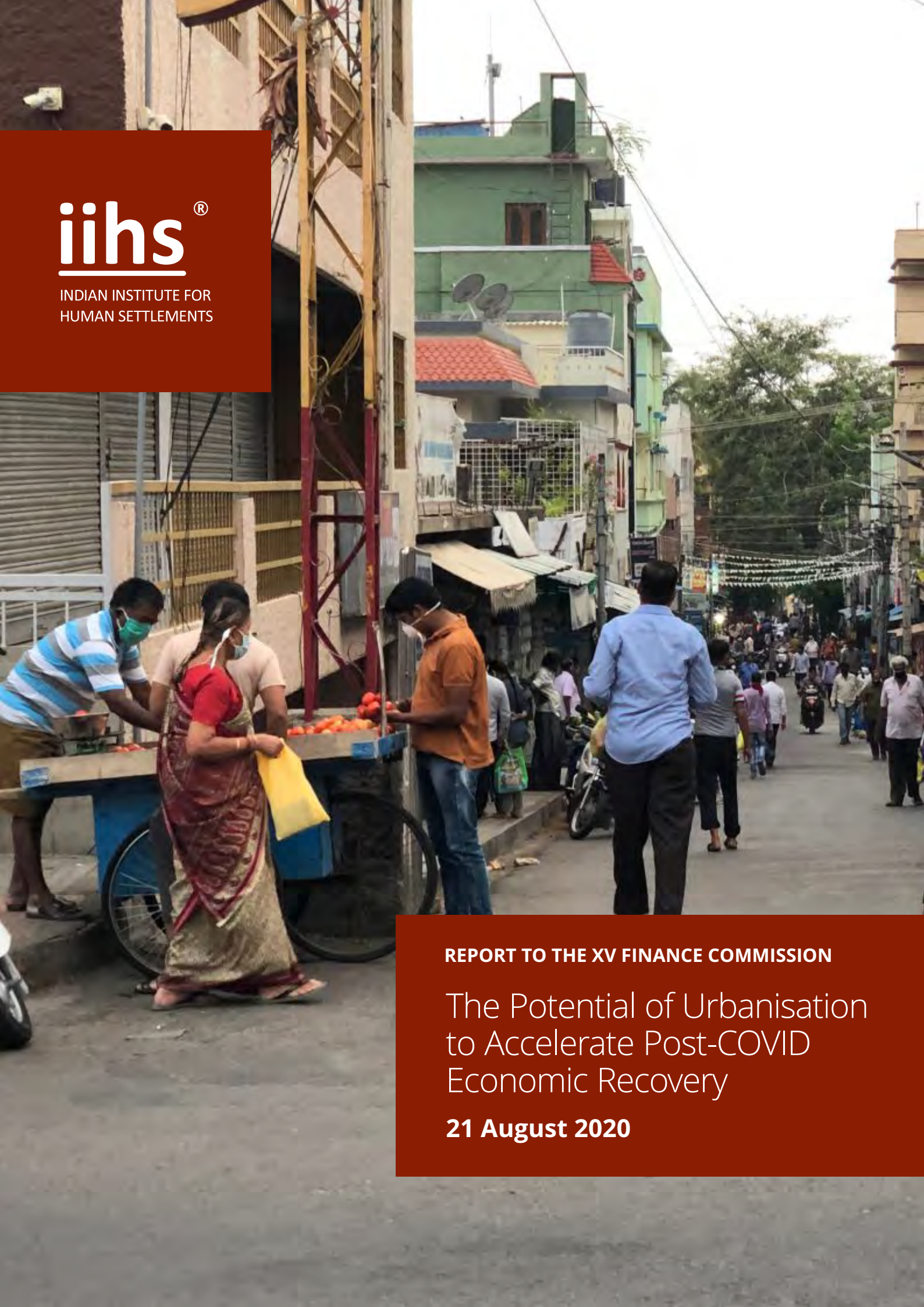

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INDIAN INSTITUTE FOR
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REPORT TO THE XV FINANCE COMMISSION

The Potential of Urbanisation to Accelerate Post-COVID Economic Recovery

21 August 2020

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Report to the XV Finance Commission

The Potential of Urbanisation to Accelerate Post-COVID Economic Recovery

21 August 2020

AUTHORS
Aromar Revi, Mainak Ray, Neha Sami, Shriya Anand, Sudeshna Mitra, Teja Malladi

ANALYTICAL SUPPORT
Pushkara S V, Pooja Rao, Dhananjayan M, Lokesh B S

EDITORIAL & PRODUCTION
Rekha Raghunathan, Kaavya Pradeep Kumar, Shruti Chandrashekar

DESIGN & LAYOUT
Vikrant M S

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List of Abbreviations

AIF	Alternative Investment Fund
AIIB	Asian Infrastructure Investment Bank
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
CAG	Comptroller and Auditor General
CIDCO	City and Industrial Development Corporation (of Maharashtra)
DMP	Disaster Management Plan
EMC	Electronics Manufacturing Cluster
FC	Finance Commission
GDP	Gross Domestic Product
GST	Goods and Services Tax
HFC	Housing Finance Company
HPEC	High Powered Expert Committee
HRIDAY	Heritage City Development and Augmentation Yojana
IBRD	International Bank for Reconstruction and Development (World Bank Group)
ICT	Information and Communications Technology
IL&FS	Infrastructure Leasing and Financial Services Limited
ITES	Information Technology Enabled Services
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JNPT	Jawaharlal Nehru Port Terminal
JUA	Jamshedpur Urban Agglomeration
JUSCO	Jamshedpur Utilities and Services Company Limited
LCL	Lavasa Corporation Limited
MIDC	Maharashtra Industrial Development Corporation
MFI	Micro-Finance Institutions
MMRDA	Mumbai Metropolitan Region Development Authority
MSME	Micro, Small and Medium Enterprises
NBFC	Non-Banking Financial Company
NMMC	Navi Mumbai Municipal Corporation
NPA	Non-Performing Asset
NULM	National Urban Livelihoods Mission
PFC	Power Finance Corporation
PLFS	Periodic Labour Force Surveys
PMAY	Pradhan Mantri Aawas Yojana
REC	Rural Electrification Corporation
RERA	Real Estate (Regulation and Development) Act, 2016
SBM	Swachh Bharat Mission
SDG	Sustainable Development Goals
SEZ	Special Economic Zone
SPV	Special Purpose Vehicle
TISCO	Tata Iron and Steel Company
ULB	Urban Local Body

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Executive Summary

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Executive Summary & Recommendations

Introduction

This report has been put together at the request of the XV Finance Commission to address two questions in the wake of the COVID-19 pandemic. First, the potential of new greenfield towns and cities to assist in economic recovery. Second, defining a package of strategic measures and priorities at national, state and regional levels to enable the process of urbanisation to accelerate post-COVID economic recovery, including a broad-brush financial envelope for these investments over the 2021-31 period.

Strategic Choices

This report's recommendations hinge on the following strategic choices that prioritise prudent investments that address inequality between and within states and strengthen regional linkages.

1. Significant investment in creating New Towns is not prudent in the current economic and resource environment, due to their long gestation, medium-term impact and resource intensity.
2. Appropriate spatial and sectoral investments and incentives are needed to address divergence and inequality between states, and within each state, between smaller and Class I towns (between 0.1 million and 1 million population) and million+ cities to enable spatial balance, urban-rural linkages & regional convergence.
3. India's strategic rail, road and port infrastructure and economic corridors largely link existing million+ cities. Further strengthening these intra-state and inter-regional linkages with ~ 400 other Class I towns and rural areas, can enable balanced economic development and more rapid post-COVID economic recovery.

Goals and Strategic Priorities

The strategic choices listed above need to be supplemented with goals that specifically target post-COVID urban economic recovery:

1. **Enable immediate post-COVID economic recovery** by establishing safety nets for food, tenure/housing, decent work and basic services, and enabling economic recovery and resilience while addressing migration and informality.
2. **Improve conditions for (2021) urban population** of approximately 450 million in about 8,000 urban places.
3. **Address needs of incremental (2021-31) urban population** of approximately 150 million in about 12,000+ urban places.
4. **Enable economic activities** that create opportunities for decent productive work.
5. **Strengthen urban-rural linkages** between urban areas, outgrowths and adjoining villages.

These can be achieved by focusing on three strategic priorities: (i) accelerating recovery and growth in locations and sectors that have the most potential; (ii) mitigating risks and vulnerabilities in the least developed and most exposed states and districts; and (iii) addressing bottlenecks in resource mobilisation, institutional capacity and implementation.

This will record a diversification of devolution strategy initiated by the XV Finance Commission, from a solely population and state area basis, to one that recognises the importance of urbanisation, regions and place in the process of economic and sustainable development, and explicit measures to

address regional inequality, potential and risks between and with states (Revi, A., Bazaz, A. 2019). **Hence, to match with the distribution of India's population the proportion of grants between rural and urban local bodies should shift from 67.5:32.5 in (2020-21) to 65:35 in (2024-25), or an annual transition of 0.5 percent of divisible pool for local bodies.**

Sectoral and Locational Priorities and Interventions

1. **Sectoral priorities** supported by **central and state schemes should converge** to enable economic recovery and development across Micro, Small and Medium Enterprises (MSME) in manufacturing, trade and tourism; construction; clean energy; and carbon-neutral mobility. **Climate and disaster resilient infrastructure** across environmental services such as water, sanitation and solid waste; energy services including solar, gas and efficiency, e-mobility and logistics, and ICT, should also be enabled.

2. **Multiple reforms are necessary in land systems and affordable housing.** These include a focus on land and property tax systems reform, planning for integrated land use, mobility and infrastructure, and economic development. Housing needs should be tackled with a multi-pronged approach of enabling upgradation and rental housing and making affordable new construction.

3. **Improved governance and finance policies** improve urban economic and fiscal data and digital management and are essential to strengthen the fiscal base and ability of Urban Local Bodies (ULB) to access and deploy finances. They also strengthen their institutional capacity via state municipal cadres as well as their governance frame and devolution.

