daskroi


Mahesana
Vijapur
Kadi
Kalol
Dehgam
Ahmadabad City
Sanand
Daskroi
Mehmedabad



Source: https://bhuvan-app1.nrsc.gov.in/bhuvan_ntl/

15.12. The images above illustrate the changes in NTL across eight major urban centres between 2012 and 2023. Red shading indicates major urban zones, commercial districts, and densely populated regions with considerable artificial lighting. Pale yellow marks semi-urban or peri-urban areas, while grey indicates small villages and less-populated suburban zones. Black areas represent rural regions with minimal artificial lighting. It is observed that older cities, such as Mumbai and Bangalore, exhibit smaller increases in highly dense regions but have expanded notably into semi-urban or peri-urban zones. Cities such as Pune and Hyderabad have experienced substantial growth in their densely populated areas, while also undergoing significant expansion into peri-urban regions. These observations are substantiated by the results of the Ministry of Housing and Urban Affairs (MoHUA) analysis on the dynamics of periphery-core growth. The periphery-to-core growth ratios provide deeper insights into how spatial expansion is distributed within metropolitan regions. In 16 cities[7], the ratio exceeds one, indicating that peripheral areas have consistently grown faster than the urban core between 2000 and 2020. This confirms that India's metropolitan expansion is overwhelmingly outward, with new growth increasingly concentrated in urban fringes beyond municipal boundaries. Debroy & Misra (2024)[8] confirm this using novel high-frequency data. They find that across Mumbai, Chennai, Delhi, and Kolkata, urban growth is closely aligned with transport corridors and is accompanied by rapid conversion of agricultural land to non-agricultural uses. These patterns highlight the growing importance of suburban regions in shaping urban labour markets, housing demand, and infrastructure needs.

15.13. India's urban development will increasingly rely on planning approaches that recognise the growing scale and diversity of metropolitan regions. Strengthening spatial monitoring systems, adopting harmonised classification tools and integrating core–periphery analyses can support data-driven decision-making. As peri-urban belts

7 The cities covered in the analysis are Delhi, Kolkata, Bangalore, Ahmedabad, Jaipur, Chennai, Patna, Pune, Mumbai, Lucknow, Vadodara, Kanpur, Surat, Indore, Nagpur, and Bhopal

8 Debroy, B., & Misra, D. P. (2024). Tales of a few cities! (EAC-PM Working Paper No. EAC-PM/WP/36/2024). Economic Advisory Council to the Prime Minister.

emerge as important nodes of residential, industrial, and logistics activity, planning frameworks will benefit from a broader metropolitan and regional perspective, especially in areas where economic and mobility linkages extend beyond statutory boundaries.

Box XV.1: Rethinking urbanisation in India using spatial classification: evidence from Kerala[9]

Building on the evidence of extensive peripheral growth and the limitations of administrative boundaries in capturing emerging settlement patterns, this section adopts a spatially harmonised approach to measuring urbanisation. Kerala offers a compelling case to demonstrate how such methods can reveal the true extent and morphology of urban growth.

Spatial Approach and Methodological Framework

Kerala provides an illustrative case, particularly in contexts where settlement patterns are highly dispersed and administrative boundaries do not fully capture the extent of built-up and economically integrated areas. To examine these dynamics, this section employs the Global Human Settlement – Degree of Urbanisation (GHS-SMOD/DEGURBA) classification for 2010, 2020, and 2025, a globally standardised methodology that enables consistent identification of rural and urban settlements on a fine spatial scale (Dijkstra et al., 2021). The analysis begins by mapping population-density grids in Kerala at the 1 sq.km level and classifying them into Urban Centres (≥1,500 persons/km² & ≥50,000 people), Urban Clusters (≥300 persons/km² & ≥5,000 people), and Rural Areas based on harmonised criteria. These classifications are then overlaid on 1,555 spatial units (villages, census towns, statutory towns), using the census boundary dataset, to assess the extent to which individual units meet thresholds for being designated as New Urban Centres or New Urbanising Settlements. A rule-based approach is used in which a settlement is categorised as a New Urban Centre if at least 70 per cent of its area falls within Urban Centre grids, and as a New Urbanising Settlement if 70 per cent or more of its area lies within Urban Cluster grids or a combination of Urban Centre and Urban Cluster grids.

A crucial aspect of the analysis is accounting for Kerala's institutional changes since the 2011 Census, including the creation of 34 new urban local bodies, expansion of municipal boundaries, and consolidation of census towns and villages into statutory towns. Including these updates ensures that spatial classification accurately reflects current governance and identifies settlements with urban traits that extend beyond statutory limits. This combined approach offers a comprehensive view of Kerala's evolving urban landscape and complements existing measures.

Spatial Transformation of Kerala's Settlement Structure (2010–2025)

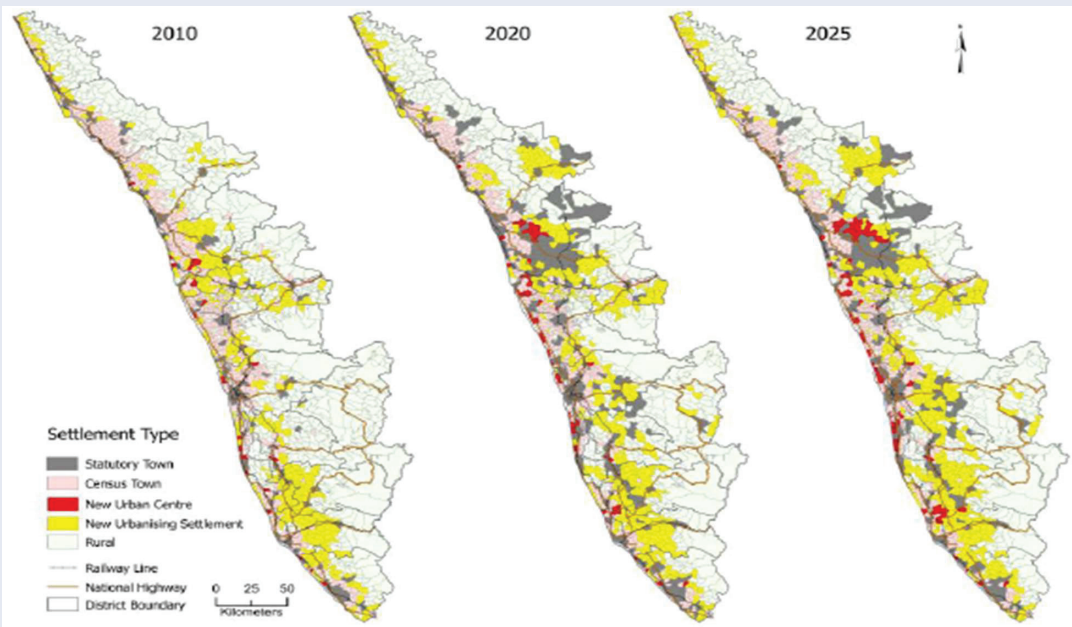
The spatial classification reveals that Kerala's settlement structure has undergone significant changes over the last decade, highlighting the expansion of urban areas. In 2010, the DEGURBA framework identified 420 settlements, including 29 New Urban Centres and 391 New Urbanising Settlements, which collectively housed approximately 8.2 million people. When combined with statutory towns, Kerala's urban population increased from 47.7 per cent (2011 Census) to around 72.2 per cent, revealing many functionally urban areas.

9 Based on inputs from MoHUA

By 2020, the number of spatially identified urban-type settlements increases to 484, including 48 New Urban Centres and 436 New Urbanising Settlements, accommodating around 9.02 million people. Considering the creation of 34 new urban local bodies, expansion of existing municipal boundaries, and several post-2011 reclassifications, Kerala's updated statutory urbanisation level is revised at 53.81 per cent. When the spatially identified settlements are added, the estimated urbanisation increases to about 80.8 per cent, reflecting the widespread expansion of built-up and integration of economic areas beyond traditional municipal limits.

Estimates for 2025 indicate a further increase to 526 spatially identified urban-type settlements—65 New Urban Centres and 461 New Urbanising Settlements—housing approximately 9.63 million people. This raises the urbanisation estimate to 82.6 per cent, a level broadly aligned with long-term demographic projections for the state. Complementary built-up analysis across major cities reinforces these findings. Between 2010 and 2025, the built-up area expanded by 11.4 per cent in Kochi, 17.6 per cent in Thiruvananthapuram, 17.5 per cent in Kannur, and 19.6 per cent in Thrissur. Periphery-to-core growth ratios reached as high as 5.9 in Kannur and 5.2 in Kochi, indicating that much of the spatial expansion is occurring in peripheral areas even after recent adjustments to municipal boundaries.

Chart XV.7: Spatial transformation of Kerala's settlement structure



Source: MoHUA

Kerala's urbanisation features numerous dispersed settlements with urban functions, many outside town boundaries. Spatial analysis offers insight into growth beyond administrative boundaries, revealing evolving settlement patterns and extensive built-up, integrated areas.

Spatial insights from Kerala's urban transition

i. **Recognising functionally urban settlements:** The spatial analysis reveals many

settlements in Kerala outside municipal limits that show urban traits. These Urban Centres and Urbanising Settlements serve large populations and play key economic and social roles. This indicates dispersed urban growth, forming a ribbon-like urban conurbation.

ii. **Strengthening peri-urban and regional planning approaches:** Urban expansion in Kerala is now centred in peri-urban and corridor areas outside city boundaries. This pattern requires planning approaches that extend beyond city limits and manage growth at a regional scale. Tools such as GIS-based master plans, multimodal mobility frameworks, and designated Special Planning Zones can help guide development in these fast-transforming areas and ensure coordinated, sustainable expansion.

iii. **Supporting strategic regional nodes:** The distribution of emerging urban settlements reveals several regional growth nodes across Kerala, including medium-sized towns and peri-urban clusters like Ernakulam–Aluva–Kakkanad, Malappuram–Perinthalmanna corridor, and parts of Thrissur. These serve as key components of the urban system, highlighting the growing importance of secondary and intermediate settlements in the evolving landscape.

iv. **Governance systems and boundary considerations:** The expansion of built-up areas and the growth of Census Towns and transitional settlements illustrate the evolving relationship between statutory boundaries and actual settlement patterns. These spatial changes highlight the dynamic interactions between the types of settlements, administrative structures, and functional urban areas. Strengthening the institutional capacity of new or expanded urban bodies remains relevant for understanding how governance systems adapt to these transitions.

v. **Financing transitional areas and enhancing spatial monitoring:** Many transitional areas face challenges due to their position between rural and urban administrative systems. These areas often experience changing land use patterns and infrastructure pressures. Institutionalising spatial tools like DEGURBA as complementary monitoring instruments can enhance the ability to track settlement transitions, support evidence-based planning, and guide the interpretation of evolving urbanisation patterns.

