

Driving India's Economic Future: The Role of Urban Growth Hubs and Global Best Practices

CHAPTER 1: INTRODUCTION

Urban growth hubs are key for India's economic growth. 60% to 70% of India's GDP is generated by these urban cities, highlighting their significance. Tier 2 and Tier 3 cities account for 40% of India's GDP, with improving connectivity and infrastructure, and are estimated to increase their share in the coming years. Despite this, challenges remain to achieving inclusive and sustainable growth in infrastructure and urbanization, including social equality, governance, environmental sustainability, and infrastructure deficiencies.

Urban dynamism is a result of multiple interconnected factors. "Thick labor markets" have grown due to the concentration of skilled and unskilled labor in urban areas. This has increased income levels, decreased staffing delays, and improved productivity. Bengaluru, for example, is now the center of India's USD 150 billion tech industry, which contributes almost 10% of the nation's GDP and serves as an example of how urban centers can support national economic goals. Similarly, urban agglomerations and satellite cities like Noida and

Greater Noida in the Delhi NCR have developed into industrial hubs that have a positive economic impact on the surrounding areas.

Other major factors accelerating India's urban growth hubs are knowledge and innovation ecosystems. Cities like Pune, Hyderabad, and Chennai are investing in, developing, and growing vibrant clusters of research, development, and entrepreneurship. Hyderabad's Genome Valley stands out as a global leader in life sciences, serving as a model case study. These hubs attract investments and funding, foster startups, and support the development of future-ready industries, making India a competitive player in the global knowledge economy.

Metros, Tier 2 cities, and Tier 3 towns are evolving into growth engines as they provide industrial infrastructure and a workforce, promote an entrepreneurial ecosystem, and offer platforms for the exchange of information and knowledge, thereby accelerating technological advancement, job creation, and growth in service sector verticals. Together they contribute to more than half of the country's GDP.

Governance planning, smart city projects, infrastructure, and urban planning require attention, and global best practices should be adopted based on local requirements to make Indian cities competitive, sustainable, livable, and financially attractive. Singapore's integrated public transport system, European cities' sustainable urban planning, Silicon Valley's innovation systems, and Japan's inclusive growth strategies can be studied and implemented to boost economic activities and efficiency.

Infrastructure development is undoubtedly a key enabler for urban-led growth. Investments and developments in metro systems, expressways, and smart city projects are transforming urban mobility, reducing congestion, and improving logistics and supply chains. The Union Budget 2024-25 has formulated a concept for urban growth, allocating substantial resources to facilitate infrastructure, water management, and sustainable development. It aims to decentralize urbanization, unlocking the potential of underutilized cities and enhancing social equality.

This research report highlights:

(a) A strategic approach is needed for multiple layers of growth.

(b) Establishing systems for policy frameworks and innovative financing mechanisms is essential.

(c) The real estate sector is a direct beneficiary and a key enabler of urbanization that also acts as a catalyst in sustainable, inclusive, and resilient urban growth.

(d) Proactive efforts in eco-friendly building practices, ESG, affordable housing solutions, and Public Private Partnership (PPP) models are essential to reduce funding gaps.

Indian cities have their own share of challenges and roadblocks. Learning from international best practices is essential to overcome these challenges. Striking a balance between economic prosperity, sustainability, inclusivity, and a strong governance system is the true essence of urbanization. By strategically investing in infrastructure, innovation, and human capital, India can ensure that its cities not only drive national prosperity but also establish global standards for inclusive and sustainable urbanization.

CHAPTER 2: CURRENT SCENARIO AND ISSUES

India is witnessing rapid urbanization. Estimates suggest that by 2050, 50% of the total population, an estimated 850 million people, will be living in cities. This demographic shift presents its own share of opportunities and challenges. Urban centers are seen as engines of economic growth, yet issues related to unplanned expansion, infrastructure gaps, and financial constraints cannot be overlooked.

Trends in Urbanization:

- According to the 2011 Census, India's urban population stood at 31%. This marked a notable increase in urban areas for the first time since independence. In 1970, the urban population in India was 109 million; by 2018, it had reached 460 million. This fourfold increase demonstrates exponential growth.
- The period 2020-2021 saw a 34.9% urban migration rate. This indicates a significant demographic shift toward urban centers.

- Some projections indicate an additional 416 million people will be added to Indian cities by 2050. This would make the urban share of the population 50%.
- More recent data and studies confirm this trend of a growing urban population, with India's urban population standing at 518 million (36% of the total population) in 2023, rising to 530 million (36.6%) in 2024, and projected to reach 542 million (37.1%) by 2025.
- The Economic Survey 2023-24 estimates that over 40% of India's population will reside in urban areas by 2030.
- These rapid demographic expansion trends underscore the immense pressure and opportunity for urban infrastructure, housing, the environment, and social equality.

One noteworthy finding in these demographic changes is the complex picture of migration. The urban population is still growing, even as the Economic Advisory Council to the Prime Minister (EAC-PM) reports a slowdown in domestic migration, with rates of 11.78% in 2011 and 28.88% in 2023. An analysis of migrant characteristics can help to understand these differences. Improved conditions and opportunities in hometowns may be a factor in the slowdown of domestic migration. Rural-to-urban migration recovered since Covid-19, as rural regions struggled to provide employment opportunities for the labor force and an adequate quality of life. This indicates that cities will continue to attract migration from small towns and rural areas, as individuals seek access to jobs and social benefits. The real estate industry should be prepared to meet the demand for housing, urban infrastructure, and other relevant services.

The large-scale availability of manufacturing and service sectors in urban areas is a primary factor in their economic prosperity. Manufacturing and service sectors are considered critical enablers of economic dynamism. They account for a major share of employment in large cities compared to small cities and rural areas. This also leads to a higher share of regular, salaried workers in larger cities, offering opportunities for stable and higher-paying employment. This human resource environment creates a powerful economic engine that fuels demand across various sectors, including real estate.

Challenges:

Despite their immense economic potential, India's urban growth hubs face a set of complex challenges that threaten their sustainable

development and livability. These issues range from rapid, unplanned expansion to critical infrastructure deficits and significant environmental and social pressures.