4. **State-led strategic interventions** crowd-in other resources leveraging and redirecting existing central schemes and programmes. They also: (i) strengthen the capacity of ULBs and state governments to mobilise, implement and regulate; (ii) build enterprise capacity to implement and finance; (iii) build disaster resilience and mitigate climate risk; and (iv) implement regional development strategies.

5. In addition to central and state interventions, **balanced regional priorities across states** such as investments in and around existing urban centres and linked settlement systems, and economic corridors along the top five mega-urban regions, emerging urban clusters, economic corridors, and less developed states and risk-prone regions, is necessary, in addition to investments in creating new towns and cities.

Table ES1: Indicative Urban Upgradation and Expansion Investment Estimates (2021-31)

Indicative Urban Upgradation & Expansion estimates (in INR Lakh Crores 2020 prices)									
Population Class I Cities & Towns (million)	**Estimated Population (million)**			**Estimated Investment (2021-2031)**					
	2011	**2021**	**2031**	**Upgradation (2021)**	**Expansion (2021-31)**	**Upgradation (2021-31)**	**Total (2021-31)**	**% share**	**Land Develop-ment**
>10	**74**	**88**	**100**	**2.9**	**1.0**	**3.4**	**7.3**	**31%**	**5**
4-10	**22**	**28**	**34**	**0.9**	**0.5**	**1.1**	**2.5**	**11%**	**2**
2-4	**42**	**52**	**62**	**1.4**	**0.6**	**1.6**	**3.6**	**16%**	**2**
1-2	**40**	**47**	**54**	**1.3**	**0.5**	**1.5**	**3.3**	**14%**	**3**
0.1-1	**89**	**102**	**111**	**2.6**	**0.9**	**3.0**	**6.5**	**28%**	**nd**
Grand Total	**267**	**317**	**361**	**9.1**	**3.5**	**10.6**	**23.2**	**100%**	**12**
% share				**39%**	**15%**	**46%**	**100%**		

Source: IIHS analysis, 2020 based on Urban population projections (Malladi et al., 2017), HPEC (2011) infrastructure capital expenditure estimates (2010-31), Sivaramakrishnan Committee report (2014).
Nd: no data

India needs an estimated 1.1% of current (2020) annualised GDP investment of approximately Rs. 2.3 lakh crores in about 475 Class I Cities over (2021-31) to upgrade current urban areas with around 315 million residents, enable planned expansion to cater to around 50 million more, and further upgrade infrastructure and urban services by 2031 to meet HPEC (2011) norms. There is the serious conundrum of financing the approximately Rs.1 lakh crore for land development potentially from state governments.

Targeting and Phasing Post-COVID Urban Recovery

Resource constraints and limited current fiscal space imply the need to target and phase post-COVID urban recovery, over the next decade (2021-31) in the following manner:

Phase One: Focus on 100-largest cities (2021-2024)

- **Phase 1A:** starting with a focus on the 100-largest cities in India. This focus will cover all mega-urban regions, emerging urban clusters and cities in most of the less developed states and underdeveloped regions. This is essential to prioritise, right at the onset, creating a balance across states by building on existing central and state schemes, utilising available institutional capacities, incentivising livelihood-enhancing and green investments, and attempting to crowd in private investment at the appropriate time.

- **Phase 1B:** to maintain regional balance, invest in critical regional connectivity and disaster and climate resilient infrastructure, prioritised by mega-urban regions, emerging urban clusters and underdeveloped regions. Part of the post-COVID economic recovery package can be

channelled for this, and this public investment-led initiative could create appropriate conditions for PPP opportunities and private investments.

Phase Two: Expand to all ~ 500 Class I towns (2024-2029)

Expanding the investment phase to all Class I Towns that are currently beneficiaries of the AMRUT scheme. This should follow a strong push for state-level urban and land system reforms initiated in Phase One, to promote security of tenure and affordable housing, improved regional and intra-state connectivity and building institutional capacity though a state-level municipal cadre. This could be a secondary focus of the XV Finance Commission.

Phase Three: Expand to cover all ~ 10,000+ Urban Centres by 2031
This phase should ultimately strengthen ULBs via fiscal federalism, by expanding their fiscal base, governance mandate and capacity to address all urban areas. This could enable coverage of an incremental 150 million people through regionally-defined processes of expansion, nucleation, decongestion and densification (as outlined in Chapter 2). This may be part of the XVI Finance Commission mandate.

Priorities and Institutional Arrangements

The XV Finance Commission's contribution towards accelerating post-COVID economic recovery may be limited due to mandate and fiscal envelope constraints. Nevertheless, a set of concrete steps could be taken, within the current framework:

- Policy convergence of Finance Commission transfers with the Govt. of India's economic stimulus package and commitment to the sustainable development of urban areas, is a no-cost high-impact contribution.
- Strengthening land and property tax systems reform and tenure security under a Governance, Finance and Outcome Monitoring Improvement grant to ~500 Class I towns and cities across all States. This would be distributed on a population (90%) and expenditure performance (10%) basis and converge strongly with the Govt. of India's Housing for All programme expenditure and outcomes.
- Strengthening Municipal governance and capacity and information systems under a Governance, Finance and Outcome Monitoring Improvement grant to improve urban economic and fiscal data and digital management in ~500 Class I towns and cities across all States.
- Incentivising the building of all infrastructure in at least the 100-largest urban areas to disaster and climate resilient standards, under FC grants, as per NDMA guidelines, would be a significant step forward and in keeping with the FCs disaster management priorities and mandate.

Dedicated Urban Governance and Financial Resilience Fund

To accelerate and incentive these processes, the Finance Commission could create a dedicated Urban Governance, Financial Resilience and Outcome Monitoring Improvement grant fund to 500 Class I towns and cities across all States, at ~5 per cent share of the total Finance Commission grant to Urban Local Bodies. This would help strengthen local government capacities in line with the 74th Constitutional Amendment and attempt to address key bottlenecks around land systems and ULB financing.

This grant fund could be provided oversight by a national committee with representatives of the Ministries of Housing and Urban Affairs, Finance, NITI Aayog, State governments and leading urban experts. Within this, three strategic outcomes could be targeted:

- A Rs. 3,000 crore **Urban Land and Property systems Reform grant fund** to enable: (a) the reform of revenue, peri-urban and urban land systems to enable access of land to enable tenure security, upgradation in-situ, affordable housing and disaster and climate resilient infrastructure development; (b) the implementation and strengthening of digital property taxation, registration and land records systems and land value capture, to enable greater buoyancy of ULB finances around their single most important source of revenue. This could be distributed on a population (90%) and expenditure performance (10%) basis and implemented by the 100-largest ULBs by population size and the State governments for other urban centres

- A Rs. 2,000 crore **Municipal Cadre development grant fund**, to enable: (a) the strengthening of Municipal cadres in the states where they exist; (b) help create them over 2021-25 in States that have levels of urbanisation over 33 per cent, and (c) prepare other states that have lower than the national average levels of urbanisation to assess the feasibility and necessary steps to create such a cadre, including a pooled cadre in some regions. This could be drawn from the Urban Governance, Financial Resilience grant fund and allocated on a population basis by State governments and targeted at the 500 Class I towns (greater than 0.1 million) to enable focussed use of these resources.

- A dedicated Rs. 1,000 crore **Economic and Financial Data systems improvement grant fund** to enable: the establishment of institutional capacities in the 100-largest cities and at the State level to track, monitor and report on economic activity, public investment, expenditure and outcomes, and the monitoring of large-scale urban and regional infrastructure investments. This could be executed by an appropriate set of third-party institutions including universities, thinktanks, research institutions and urban observatories with a track record in addressing questions of urbanisation.

CHAPTER 1

India’s Urban Context

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India's Urban Growth Trends: (1951-2051)

India has gone from close to one-fifth urban in 1971 to two-third urban in 2011 and is expected to reach 50% urbanisation by 2051 (Revi et al., 2015). India will also become the largest national population in the world in the mid-2020s, overtaking China with a population of over 1.45 billion people (United Nations et al., 2019). This implies that India's urbanisation will be the largest urbanisation in human history, overtaking that of China's from the late 1980s to the 2020s. India is expected to have a rural population of over 750 million people in the 2050s, unless there is a catastrophic collapse of agrarian systems, due to climate change or economic shock.

India, therefore, is in a unique position of plotting a very different development path, than other high and high-middle income countries over the 19th and 20th centuries, by having both a large rural and urban population (Revi et al., 2015). It will also have a heterodox economic structure that is led by the service sector, along with a significant secondary and manufacturing sector to address both domestic consumption demand and robust exports in some sectors. Moreover, India will have a potentially resilient rural and agrarian sector with much improved per capita productivity, and hence quality of life, to address the food security and ecosystem services needs of over 1.5 billion people. Achieving these outcomes, will need a deep and long-term strategic view of India's urbanisation trends to address the need to balance regional priorities across the rural-urban spectrum. This outlook would also enable the development of a balanced hierarchy of places that embraces the potential resilience and sustainability of rural India, along with the vigour, productivity and dynamism of urban India, as outlined in the following sections. (Revi et al., 2019; Jain et al., 2018).

Growth of Million+ Cities (1951-2001)

India had a relatively stable economic geography and settlement structure for over two centuries before Independence, linked to a precolonial urban structure and a largely agrarian and trade-dominated economic structure. **At Independence, only five cities had a population of over 1 million**: the three Presidency port and mercantile towns of Bombay, Calcutta and Madras, the national capital of Delhi, and Hyderabad. **This grew slowly to nine cities** including Pune, Bangalore and Lucknow by 1971, and Kanpur, Nagpur and Jaipur by 1981. **A major growth spurt in the 1980s added 17 new million+ cities and a further dozen in the first decade of economic reform and liberalisation in the** 1990s (Revi et al., 2015; Malladi et.al, 2017).

This was accompanied by accelerated economic growth, urban expansion and the growth of informal settlements in most urban centres as access to land, affordable housing and basic services failed to match urban population growth. **The development opportunity that urbanisation presented for India was first recognised in the 1980s** (Ministry of Urban Development, 1987), along with the need to address its challenges that grew in the 1990s with liberalisation: urban expansion, poverty, inequality and divergence between states.