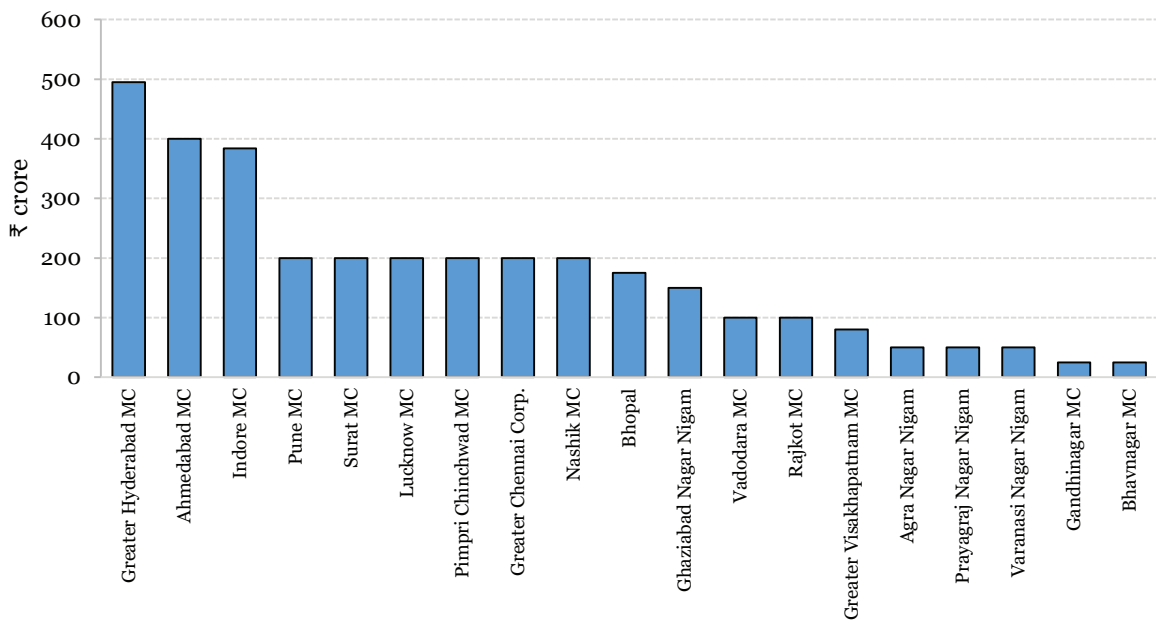
GOVERNANCE DEFICIT: WHEN CITIES LACK ECONOMIC AGENCY

15.14. One of the central structural constraints is the institutional design of Indian cities. Unlike global cities that operate with significant administrative and fiscal autonomy, Indian cities remain embedded within multi-layered governance structures. Urban functions are fragmented across: Urban Local Bodies (ULBs), Development Authorities, State line departments and Parastatal agencies

15.15. While ULBs play an important formal role, many key functions—such as land use, policing, utilities, and cadre management—continue to be exercised at the state level. This creates a governance architecture in which strategic coordination across transport, land, housing and economic development is shaped largely beyond the municipal tier. Mayoral leadership and municipal accountability, therefore, operate within a system where authority is shared across multiple levels.

15.16. In India, there is an inherent contradiction in urban policy and expected outcomes. Cities are expected to deliver growth, productivity, and jobs, yet policy is designed to restrain density, fragment authority, and ration urban land. Indian urban policy often reverses this logic. The result is not chaotic cities, but rather cities that fail to achieve the expected outcomes due to interconnections and integration. Metro rail, flyovers, and expressways are built without parallel land-use reform, housing supply, or skill clustering. Transport systems are asked to compensate for planning failures rather than enable density. The result is capital-intensive infrastructure with sub-optimal economic returns. Metro systems move people, but they do not always raise productivity because jobs, housing, and transport remain misaligned. Infrastructure without institutional reform is concrete without consequence.

Chart XV.8: Municipal bonds issuances as on 30th September 2025



Source: SEBI (https://www.sebi.gov.in/statistics/municipalbonds.html) Accessed on 16th January 2025

15.17. Global cities invert this. Electoral, planning and financial accountability are mostly aligned. Mayors or city governments are directly elected, like in India, but are also empowered to make city-planning and financial decisions, control land-use and transport planning through unified metropolitan plans, and command meaningful own-source revenues or predictable fiscal transfers. Hence, there is room for improvement in accountability. For e.g. in certain economically important cities in the United States, the Mayor's Office oversees citywide planning, capital budgeting, and service delivery, funded by strong local taxation powers. Indian cities raise less than 0.6 per cent of GDP in own-source revenues, borrow negligibly, and depend overwhelmingly on intergovernmental transfers. The World Bank Report on 'Financing Urban Infrastructure' quotes (Kelly, 2020) to say that Urban property tax is the largest

OSR (Own Source Revenue) but remains minuscule relative to comparators, being only 0.15 per cent of GDP in aggregate nationwide, compared to 0.3–0.6 per cent of GDP for low- and middle-income countries on average. For most large Indian cities, OSR covers only 30-40 per cent of total municipal expenditure, falling to below 20 per cent for smaller cities. Comparatively, OSR for OECD cities is roughly 2-4 per cent of GDP, with property tax alone ranging between 1 per cent and 1.5 per cent, increasing to 3 per cent in some US cities.

15.18. Despite their limited economic independence, cities contribute disproportionately to economic growth. World Bank estimates that by 2036, India's towns and cities will be home to 600 million people, or 40 per cent of the population, up from 31 per cent in 2011, with urban areas contributing almost 70 per cent to GDP. Comparison[10] of GDP/ Population ratio of large cities in India, China, the US and Germany (2023) found that the top-10 cities account for only ~9 per cent of the population but nearly 28 per cent of GDP, a ratio of ~3×—far higher than the US (~1.5×), Germany (~1.5×), or China (~1.8×). Given their significant contribution, any infrastructure breakdown here would have disproportionate effects on national growth.

15.19. Hence, cities become economically central. However, they remain politically peripheral. Electoral, fiscal, and administrative responsibilities remain distributed across multiple tiers of government. This institutional structure can constrain the ability of city governments to mobilise revenues, coordinate planning, and take long-term investment decisions at the metropolitan scale. This limits political ownership of urban outcomes and reduces incentives for deep institutional reform. The result is a model in which cities function primarily as implementation units rather than autonomous economic actors. Global cities compete; Indian cities comply.

15.20. There is a case made for aligning authority and accountability, because even as Indian cities are administered, global cities are governed. Administration disperses power to avoid blame. Governance concentrates it to enable action and accountability.

LAND, HOUSING, MOBILITY, AND SANITATION AND WASTE MANAGEMENT – THE BINDING CONSTRAINTS

Land as dead capital

15.21. In economic parlance, dead capital refers to assets that are unable to function as productive capital. These resources are unable to contribute to economic activity due to being constrained by regulatory, legal, or market inefficiencies. In many of our cities, land has effectively become dead capital due to a combination of restrictive land-use

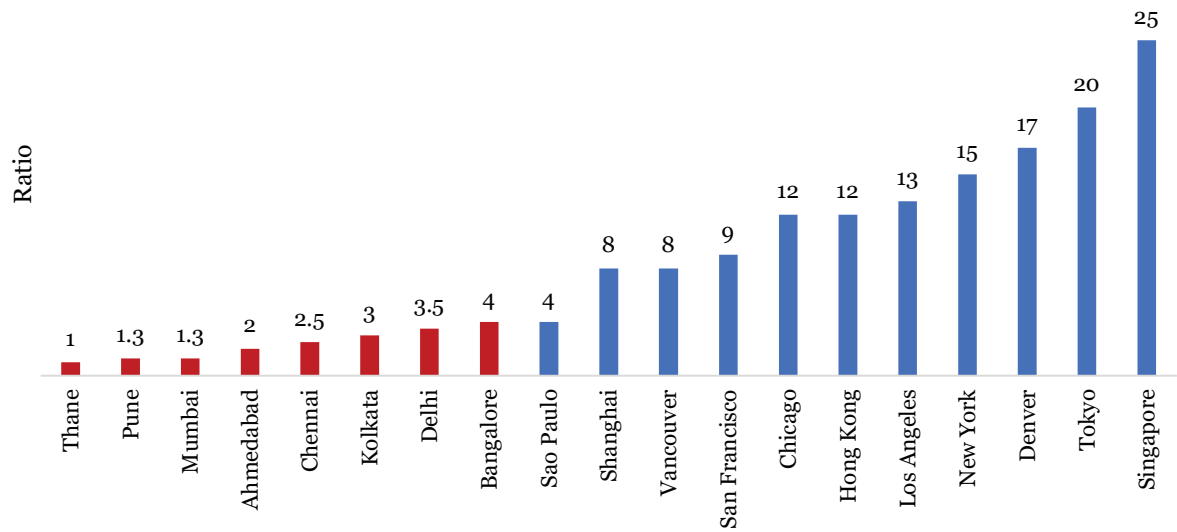
10 Neuralcity.in, an Indian civic data and AI startup - https://tinyurl.com/4bswr2j4

regulations, title insecurity, and fragmented markets, as well as speculative incentives that lead to low land recycling.

15.22. Restrictive land-use regulations in the form of Development Control Regulations (DCR), such as low floor space index (FSI) or floor-area ratio (FAR), place a cap on the amount of built-up area per unit of land, constraining vertical development and forcing spatial expansion outward rather than upward. This distortion raises land values and creates artificial scarcity in core urban areas. Compared to global cities like New York and Hong Kong, India's cities have relatively lower FSI, with exceptions for denser areas such as central business districts. When the FSI is low, settlements are incentivised to expand horizontally, driving up average land cost and increasing infrastructure delivery costs per unit of housing or commercial space. This limits housing supply and raises prices relative to incomes.

15.23. Many state governments and urban bodies are addressing and modifying DCRs and granting additional FSI for a premium on a piecemeal basis. However, a holistic rethink will be required for meaningful change at scale. For example, the Chennai Metropolitan Development Authority (CMDA), in drafting its third master plan, is reportedly considering a higher FSI in key zones, mixed-use development, and phased upgrades to support compact and vertical growth across the city[11]. Urban bodies and state governments can leverage MoHUA's resources, such as the guidance document on preparing transit-oriented development (TOD) plans[12], in optimising city densities.

Chart XV.9: Free Floor Space Index (FSI) across cities



Source: Knight Frank research (https://naredco.in/sites/default/files/2025-07/17th%20National%20Convention/AFH_2025.pdf)

11 https://infra.economictimes.indiatimes.com/news/urban-infrastructure/chennais-third-master-plan-to-drive-vertical-growth-housing-and-civic-upgrades/122634699

12 https://mohua.gov.in/upload/uploadfiles/files/TOD-Guidance-Document.pdf

15.24. Another reason why land remains unproductive is unclear land titles, compounded by fragmentation and opaque records. Secure, transferable property rights are essential for land to function as capital. They allow land to be used as collateral, traded in formal markets, and redeveloped efficiently. Land tenure and security encompass securing and transferring rights related to land and natural resources. This includes titling, resolving land disputes, land acquisition, and managing informal settlements. The central government has undertaken multiple initiatives to address these obstacles. Under the aegis of the Digital India Land Records Modernisation Programme (DILRMP), the government introduced the Unique Land Parcel Identification Number (ULPIN or Bhu-Aadhaar, as well as the National Generic Document Registration System (NGDRS). State governments have also introduced digital systems to address these issues. These include, inter alia, the Telangana government's single digital platform, where the revenue, stamps, and registration departments are integrated with the Bhu Bharati portal[13], and the Karnataka government's transition towards issuing digital land records under its ambitious Bhu Suraksha scheme[14].