(a) Unplanned Urban Growth: Migration has led to the expansion of informal settlements, encroachment and strain on the existing infrastructure.

Widespread unplanned growth and urban sprawl are a result of the uncertain pace of urbanization in India that exceeds the capacity for planned development. Cities like Gurugram substantiate this as haphazard expansion caused inefficient land use and an increased dependency on private transport, leading to congestion and pollution. A major portion of India's urban population stays in informal settlements and slums that lack basic infra and essential services causing social inequality of marginalization and exclusion from formal urban planning.

As per MOSPI (Ministry of Statistics and Programme Implementation) and Census 2011-12 reports, urban migration is growing, with millions moving to cities annually in search of better livelihoods. This is creating an immense pressure on existing urban infrastructure and services.

Slums and unplanned sprawl create roadblocks for the real estate sector. It highlights a major unmet demand for affordable, planned housing solutions. It pressurizes them to choose complex urban redevelopment projects that must be economic and also socially equitable. The traditional encroachment and slums on the outskirts of a city approach has proven expensive and unsustainable, leading to urban sprawl, diverting integrated growth. This highlights the need for a shift towards "infill" projects and the development of new, well-planned growth centers in and around existing urban areas. Strategic planning of sustainable and valuable urban planning is essential for inclusive growth. Real estate companies must solve tricky social issues like the displacement of rural residents coming from agricultural land being converted for urban development. A sensitive approach to development that prioritizes inclusive growth and minimizes negative social impacts is vital for planning and execution.

(b) Infrastructure Gaps: Deficiencies in water supply, sanitation, transportation, and housing are prevalent.

India's urban centres have to deal with substantial infrastructure deficits on critical major points of transportation, energy, water and environment. Despite considerable investments in urban transport projects like metros they lack integration with broader aspects of urban development. This lack of coordinated planning doesn't reach the potential of efficiency, resources and administration. Increased land value around transit hubs creates another barrier for sustainable urban financing.

Increasing volumes of vehicles has been causing severe traffic congestions and degrading air quality in major cities like Delhi, Mumbai, Bengaluru, Pune among others. Unchecked urban expansion in cities like Bengaluru has resulted in the loss of lakes and green spaces leading to frequent flooding and urban heat island effect thereby damaging the environment. This negatively impacts the quality of life and long-term sustainability.

Outdated administrative practices and governance have worsened the infrastructure gaps. Covid-19 pandemic showed us a mirror in our inability to manage emergencies effectively. Structural reform is a necessity. Political and administrative operations cause delays in the implementation of urban development projects. For example, Mumbai coastal road and metro expansion projects faced regulatory hurdles. For the real estate sector, this shows the unpredictability of project timelines, increased investment risks and delay in delivery. Developers must be aware of the current affairs and local insights of governance landscape. Developers can come together as a committee, council or think tank and support the reforms.

Government can positively leverage Land Value Capture (LVC) in the urban development process. Increase in the land value due to developments like metro, rail, parks, flyovers and other facilities can increase the value of residential and commercial properties in the neighborhood, without those citizens doing anything from their end. The government can collect some amount of tax from them that benefits all and helps the government raise funds for their urbanization projects.

(c) Service Delivery Issues: Urban Local Bodies (ULBs) often lack the capacity and resources to provide essential services effectively and Just-In-Time.

Urban infrastructure, including water, sanitation, transport, and housing, is often inadequate, especially in Tier II and III cities. Weak municipal capacity and outdated systems create roadblocks for effective service delivery.

For implementation of Amrut scheme projects, the central, state and the ULB need to pool in funds as per a given sharing formula. Six ULBs in Uttar Pradesh were asked to expedite work in Amrut 1.0 roll out in May 2025. Ayodhya Municipal Corporation had been lagging behind in the schedule. The work is still progressing at grass root level, funds amounting to INR 90 crores have not been paid by the six ULBs as of May 2025. Considering the lack of funds, the state cabinet meeting reduced the share of ULBs having a population under 10 lakh and revised to remove the burden.

Other examples include, Nepanagar of Madhya Pradesh, served only 11 of the towns of 24 wards of a INR 34.35 crore water project, causing uneven water distribution.

Under AMRUT 2.0, launched in 2021, to cover all 4,372 statutory towns across India, states and union territories (UTs) had 24 months to complete and take approval for their State Water Action Plans (SWAPs). As of now, INR 63,976.77 crore of the INR 66,750 crore allocated has been approved. Many states like Arunachal Pradesh, Chhattisgarh, Delhi, and Haryana still lack approval for more than 90% of their funds and have not completed their SWAPs. These delays stall critical water projects, hindering distribution, storage, and treatment upgrades. Consequently, millions are forced to depend on erratic and inefficient supplies amid leaky, ageing systems.

Shortage of staff is another reason leading to delay in service delivery. For example, in Pudukkottai, Tamil Nadu, only three operators were found managing canals that supply water to more than 160 irrigation tanks. This caused inequitable distribution, increased risk of water theft, and high service gaps.

(d) Environmental and Social Pressures: The rapid pace of urbanization in India has placed immense pressure on the environment and also expanded the existing social inequalities in urban settings. Urban expansion usually causes increased pollution, deforestation, soil erosion, and a significant loss of biodiversity as natural habitats are destroyed

and fragmented. Cities like Chennai, Bengaluru and Pune have witnessed the destruction of natural habitats due to their expansion.

Social inequalities grows in urban settings where slum dwellers often lack access to basic services contrasting a major city divide. Expansion of gated communities accelerates social inequality as it limits integration and understanding between different social groups. Cyclone Michaung 2023 in Chennai observed how marginalized communities faced the environmental hazard.

Lack of adequate planning has led to congestion, slums, and environmental degradation in many cities.

The need for sustainable and inclusive urban development is not just an environmental and social responsibility but an integral tactic for long-term economic stability. This also influences the value and market demand for real estate. Environmental degradation causes health crises, reduces quality of life and inflates cost for healthcare and disaster management. If social inequality is not addressed it might create social unrest and limit the consumer demand for the real estate sector and reduce productive economic activity. Integrating ESG policies in business strategies with the framework and objectives of investing in green buildings and sustainable infrastructure and developing affordable, inclusive housing solutions are not just ethical choice and PR plan but also a strategic move for long-term success.