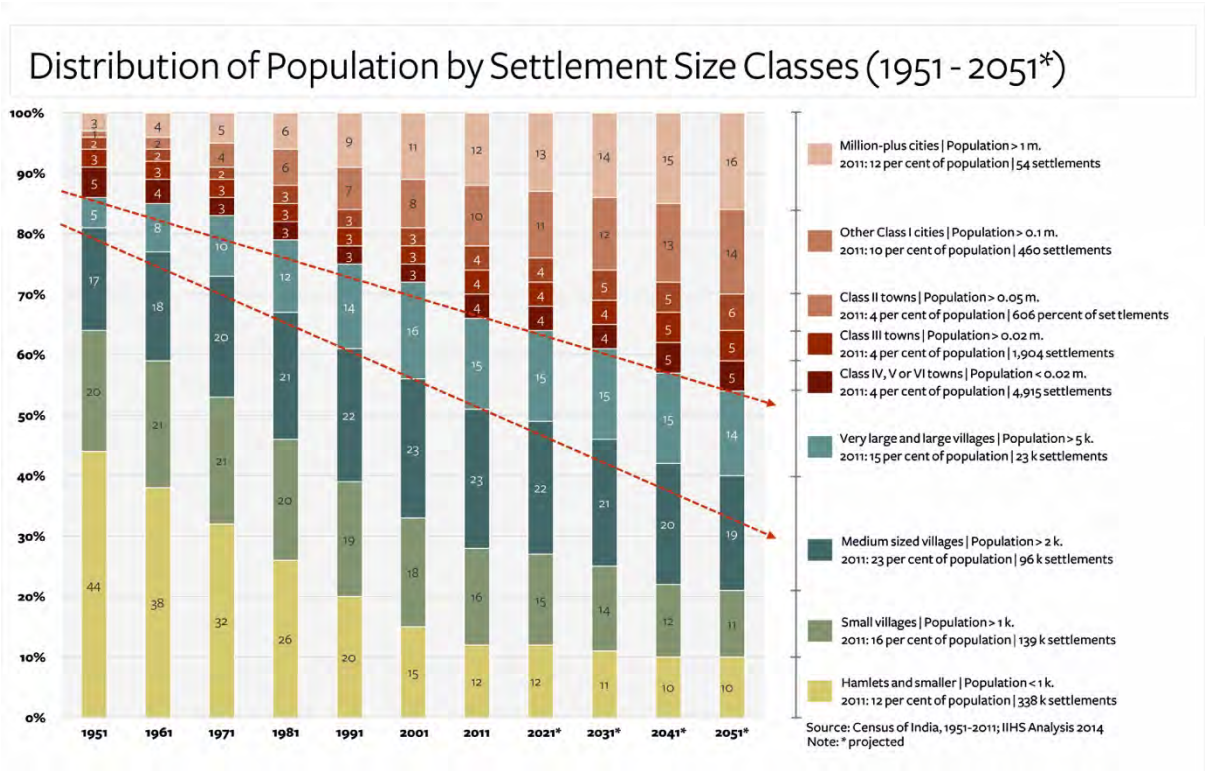
India's Settlement Structure: Urban and Rural (2011)

India was about two-third (67%) rural and one-third (33%) urban in terms of population in 2011 as shown in Figure 1.1. In 2011, India had about 0.65 million villages of various sizes, ranging from hamlets to large villages of over 10,000 people. It had close to 8,000 urban centres, of which 468 had a population of over 0.1 million, as shown in Figure 1.2. Among this group, were 48 million+ cities and five mega-cities of over 10 million (Census, 2011; Revi et al., 2015).

India's settlement structure is both highly dispersed across its villages and small towns and highly concentrated in a few large cities. Close to 15% of its population lives in million+ cities in < 0.1% of the places and < 0.2% of the land area (Revi et al., 2011). **There is wide variation in state levels of urbanisation**: with three states above the 50% urbanisation mark, two states close to 50%, four between 40-50%, and 16 states below the national mean of 34% (Revi et al., 2015).

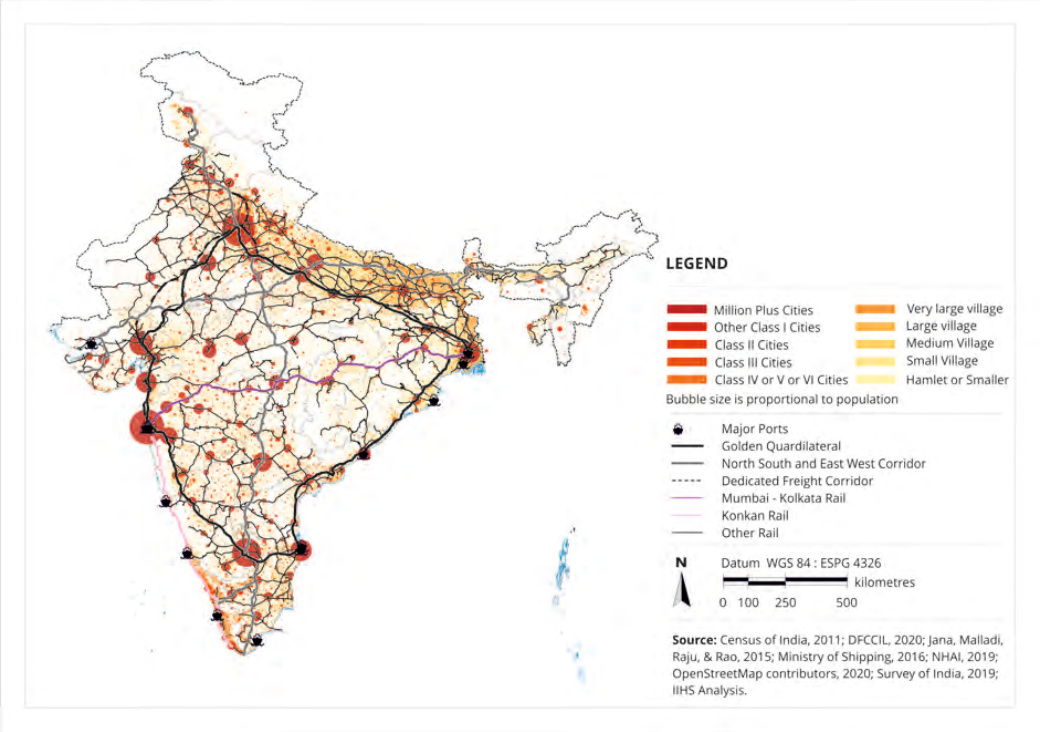
India's development trajectory and investments are poorly matched to this spatial structure except in some states like Kerala, Tamil Nadu and Punjab, as shown in Figure 1.3. The country's economic policies are weakly linked to its economic geography leading to severe bottlenecks and spatial inequality in infrastructure access and connectivity, housing and working conditions and hence impacting work productivity, output, investment and contributing to poverty. Appropriate spatial and sectoral investments and corrections to address urban-rural linkages and regional divergence, as well as support the development of smaller towns and medium-sized cities are needed. Better inter-Census data on the dynamics of urbanisation at the city and regional levels would assist this.

Figure 1.1: Distribution of Population by Settlement Size Classes (1951 – 2051)



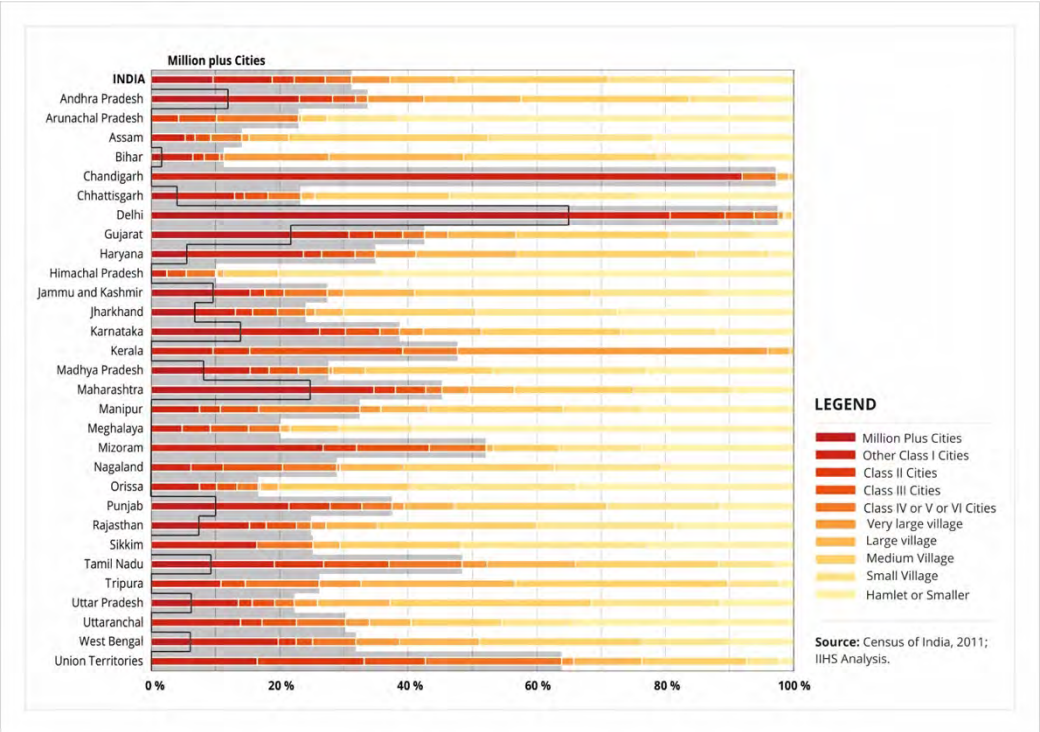
Source: Revi et al., 2015

Figure 1.2: Distribution of Population across Cities, Towns and Villages (2011)



Source: Census of India, 2011

Figure 1.3: Distribution of Population across Cities, Towns and Villages, 2011



Source: Census of India, 2011

Projected Growth of Million+ Cities (2011-2051)

Unlike China, India has a lower number and proportion of its population living in million+ cities. There were 53 million+ cities in 2011 (Revi et al., 2011), that produced about 32% of India's economic output, and hence were the primary focus of first-generation urban reforms (JNNURM) from 2007-2014.