15.25. It is important to note that while increasing FSI and FAR may unlock economic value in terms of more built-up area per unit of land, the consequent rise in density will result in unproductive outcomes if augmenting infrastructure is not in place. As some analysts note[15], the focus on "de-congestion" can mislead planners into spreading cities outward rather than building infrastructure to support compact growth, even though successful global cities are dense by design and pair density with robust services. Amenities such as mass transit, water, and sanitation, among others, must be key factors in the decision-making process. In the absence of adequate amenities, a rise in density will result in traffic gridlocks, water shortages and overwhelmed sanitation systems.

Mobility

15.26. Cities are complex, living entities with their own systems, identities, cultures, and challenges. Transportation functions as their bloodstream, spine, and muscles, facilitating the flow of people, goods, and ideas, establishing structure, and supporting productive activity. When transportation systems are inadequate, the city's vitality diminishes—congestion, pollution, noise, and reduced productivity emerge as symptoms of decline.

15.27. There are several varying estimates of the loss in productivity across cities resulting from traffic congestion. A Centre for Science and Environment (CSE) report[16] on Delhi's congestion troubles states that an unskilled worker stands to lose between ₹7,200 - ₹19,600 per year due to congestion. Similarly, skilled and highly skilled workers

13 https://tinyurl.com/ye9r85bt

14 https://tinyurl.com/2c2dct8t

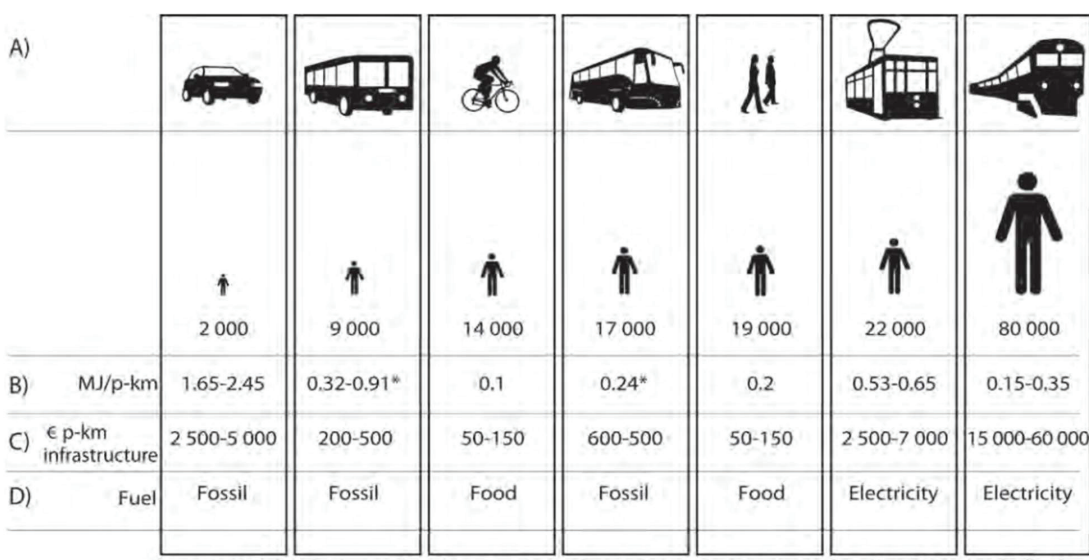
15 https://tinyurl.com/4de9uxbp

16 https://www.cseindia.org/content/downloadreports/12612

can lose as much as ₹8,300 - ₹23,800 and ₹9,000 - ₹25,900 a year, respectively. A working paper by the Institute for Social and Economic Change (ISEC)[17] estimated the loss of productive hours due to the late arrivals caused by traffic congestion would be around 7.07 lakh hours in 2018 for Bengaluru city, translating to a monetary cost of around ₹11.7 billion. A 2018 report by Uber–BCG estimated that costs associated with traffic congestion in the four metros of Delhi, Mumbai, Bengaluru, and Kolkata were USD 22 billion per year[18]. According to the TomTom Traffic Index 2024, commuters in Bengaluru, Mumbai, and New Delhi lost 117 hours, 103 hours, and 76 hours, respectively, per year due to rush-hour traffic in their respective city centres[19]. Despite the variation in estimates, it is evident that the costs of mobility issues are high and on the rise.

15.28. Effective treatment begins with identifying the underlying issue—a growing dependence on private vehicles. The vital signs of our cities are poor because roads are used more as storage for vehicles rather than corridors for people. Streets become congested not because citizens are moving excessively, but because cars carry too few passengers. Our roads have been utilised as storage for low-occupancy vehicles instead of facilitating movement for people. This diagnosis leads to the guiding principle: design cities to prioritise the movement of people, not vehicles. As the National Urban Transport Policy (2014) emphasises in its vision, we must "recognise that people occupy centre stage in our cities, and all plans should aim for their common benefit and well-being." Solving for moving the most people requires prioritising modes with the greatest carrying capacity, across short and long distances.

Chart XV.10: Corridor capacity of different modes of transportation (people/hr on a 3.5-mile-wide lane).



Source: Global Energy Assessment - Toward a Sustainable Future. Chapter 9 - Energy End-Use: Transport; modified from Breithaupt, 2010

17 https://www.isec.ac.in/wp-content/uploads/2023/09/WP-554-Vijayalakshmi-and-Krishna-Raj-Final.pdf

18 https://tinyurl.com/3e8uurx6

19 https://www.tomtom.com/traffic-index/ranking/?population=MEGA&country=IN

15.29. Operationally, this principle requires high-capacity public transport as the backbone; safe, reliable first and last-mile access through walking, cycling, and shared feeders; and demand-based parking and transit-oriented development to reallocate scarce urban space from storage to movement. Where these conditions hold, private vehicles revert to an option, not a compulsion. It should be possible, safe, comfortable and desirable for any citizen to get around the city in a reasonable timeframe without needing a private vehicle. While private vehicles have their advantages, the problem arises when they become a necessity rather than one choice among several other viable options. A lack of viable alternatives to private vehicle use leads to congestion and its resulting ills, as citizens compete for limited road space using geometrically inefficient transport modes.

15.30. India has materially expanded mass rapid transit over the last decade. As of 2025, ~1,036 km of Metro/RRTS are operational across around 24 cities, with further corridors under construction.[20] The first Delhi–Ghaziabad–Meerut Namo Bharat RRTS corridor has ~55 km in service and is progressing towards full commissioning of around 82 km through phased openings and multimodal integration at hubs such as Anand Vihar. Box XV.2 explores the accomplishments of the RRTS. These systems are being delivered under the Metro Rail Policy (2017), which requires Comprehensive Mobility Plans, UMTA arrangements, and viability thresholds, and the National Transit-Oriented Development (TOD) Policy (2017), which encourages compact, mixed-use growth, multimodal integration, and value-capture financing around stations.

Box XV.2: India's first Namo Bharat Regional Rapid Transit System (RRTS) – A network of networks

The Delhi–Meerut Namo Bharat Regional Rapid Transit System (RRTS) represents a structural shift in India's approach to regional urban mobility, positioning high-speed commuter rail as economic infrastructure rather than a transport add-on. Spanning 82 km and designed for speeds up to 180 kmph, the corridor reduces Delhi–Meerut travel times to under one hour, compared to 1.5–2 hours by road. The project's financing structure—20 per cent each from the Centre and participating states, and 60 per cent from ADB, AIIB and NDB—demonstrates a scalable template for leveraging public capital to crowd in development finance for urban-regional connectivity.

The Namo Bharat RRTS has enabled NCR-wide integration across future corridors at Sarai Kale Khan, providing seamless interchange with the metro rail, Indian Railways, buses, and paratransit services. A notable innovation is the use of RRTS infrastructure for the Meerut Metro, resulting in a capital cost savings of approximately ₹6,300 crore. This integrated design enhances system viability, improves last-mile access, and highlights how shared infrastructure can increase returns on urban transport investments.

20 https://sansad.in/getFile/annex/268/AS114_p42gTo.pdf?source=pqars

The corridor has been integrated into India's first statutory implementation of Transit-Oriented Development (TOD). Master plans for Meerut and Ghaziabad have notified TOD zones, with large greenfield townships—New Meerut (350 hectares) and Harnandipuram/ New Ghaziabad (541 hectares)—planned around RRTS stations. By enabling higher density, mixed-use, and employment decentralisation along the corridor, the project supports polycentric regional growth and relieves pressure on Delhi's core, converting mobility investment into a spatial productivity dividend.

The Namo Bharat RRTS also delivers substantial labour-market and inclusion benefits. Construction generated roughly 166 lakh mandays between 2019 and 2025, while operations are expected to support around 12 lakh mandays annually. Early accessibility estimates suggest large gains in jobs reachable within one hour—nearly 6.9–7.6 lakh for Meerut and about one lakh for Sarai Kale Khan—expanding effective labour markets across the region. Women's participation has been deliberately mainstreamed, with over 35 per cent of train operators and station controllers drawn from nearby towns and villages, alongside broader community skill-building initiatives.

The project illustrates how regional rail can advance India's climate, digital, and institutional objectives simultaneously. Since partial operations began, an estimated 25 lakh vehicle trips have been avoided, offsetting around 69 lakh kg of CO_2, with a roadmap to source 60 per cent of energy from renewables. In-house digital systems for project management, asset maintenance, and training have improved delivery efficiency and created replicable institutional capacity. Looking ahead, the identification of nearly 2,900 km of potential Namo Bharat RRTS corridors across regional clusters such as Bengaluru–Mysuru–Tumakuru–Hosur, Chennai–Vellore–Villupuram–Chengalpattu and Hyderabad–Warangal, amongst others, suggests that, with a modest and predictable central outlay, this model could unlock high economic multipliers and support the emergence of India's mega-regions as engines of growth.

15.31. Complementing rail, the Government has launched PM e Bus Sewa to strengthen city bus operations with 10,000 e buses on a Public-Private Partnership (PPP) model, backed by ₹20,000 crore central assistance and a Payment Security Mechanism (PSM) to assure operator cashflows. Official status notes[21] for FY25 report 7,293 e-buses approved across 14 States and 4 UTs, ₹983.75 crore sanctioned for depot and behind-the-meter power infrastructure, and ₹437.5 crore already disbursed.

15.32. Despite these measures, gaps in mass transit services persist. City-level indicators reveal a capacity shortfall in buses. MoHUA recommends 40-60 buses per 1,00,000 people. Yet, many cities have far fewer. Nationally, only about 47,650 buses serve its urban residents[22]. Nearly 61% of these are concentrated in just nine megacities. Due to the layout of urban roads, low bus availability combined with high private vehicle use reduces person throughput per lane kilometre, leading to congestion and longer door-to-door travel times.