(e) Skill Gaps and Employment: India's demographic profile presents a unique opportunity, with a vast labor pool of 600 million and a median age of 29, indicating a potential demographic dividend expected to last for the next three decades. This potential has a major roadblock of a stark skills deficit. Only 20% of India's 600 million labor force is skilled, a major contrast to the global average of 80% in developed countries.

Skill gap is highly crucial considering the given pace of job roles evolution and transformation. Nearly 40% of current job roles are expected to be transformed by 2030. This highlights the high need of upskilling. The gap between the current skills and the evolving market demands of urban jobs can limit productivity and innovation in urban hubs, especially in the verticals of manufacturing and modern services. This impacts the long-term economic viability and demand for premium real estate. The concentration of businesses and high-paying jobs in cities cannot be

efficiently leveraged if the workforce lacks the desired skills. This causes inefficient use of resources. A skilled workforce enhances a city's overall economic activities, making it a desirable location for investment.

(f) Financial gaps to fund city infrastructure: A major roadblock to India's urban development aspirations is the substantial financial gap in infrastructure funding. The inherent limitations of municipal finances and the complexities of private sector involvement adds fuel to fire.

Urban areas currently contribute over 60% of India's Gross Domestic Product (GDP). However, they are only housing about 33.5% of the population. This share is projected to rise to nearly 75% by 2030. Cities are also critical for employment generation. Majorly in sectors like services and manufacturing. Gig economy has shown resilience and adaptability even during the pandemic and become an integral part. Urban centers offer diverse employment opportunities, attracting a workforce from rural regions. There is a direct correlation between urban population share and economic output. The economic dynamism is highly concentrated, with the top 50 cities alone accounting for nearly 42% of the national GDP in FY 2022-23.

The need of required investment exceeds the gaps of the financial capacity of Urban Local Bodies (ULBs). Estimates suggest a multi-trillion-rupee gap for Urban infrastructure over the next two decades. ULBs struggle due to low tax collections, limited revenue-generating avenues, and dependence on state or central grants. India's urban infrastructure needs are immense, requiring an estimated annual INR 4.6 lakh crore.

Current investment meet only 27% of the total requirement with a mere INR 1.3 lakh crore. This represents a significant infrastructure financing gap that exceeds 5% of India's GDP thereby threatening the nation's goal of becoming a USD 30 trillion economy by 2047. KPMG further estimates that India needs to invest an unbelievable USD 1.2 trillion in capital expenditure by 2030 to meet its urban development demands.

The growth of cities create a sustained market demand for commercial spaces like offices, co-working space, tech parks, factories, warehouses, storage, etc , residential properties like homes, flats, societies, hostels, etc , retail infrastructure like malls, retail stores, supermarkets, etc and environmental places like gardens, lakes, ponds, etc.

The growth of IT industry in cities like Bengaluru, Hyderabad and Pune shows how innovation acts as a catalyst for drawing an employment pool. This trend of job creation is directly connected with the evolution of economic structures. The digital revolution in India with initiatives like 'Aadhaar Card', Digital transactions through UPI, 'Digital India' is empowering Indians to bridge the urban-rural disparity and strengthening the role of cities as digital catalysts. The NDA government's significant investments in the 'IndiaAI Mission' with USD 1.2 billion and 'sunrise technologies' USD 12 billion are indicative of a strategic preference for a knowledge-based economy. This tech advancement is estimated to transform nearly 40% of job roles by 2030 which makes upskilling a necessity.

The shift towards an innovation-driven economy shows how significant urban centers are as a hub for intellectual capital and technological advancements. Tech-parks, co-working spaces, and integrated live-work-learn environments are an opportunity for real estate stakeholders as these infrastructures are essential to attract a skilled workforce for these innovation ecosystems.

Why cities aren't able to fund infrastructure improvements?

Poor planning and lack of institutional capacity limit the ability to design and implement bankable projects. Weak governance and outdated institutional frameworks hamper effective resource mobilization and project execution.

In 2023-24, the government's budget allocations for infrastructure increased to INR 10 lakh crore. This was essential as capital expenditure, including private investments grew 5.7 times in comparison to 2013-14 to 2023-2 from INR 53,000 crore to INR 3.01 lakh crore, respectively. A major part of private capital remains largely untapped. This underutilization of private capital creates roadblocks for urban development goals. Institutional investors allocate only 6% of their funds to infrastructure with factors like long duration process, high capital requirements and an increase in public spending. This is not the only solution to bridge funding gap as it is a vast issue necessitating more effective mechanisms to attract and integrate private funding.

ULBs are the third tier of governance in India. They face financial constraints as a system. Roadblocks include political economy issues,

regulatory problems, dull track record of the municipal bond market and lack of grants and loans.

Role of Quality Issues and Governance

Effective governance, transparent institutions, and empowered ULBs are significant for sustainable urban growth. Benchmarking service delivery and creating accountability can drive improvements in public health, infrastructure, and economic development.

Property tax contributes only 0.17% of India's GDP. This highlights the reasons of undervaluation and ineffective administration. As of December 2022, only 164 out of 470 cities (35%) had investable credit rating.

ULBs are a victim of fiscal autonomy as organizations. State governments usually control the authority to levy taxes. Their dependency on State and Central transfers which increased from 37% to 44% of their total revenue, remains insufficient for sustainable financing. Own Source Revenues (OSR) are inefficient to cover revenue expenses further limiting their functional and financial independence. ULBs also lack modern financial practices, transparent accounting standards and lack of access to capital markets.

CHAPTER 3: WAY-AHEAD: OPTIONS FOR SUSTAINABLE INFRASTRUCTURE

It is essential for all the stakeholders to come together for a holistic growth. Government ministries, government bodies, private players, all communities, social workers and people from varying backgrounds can come together with their resources and skills and help in nation building.