Million+ cities are expected to rise to 70 by 2031 and will be moderately well dispersed across most states (Revi et al., 2015; Malladi et al., 2017). A significant share of economic output and incremental employment will come from these cities. Second generation urban reforms (AMRUT and PMAY) are appropriately targeted at ~ 500 Class I (population between 0.1 million and 1 million) cities. **This is also an emphasis of the XV Finance Commission devolution to ULBs (**Revi, A., Bazaz, A. 2019).

Million+ cities are also a potential focus of investments and incentives of the post-COVID stimulus package. India will have the largest national population by the mid-2020s at over 1.4 billion. It is anticipated to touch ~35% urbanisation by 2031, ~50% by 2051 with ~750 million people living in urban areas, of which 300 million in the largest million+ cities (Malladi et al., 2017).

India's Urbanisation: Implications for the XV Finance Commission

Urban areas are and will be India's most important driver of growth, incremental employment, international trade and investment, as well as taxes (Bazaz et al., 2017) But, as mentioned above, with India's economic policies weakly linked to its economic geography, sustainable linkages to employment and investment are limited.

Despite the devolution of governance through the 74th constitutional amendment, ULBs too have been chronically neglected and underinvested in terms of finances and institutional capacity. This situation remains unchanged despite two decades of urban reforms, significant changes in the tax base through the introduction of the Goods and Services Tax (GST) and the Finance Commission's emphasis on strengthening ULBs.

Additionally, the stark inequality between states, as well as within them between smaller and Class I towns and million+ cities needs to be addressed through appropriate regional and sectoral investments. This can enable both a vertical and horizontal spatial balance, facilitate urban-rural linkages and address regional divergence.

The Experience of New Cities and Towns and SEZs in India (1951-2020)

Growth of New Towns and Cities in India (1951-2011)

Contrary to popular perception, new towns and cities have contributed marginally to the share of India's urban population (<2%) and number of settlements (<0.1%) over the 20th century as shown in Fig 1.4. They have typically emerged for four main reasons:

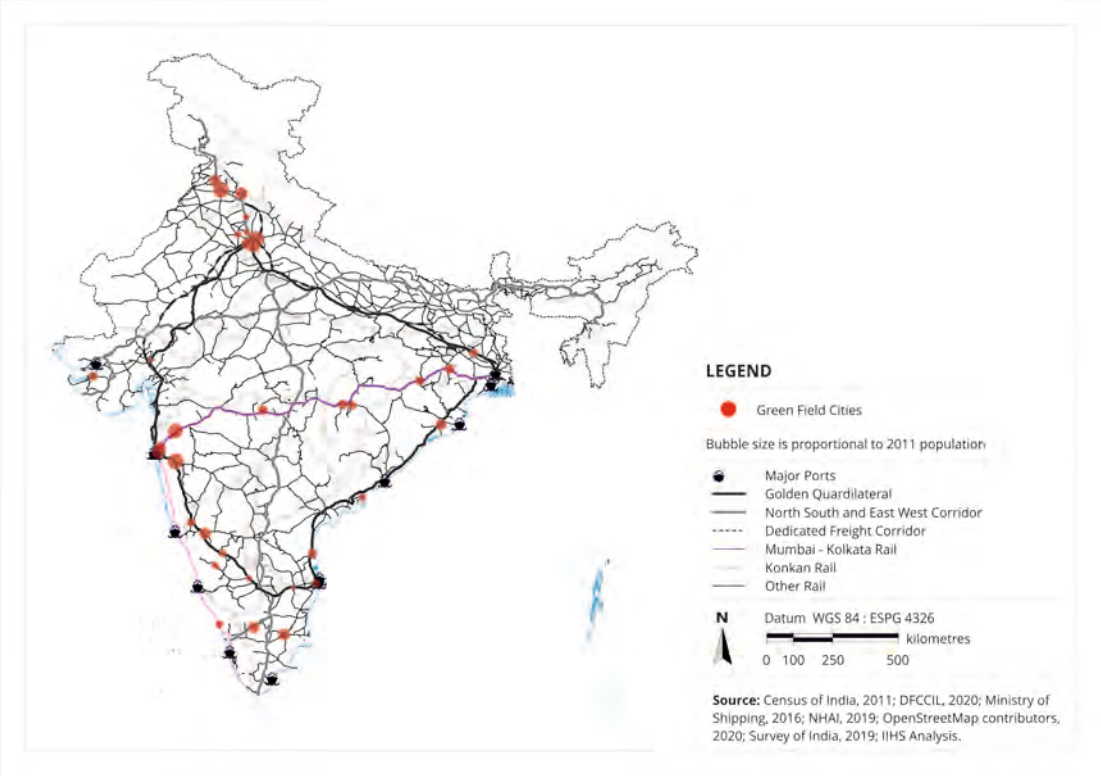
1. Post-Independence reconstruction (e.g. Faridabad)
2. New state capitals and administrative centres during the linguistic reorganisation of states (1956 and onwards) (for e.g. Bhubaneshwar, Chandigarh, Navi Mumbai, Gandhinagar), the subsequent creation of new states (e.g. Naya Raipur, Amaravati)
3. The creation of new industrial, trade and financial centres (e.g. Bhadravati, Jamshedpur, Durgapur, Bhilai, Rourkela, Gurugram)
4. New tourism hubs and hill stations (e.g. Lavasa)

These towns have typically taken 30-50 years to reach critical economic mass and a population size of one million. They have been more expensive to plan and build and have typically overshot their initial budgets by significant amounts, due to delays in execution and inflation. New towns have a limited impact on India's economic landscape, disproportionate to their imagination in policy, documented in detail in Annex I.

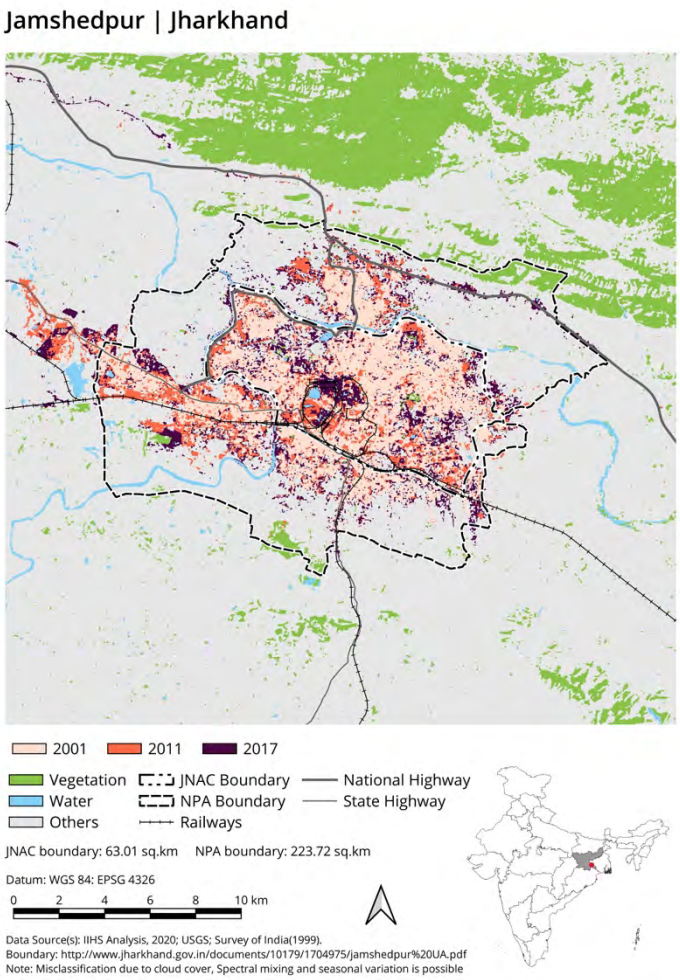
Urban outgrowths and SEZs are not enumerated as new towns: they are usually small and rarely reach a population size of one million. The impact of SEZs on urbanisation in India has also been marginal in spite of the relatively large amount of land that has been mobilised for them, of which a large proportion is not utilised.

Key characteristics of four new towns that emerged at different points over the past century, Jamshedpur, Chandigarh, Navi Mumbai and Amaravati, are summarised below, with detailed case studies presented in Annex 1.

Figure 1.4: Distribution of Greenfield Cities (2011)



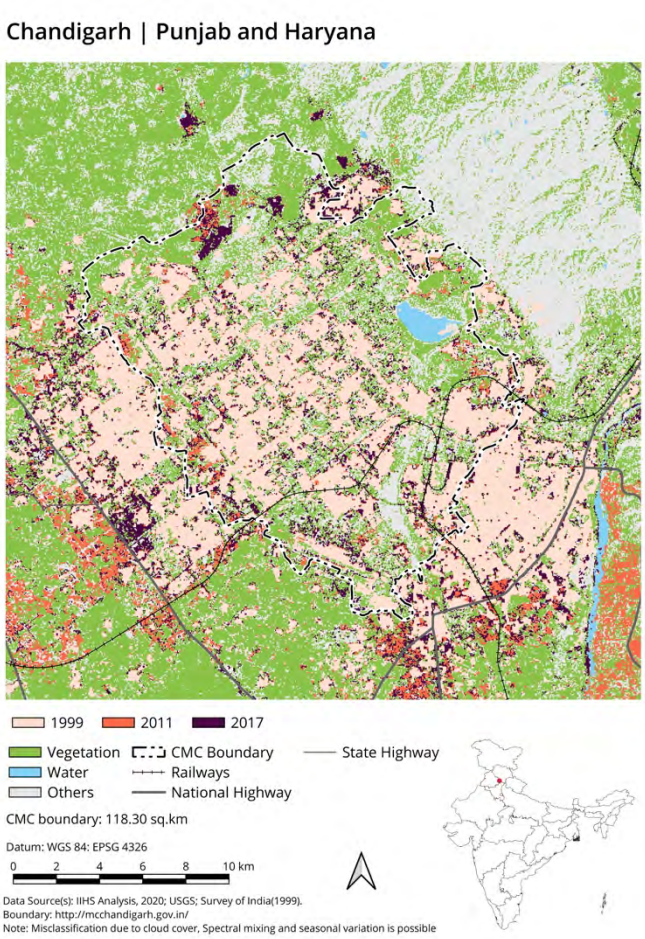
Jamshedpur (1909-2011)



- Population: 1.4 million (2011 Census)
- The city covers an area of around ~225 sq. km.
- The city's economy is centred around the TISCO steel plant, with many ancillary and related companies
- There are governance challenges between the Jamshedpur Utility Services Company Limited (JUSCO), the SPV that manages services to the planned TISCO industrial township and other local bodies in the region.
- Lack of a single planning entity has led to issues such as inadequate good quality housing, poor service provision, environmental contamination and traffic congestion.
- Sharp inequality in housing, infrastructure and services between the planned and unplanned areas of the city is a key issue.