21 https://www.pib.gov.in/PressReleasePage.aspx?PRID=2102861&reg=3&lang=2

22 https://tinyurl.com/3fpnnm72

15.33. Door-to-door performance also depends on first–last mile access to stations. National consultations and field evidence indicate that, where safe and convenient first- and last–mile options are lacking, rail systems underperform against ridership projections, despite high in-vehicle speeds. Cities are increasingly responding by integrating feeder services and publishing open transit data; without this, travel time reliability and perceived convenience remain below potential.

15.34. To further improve outcomes, the following measures may be useful:

a. **Augment and digitise bus fleets:** Scaling city bus fleets toward 40–60 buses per lakh population can significantly increase person throughput on existing corridors at relatively low capital cost. Coupling fleet expansion with end-to-end digital systems improves reliability, reduces waiting times, and stabilises ridership and farebox revenues.

b. **Finance-first e-bus deployment:** A Green Mobility Credit Facility—combining interest subvention (to ~3–4 per cent), credit guarantees, and refinancing—can lower tariffs on gross cost contracts and improve project bankability. Such finance-led approaches reduce EMIs and accelerate e-bus adoption without relying on large upfront capital subsidies.

c. **Mainstream last-mile and shared mobility:** Legalising and standardising shared feeders (share autos, e-rickshaws, minibuses, bike taxis) through simple permits, station pickup bays, and app integration can deliver rapid door-to-door gains. Open, zero-commission platforms—linked to ONDC—enable transparent pricing, lower cancellations, and better access for women and off-peak workers.

d. **Operationalise Transit-oriented Development (TOD) and value capture around stations:** Implementing the National TOD Policy via 500–800 metre station influence zones, higher FAR, mixed-use zoning, and value-capture tools can shorten trip lengths and cluster jobs near transit. Revenues from value capture can fund first–last mile connectivity and public-realm upgrades, strengthening network viability and compact growth.

e. **Manage demand where geometry is most binding:** Targeted congestion pricing in dense business districts (Box XV.3), combined with demand-based parking management, can reduce traffic, raise speeds, and cut emissions, as seen internationally. Recent reforms, such as the Chennai Metropolitan Area Parking Policy (2025)[23] whereby private vehicle use is disincentivised, treats parking as valuable real estate, and prioritises walking, cycling, and public transport, shows that such demand-management tools are feasible complements to transit investment.

23 https://tinyurl.com/3b2xexky

Box XV.3: International experiences and learnings from congestion pricing

Congestion pricing is a transportation demand-management strategy in which drivers are charged a fee for using roads during peak periods of congestion. Limited road space leads to slower speeds, higher delays, and increased externalities when overutilized. The core idea is to internalise the external costs of congestion, such as delays, pollution, and fuel waste, ensuring that those who use the most congested roads bear the actual cost of their travel.

This, in turn, aims to reduce the number of private vehicles during peak congestion time on the specific congested corridors, improve travel speeds, and encourage public transport, carpooling, off-peak travel.

In a congestion pricing system, drivers are charged based on the following factors: location, time (peak vs off-peak), demand level (dynamic pricing), and vehicle type (cars, taxis, trucks, etc.) Payments are typically made via automatic number plate recognition (ANPR), RFID tags or GPS-based charging. Singapore and London stand out as examples of cities that have successfully implemented congestion pricing systems.

Singapore Electronic Road Pricing (ERP)

ERP is a dynamic, electronic, congestion-pricing system that automatically charges vehicles when they pass under a toll gantry during peak periods. It is specifically designed to manage and reduce traffic congestion, and decades of data from Singapore show that it works very effectively. It also works when observed speeds fall below the target thresholds, ERP charges are increased, and when speeds rise above them, charges are reduced. In the Previous ERP system, gantries were installed along key expressways, major arterial roads, and all entry points into the Central Business District (CBD). In contrast, ERP 2.0 extends congestion pricing beyond fixed gantry locations by enabling spatially dynamic, GPS-based 'pay-as-you-drive' charging.

The Area Licensing Scheme (ALS), introduced in 1975, reduced car entries into the CBD by about 45 per cent, and the subsequent implementation of ERP in 1998 achieved an additional 10-15 per cent reduction in traffic on expressways and arterial roads during charged periods.

The primary challenge was the public's resistance to monetising road usage, which many felt would unfairly favour the wealthy. The government addressed these equity concerns by pairing the pricing scheme with immediate "carrots," such as a comprehensive Park-and-Ride network and improved bus services. By continuously fine-tuning operational hours and fees based on real-time data, authorities successfully framed the policy as a mechanism for optimising traffic flow rather than generating revenue. (Lim, 2014)[24] (ITDP, 2016)[25]

London (Congestion Charge, 2003)

London's road network is old, narrow, and cannot be widened, so managing demand, not supplying new road space, became essential. The London Congestion Charge is a cordon-

24 Lim, T. S. (2014, Aug 15). Area Licensing Scheme. Retrieved from National Library Board: https://www.nlb.gov.sg/main/article-detail?cmsuuid=072b1248-63b0-4b30-8a04-ba1742961351

25 ITDP. (2016, May 18). The Case for Electronic Road Pricing. Retrieved from Development Asia: https://development.asia/case-study/case-electronic-road-pricing

based, area licensing system where vehicles pay a daily fee to enter, leave, or move within a designated central London zone. The charging zones:

- Covers approx. 21 km² of Central London (e.g., Westminster, City of London)
- Boundary marked with signs but no physical barriers.
- Operates from Monday to Friday, 7:00 AM to 6:00 PM, with its hours expanded and modified over the years.
- Charges £15 per day (after subsequent revisions)
- Exemptions / Discounts (Buses and taxis, Emergency vehicles, Residents within the zone (90 per cent discount)

The impact on traffic was sudden and dramatic. According to Transport for London's own data (TfL,2003)[26] traffic in the zone has decreased by 16 per cent (30 per cent for cars), while motorcycle, taxi, bus, and cycle traffic have increased. This translates into a 32 per cent reduction in congestion, measured in terms of delay per kilometre. Average traffic speeds have increased from 13 to 17 km/h. TfL (2003) estimates that the number of car trips into the zone has fallen by 150,000 per day, of which 10-20 per cent are displaced through trips, 50-70 per cent have shifted to public transport, and 20-30 per cent went elsewhere other modes, travelled at other times, or chose alternative destinations (TfL, 2003).

The implementation of the congestion charge was met with accusations that it was "Just Another Tax," with critics arguing that it was regressive and harmful to the retail sector. To counter this, the government adopted a strategy of revenue hypothecation, legally ring-fencing all proceeds for public transport investments. By starting with a modest £5 fee and visibly linking the charge to improved bus and underground services, the city demonstrated that the policy was a tool for service enhancement rather than a simple revenue grab. (Cani, 2023)[27] (Litman, 2005)[28]

Urban cleanliness and waste management

15.35. Cleanliness and waste management in cities are critical aspects in India's urbanisation journey. They have direct implications for public health, environmental sustainability, labour productivity and the overall quality of urban life. Over the past decade, the central government has undertaken one of the most ambitious and largest sanitation and waste management programmes globally under the Swachh Bharat Mission -Urban (SBM–U), complemented by investments under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and AMRUT 2.0. These measures have yielded visible gains in sanitation outcomes, with the most notable being the elimination of open defecation across all cities.

26 (TfL), T. f. (2003). Congestion charging: six months on. Retrieved from https://tfl.gov.uk/

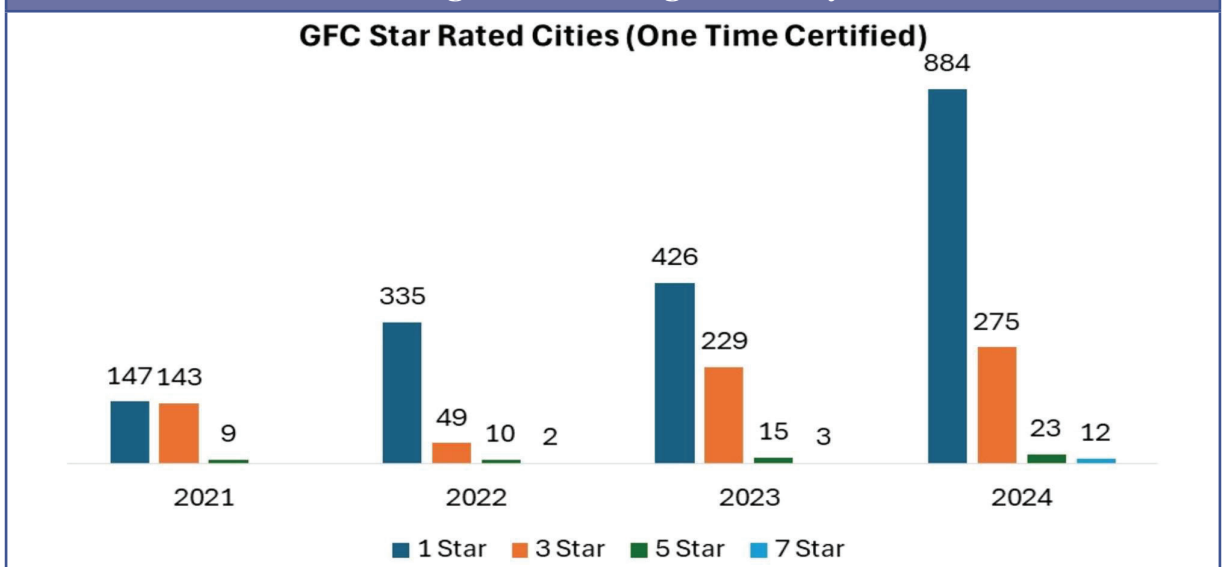
27 Cani, R. d. (2023, March). Two decades in, what can other cities learn from the London congestion charge? Retrieved from Arup: https://www.arup.com/insights/two-decades-in-what-can-other-cities-learn-from-the-london-congestion-charge/

28 Litman, T. (2005). London congestion pricing–implications for other cities. Victoria Transport Policy Institute

15.36. After the success of the first phase of SBM-U, SBM-U 2.0 was launched in October 2021, with the policy focus shifting from improving access to achieving better outcomes. Progress under SBM-U 2.0 has been significant but uneven. Door-to-door collection of municipal solid waste (MSW), which was negligible in 2014–15, has expanded to 98 per cent of urban wards by 2025–26, supported by a fleet of over 2.5 lakh waste collection vehicles nationwide. Many large cities now use GPS-enabled vehicles and Integrated Command and Control Centres (ICCCs) to monitor collection routes and improve operational efficiency. At the national level, urban India generates approximately 1.6 lakh tonnes of MSW per day, of which around 80 per cent is reported to be processed, compared to just 16 per cent in 2014–15. While this marks a substantial scaling up of waste management capacity, gaps in segregation quality, processing effectiveness, and enforcement persist at the local level.