PPP Public-Private-Partnership Model

PPPs have emerged as a key strategy to bridge the investment gap, supplementing public resources and bringing in private sector efficiency. Successful examples include metro rail projects, bus rapid transit systems, and urban road projects in cities like Chennai, Hyderabad, and

Mumbai. However, only 10% of PPP projects in India are in urban areas, mainly due to poor planning and low municipal capacity.

PPPs are a tried and tested mechanism to bridge India's infrastructure deficits by leveraging finance and expertise of corporate and government bodies. The government sees investments in infrastructure and productive capacity as having a big impact on growth and employment. Various PPP models are formulated and implemented, including Build Own Operate (BOO), Build Operate Transfer (BOT)-Annuity, Engineering Procurement and Construction (EPC), and the Hybrid Annuity Model (HAM) for the same. Successful PPP projects of the Mumbai Coastal Road Project and Delhi International Airport are a global case study showing private sector efficiencies and advanced technology. The National Infrastructure Pipeline (NIP) launched in 2020 plans INR 111 lakh crore to be spent in the sector over five years, with a significant portion expected to be executed in BOT mode for high-speed corridors. The Ministry of Housing and Urban Affairs is also considering developing PPP project pipeline for urban land redevelopment.

PPPs have their own share of challenges as well. Regulatory issues, clearance delays, etc have caused a substantial budget increase in many infrastructure projects. Financial constraints exists due to high capital needs and major risks that lowers the confidence of private investors. Disputes are another barrier as there are no proper mechanisms for dispute resolution, as they are government-owned which reduces private players courage. Delhi airport metro failure has also created a skepticism among private players. To address these issues, PPP Project Review Committee, Adjudication Tribunal, independent auditors can be set-up to win investor confidence.

Debt Financing and Municipal Bonds

To solve the funding gaps problem, innovative financing mechanisms are gaining popularity and acceptability, especially with municipal bonds and green bonds. Municipal bonds share a viable option for ULBs to access long-term debt from the capital market for urban infrastructure development. India's municipal bond market has been unpopular prior to 2017. From 2017 to 2024 there has been a spike in bond issues. According to ICRA it is estimated to cross INR 1,500 crore in 2025-26. These bonds provide benefits such as fixed liability, large upfront capital,

and long maturity periods (around 10 years), making repayments manageable.

Municipal green bonds have seen another acceptance among investors. Nearly 50% of recent municipal bonds have been categorized as green bonds for funding environment-related projects like water, solar, and energy-efficient infrastructure. Green-labelled bonds have shown lower borrowing costs, enhancing their attractiveness. The estimate potential for municipal green bonds in India is USD 2.5 to 6.9 billion in next 10 years.

To fully unlock this potential, the Council on Energy, Environment and Water (CEEW) Green Finance Centre proposes the RISE framework:

Reform: Upgrade financial and accounting systems, and diversify own-revenue sources.

Identify: Identify and map infrastructure needs and assess borrowing/bond issuance potential.

Strengthen: Build internal capabilities in financial management and sustainability-linked planning.

Engage: Proactively collaborate with key stakeholders, including regulators, Development Finance Institutions (DFIs), investors, credit agencies, and public institutions.

Challenges of limited issuer base (only 25-30 ULBs meet SEBI's investment-grade criteria), weak revenue autonomy, illiquid secondary markets, high issuance costs, and the lack of tax-free status for modern municipal bonds, among others, remain in the process. Government schemes like AMRUT 2.0 which offers INR 13 crore for every INR 100 crore raised and establishing digital platforms like CityFinance.in are bringing transparency and encouraging market growth. As a step, The National Bank for Financing Infrastructure and Development (NaBFID) was established in 2021. It is playing a crucial role, having sanctioned over USD 18 billion in loans and raised over USD 3 billion through bond issuance with long maturities, attracting institutional investors.

Need for Better Planning, Governance, and Institutional Structure

Urban reforms should focus on strengthening municipal finances, improving planning processes, and building institutional capacity. Key for sustainable and inclusive growth are integrated urban planning and robust governance frameworks.

The Government of India understands the role of urban development in the nation's economic future and has launched several ambitious policies and missions to accelerate this transformation. The Ministry of Housing and Urban Affairs (MoHUA) is the nodal agency for formulating policies, coordinating activities, and monitoring programs in urban development. Several flagship schemes are underway.

The government is actively working on policy reforms and fiscal incentives to strengthen urban development. The Union Budget 2023-24 announced the establishment of an Urban Infrastructure Development Fund (UIDF), managed by the National Housing Bank, with an annual allocation of INR 10,000 crore for urban infrastructure development in Tier-2 and Tier-3 cities. This fund aims to support public agencies in these growing urban centers.

Cities are also being incentivized to improve their creditworthiness for municipal bonds through property tax reforms and eliminating user charges. MoHUA provides financial incentives to ULBs for issuing municipal bonds, reflecting a strategic push to diversify urban financing. States and cities are encouraged to undertake urban planning reforms with the aims of efficient land resource utilization, Transit-Oriented Development (TOD), and enhancing the availability and affordability of urban land. The government also aims for 100% mechanical desludging of septic tanks and sewers, alongside enhanced focus on scientific management of dry and wet waste.

CHAPTER 4: BRICS

Compared to other BRICS nations, Indian cities are below in per capita infrastructure investment and service delivery efficiency. Brazil and China have leveraged strong municipal governance and robust PPP frameworks to drive urban transformation, offering lessons for India. Brazil emphasizes inclusive participatory budgeting, allowing citizens to influence public spending. Russia focuses on smart city initiatives to enhance urban living standards. China invests heavily in urban

482 infrastructure, promoting rapid urbanization. South Africa implements
483 integrated development plans to address urban inequalities.