The city of Jamshedpur developed around the steel industry and its economy remains centred around this sector. The fragmentation of governance and lack of a single governing body has led to administration challenges affecting equitable and inclusive development of the city (for details, see Annex I).

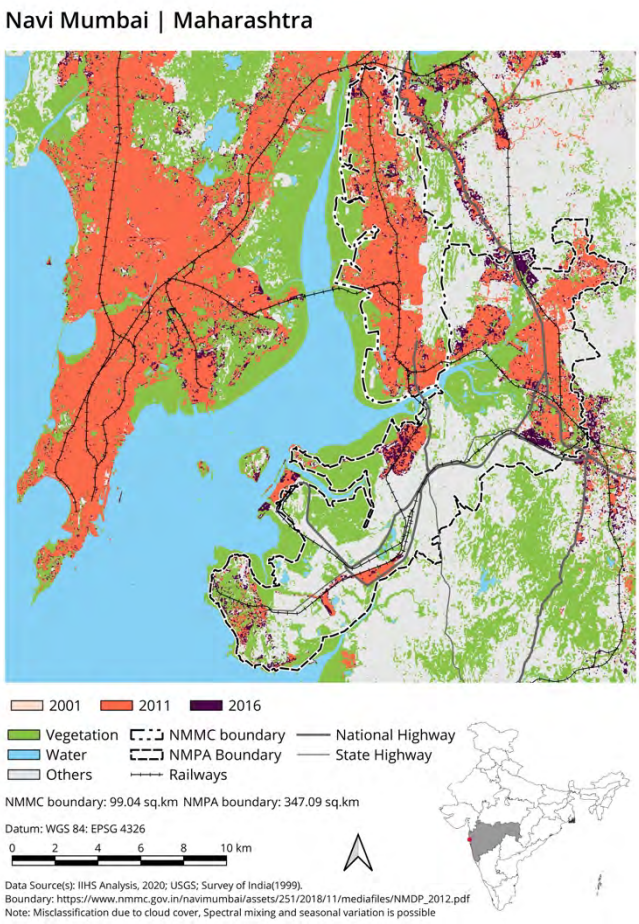
Chandigarh (1956-2011)



- Population: 1 million (2011 Census)
- Chandigarh Union Territory covers 114 sq. km, while the city itself covers 60 sq. km.
- Capital of two states, Punjab and Haryana
- This post-independence new town became a symbol of modernist planning and architecture
- Rigidity in planning norms and lack of flexibility has led to challenges in effective land-use and diversification of the economy
- Intense unplanned growth of peripheral areas and urban villages has led to deep informality and poor housing and services.
- Governance challenges between the UT administration and the Chandigarh City Municipal Corporation.

Rigidity in planning norms has led to challenges in effective land-use planning as the city has grown beyond the imagination of the original plan leading to intense, informal and unplanned growth of peripheral areas. The city's growth is also impacted by governance challenges between overlapping jurisdictions in the Chandigarh region (for details, see Annex I).

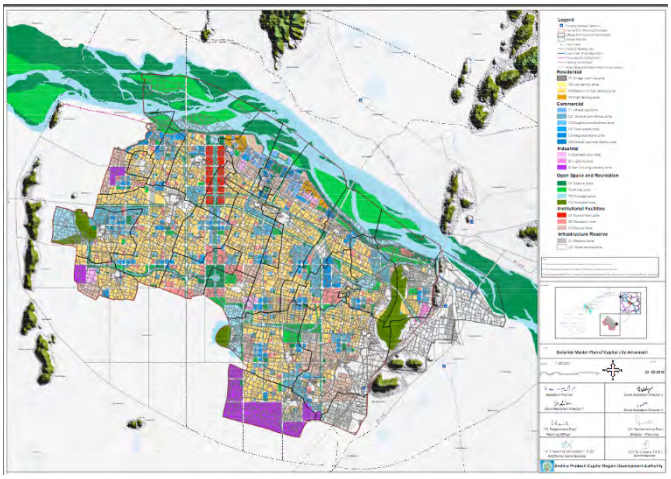
Navi Mumbai (1972-2011)



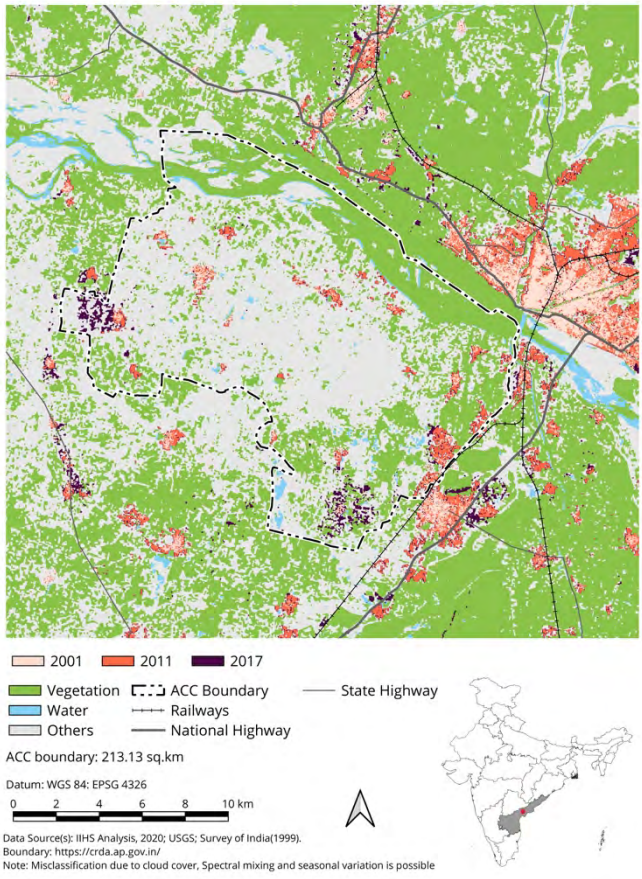
- Population: 1.1 million (2011 Census)
- This satellite town covers an area of ~345 sq. km.
- This planned satellite town was initially conceived as a new town to decongest Mumbai. The initial development significantly exceeded the planned time and allocated budget
- It took decades for critical economic activities to take off here, including manufacturing and IT/ITES, with an adjacent port and a much-delayed international airport.
- The investment in the development of the Bandra-Kurla complex also impacted Navi Mumbai's ability to act as an alternate location for government and business offices.
- The town's geographical position, with its proximity to the coast and Western Ghats, poses high risks of flooding and rainfall-related extreme events.
- Division of governance responsibilities between CIDCO, MMRDA, MIDC, NMMC, and other ULBs has created governance challenges especially when it comes to the management of land.

Navi Mumbai's original purpose of decongesting Mumbai was not achieved mainly because connectivity projects have taken many decades to be implemented, and public and private sector enterprises were reluctant to relocate away from southern and central Mumbai.

Amaravati (2014-2020)



Amaravati | Andhra Pradesh



- Population: 0.1 million (2011 Census)
- Proposed greenfield 'central' capital city for the bifurcated (2014) state of Andhra Pradesh located in a highly productive agricultural area exposed to flood and earthquake risks
- Ambitious 30,000-acre land pooling experiment to work around Andhra Pradesh's revenue deficit that limited the ability to use publicly financed land acquisition. This led to significant land speculation in the region.
- Initial investment estimated to be Rs. 0.45 lakh crores (USD 6-7 billion).
- Following a change of state government leadership, the plan to build Amaravati as a 5 million+ city in five years, was abandoned in favour of a decentralised 3-capital zone plan for the state
- Major multilateral lenders such as the World Bank and the Asian Infrastructure Investment Bank pulled out from the project.
- Andhra Pradesh state's capital functions will now be dispersed between Vishakhapatnam (administrative), Kurnool (judicial), and Amaravati (legislative) capitals.

Amaravati highlights a number of challenges faced by large-scale greenfield urban projects in India: (i) Despite political will, these projects require long-gestation periods and sustained large long-term investments; (ii) Large-scale land aggregation is complex, takes time and resources and is exposed to judicial review; (iii) Environmental and risk constraints; (iv) Challenges associated with management of investment risks, management of public perceptions and addressing the perceived gap between development proposals and development needs (for details, see Annex I).

Status of Pre-Liberalisation New Cities

The broad status of new cities that were planned and executed before the process of economic liberalisation was initiated in 1991 are presented in Table 1.1 with detailed analyses in Annex 1. This analysis covers a broad swathe, from Jamshedpur that was planned as a joint industrial township by the colonial British government and the Tata Iron and Steel Company (TISCO) in 1909, to the new capitals of Odisha, Punjab and Haryana that emerged during the linguistic reorganisation of the 1950s: Bhubaneshwar (Odisha) planned by Otto Konigsberg, and Chandigarh, the joint-capital of Punjab and Haryana designed by Le Corbusier (Kalia, 1999; Kalia, 1994).
It also includes the steel township of Durgapur (West Bengal) that was part of a large industrial cluster involving the Damodar Valley Corporation, and was planned by Joseph Stein in 1955, as well as Charles Correa and Shirish Patel's magnum opus of Navi Mumbai in 1972 (Patel et al., 1965), which was a major initiative to decongest Mumbai in the wake of the bifurcation of Gujarat and Maharashtra, along with the expansion of informal settlements in the city.