15.37. Despite these measures, many cities continue to struggle to move beyond basic compliance. Under the Garbage-Free City framework, cities are evaluated against progressively stringent benchmarks and assigned ratings. The ratings range from 1 Star to 7-Star, linking door-to-door collection, segregation rates, waste processing, and legacy waste remediation. For instance, a 3-Star city must achieve at least 60 per cent segregation and 70 per cent processing, while a 7-Star city must reach 90 per cent segregation and processing, alongside near-complete remediation of legacy dumpsites. The assessment reveals that while there has been a rapid increase in the number of cities improving door-to-door collection, segregation at source, waste processing and dumpsite remediation lag behind. This suggests that urban cleanliness is no longer primarily an access issue, but rather an institutional and behavioural one.

Chart XV.11: Progress of Garbage-Free City Framework



Source: Inputs from MoHUA

15.38. This is corroborated by a study by the Council on Energy, Environment and

Water (CEEW) (Khan, Mishra & Singh, 2025)[29]. The study presents a challenge–root cause–solution (CRS) matrix based on a comprehensive literature review of solid waste management (SWM) challenges, semi-structured interviews with stakeholders, and observations and learnings from field visits, identifying 26 challenges prevalent across the SWM supply chain. Over half of the 97 determined root causes are linked to the challenges stemming from people's mindset and understanding, organisational rules and management, and physical facilities and systems.

15.39. How can the public's attitude towards waste management be changed? At the national level, MoHUA has identified Cleanliness Target Units (CTUs) as a key focus area under SBM-U 2.0. CTUs are difficult and dirty spots, including legacy waste dumpsites, that require urgent attention and transformation. From September 17, 2025, onwards, out of more than 16 lakh identified CTUs, 15.74 lakh CTUs have been transformed, with the participation of 7.75 crore citizens. While the figure is heartening, there needs to be a larger involvement of citizens in ensuring the cleanliness of our cities. In this context, Indore city serves as a good example of enhancing citizens' participation.

15.40. Indore, which ranked 25th in the 2016 round of the Swacch Survekshan Survey, has consistently ranked first since 2017. A key element in this turnaround was behavioural change at the mass level. The Indore Municipal Corporation (IMC) took several steps to raise awareness among the population and promote segregation. Garbage collection vehicles were repurposed as moving platforms for the "Do Bin Har Din" campaign, reinforcing segregation practices. Communication efforts combined traditional outreach, such as nukkad nataks, wall paintings, and radio jingles, with an intensive use of social media, ensuring broad and repeated messaging. Schools involved students in cleanliness competitions and oath-taking during morning assemblies, instilling segregation norms at an early stage. A buy-in by city-level leadership was key to the transformation, with the mayor and ward councillors actively participating in campaigns. Municipal officials and elected representatives conducted joint roadshows to persuade households and establishments to comply.

15.41. Religious and local leaders were mobilised to leverage the social influence of faith and community networks. By linking cleanliness to values articulated in religious texts and participating in collective road-sweeping drives, they helped promote waste segregation as a shared civic responsibility. The IMC also engaged over 800 self-help groups, comprising more than 8,000 women, both to spread awareness at the neighbourhood level and to staff material recovery facilities. This helped create livelihoods while also embedding a sense of community ownership. Incentives, such as awarding 'zero-waste' tags to markets and residential colonies that demonstrate

29 Khan, Adeel, Srishti Mishra, and Priyanka Singh. 2025. Tailoring Solid Waste Management in India: Learnings from Cities with a Million-plus Population. New Delhi: Council on Energy, Environment and Water.

exemplary performance, encouraged peer competition. Penalties for littering and failure to segregate waste were strictly applied, supported by ward-level enforcement teams. The transformation of Indore city is evidence that instilling civic pride is one key lever in keeping our cities garbage-free. The role of citizens in building a Viksit Bharat by 2047 is outlined in Chapter XVI Part-2 (p.XX)

15.42. Our cities need to leverage other best practices in waste management. A report by Niti Aayog[30] captures some of these success stories from across the country, spanning domains such as material processing, biodegradable waste management, landfill management and technological innovation, among others. Additionally, local bodies should tailor their practices to manage city-specific challenges. (Khan, Mishra & Singh, 2025)[31] provide insights and case studies that can help municipal authorities adopt context-specific solutions to improve their waste management systems.

15.43. Higher density of cities also places pressure on sewage and water supply systems. India is the world's third-largest generator of wastewater, producing an estimated 112 billion litres per day of domestic and industrial effluent.[32] Urban areas, alone, account for two-thirds of this volume as domestic used water, yet only 28 per cent is treated. Furthermore, cities recycle only 8 per cent of this treated wastewater for reuse. MoHUA estimates that currently, a reuse capacity of 1,992 million litres per day (MLD) is planned to be developed through sewerage projects. Box X.4 explores tapping the potential of sustainable water management through a circular water economy.

Box XV.4: Turning India's urban water stress into an opportunity using circular water economy[33]

As freshwater scarcity in India's cities intensifies, a model of 'use and dispose' will no longer suffice as our cities expand. The reuse of treated used water (TUW) for non-potable purposes is the next frontier for sustainable water management in India's cities. It holds the power to reduce pressure on freshwater by diversifying water sources while creating large social and economic benefits.

The economic potential of circular water systems is substantial. Reuse of TUW for non-potable purposes, such as industrial cooling, construction and landscaping, could create a market of ₹2.4 – 3.2 lakh crore by 2047 and generate over 1 lakh employment opportunities[34].

30 https://www.niti.gov.in/sites/default/files/2021-12/Waste-Wise-Cities.pdf

31 Khan, Adeel, Srishti Mishra, and Priyanka Singh. 2025. Tailoring Solid Waste Management in India: Learnings from Cities with a Million-plus Population. New Delhi: Council on Energy, Environment and Water.

32 https://aim.gov.in/images/Waste-Water-ver2_18102022.pdf

33 Council on Energy, Environment and Water (CEEW), New Delhi based on: Iyer, Parameswaran, Arunabha Ghosh, and Richard Damania (In Press). Water, Nature, Progress. HarperCollins Publishing

34 Gupta, Saiba, Ayushi Kashyap, Clark Kovacs, Kartikey Chaturvedi, and Nitin Bassi. 2025. Financing Treated Used Water Reuse in India. New Delhi: Council on Energy, Environment and Water.

Even with existing infrastructure, full utilisation of current treatment capacity could free up enough freshwater to irrigate nine times the area of Delhi, highlighting the scale of opportunity locked in underused assets.

However, most cities are not yet prepared to realise this potential. A CEEW assessment of 503 cities across 10 states finds that 82 per cent either do not reuse treated water or lack functioning treatment infrastructure. Outcomes remain constrained by fragmented planning, underinvestment in operations and maintenance, and weak reuse markets. Less than 27 per cent of households are connected to underground sewerage systems[35] which limits both treatment volumes and the viability of reuse networks.

The government has supported the circular water economy. The 'Jal hi Amrit' initiative was launched under AMRUT 2.0 by MoHUA to incentivise States & UTs to manage the used water (sewage) treatment plants efficiently for ensuring recyclable, good-quality treated water, meeting environmental standards, on a sustained basis. So far, 860 Sewage Treatment Plants (STPs) with a total treatment capacity of 17,613 MLD in 402 cities across 21 States and 4 UTs have been enrolled via the online platform, and their assessments have been submitted.

To further improve the circular economy, a phased and outcome-oriented approach to developing a circular water economy can be considered. This would involve progressively increasing wastewater treatment capacity while simultaneously expanding reuse, rather than positioning treatment and reuse as sequential or separate objectives. Such an approach would enable infrastructure, demand, and regulatory capacity to develop in tandem. Given its institutional footprint, MoHUA is well-placed to anchor the effort, in partnership with the National Mission for Clean Ganga (NMCG) and the National River Conservation Directorate (NRCD).

Financing and pricing arrangements will be key to ensuring the viability of a circular water economy. Calculations based on the most commonly used water treatment technologies suggest that to achieve 100 per cent sewage treatment, India would require capital investments of ₹1.5-2.3 lakh crore in technologies alone by 2047. Evidence from Indian cities indicates that long-term TUW offtake agreements, industrial buyers acting as anchors, hybrid annuity-style contracts, and municipal borrowing instruments can reduce revenue risk. Offering TUW to industrial and commercial units at discounted prices as compared to municipal freshwater can make the circular economy of used water financially attractive.

A circular water economy is a coherent option for cities to turn wastewater from a waste issue into a useful urban resource. This approach can play a critical role in enhancing water security, easing the demand on freshwater sources, and supporting the long-term economic and environmental health of India's urban expansion.

35 Jain, Anoop, Caleb Harrison, Akhil Kumar, Rockli Kim, and S. V. Subramanian. 2024. "Examining Geographic Variation in the Prevalence of Household Drainage Types across India in 2019-2021." Npj Clean Water 7 (1). https://doi.org/10.1038/s41545-024-00355-0.

City Upgradation through Technology Adoption

15.44. India's urban systems have undergone sustained transformation through national initiatives to upgrade infrastructure and services. Through a rigorous focus on upgrading the quality of urban living, India launched schemes such as AMRUT, Smart Cities and Swachh Bharat, addressing different aspects of urban cities.

15.45. The Smart Cities Mission (SCM), launched in June 2015, represents one of India's most ambitious efforts to modernise urban infrastructure and improve the quality of life across a range of municipal services. The Mission was designed to transform 100 select cities by strengthening core city infrastructure, promoting sustainable, citizen-focused services, and leveraging technology to improve service delivery. It has pursued both area-based development through focused investments in selected urban districts and pan-city solutions that deploy digital tools for water supply management, mobility, waste processing, public safety, and real-time municipal governance.

15.46. As of 9 May 2025, cities under the SCM had completed a substantial majority of planned projects — including smart roads, cycle tracks, command and control centres, upgraded water and sewerage networks, and vibrant public spaces — with over 90 per cent of the roughly 8,067 projects completed and nearly ₹1.64 lakh crore invested[36]. However, the impact of the scheme is in the expansiveness of infrastructure retrofits and upgradation of services in most of the cities. Today, all 100 Smart Cities have operational Integrated Command and Control Centres (ICCCs) that use data and digital platforms to monitor urban services. Many cities have adopted technology for water (SCADA) and waste monitoring and management (garbage collection) systems. Most cities are either planning or have already brought in Intelligent Transport Management Systems to improve traffic flows within the dense city centres and technology has also been used to improve accessibility to basic education and health needs.

INFORMALITY AS AN URBAN OUTCOME – FROM ERADICATION TO INTEGRATION

15.47. Informality is one of the most persistent and visible features of urbanisation in India. It manifests across housing, labour markets and enterprises and shapes how cities grow. Conventional urban policy has often treated informality as a transient phenomenon that arises from planning and governance failures, and as something that must be eliminated as cities modernise. However, decades of experience in India and globally indicate that informality is not an aberration but a structural outcome of rapid urbanisation under constrained formal systems. Slums, informal work and unregistered enterprises absorb excess labour, provide low-cost housing near jobs, and serve urban consumption and production needs that formal systems often fail to meet.