484 A comparative analysis of BRICS nations for Indian scenario:

Country	Urbanization Rate (Latest)	Key Urban Development Focus	Challenges	Key Strategies/ Initiatives	Learnings for India
India	36.6% (2024), 40% by 2030	Economic growth hubs, Smart Cities, affordable housing, sustainable infrastructure	Unplanned growth, infrastructure deficits, financial gaps, governance fragmentation, skills gap	Smart Cities Mission, AMRUT, PMAY-U, UIDF, Municipal Bonds, PPPs	Enhance ULB fiscal autonomy, integrated planning, climate resilience, private capital mobilization.
Brazil	Not specified (focus on climate action in cities)	Green and Resilient Model Cities, climate mitigation & adaptation, multi-level governance	Balancing urban development and sustainability, rising emissions	Green Resilient Model Cities Program (50 cities), AI for climate action, CHAMP (climate federalism), civic participation in planning	Strong emphasis on climate-conscious urban planning, data-driven decision-making, and fostering multi-level governance for climate action.
Russia	Not specified (focus on municipal infrastructure)	Modernizing municipal services, housing, social infrastructure, balanced regional development	Severe municipal infrastructure failures (deteriorated since Soviet era), insufficient private involvement, low/inflexible	National projects (schools, roads, hospitals), 4.5 trillion rouble modernization program by 2030, social guarantees	Proactive federal investment in basic services, but also highlights the risks of underinvestment and the need for private sector engagement and realistic tariff structures.
China	67% (end 2024), 75-80% by 2035	"New Urbanization" (people-centered), urban-rural coordination, green & sustainable development	Real estate risks, local debt, export decline, consumer demand	Reclassifying rural hukou holders as urban, integrated urban-rural development, green building practices, public transport	Focus on human-centric development, balancing urban-rural growth, and leveraging green technologies for sustainable

				investment	urban expansion. Cautionary tale on real estate market risks.
South Africa	Not specified (focus on affordable housing)	Affordable housing in urban areas, urban densification, spatial transformation, economic inclusion	Urban sprawl, informal settlements, lack of basic services, historical spatial exclusion	"Infill" housing projects, research into housing demand/location, aligning housing with ESG guidelines, strengthening local governance	Prioritizing affordable housing within existing urban fabrics (densification) to stimulate local economies and address historical inequalities. Emphasizes evidence-based planning.

The above table provides a comparative analysis on how BRICS nations approach urban development, highlighting diverse strategies and shared challenges. It is valuable for identifying potential policies, framework and approaches for India.

Key Learnings for India

From the comparative analysis of BRICS nations, multiple key points can be noted:

Climate-Conscious Urban Planning (Brazil): Brazil's "Green Resilient Model Cities Program" and its integration of "climate federalism" into its National Determined Contributions (NDCs) shows a strong commitment to climate action at the local level as well as in their administration and policy making. India can adopt Brazil's priorities on technical support for mitigation and adaptation projects, leveraging AI for data-driven climate action, and developing multi-level governance for climate resilience. This approach aligns with India's own focus and mission on climate-conscious strategies in urban infrastructure.

People-Centeric Urbanization and Urban-Rural Integration (China): China's "new urbanization" model, shifts from a land and investment-driven approach to a people-centric one. With this China is focused on quality of life, public services, and industrial upgrading, offering valuable lessons. Its emphasis on urban-rural coordination and balanced regional

development provides a blueprint for addressing and solving regional social inequalities in India. Their ESG approach resonates and aligns with India's need to ensure that urban growth benefits all segments of society and reduces disparities.

Addressing Infrastructure Deterioration and Private Sector Involvement (Russia): Russia's major failures in municipal infrastructure, especially in heating and utilities, highlight the consequences of prolonged lack of investment and lack of involvement from private players. Russia has announced a massive modernization program. Still the roadblocks of low and inflexible municipal tariffs and limited private concessions exists. This offer a cautionary story for India. India must learn from Russia's failures and ensure that its PPP frameworks are robust, inclusive, transparent, tariffs are viable, and private capital is seriously incentive to participate in long-term urban infrastructure projects.

Strategic Urban Densification and Affordable Housing (South Africa): South Africa has strategically addressed the problems of affordable housing, social equality and economic inclusion with a focus on urban densification through "infill" projects. This eliminates sprawling, revives existing urban areas and creates local economic opportunities. India should make notes and implement this framework and approach, as India faces the issues of unplanned sprawl and informal settlements. Guidelines can be prepared for ESG and budgeting for the same to solve affordable housing demands.

The BRICS comparative analysis underscores the need for integrated, long-term urban planning that focuses on economic and social needs as well. Priorities on sustainability, effectively mobilizing diverse financing sources, including robust private sector participation and innovative municipal finance mechanisms should be met and implemented.

CHAPTER 5: RELEVANT GOVERNMENT POLICIES IN INDIA

The NDA Government led by the visionary Prime Minister Shree Narendra Modi ji is working on multiple schemes and plans to solve issues on urbanization and sustainability. These programs emphasize

citizen participation, technology adoption, and innovative financing mechanisms.

Smart Cities Mission (SCM): This mission was launched in 2015 with an aim to develop 100 cities into citizen-friendly and sustainable urban centers through multi-sectoral projects. As of January 2024, 7,352 out of 8,066 tendered projects (91%) worth INR 1,47,366 crore have been completed. Integrated Command and Control Centers (ICCCs) in all 100 Smart Cities are a notable achievement of this mission. They have enhanced urban management across diverse fields like crime tracking, transport and waste management. This mission was allocated a budget of INR 14,100 crore and a further INR 16,000 crore in the 2023 Union Budget.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT): This mission is planned to focus on improving basic urban infrastructure, including water supply, sewerage, stormwater drainage, urban transport, and green spaces. AMRUT's budget allocation for 2023-24 was INR 8,000 crore.

Pradhan Mantri Awas Yojana – Urban (PMAY-U): This mission was planned with the focus on providing affordable housing. As of 2022, PMAY-U approved 1.08 crore houses and only 60% of the target was met. The 2023-24 budget allocation for PMAY-U saw a significant cut of 12.6% to INR 25,103 crore, because of a surge in expenditure in 2021-22.

Swachh Bharat Mission – Urban (SBM-U): This mission focuses on enhancing and solving sanitation and solid waste management. Under SBM-Urban 2.0, urban waste collection increased by 97% from 2014-15 to 2024-25, and waste processing rose from 18% to 78% in the same period. The budget allocation for SBM (Urban) saw a substantial 150% increase to INR 5,000 crore in 2023-24.

Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM): This mission was launched to reduce poverty by providing skill development and self-employment opportunities for urban poor households. Its budget allocation for 2023-24 was a token amount of INR 1 lakh, a drastic reduction from previous years.