All of these cases have faced significant planning and implementation challenges, taking 30 to 50 years to achieve critical mass in terms of population size and economic activity. Most have not been able to diversify economically, with the exception of Navi Mumbai, which saw the development of the Nava Sheva port, an ongoing second international airport for Mumbai and a possible new link between the island city and the mainland.

Environmental risks, pollution, and hazards that come with 20th century-style industrialisation, in the case of Durgapur, are also common recurring themes. Bhubaneshwar has done relatively better than other cities but is still exposed to moderate to severe risks of flooding and cyclonic storms because of its location.

Almost all these cities have had serious planning challenges, as in the case of both Chandigarh and Navi Mumbai that are struggling to address the strong and often rigid guidelines established by the initial Master Plans and the bane of multiple planning, housing and infrastructure, and services jurisdictions.

Table 1.1: Pre-Liberalisation New Towns in India*

Name	***Significance***	***Size (sq. km.)***	***Population (million 2011)***	***Density (persons/ sq. km.)***	***Key issues***
Jamshedpur (1909)	Early industrial town, partnership between TISCO and GoI	~225	1.4	6,223	Governance challenges leading to lack of adequate service provision, housing, rising inequality
Bhubaneshwar (1949)	Planned new capital for Odisha	135	0.9	6,667	Environmental risks and natural hazards (cyclones, drought)
Chandigarh (1952)	Planned new capital for Punjab and Haryana	114	1.1	9,258	Rigid planning guidelines inhibiting further growth and development

Name	Significance	Size (sq. km.)	Population (million 2011)	Density (persons/ sq. km.)	Key issues
Durgapur (1955)	Greenfield Steel city and counter-magnet to Kolkata	154	0.6	3,896	Pollution (esp. air); challenges in unanticipated MSME-based economic development
Navi Mumbai (1971)	Planned satellite city to decongest Mumbai	~345	1.1	3,257	Aim of decongesting Mumbai not achieved. Long delays in development, massive cost overruns

**Full citations and data sources in Annex 1*

Status of Post-liberalisation New Cities

A few new cities were planned in post-liberalisation India, following the bifurcation of Madhya Pradesh and Chhattisgarh, Bihar and Jharkhand, Uttar Pradesh and Uttarakhand and finally Telangana and Andhra Pradesh. A few examples from this set are presented in Table 1.2, with detailed analyses in Annex 1. Naya Raipur, about two decades after it was first planned, is still far from achieving critical economic and demographic mass, even though it is effectively an extension of Raipur. Amaravati is a more contentious example. It was created with significant fanfare and the mobilisation of over 12,000 hectares through land pooling as the greenfield central capital of Andhra Pradesh in the expectation that it would be built and developed in under the decade, as specified in the AP State Reorganisation Act (2014). It has now been relegated to one of the three capital zones of AP, following a change of the government in power.

Table 1.2: Post-Liberalisation New Towns in India*

Name	Significance	Size (sq. km.)	Population (million 2011)	Density (persons/ sq. km.)	Key issues
Naya Raipur (2000)	Greenfield capital city for Chhattisgarh	~237	0.1 million	632	Long gestation, large public investment in land and infrastructure, weak economic base
Lavasa (2000)	Privately planned new tourist town	~28	< 0.001	na	Challenges with land acquisition, environmental clearances and financing
Amaravati (2014)	Greenfield capital for Andhra Pradesh	~218	0.1	na	Ambitious plan for new capital abandoned 5 years after extensive land pooling. Major lenders pulled out from the project.

**Full citations and data sources in Annex 1.*

Bidadi (for details, see Annex I) presents the complex challenges of multiple attempts of a state government or private sector and PPP-led new town development that has been unable to achieve closure over more than a decade. Lavasa illustrated the high risk of private new town development, now close to being in receivership, after nearly a quarter-century of attempts at institutional innovation and resolving financial, environmental and displacement-related challenges (for details, see Annex I).
The fiscal base of most Indian states, along with limited financial mobilisation, regulatory and implementation capacity at the city and regional scales, points to the serious challenges and risk of implementing greenfield mega-urban visions. This also corroborated by the fact that outside China, most new cities (from Brazilia, Putrajaya to even Canberra) take many decades to go to scale.

In the absence of state municipal cadres and institutional development, there are few national examples, of effective regulatory oversight of private or PPP development, over the medium-run – that is necessary for these cities and towns to grow to critical mass, over many decades. Building this institutional capacity over 2021-31 is a necessary condition for India to use urbanisation as a strategic measure to further its sustainable development agenda.

SEZs and Economic Enclaves

Distinct from the new towns are SEZs and economic enclaves. India has a long history of economic enclaves with autonomous jurisdictions. Early examples include industrial townships, industrial parks and export processing zones. Most Special Economic Zones (SEZ) are located near large urban centres and have not aided decentralised development. India has a large number of SEZs with 423 formally-approved zones, 357 notified zones, seven central government zones, 12 state government/ private zones (established before the 2005 SEZ Act) and 32 zones that have received in principle approvals as of May 2020. More than 48,000 hectares of land have been designated for SEZs, of which 42,000 hectares have been either notified or are under central or state government (CAG, 2014).

Key lessons from the development of SEZs are:

1. Lack of land is often highlighted as a barrier to SEZ development. Yet, more than 50% of current SEZ land remains unutilised (CAG, 2014) and is predominantly held by private sector developers.
2. New SEZs typically do not create new economic opportunities but leverage proximity to urban centres to reduce investment risks.
3. New SEZs concentrate economic investments and exacerbate existing spatial inequalities.
4. SEZs are not enumerated as New Towns: they are usually small and rarely reach the million-population city size.
5. They have had limited impact on India’s economic geography especially its employment landscape.

Mixed Experience of New Towns and Cities (1951-2021)

India's experience, based on the development of over 100 new towns and cities over the last century, has been mixed (Home, 2013; Glover, 2012; Kalia, 2006) with the largest 12 growing to a population size of just over 1 million each, typically over a period of 30-50 years. Their current combined population (2021 projection) is less than 15 million, or ~3% of the total urban population.

In the post-1991 era, there has been an attempt to create less than five new cities, less than two by private developers. None have created significant new employment or emerged as noteworthy economic hubs over a 30-year period. Most private developments have floundered because of land assembly, environmental clearances and financing challenges.

The creation of new state capitals, from Bhubaneshwar and Chandigarh to Naya Raipur and Amaravati, are in line with the typical international and national trend of taking 30-50 years to 'go critical' in terms of population, economic outputs, employment; and developing significant local knowledge and cultural institutions. The recent Andhra Pradesh experience around Amaravati highlights the challenges of matching ambition and institutional capacity, with fiscal and financial resources, land assembly, local political economy and risks, even when there is strong political will and mandate to implement.

Given India's economic and fiscal environment in the early 2020s, significant new investment in creating new towns may not be prudent. The emphasis should be on using existing urban regions, clusters and the regional settlement structures to further sustainable regional or territorial development. This has been successfully enabled across many parts of Europe, Latin America, parts of North America and East Asia. This approach leverages existing settlement systems, economic concentrations and activities, strengthens urban-rural linkages and limits large-scale land alienation and displacement. A range of strategies to operationalise this are presented in Chapter 2.

Key Drivers of India's Urban and Economic Development

In 2011, India's urban population was 377 million. By 2031, it could touch 600 million or 40% of its projected 1.48 billion people. This is the population for which future investments and incentives should be designed by the XV and XIV Finance Commissions, if India is to develop a pro-active and forward-looking urbanisation and urban development trajectory (IIHS, 2018).

India's 53 million+ cities made up 12% of its 2011 population, which is expected to rise to about 14% by 2031. In 2011, the Census accounted for 468 Class I cities (population between 0.1 million and 1 million), which made up 10% of India's population. This is expected to rise by 11% by 2031 (see Figure 1.1). India's 7,425 Class II and IV towns (population less than 0.1 million) made up 13% of the total population in 2011 (Census, 2011, Revi et al., 2015).

In addition, by 2031, a sizeable fraction of 23,000 large villages (or 15% of the 2011 population) are expected to take on an urban character but may not be formally classified as urban areas (Revi et al., 2015). Urban investment in India will need to target three broad goals: (i) improving conditions for the (2021) urban population of 450 million in 8,000 settlements; (ii) addressing the needs of an incremental population of 150 million over the 2020s; and (iii) strengthening urban-rural linkages especially between areas currently classified as urban, their outgrowths and ~10,000 large villages using a spatially differentiated development strategy (Revi et al., 2015).