36 https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154736&ModuleId=3&reg=3&lang=2

15.48. Informal housing and slums play a key role in facilitating geographical proximity between labour and the place of work. In the absence of affordable housing, informal settlements often cluster near residential areas, industrial zones, or commercial establishments, providing access to employment and services that would otherwise be inaccessible to low-income migrants and workers. In India's case, the shortage of affordable housing has increased sharply over the past decade. The report of the Technical Urban Group (TG-12) on Urban Housing Shortage 2012-17[37] estimated that across urban India, there was a deficiency of 18.8 million houses in 2012, with 15 million households living in congested houses that required new housing. An ICRIER working paper (Roy & ML, 2020)[38] estimates that this figure increased to 29 million in 2018 and finds that 99 per cent of the shortage was confined to low-income economic groups in 2018. More recently, a Knight Frank - NAREDCO report[39] projects that accounting for the existing shortage, the cumulative affordable housing demand in India by 2030 is estimated to be 30 million units. The report also finds that in India's top eight cities[40], the supply of affordable housing (units costing less than ₹50 lakh) has declined from 52.4 per cent in 2018 to 17 per cent by 2025.

15.49. In many Indian cities, affordable housing increasingly appears in peripheral areas due to lower land costs and easier access to large plots. Developers often move projects to the outskirts to keep prices attractive for low and middle-income buyers, as land acquisition is simpler. However, these areas typically lack sufficient infrastructure, including poor connectivity to employment centres, inadequate mass transit systems and civic amenities. Consequently, while these locations offer affordable housing, they often fall short in essential urban services required for sustainable living. This creates a dilemma: despite higher demand driven by affordability, the lack of proper infrastructure hampers their liveability and long-term appeal.

15.50. The government has undertaken multiple interventions to support affordable housing in urban areas. These include direct tax and GST benefits, inclusion in priority-sector lending, which enables higher loan-to-value ratios and therefore smaller down payments, and provision of infrastructure status, amongst others. Under the two phases of the Pradhan Mantri Awas Yojana – Urban (PMAY-U), a total of 122.06 lakh houses have been sanctioned, of which 96.02 lakh have been completed/delivered to the beneficiaries across the country as on 24.11.2025.

15.51. The informal labour market is just as key to the urban economy. A substantial share of urban employment, including self-employment and casual wage work, is

37 https://nbo.gov.in/pdf/urban-housing-shortage.pdf

38 https://icrier.org/pdf/Working_Paper_402.pdf

39 https://content.knightfrank.com/research/3035/documents/en/india-affordable-housing-2025-12385.pdf

40 These cities are Mumbai, Delhi, Ahmedabad, Pune, Hyderabad, Bengaluru, Kolkata and Chennai

informal, absorbing migrants and low-skilled workers who lack opportunities in the formal sector. Informal jobs, ranging from construction and domestic work to vending and micro-services, offer flexibility and immediate income opportunities in an environment where formal jobs are relatively scarce.

15.52. The mass departure of informal sanitation and domestic workers in Gurugram, Haryana, in mid-2025 vividly demonstrated the importance of the informal labour force to urban functioning. From across the city, it was documented[41] how door-to-door garbage collection systems, operated largely by Bengali-speaking migrant workers and other informal staff, collapsed almost overnight as workers left the city amid fears of law enforcement actions. This left streets and gated communities littered with uncollected waste and rising public health risks. In many neighbourhoods, residents were forced to organise their own waste pickup or hire ad-hoc vehicles in the absence of trained crews. What had been routine, invisible work suddenly became impossible to overlook, underscoring how the smooth functioning of urban systems depends on a labour force that has no formal visibility yet is structurally indispensable. The disruption extended beyond sanitation, with domestic helpers, cooks and other informal service providers also leaving, leading households to scramble for alternatives and pay sharply higher rates. This episode illustrated that informal labour is not a peripheral or expendable sector but a foundational component of everyday urban life, whose absence can quickly translate into deterioration of services and elevated transaction costs for residents and local governments alike. Policymakers will do well to recognise the importance of the informal urban workforce and institutionally support their integration into the formal economy as well as the socio-economic urban fabric.

15.53. In this context, the Pradhan Mantri Street Vendor's Atmanirbhar Nidhi (PM SVANidhi) has played a central role in restoring and strengthening the livelihoods of urban street vendors (SV). Apart from its emphasis on financial and digital transformation in urban SV, the scheme allows a Letter of Recommendation (LOR) to serve as valid identification for street vendors. This removes the need to rely on the lengthy and time-consuming surveys conducted by Urban Local Bodies (ULBs) for vendor identification. A national digital vendor database now supports better planning and monitoring, while the scheme's expansion to census towns, urban agglomerations and peri-urban areas ensures that vending communities across the broader urban region are included. With the objective of ensuring the hygiene and safety of street food, the FSSAI's training of street food vendors as part of its capacity-building initiatives has led to improved working conditions, cleaner vending environments, and more dignified livelihoods.

15.54. Urban informality also extends to enterprises. Small, unregistered, and often

41 https://tinyurl.com/mrx2defb

home-based firms are embedded in urban supply chains and neighbourhood economies. They deliver essential goods and services at price points that formal firms often cannot match. Clusters of informal activity demonstrate significant economic output and employment intensity, despite operating outside formal regulatory frameworks. These enterprises are sensitive to high compliance costs, credit constraints, and land access barriers, highlighting how regulatory design affects urban economic structure.

15.55. Despite the importance of the informal sector to urban agglomerations, urban planning has frequently utilised traditional approaches to informal settlements; however, there is a growing shift toward more integrative and inclusive strategies. From an economic perspective, such policies disrupt embedded capital, such as location and networks. Integration and upgradation of informal settlements and activities can be achieved through infrastructure provision and tenure security. Similarly, recognising informal workers and enterprises through simplified registration access to social protection and improved working conditions can raise productivity without compromising on flexibility. Informality is likely to remain a defining feature of our cities as India continues to urbanise further. Therefore, it becomes imperative to acknowledge this feature as a response to opportunity amid constraints. This will allow policymakers to design interventions that protect economic value while enabling a more inclusive and resilient urban transition.

CIVIC ORDER WITHOUT A SOCIAL CONTRACT: THE INVISIBLE FAULT LINE IN INDIAN CITIES

15.56. While shortcomings in urban experience are often attributed primarily to institutional capacity, the quality of everyday life is also shaped by the implicit social contract between citizens and urban institutions. The lived experience of Indian cities reflects not only gaps in infrastructure, but also the credibility of rules, the predictability of services, and the trust that underpins everyday cooperation. The difference between global and Indian cities is therefore less about engineering alone and more about whether institutions make cooperation rational and worthwhile.

15.57. Programmes such as Swachh Bharat sought to combine investments in sanitation infrastructure with large-scale behaviour change efforts[42]. Through sustained communication[43], funding support and public participation, as well as cleanliness and public hygiene, were brought into mainstream policy discourse. Many states introduced bans on spitting[44,45], and littering, notified spot fines under Solid Waste Management by-laws, and strengthened environmental enforcement. Yet outcomes

42 https://sbmurban.org/behavior-change-interventions

43 https://www.pib.gov.in/PressReleasePage.aspx?PRID=1821417&reg=3&lang=2

44 https://tinyurl.com/nkhpxn6w

45 https://tinyurl.com/9frhv2a5

remain uneven across cities and neighbourhoods. This is not primarily a problem of awareness or values, but of a fragile social contract. Where enforcement is inconsistent, service delivery unreliable, and penalties uncertain, compliance becomes contingent. When rules are applied unevenly, cooperation gives way to individual calculation. A striking contrast is visible between private and public spaces. Indian households invest heavily in maintaining their homes, while common spaces often receive far less care. This gap reflects the quality of the social contract. Where services are predictable and responsive, taxes and rules are seen as part of a shared system; where they are not, civic engagement weakens. People protect private property meticulously but hesitate to invest effort in common assets when there is limited confidence that collective restraint will be matched by collective benefit.

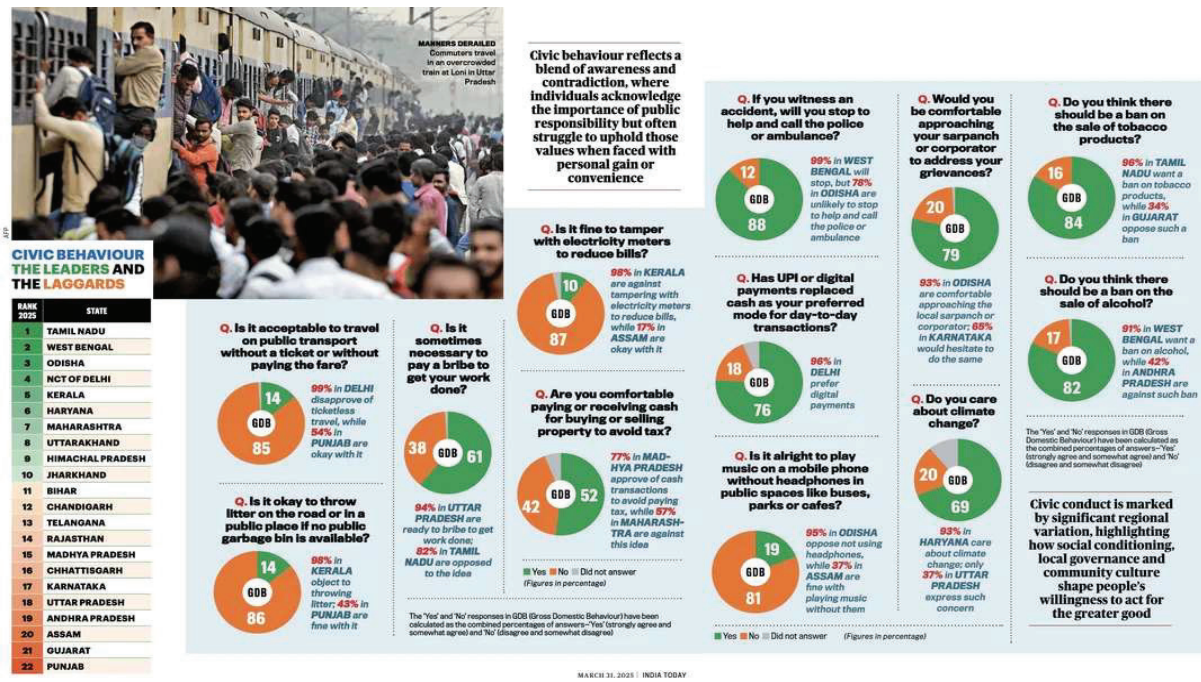
15.58. This helps explain why large investments in urban infrastructure have not always translated into commensurate improvements in everyday urban experience. 'India Today', in a unique country's first civic survey, focused on 'Gross Domestic Behaviour'[46]. The survey that explored India's Civic Behaviour, Public Safety, Gender Attitudes, Diversity & Discrimination across 20 States and 2 UTs. The contradictory individual approach to morality and action is reflected in their analysis[47]: "Civic Behaviour (within the citizens) reflects a blend of contradictions, where individuals acknowledge the importance of public responsibility but often struggle to uphold those values when faced with personal gain or convenience." The pattern is not one of simple neglect, but of a weak and uneven social contract: individuals are willing to cooperate when institutions are reliable, and withdraw when they are not. Civic order is therefore best understood as an institutional equilibrium rather than a cultural trait.