Impact and implementation challenges:

While government initiatives demonstrate a strong commitment to urban transformation, implementation challenges remain as roadblocks. The Ministry of Housing and Urban Affairs has consistently faced issues with underutilization of allocated funds, a concern highlighted by the Standing Committee on Urban Development in 2021. This consistent underutilization can hamper the progress of key schemes and affect future fund allocations. Eg, the significant cut in PMAY-U allocation for 2023-24, despite a surge in previous years, indicates adjustments based on utilization patterns.

The challenges grow with the capacity of ULBs and their inability to collect the desired revenues. This is a major reason for poor urban infrastructure. The dependency on ULBs on central and state transfers and weak fiscal autonomy limits their ability to independently fund and operate projects. This issue underscores the requirement for ULBs empowerment in terms of governance and financing to enable priority projects and generate their own revenues efficiently. The Prime Minister Narendra Modi's 2024 Independence Day address called upon city government authorities to implement at least two reforms annually, signaling a constant focus on improving urban governance at the local level.

Here is an observational analysis of the government schemes in the below table:

Scheme	Aim and Objectives	Achievements & Outcomes	Challenges	Overall Success
Smart Cities Mission	Make 100 Indian cities more livable, technology-driven, and citizen-friendly	<ul style="list-style-type: none">- Over 8,000 projects worth ₹1.6 lakh crore launched- 7,160 projects completed, rest nearing completion- Improved urban services, digital solutions, and community engagement in 100 cities	<ul style="list-style-type: none">- Some delays in project execution- Variation in progress across cities	Most cities have seen visible improvements in infrastructure, cleanliness, and digital services. People in these cities generally report better quality of life ⁶ .
Atal Mission for Rejuvenation and Urban	Improve basic urban services (water, sewerage, green	<ul style="list-style-type: none">- 1.1 crore tap connections, 85 lakh sewer connections	<ul style="list-style-type: none">- Project delays due to land, finance, and	Many cities now have better water and

Transformation (AMRUT)	spaces) in 500 cities	<p>provided</p> <ul style="list-style-type: none"> - 1,820 parks developed; 1,700 flooding points fixed - AMRUT 2.0 aims for universal water supply in 4,378 towns - Improved health and quality of life 	<p>local capacity issues</p> <ul style="list-style-type: none"> - Sustainability and coordination challenges 	<p>sewerage services, but some projects are slow. Overall, life has improved for many urban residents³⁴⁵.</p>
Pradhan Mantri Awas Yojana – Urban (PMAY-U)	“Housing for All” – Provide affordable pucca houses to urban poor	<ul style="list-style-type: none"> - Millions of houses sanctioned and built for urban poor - Families now have permanent homes with basic facilities - Major improvement in living standards for beneficiaries 	<ul style="list-style-type: none"> - Delays in some states - Land and funding issues in some cities 	<p>Many poor families now own safe houses, reducing slums and improving dignity. Still, some waiting for houses due to delays.</p>
Swachh Bharat Mission – Urban	Make cities clean and open defecation free	<ul style="list-style-type: none"> - Most cities declared open defecation free - Large-scale toilet construction - Better waste management in many cities 	<ul style="list-style-type: none"> - Waste segregation and processing still a challenge - Behavioural change takes time 	<p>Cities look cleaner, more toilets are available, but garbage management still needs improvement in some places. People’s habits are slowly changing.</p>
Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM)	Reduce urban poverty by promoting self-employment and skill development	<ul style="list-style-type: none"> - Lakhs of urban poor trained in skills - Many have started small businesses or 	<ul style="list-style-type: none"> - Reaching the most vulnerable is still tough - Quality of 	<p>Many urban poor now have better job skills and income opportunities, but more needs</p>

		got jobs - Women's self-help groups strengthened	training varies	to be done to reach everyone and ensure good jobs.
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596 **Best Practices from Indian States and Cities:**

597 Examining specific urban development initiatives and their outcomes in
598 Indian states and cities provides practical insights into effective
599 strategies and persistent challenges. Gujarat and Chennai offer distinct
600 examples of urban growth and transformation.

601 **Gujarat:**

602 The western state of India, Gujarat ranks first in urban PPP projects, with
603 successful implementation in areas like urban transport and waste
604 management.

605 **Key statistics:**

- 606 ● Gujarat stands out as one of India's most industrialized states
607 boasting the highest industrial output. It accounted for 33% of all
608 India's exports in 2022-23.
- 609 ● It's Gross State Domestic Product (GSDP) reached INR 25.68 lakh
610 crore in FY 2023-24 and thus making it the third largest state
611 economy in India.
- 612 ● This strong economic base, coupled with a high rate of urbanization
613 (42.6% urban population in 2011, with significant urban growth in
614 the last decade), attracts substantial migration, contributing to its
615 urban dynamism.

616 Gujarat State Government has been proactive in its approach towards
617 urban development. In 2025, under the Swarnim Jayanti Mukhyamantri
618 Shaheri Vikas Yojna (SJMMSVY) they allocated a budget of 2,204 crore
619 INR and declared it as "Urban Development Year". This initiative aims to
620 enhance urban infrastructure with major focus on roads, drainage
621 systems, street lighting, sanitation, anganwadi centers, schools, libraries,
622 etc. Another budget of INR 585.83 crore was approved for urban
623 mobility, beautification, water supply and rainwater drainage. With this
624 they also plan to introduce CNG-run public transport buses.

625 Key initiatives and their outcomes include:

626 Smart City Features: Cities like Vadodara utilize Integrated Command
627 and Control Centers (ICCCs) for e-governance and resource management.
628 Vadodara has over 400 strategically installed cameras aiding urban issue
629 monitoring. Surat has pioneered the use of treated wastewater,
630 generating INR 140 crore in FY 2022-23.

631 Sustainable Urban Development: Implementation of central government
632 schemes like "Har Ghar Jal" (tap water supply), Swachh Bharat Mission
633 (SBM), PMAY Urban, AMRUT, and Smart Cities Mission are driving
634 sustainable practices. There is a strong focus on solar power, treated
635 wastewater reuse, zero untreated waste disposal, and river/lake revival
636 projects. In November 2024 a Waste-to-Energy plant was launched in
637 Piplaj, Ahmedabad.