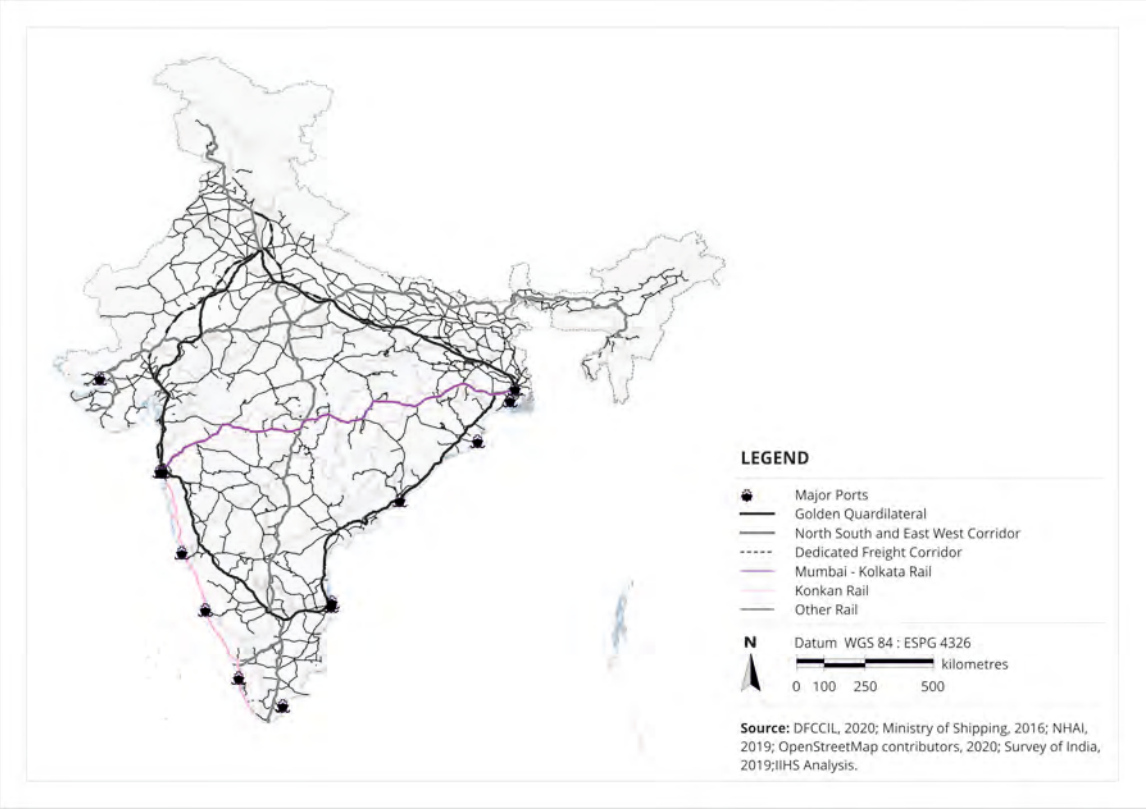
Strategic Infrastructure and Economic Corridors

As India's economy expanded in the post-liberalisation era, a range of new strategic infrastructure initiatives and economic corridors were initiated as 'national' projects to catalyse economic growth, connectivity, regional development and stimuli following the 1997 and 2008 economic crises. Many of these cut across multiple states. The most significant such initiatives are presented in Figure 1.5. This includes the Golden Quadrilateral and East-West Road Corridors; a series of major ports, under the Sagarmala programme; three major rail corridors starting with the Konkan railway, the Delhi-Mumbai and Amritsar-Kolkata Dedicated Freight corridors and five industrial corridors that are at various stages of planning and implementation.

Taken together these regional infrastructure and economic corridors connect most of the 100-largest urban centres that create much of India's value addition and provide strong transport linkages for domestic trade and international export and import. They are still however, powered by 20th century infrastructure systems that need to be transformed to meet the decarbonised, high resource efficiency economic and environmental services backbone of the 21st century Indian economy, including a modal shift towards rail for logistics, high speed passenger rail and electrification using renewable power. Electrification and greater efficiency in road transport would also facilitate decarbonisation.

Major Ports	1. Deendayal (Kandla) 2. Mumbai 3. JNPT 4. Mormugaon 5. Kamrajar (Ennore) 6. Chennai 7. V.O. Chidambaraner (Tutucorin) 8. New Mangalore 9. Cochin 10. Visakhapatnam 11. Paradip 12. Kolkata 13. Haldia
Rail corridors	1. Konkan railway 2. Delhi-Mumbai Dedicated Freight corridor 3. Amritsar-Kolkata Dedicated Freight corridor
Road corridors	1. Golden Quadrilateral 2. North-South and East-West Corridors
Industrial corridors	1. Amritsar-Kolkata Freight and Industrial Corridor 2. Delhi-Mumbai Industrial Corridor 3. Bengaluru-Mumbai Economic Corridor 4. Bengaluru-Chennai Industrial Corridor 5. Bengaluru-Kochi Industrial Corridor

Figure 1.5: Strategic Infrastructure



In addition to focusing investment in the different categories of urban areas described in Chapter 1, India's growth also hinges on its strategic rail, road and port infrastructure as well as economic corridors that link the existing million+ cities. Further intra-state and regional linkages with ~ 410 other Class I towns and the villages linked to them will need to be rapidly strengthened to enable sustainable and balanced economic development and rapid post-COVID economic recovery (Revi et al., 2015; Bazaz et al. 2017; IIHS, 2020).

Key Drivers of Economic Scale-Agglomeration in India (2001-11)

India's expanding urbanisation has led to significant wealth and income agglomeration across the rural-urban continuum, as shown in Figure 1.6. India needs to maintain the balance between rural and urban areas in terms of disparities in work, income and wealth levels. Investments in housing, physical and social infrastructure are key drivers of scale agglomeration especially in Class I towns and cities (population between 0.1 and 1 million) (Bazaz et al. 2017).

Key drivers of scale agglomeration of cities and towns, include:

- Adequate housing
- Safe water and sanitation
- Improved roads
- Accessible power supply
- ICT access (Bazaz et al., 2017)

Urban areas also concentrate poverty, inequality, climate and disaster risk (Revi, 2018), which have emerged as key COVID fault lines. Strong risk adjustments for negative externalities of poverty,

inequality, disaster and conflict that concentrate in cities, will be necessary as part of a COVID recovery plan.

Short-term post-COVID economic recovery will depend on income support measures, as well as the provision of food and basic services (Revi, A., 2020). While, investing in housing and infrastructure in urban areas can help in medium-run post-COVID recovery.

India's Economic Concentration: Regions, Clusters and Corridors (2017)

India has a highly concentrated spatial structure at the metropolitan scale, with an estimated 15% of GDP coming from the largest-10 urban centres, a further 35% from the next 90-largest centres, i.e. 40% of India's GDP coming from the largest-10 urban centres, that include mega-urban regions of 20 million or more, mega-cities of 10-million or more, million cities and a few > 0.5 million-sized cities (Revi et al., 2011).

Given the dynamic and rapid growth of population in these urban centres, it is advisable to move beyond India's traditional 'infrastructure-catches up with-urbanisation' strategy. It is important to shift to a strategy of preparing for expanding urbanisation and economic development in the 2020s by pre-emptively upgrading existing areas, along with mobilising land, developing infrastructure and connectivity, targeted at areas that will host large urban populations and a significant share of India's GDP in the 2030s. It is also important to balance this with the development needs and aspirations of less-developed, remote and risk-prone states and regions.

Pre-emptive planning for future urbanisation, land development, infrastructure and economic development, as well as state and ULB financing and institutional capacity-building to implement, are necessary. The projected pattern of urban development and economic concentration in mega-urban regions, clusters and corridors is shown in Figure 1.6.

Following 30 years of economic reform, five mega-urban regions (> 20 million population) are set to emerge in India, plus five emerging economic corridors in south, central and eastern India. Simultaneously, urbanisation, infrastructure and development of five historically underdeveloped regions need to be addressed, especially in the north-eastern and hill states.

These include three opportunities for sustainable urbanisation in ecologically sensitive areas: along the Konkan coast, between Mumbai-Nagpur to Kolkata and in the Andaman & Nicobar Islands. These will need to be pursued with extreme caution because of the fragile nature of ecosystems, the extreme poverty and vulnerability of large populations living in these regions, and the potential to exacerbate ongoing conflict in many areas.

Mega-urban regions (2031)	1. NCR++ 2. Mumbai-Pune-Nashik 3. Greater Kolkata-Asansol 4. Chennai-Coimbatore-Trichy 5. Ahmedabad-Vadodara-Surat
Emerging economic corridors	1. Greater Bengaluru-Mysore 2. Greater Hyderabad 3. Chandigarh-Amritsar-Ludhiana 4. Coastal Andhra 5. Raipur-Durg-Bilaspur

Underdeveloped Regions	1. Mumbai-Nagpur-Raipur-Kolkata traverse 2. North-eastern states (7 states) 3. Hill states & UTs (4 states) 4. Konkan coast 5. Andaman & Nicobar Islands

Table 1.3: Projected Population of India's 10-largest Mega Urban Regions & Emerging Clusters (2031)

Projected Population of India's 10-largest Mega Urban Regions & Emerging Clusters (2031)		
Rank	**Urban Region**	**Projected Urban Population (million 2031)**
1 a	NCR	41
1 b	NCR + (western UP, Rajasthan)	13
1	NCR ++	54
2	Mumbai- Pune- Nashik	44
3	Greater Kolkata- Asansol	26
4	Chennai- Coimbatore- Trichy	25
5	Ahmedabad- Vadodara- Surat	23
6	Greater Bengaluru- Mysore	17
7	Greater Hyderabad	16
8	Chandigarh- Amritsar-Ludhiana	12
9	Coastal Andhra	9
10	Raipur-Durg-Bilaspur	4
Grand Total		**229**

Source: IIHS Analysis, Revi. et al. 2015

Regional Economic Concentration and Convergence

Drawing on the Soviet model of economic planning, India's post-Independence development planning emphasised sectoral investment focusing on particular types of industrial or economic development (Chakravorty, 2000). This approach has, until recently, failed to acknowledge or recognise the inherently spatial nature of development.