15.59. Global cities institutionalise cooperation through design, certainty and credible enforcement. In Singapore, Tokyo, London and New York, clear rules, visible and proportionate penalties, high-quality municipal services, and legible urban design make compliance the rational choice. Over time, these systems reduce the need for constant exhortation because cooperation is embedded in everyday governance. Where local governments lack the operational capacity, regulatory tools and financial autonomy to deliver such predictability, the social contract weakens, and civic order depends disproportionately on campaigns and appeals, with limited and uneven results.

46 https://gdb.indiatoday.inW

47 https://www.nagrika.org/post/civic-sense

Chart XV.12: Gross Domestic Behaviour Survey Results



Source: India Today, Nagrik Post (https://gdb.indiatoday.in)

15.60. In practice, strengthening enforcement is not only an operational challenge but also an institutional coordination problem. Urban local bodies often operate within fragmented authority structures, overlapping mandates, and limited administrative autonomy, which dilute accountability for rule implementation. Where responsibilities for street management, traffic, solid waste, and public health are dispersed across multiple agencies, consistent enforcement becomes difficult even when intent exists. Aligning mandates, clarifying ownership of outcomes, and insulating routine enforcement from ad-hoc intervention are therefore central to making rule certainty credible in everyday urban governance.

The new city: Creative, liveable, and interconnected

15.61. While fixing the aforementioned challenges, similar emphasis must be on the 'liveability' of cities. The existing 'Ease of Living Index' by MoHUA, incorporates ease of living by measuring quality of life across the parameters of education, health, housing, water and sanitation, waste management, mobility, safety, and recreation. In 2025[48], the top 10 cities that topped Ease of Living are Pune, Navi Mumbai, Greater Mumbai, Tirupati, Chandigarh, Thane, Raipur, Indore, Vijaywada, and Bhopal. Notably, the cities on this list are largely newer or Tier-2 urban centres that have not yet been subjected to the intense population pressures experienced by Bengaluru, Delhi, or Mumbai over the past two decades. They remain ahead of the curve: urbanising, but not yet overwhelmed. Crucially, these cities already possess a foundational layer of infrastructure and viable

48 https://tinyurl.com/mu5fstrh

access to employment. Additionally, greenfield new cities such as Amaravati in Andhra Pradesh are coming up where an urban living space has to be designed from scratch. This combination creates a rare window of opportunity—where growth can still be shaped deliberately, rather than retrofitted after congestion, informality, and service deficits have set in.

15.62. Indian cities will not become more liveable by fixing footpaths alone. Liveability emerges when cities are designed around people's time, choices, and creativity, not just around infrastructure delivery. Globally, the most liveable cities are not necessarily the richest or newest; they are the ones that organise urban life to reduce friction, enable expression, and reward everyday participation.

15.63. The agglomerated densities of cities, if leveraging education and interconnectedness, grow faster than infrastructure-heavy ones. For example, Detroit in the US made massive investments in highways, factories, stadia, but ultimately did not keep up with the scale of investments in terms of economic output and yet the population collapsed. On the other hand, Boston in the US is infrastructure-light, with old housing styles, narrow lanes, and limited road and flyover construction, but it is swarming with educational institutions and a high concentration of universities. This has ultimately led to a shift towards modern and emerging sectors like education, finance, and biotech. In India, Bengaluru, arguably with insufficient physical infrastructure compared to Delhi or Mumbai, is almost the Silicon Valley of India, reaping the dividends of the agglomeration benefits of an entrepreneurial ecosystem. It grew primarily due to the concentration of engineering talent and institutions, and to wage growth and the creation of a modern city. Glaeser in the Triumph of Cities shows that a 10 percentage point increase in the share of college graduates in a city is associated with ~0.5–1 percentage point higher annual population and income growth.

Planning, Governance and Financing

15.64. The Government of India has taken a series of concerted efforts to address the financing requirements of city and urban development. The Urban Infrastructure Development Fund (UIDF), announced in the Union Budget 2023–24 with an initial outlay of ₹10,000 crore, was designed as a revolving fund routed through financial institutions to support Tier-2 and Tier-3 cities that lack creditworthiness but have viable infrastructure projects. Operated through the National Housing Bank, UIDF is intended to finance well-prepared projects and recover capital over time, pushing cities toward better project structuring, cost recovery, and credit discipline. Close on its heels is the ₹1 lakh crore Urban Challenge Fund (UCF), announced in the Union Budget 2025-26, to build on this momentum by introducing competition and leverage into urban funding. The performance-linked urban financing mechanism will be used to

implement proposals for 'Cities as Growth Hubs' through Creative Redevelopment' and enhancing water and Sanitationand financing bankable projects The fund is structured to co-finance up to 25 per cent of the cost of bankable urban projects, subject to the condition that at least 50 per cent of the cost is funded through bonds, bank loans, and PPPs. An allocation of ₹10,000 crore in 2025-26 is expected to kick-start the fund and push Indian cities toward innovative, sustainable, and bankable infrastructure development rather than entitlement-based grants.

15.65. With such well-intentioned goals, it is essential that the regulatory and policy and implementation methodologies are also upgraded in sync with the objective of the economic planning. This requires a shift in thinking, from a scheme-compliance mindset to a balance-sheet and outcomes mindset. First, cities need to build credible, multi-year capital investment plans that integrate land use, transport, utilities, and economic development, instead of proposing isolated projects Every million-plus city should be required to prepare a statutory 20-year City Spatial and Economic Plan, updated every five years, with three non-negotiable elements: (i) a transport network plan, (ii) a housing supply plan with annual unit targets, and (iii) a land-value capture framework linked to infrastructure corridors. Instead of discretionary case-by-case exemptions or incentives for FSI, planning permissions should shift to rule-based approvals using published FSI, height, and mixed-use norms related to transit. This single change would reduce uncertainty, accelerate redevelopment, and unlock formal housing supply in high-demand areas..

15.66. Finally, fiscal effort has to be hardwired into urban institutions. This means strengthening own-source revenues through property tax reforms, user charges linked to service quality, and systematic land value capture around infrastructure investments. Property tax should be converted into a self-updating area-based or capital-value tax in all large cities, with mandatory revaluation every few years using GIS and transaction data. Cities that meet minimum revenue-effort benchmarks should be allowed to issue municipal bonds without state guarantees, backed by escrowed property tax or user-charge revenues. Even modest but visible fiscal effort signals seriousness and is critical for crowding in debt or private capital under UCF-type structures. Central transfers should shift from scheme-based grants to performance-linked urban block grants, rewarding cities that increase own-source revenue, reduce approval timelines, and meet housing and mobility targets. These steps would allow cities to operate on balance sheets rather than utilisation certificates.

15.67. Most importantly, already in vogue in certain cities, it is necessary to institutionalise the implementation and service delivery mechanism. Million-plus cities may benefit from streamlining institutional frameworks and moving toward more integrated metropolitan governance models. This is one of the principal differences that

make Noida in UP[49], different from Gurgaon in Haryana after a rain deluge[50], despite both cities being satellite cities to Delhi. Even otherwise, dedicated urban project units, standardised contracts, and time-bound approvals reduce execution risk, which is often a larger deterrent than financing itself. States play a role here, but cities must own outcomes rather than act as pass-through agencies.

Reimagining Physical Infrastructure

15.68. With sufficient ground coverage of urban infrastructure under AMRUT, Swachh Bharat, most large cities now have baseline assets in sanitation, water supply, and solid-waste management. The next phase of urban infrastructure must move beyond expanding coverage towards designing systems that are resource-conservative, financially-intelligent, and reflective of real-time data. World Bank estimates that India will need to invest $840 billion[51] over the next 15 years—or an average of $55 billion per annum—into urban infrastructure if it is to effectively meet the needs of its fast-growing urban population. There is no urban infrastructure type that exists in the world but has not been experimented with in India, a country that has everything from monorails, metros, BRTS, to open amphitheatres, rainwater harvesting structures, and more. However, compared to global cities, the gap is not in ambition but in coordination - Indian cities build roads, metros, drains, and utilities as separate projects rather than as interconnected systems. Moving forward, we need urban infrastructure that is integrated, people-centred and productivity-enhancing rather than fragmented and asset-driven. For e.g., Metro divorced from ToD (Transit-oriented Development) principles, stands as an engineering project rather than a city-shaping project. Station areas remain low-density, poorly connected, and constrained by rigid zoning, resulting in under-utilised capacity, weak farebox recovery, and limited impact on overall urban mobility, unlike global examples where metro stations anchor dense, mixed-use neighbourhoods that maximise ridership, shorten commutes, raise land values, and generate revenues to sustain the system. Efforts must be made to reduce the project-system mismatch to build integrated systems. Road expansion must be paired with effective parking management, pedestrian infrastructure, and prioritisation of public transport. Flyovers should give way to network-level traffic management and junction redesign. Additionally, drainage upgrades must be planned at the city scale, linked to natural water flows and land use patterns. Institutionally, this requires aligning planning, finance, and execution under a single urban or metropolitan authority, with clear incentives for coordination across sectors. Shifting the focus from asset delivery to system performance is essential if infrastructure investment is to translate into meaningful and sustained improvements in urban outcomes.

49 https://tinyurl.com/wcztz53e

50 https://tinyurl.com/ykmzwr36

51 https://tinyurl.com/4jvmypd9

15.69. Infrastructure funding should be conditional on city-climate plans, ensuring that drains, pumping stations, roads, and public spaces are designed for future rainfall and temperature patterns, not historical averages. Cities need to be incentivised as well as coerced into designing newer buildings with rainwater harvesting infrastructure. Examples of such systems exist within India, such as the IIM Kozhikode campus, and can be replicated in future greenfield cities of Amaravati. Grey-water reuse must be enforced through building codes, especially in water-stressed cities. Development control regulations can require minimum on-site water retention and reuse capacities, reducing pressure on municipal networks. Similarly, climate-responsive building codes—including ventilation norms, shading, reflective materials, and green roofs—can significantly lower indoor temperatures and energy demand at low cost. Cities like Ahmedabad, which pioneered heat-action planning, show that simple design and operational changes can save lives and reduce stress on urban systems. Use of local building material and local designs must be actively encouraged since they help in natural heat reduction and geophysical adjustment, as is shown in independent buildings in the country, such as Solar Passive Hostel, University of Jodhpur[52], the TERI SRC building in Bengaluru and the Indira Paryavaran Bhavan[53], New Delhi. Lessons from the Cochin International Airport, which is the world's first fully solar-powered airport, can be used by other cities in similar sunshine-intensity areas.

15.70. Nature-based solutions[54] are also slowly becoming popular to address the urban heat island effect in cities in our tropical environs. Going forward, urban infrastructure must be planned as nature-based and circular systems, not linear utilities. Stormwater drains should be integrated with lakes, wetlands, and open spaces to absorb floods rather than merely channel water away. Solid-waste and wastewater systems should prioritise decentralised treatment, reuse, and energy recovery at the neighbourhood level (e.g., Areas in Surat). Transport and street design must incorporate shade, tree cover, and cool surfaces to counter urban heat. These interventions are not about adding new schemes; they are about rewriting standards and codes so that every road, building, and public space automatically contributes to climate resilience.