638 Citizen Engagement and Grievance Redressal: Gujarat government has
639 established a dedicated 24x7 Citizen Complaint and Grievance Redressal
640 Call Center, handling over 1,500 calls daily. It is supported by a
641 customized complaint management system and mobile app. Over 4.5
642 million complaints have been registered since its launch promoting
643 transparency, accountability and citizen trust.

644 Affordable Housing and Slum Redevelopment: Gujarat is the first state to
645 implement PPPs for in-situ slum redevelopment under PMAY (Urban).
646 Their approach is to promote integrated solutions rather than
647 displacement.

648 Despite its brilliant case study, challenges of delineation, limited capacity,
649 limited resources for local authorities and disproportionate
650 infrastructure demands act as roadblocks and need solutions. Gujarat's
651 integrated approach, strong budget allocation and focus on sustainable
652 and citizen-centric initiatives are a masterclass for other states.

653 Chennai:

654 Tamil Nadu's capital is notable for its IT corridor and outer ring road
655 projects developed under PPP models. They demonstrate effective
656 collaboration between public and private sectors. Chennai Smart City
657 Limited focuses on smart energy, environment, mobility and technology
658 to enhance urban living.

- Chennai contributes 2.81% to India's national GDP. The city is actively engaged in strategic urban planning to shape its future as a global city.
- Its 3rd Master Plan expected by December 2025. This plan is evidence-based, incorporating 26 studies covering sustainable economic growth, spatial distribution of income and employment, land value, flood mapping, climate action, and blue-green infrastructure requirements.

Key initiatives and challenges in Chennai include:

Climate Action and Resilience: Chennai launched its first Climate Action Plan (CAP) in 2023 thereby becoming the second Indian city to have a Paris Agreement-aligned CAP. C40 Cities back this plan to focus on strengthening city financial capacity and developing bankable projects for climate adaptation. The Tamil Nadu Sustainable Urban Development Project, supported by the World Bank, has significantly improved urban service delivery for 2.8 million people across 30 urban areas. This included the construction of a first-of-its-kind wastewater treatment plant, 500 km of new stormwater drainage systems, and over 1,000 km of water supply pipelines.

Housing Shortage: Chennai faces a major housing shortage. It produces only 22,000-23,000 dwelling units annually. This is far below compared to cities like Hyderabad (80,000 units) and Mumbai (1.25 lakh units). To meet the growing demand, solutions include unlocking land potential, utilizing the Floor Space Index (FSI) tool, and providing processed land at cheaper rates to encourage affordable housing development. New growth centers in the city's outskirts are planned to ease the pressure on the core and divert urban sprawl.

Social Equity and Climate Vulnerability: Despite urban development efforts, vulnerable communities in Chennai continue to face significant challenges. Residents displaced from informal settlements struggle with a lack of basic amenities, long commutes, and neglect in urban planning. The city's vulnerability to climate hazards was starkly demonstrated during Cyclone Michaung in December 2023, which inundated parts of the city, including resettlement areas like Perumbakkam, for extended periods. Areas like Vyasarpadi and Ennore, despite protests, continue to face environmental burdens from industrialization and recurrent flooding.

Replicable Models and Unique Challenges:

Both Gujarat and Chennai offer valuable insights as a case study for other states and cities.

Reasons for Gujarat's success are its strong industrial backbone, proactive government funding, and integrated approach to smart city development and citizen services. Other states should adopt its pioneering use of PPPs for in-situ slum redevelopment and revenue generation from treated wastewater as they are highly replicable models.

Chennai's commitment to a Paris Agreement-aligned Climate Action Plan and its evidence-based master planning process are commendable and other cities can follow the same. Chennai's experience highlights the persistent roadblocks of ensuring social equity and climate resilience, particularly for vulnerable citizens. Overlooking displaced communities and the ongoing struggle with flooding and pollution in certain areas underscore the need for urban development to be truly inclusive and resilient along with economic focus.

This emphasizes that while economic growth is crucial, it must be balanced with robust social and environmental designs to create truly livable and sustainable urban environments.

CHAPTER 6: SUSTAINABLE URBANIZATION

Sustainable urbanization needs to be designed considering the environmental support, resilient infrastructure and inclusivity. Cities must plan and implement green building standards, promote public transportation and enhance water and waste management systems for a long-term viability.

Green initiatives and climate resilience are a must for emphasizing sustainable infrastructure. Urban forestry, renewable energy adoption and sustainable waste management are crucial in planning and execution. Infrastructure must be designed to support environment and climate challenges for a long-term sustainability. The recently inaugurated Atal Bihari Vajpayee Sewri-Nhava Sheva Setu that cuts travel time from Mumbai to Navi Mumbai to 20 minutes (from 2 hours earlier) was built sustainably to ensure that there is minimum environmental impact. The development of the project was carried out while preserving important natural areas like mangroves and mudflats that are crucial for migratory birds. It is called 'responsible engineering'.

Similarly, green building is also a good example of bringing sustainability elements into regular development projects. Extending this a bit more, we also see environment sustainability becoming a part of large housing projects like Pradhan Mantri Awas Yojana, which is consciously incentivizing green housing development, with sub-components like energy efficiency, etc.

The Covid-19 lockdown in 2020 led to a mass migration of labour force back to rural. Odisha, one of the lagging state also witnessed this and a need for livelihood arises. Odisha State Government launched Urban Wage Employment Initiative. To this end, the state of Odisha planned a series of small but much-needed public works improvements and created a salary pool from resources drawn from ongoing national and state welfare schemes. In addition to mitigating the economic stress due to the pandemic of the impoverished urban labour force, the state government adopted the initiative as a long-term measure for poverty alleviation and implementation of labour-intensive public works designed to improve the quality of life and economic activity of the city region.

Leveraging innovative financing instruments like municipal bonds and green bonds is necessary for the positive results of sustainable urbanization. The potential for municipal green bonds is estimated at

USD 2.5 - 6.9 billion over the next 5 - 10 years. To realize this, the RISE framework should be widely adopted:

Reform: ULBs must upgrade financial and accounting systems and diversify their own-revenue sources to strengthen creditworthiness.