Developing Social Order and Urban Civic Sense

15.71. Cities must prioritise rule certainty over rule proliferation: Urban governance works best when rules are few, legible, and consistently enforced. Fewer, enforceable by-laws, digitised challans, time-bound adjudication, and visible enforcement in high-friction public spaces are more effective than dense rulebooks that are weakly applied. Consistency and inevitability of enforcement matter more than severity. When penalties are predictable rather than discretionary, cooperation stabilises, and norms become

52 https://tinyurl.com/5cpasjc4

53 https://tinyurl.com/442uyk9a

54 https://greenglobe25.in/urban-cooling-solutions-in-india/

self-reinforcing.

15.72. Urban design and service delivery must be used as behavioural instruments: Urban form and service operations should be treated as behavioural instruments. Legible street design with pedestrian priority, physically segregated lanes, defined vending and parking zones, and standardised signage reduces ambiguity and lowers compliance costs. Integrating civic outcomes into project design standards is more effective than addressing behaviour downstream. Operations and maintenance funding should be embedded in capital contracts, with service-level benchmarks and publicly reported periodic audits.

15.73. Incentives aligned with correct behaviour: A credible civic compact depends on visible value delivered by local governments. Property taxes, user charges, and fines should be transparently linked to improvements in neighbourhood services such as cleanliness, lighting, footpaths, drainage, and public safety. When citizens see tangible returns, their willingness to comply rises. Treating streets, footpaths, lakes, parks, and utilities as assets to be governed requires clear ownership of outcomes, defined rules of use, and shared accountability, backed by professional operations and maintenance budgets.

15.74. Using behavioural nudges to encourage social contract around civic sense: Behavioural tools work best when embedded in credible systems. Footpath markings, coloured lanes, queue lines, bin placement at points of waste generation, pedestrian countdown signals, and standardised parking bays make the right action intuitive. Public display boards showing service levels and compliance indicators shift expectations by making performance visible. Default options such as automatic waste segregation reduce reliance on individual choice. Behavioural cues reinforce cooperation when they are backed by consistent enforcement and reliable services.

15.75. System-based civic-sense awareness rather than episodic messaging: Communication should reinforce predictable systems rather than substitute for them. Simple, local, and repetitive messaging focused on a small set of high-impact behaviours works best when delivered at the point of action. Over time, environments that repeatedly teach, remind, and reinforce the same rules build habits. Civic charters and service guarantees can formalise this compact, signalling what citizens can expect from local governments and what they are expected to provide in return.

15.76. Efforts to strengthen civic order must recognise the distributional dimensions of urban rules. Street vending, informal transport, home-based enterprises and low-income rental housing are integral to the urban economy, and poorly designed or abruptly enforced regulations can impose disproportionate burdens on vulnerable

groups. Rule certainty, therefore, requires not only consistency but also fairness, consultation, and transitional support, so that compliance is experienced as legitimate rather than punitive. When rules are perceived as enabling livelihoods as well as order, cooperation becomes more resilient and self-sustaining.

Box XV.5: The concept of contextual compliance

Behaviour that appears unruly or indifferent to the commons in one context becomes orderly, considerate and norm-abiding in another — often within the same city, the same class of users, even the same individuals. Orderly conduct in the Metro rail service in Indian cities and the queues that greet the Mumbai BEST service are examples. Rather than disproving the perception, these examples help explain it: they show that behaviour toward the commons is highly context-dependent, and that good outcomes emerge when design, incentives and norms align. They transform an "open" commons into a structured, legible and predictable shared system. Several features tend to coincide in such cases.

First, the system is clearly designed to reduce ambiguity about what constitutes the right behaviour. Entry and exit lines, barriers, turnstiles, marked queues, platform doors or painted bays convert an undifferentiated public space into something closer to a rule-guided environment. When the environment signals order, people usually follow it; when space is ambiguous, they improvise, and improvisation in crowded settings often looks like chaos.

Second, there is a credible expectation of enforcement, even if it is light-touch. In the Metro, the presence of staff, fines and surveillance creates a background "shadow of authority". But crucially, enforcement is consistent and impersonal, unlike in many other public settings, where it is uneven or negotiable. Where rules feel fair and predictable, compliance becomes easier to internalise.

Third, there is high reliability of service. If trains come at regular intervals and everyone knows that waiting a minute or two brings the same outcome, there is little payoff to pushing, grabbing or jumping the line. By contrast, in systems where scarcity, delay or uncertainty dominate — irregular buses, unpredictable traffic, intermittent utilities — people rationally switch to opportunistic behaviour because they cannot trust the system to treat patience fairly.

Fourth, repeated interaction among strangers in a stable system allows norms of mutual accommodation to develop. Once people see that others queue, give space, or avoid blocking doors, conformity starts to move toward order rather than disorder. The Metro's "inside behaviour" becomes a social script; deviation attracts disapproval not only from authorities but from fellow passengers.

Fifth, there is often a degree of status and identity attached to the space. The Metro has come to symbolise modernity, efficiency, and civic pride; users perceive it as a valued asset rather than a neglected public utility. Where the commons appears broken, poorly maintained, or captured by vested interests, people feel less of a moral obligation to care for it — neglect breeds neglect.

There are similar pockets elsewhere: orderly boarding in parts of Chennai and Bengaluru's metro systems, relatively disciplined pedestrian behaviour in some gated or well-managed public campuses, or compliance with rules in airports and passport queues. These are not simply "middle-class islands"; they are environments where institutional design and social expectations reinforce each other.

Commons works when institutions make cooperation rational, visible and dignified — through clarity of rules, reliability of provision, credible but fair enforcement, physical design that nudges behaviour, and a sense that the space belongs to everyone and is worth preserving. Where these elements are weak or absent, behaviour adapts in the opposite direction, often producing the very disorder that later gets moralised as cultural deficiency.

In sum, when governance, design and trust align, collective behaviour improves quickly — not because people change, but because the system does.

NON-TANGIBLE ASPECTS OF FUTURE CITIES

15.77. However, even as the three wise men of Magi in the urban context, i.e, governance, financial devolution and urban infrastructure are strengthened, it becomes imperative to think of urban design from a future perspective. What should we do differently so that our cities look and behave differently from what we have always done? It is in this context that we can adopt certain principles:

a. Time as the central urban resource: The most liveable global cities systematically minimise time lost to commuting, services, and uncertainty. Neighbourhood planning in new urban expansions and redevelopment zones should align housing, schools, anganwadis, health centres, and workplaces within short travel radii.

b. Streets as social infrastructure, not just traffic corridors: Street design can be guided by Guillermo Penalosa's "8-80" philosophy that good streets must work equally well for an eight-year-old and an eighty-year-old in order to prioritise safety, comfort and accessibility. In cities like Barcelona, the "superblock" model reclaims streets for walking, play, cafés, and culture by restricting through-traffic. Melbourne deliberately designed laneways to encourage cafés, art, and informal commerce, turning leftover spaces into cultural assets. Liveability will require a shift from road-widening to street-making, where public space is designed for lingering, interaction, and safety. 10–15 per cent of city streets need to be designated as pedestrian-first or low-traffic streets, especially in dense commercial and residential areas. Road-widening norms should include street design codes that mandate features such as shade, seating, vending space, and safe crossings. In certain cities, "weekend streets" can be piloted before scaling citywide.

c. Encouraging creative density, not just economic density: Globally engaging cities

actively nurture art, music, design, food, and street culture as part of urban policy. Indian cities are culturally rich but institutionally hostile to creativity: restrictive licensing, noise rules without zoning nuance, lack of affordable inner-city spaces, and moral policing push culture into the margins. Making cities engaging in India means protecting spaces for expression, not over-regulating them out of existence. Low-rent creative zones in inner cities (e.g., craft clusters in Jaipur) should to be created using public or underutilised land and with single-window approvals for studios, theatres, institutional spaces (such as the Okhla Institutional Area in Delhi), rehearsal spaces, and galleries.

d. Integration of informality through in-situ upgrading of informal settlements (tried in places such as Ahmedabad) with secure tenure, infrastructure, and incremental formalisation, instead of eviction plans. Streets need to be planned and designed for vendors with formalised vending spaces. The Street Vendors Act 2014, supported by schemes such as PM SVANidhi, has formalised street vending zones in certain states, including Madhya Pradesh, Odisha, and Assam.

e. Governance that enables participation, not just compliance: Deliberate movement from the current model of distant and procedural urban governance to participatory models where citizens are invited into decision-making through neighbourhood councils, participatory budgeting, cultural grants, and transparent planning processes. This creates emotional ownership of the city (e.g citizenry participation in the Smart City Proposals). Planning documents, zoning changes, and infrastructure proposals should be publicly accessible and open to public comment by default.

f. Finally, there is a psychological dimension: cities that inspire imagination. Cities like New York City and Amsterdam offer constant cues that ambition, diversity, and reinvention are the norm. Indian cities are aspirational but exhausting; they demand resilience rather than reward curiosity. To become engaging, Indian cities must move from survival-oriented urbanism to possibility-oriented urbanism, where public spaces, culture, mobility, and governance expand what people feel they can do with their lives.

15.78. As India competes globally for skilled workers, entrepreneurs, and ideas, cities that exhaust people will lose them, regardless of wage differentials. Cities that offer dignity, expression, and predictability will retain and attract them.

15.79. As long as citizens feel ownership of cities, they will assume responsibility for it, like their own houses – a phenomenon called the endowment effect. However, since the system fails and is unrewarding for common citizens, their ownership is limited

and often driven by individual values rather than collective sense. Improving daily service delivery, such as road maintenance and traffic management, can help reduce the cognitive load on citizens and foster a stronger sense of ownership.

Conclusion

15.80. India stands at a pivotal moment in its urbanisation journey. The evidence presented in this chapter shows that the country is far more urban in economic, functional, and spatial terms than conventional definitions suggest. Yet our cities have not been equipped with the institutional, fiscal, and planning foundations commensurate with their role in national prosperity. Urbanisation has concentrated productivity, innovation and labour markets in our cities. But it has also concentrated congestion, informality, and complexity of governance.

15.81. Tackling these issues demands an integrated approach. On the supply side, unlocking urban land through clearer titles, improved density norms, and transit-oriented development can expand affordable housing and reduce peripheral sprawl. On the mobility front, prioritising people over vehicles through improving public transport and demand management can raise productivity while improving liveability. Urban sanitation, waste management, and water systems must evolve from coverage-led expansion to circular and resource-efficient systems.

15.82. These physical investments will deliver their full dividend only if accompanied by stronger metropolitan governance, predictable enforcement, and a credible civic compact that aligns incentives between citizens and the state. Cities will also need to be empowered with better finances and performance-oriented accountability. Ultimately, the promise of building India's urban future lies in making our cities economically dynamic, socially inclusive, environmentally sustainable and institutionally capable. They must work for the everyday lives of their citizens. When cities are planned, financed, and governed around this purpose, urbanisation can become a source of shared prosperity and a better quality of life for all citizens.

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