Identify: Cities need to map their infrastructure needs and accurately assess their borrowing potential for bankable projects.

Strengthen: Internal capabilities in financial management and sustainability-linked planning must be built within ULBs. Government incentives, such as those provided under AMRUT 2.0 for municipal bond issuance, should be continued and expanded, potentially with tax benefits and interest subsidies for green bonds.

Engage: Proactive collaboration with regulators, DFIs, investors, and credit agencies is necessary to navigate regulatory requirements and boost investor confidence. The Urban Infrastructure Development Fund (UIDF) for Tier-2 and Tier-3 cities is a positive step that needs sustained allocation and effective utilization.

Urban development must prioritize social equity and climate resilience to ensure long-term sustainability. To address both, social equality and climate resilience, challenging issues of informal settlements needs to be provided planned, affordable housing solutions and basic services, rather than planning displacement. Policies should encourage "infill" development within existing urban areas to reduce sprawl and maximize existing infrastructure, as seen in South Africa. Establishing green infrastructure funds in partnership with banks and private equity investors can provide low-interest loans for sustainable construction projects.

Technology is a key enabler for smarter, effective and more efficient urban management. The expansion of mass transit systems, including metro rail and Bus Rapid Transit (BRT), along with the promotion of non-motorized transport infrastructure like cycling lanes, can significantly reduce traffic congestion and carbon footprints. Implementing Mobility-as-a-Service (MaaS) platforms can offer seamless, interconnected transportation options. Digital Public Infrastructure (DPI) should be leveraged to modernize urban service delivery, utilizing digital tools for planning, execution, and monitoring. Data analytics and automation can

improve operational efficiency and citizen experience. The success of Integrated Command and Control Centers (ICCCs) in Smart Cities for crime tracking, public safety, and resource management demonstrates the potential of technology in urban governance.

Integrating climate adaptation measures into urban planning and infrastructure investments is of prime importance. This includes promoting green infrastructure such as permeable pavements and urban wetlands for storm water management and aquifer replenishment, as seen in global best practices. Policies should also incentivize low-carbon construction, passive design, and the use of eco-friendly materials like steel slag and recycled plastic waste. Addressing air pollution and improving waste management through increased and dedicated allocations are also critical for restoring urban environmental health.

Investing in educational institutes and vocational training centers within urban growth hubs is essential to build a skilled and relevant workforce that can meet the demands of evolving job roles. This would uplift the quality of life for urban residents.

UNDER PEER REVIEW

CONCLUSION

Indian cities are at the forefront of its economic development as the urban landscape is going through a transformation. This marks significant demographic shifts and growing economic footprint. Understanding these dynamics is crucial for strategic planning in urbanization and real estate sector as well.

Tackling the challenges of unplanned growth, infrastructure deficits, and financial constraints requires a dynamic approach. By adopting global best practices, strengthening institutions, and enhancing sustainable development, Indian cities can become resilient, inclusive, and engines of economic prosperity.

To effectively drive India's economic future through its urban growth hubs, a detailed layered strategic approach is a crucial need. This involves strengthening governance, mobilizing diverse finance, designing inclusivity and resilience, and leveraging technology.

The way we plan our cities needs to change. Many of the current rules and planning methods are outdated. They don't reflect how cities actually grow today. We need a more balanced layout—with enough housing, commercial areas, public spaces, and transport links. This isn't about copying the West, but about adapting sensible ideas to our local context. A national-level body that can track urban growth and help coordinate across cities. This might help avoid the current overlaps and confusion between departments. The establishment of a National Urban Development Authority (NUDA) could help monitor urban development at the national level and strengthen the role of ULBs in planning and management.

Strengthening Urban Local Bodies (ULBs) is fundamental to improving urban infrastructure and service delivery. ULBs currently suffer from poor capacity and an inability to collect adequate revenues, often relying heavily on central and state budget allocation and approvals. To address this, ULBs must be empowered with greater fiscal autonomy, enabling them to levy and collect taxes more effectively, and to manage their finances with increased independence. This includes implementing property tax reforms, rationalizing user charges, and improving collection mechanisms through digital tools and GIS mapping.

Integrated urban planning needs reworking on outdated regulations for accommodating dynamic urban needs. This involves adopting smart growth principles that promote a balanced mix of residential, commercial, and green spaces, and utilizing modern technologies like GIS for efficient urban management. Enhancing coordination between different government agencies and levels - central, state, and local is crucial to overcome the political and administrative fragmentation that often delays project implementation.

The way forward for the real estate sector is clear. It must move beyond traditional development models to embrace a more holistic, sustainable, and inclusive approach. This involves strategic investments in integrated infrastructure, affordable housing, green building technologies, and active participation in PPPs that are structured for long-term viability and social impact. By strategically developing robust urban governance, innovative financing, and technologically-driven solutions, the real estate sector can play a transformative role in shaping India's urban future, ensuring that its cities are not just economic powerhouses but also livable, resilient, and equitable spaces for all.

Real estate sector also has to evolve. It can't just be about high-rises or gated communities anymore. The focus has to shift to practical housing for working families, greener construction, and projects that actually serve the people who live there. Developers, investors, and the government all need to work together, but with clear rules and long-term thinking. PPPs can work, but only if risks are shared fairly and projects are made viable through proper planning and funding support.

Bridging the significant urban infrastructure funding gap requires a concerted effort to attract both public and private investment. While government capital expenditure has surged, private capital remains largely untapped due to long duration process and perceived risks. To mobilize private finance, risk-sharing mechanisms in PPPs (Public-Private Partnerships) must be made more attractive and sustainable. This includes streamlining regulatory processes, establishing effective dispute resolution mechanisms, and offering viability gap funding where necessary.

To sum up, the path forward for urban India isn't just about big ideas or imported models. It's about fixing what's broken, strengthening what works, and keeping people at the centre of planning. Our cities can lead

India's next growth phase. They just need to be better run, better connected, and better prepared for the future.

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APPENDIX

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