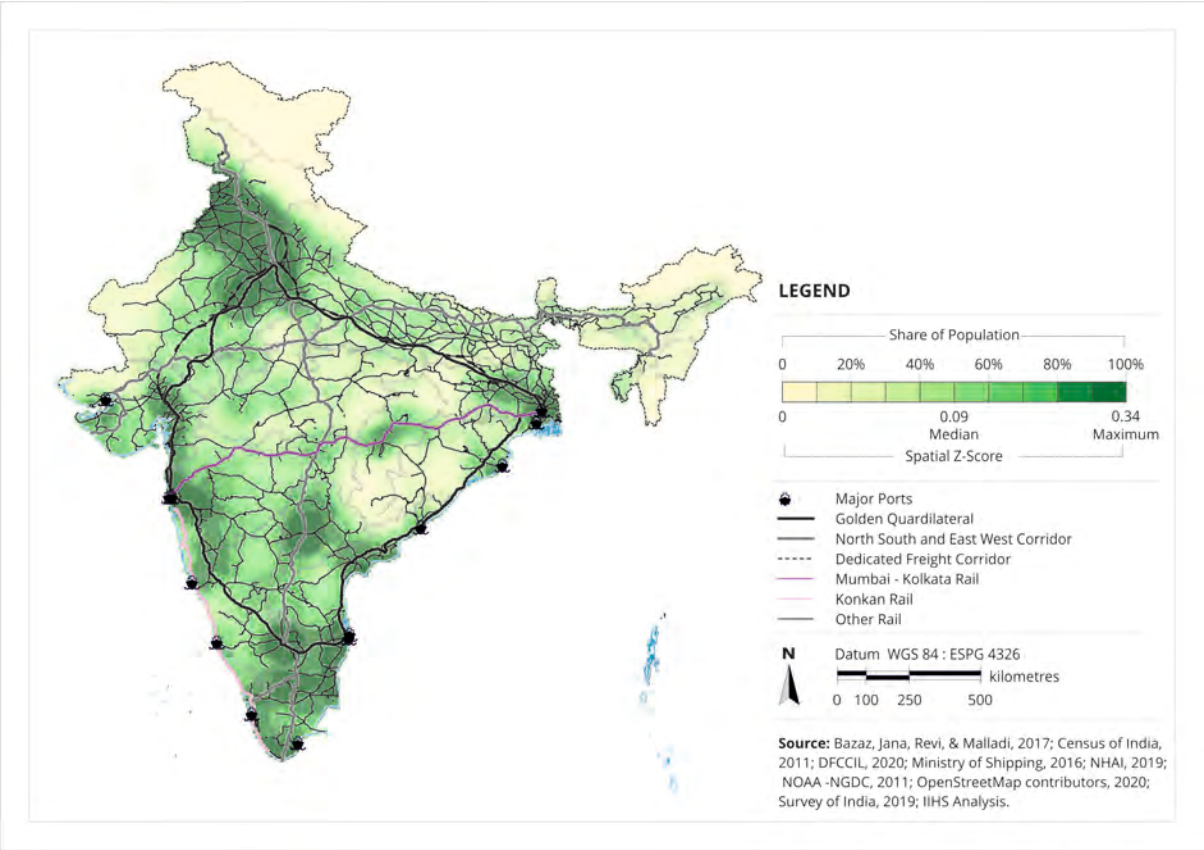
Concern about regional disparities was first highlighted in the First Plan in 1951, with various measures being undertaken to ensure balanced regional industrialisation such as directing industrial investment to lagging states (like Madhya Pradesh and Bihar), and discouraging and eventually forbidding the location of heavy industry in metropolitan regions (ibid).

Despite this, as Chakravorty (2000: 373) writes, industrially advanced states and districts, where major metropolitan centres like Mumbai, Chennai, and Kolkata were located, continued to receive large shares of private investment: until 1980, almost 55% of capita subsidies went to only 25 out of nearly 300 eligible lagging districts; all 25 of which were located in industrially advanced states. The Freight Equalisation Policy further disadvantaged Bihar, West Bengal, Orissa, and Madhya Pradesh.

Regional inequality was on the rise before liberalisation in 1991 with the western region of the country gaining significantly, followed by the southern and northern regions. In addition to uneven economic development, there has also been uneven investment in social infrastructure such as health, and education, which has further exacerbated regional inequalities.

Using NASA night light data analysis as a proxy for economic output, the analysis in Figure 1.6 below shows clear patterns of concentration that highlight unbalanced regional development in India. Denser pockets, correlated with higher economic outputs, are concentrated in particular regions in the north, west, and south.

Figure 1.6: Estimated concentration of economic output from Night Lights Data (2011)

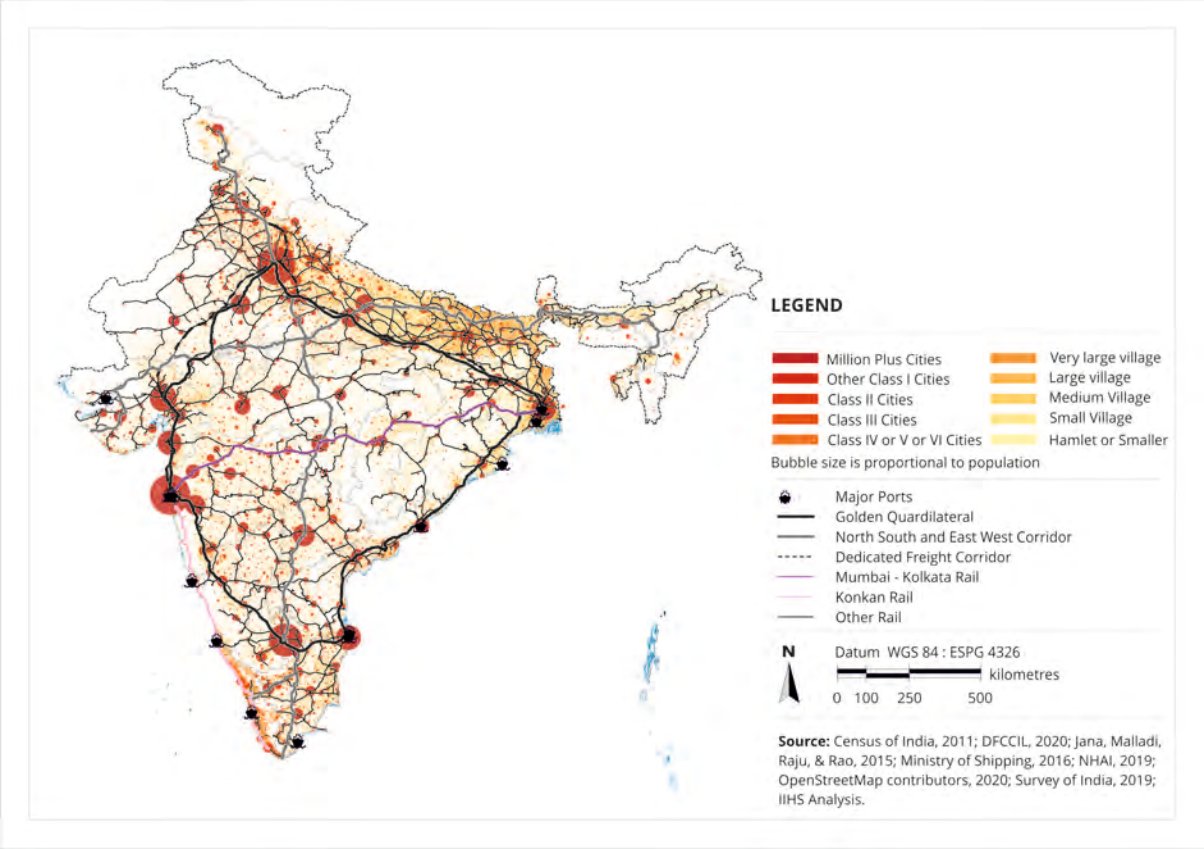


Implications for the XV Finance Commission

Economic development in India has been uneven and regionally imbalanced. Indian development planning has emphasised sectoral investment focusing on particular types of industrial or economic development, largely ignoring economic geography. Industrially advanced states and districts, with major million+ cities continue to receive large shares of private investment.

Regional economic concentration has been amplified by the development of transportation corridors that connect larger urban centres, with some improvement in intra-state and district logistics and passenger mobility. Proposed economic corridors capitalise on already existing connections between the different metropolitan regions across the country as shown in Figure 1.7

Figure 1.7: Corridors and the Distribution of Population across Cities, Towns and Villages (2011)



The strongest differentials are observed in less developed states and regions that have large pools of migrant and under-employed rural labour, or those which are in high-risk zones. Uneven investment in health and education infrastructure have further exacerbated regional inequality.

Economic corridors offer an opportunity to rebalance regional development by focusing on four critical infrastructure networks: renewable electric power, gas, rail and road transport; as well as ICT facilities and access to sustainable environmental services.

One of the most critical constraints to operationalising this is the lack of systematic and time-series information on the economic output, value addition, productivity, and public and private investments (ideally by key sectors) for the major urban centres in the country. Given that close to two-thirds of the economic output comes from urban areas, about 40 per cent from the top-100 urban areas, evidence-based policy and rule-based transfers by the Finance Commission become almost impossible to implement. With the expansion and rationalisation of the tax network, advances in survey techniques, and technology it should be possible for detailed economic studies, monitoring and public disclosure on an annual or bi-annual basis. This will assist in planning and tracking economic activity, public investment, expenditure and outcomes, and the monitoring of large-scale urban and regional infrastructure investments.

Urban Employment & Informality

India was facing a serious employment crisis even before the COVID-induced economic crisis, with 10% GDP growth creating only a 1% increase in jobs (Basole, 2018). Over 2011-17, the number of

new jobs created was lower than the number of additions to the working age population. India has seen an absolute decrease in the size of the workforce over this period - a phenomenon observed for the first time in the history of the National Sample Surveys (Himanshu, 2019; Kannan and Raveendran, 2019; Vyas, 2019).

In addition, since 2011-12, there has been an increase in unemployment, particularly for the youth and for women. The 2017-18 Periodic Labour Force Survey (PLFS) shows a decline in the absolute number of jobs from 2011-12, driven by a large decline in the rural workforce and decline in jobs for those with less than secondary level of education. Professional activities, information and communication, transport, health and education sectors have seen increases in employment. These sectors however, account for less than 10% of the national workforce and are only able to create jobs for those with higher levels of education (Kannan and Raveendran, 2019).

Most of India's urban employment continues to be informal (80%). Wage growth has not kept pace with GDP growth, and there is a big gender gap in labour force participation as well as in wages. The manufacturing sector has largely followed a capital-intensive growth path over the last two decades, with a strong dependence on intermediate goods imports. Growth in the construction sector with consistent employment and output elasticity has also substantially slowed over 2011-17.

This decline in jobs in rural areas and for the less educated has important implications for the questions at hand, since any new investments focused on urban areas will need to create jobs for this segment of the workforce. Currently, only limited opportunities for decent quality jobs are being created. Many policy assumptions behind 'Make in India' and the National Urban Livelihoods Mission (NULM) are being challenged by structural limitations in sectors such as energy, water, housing and regional connectivity.

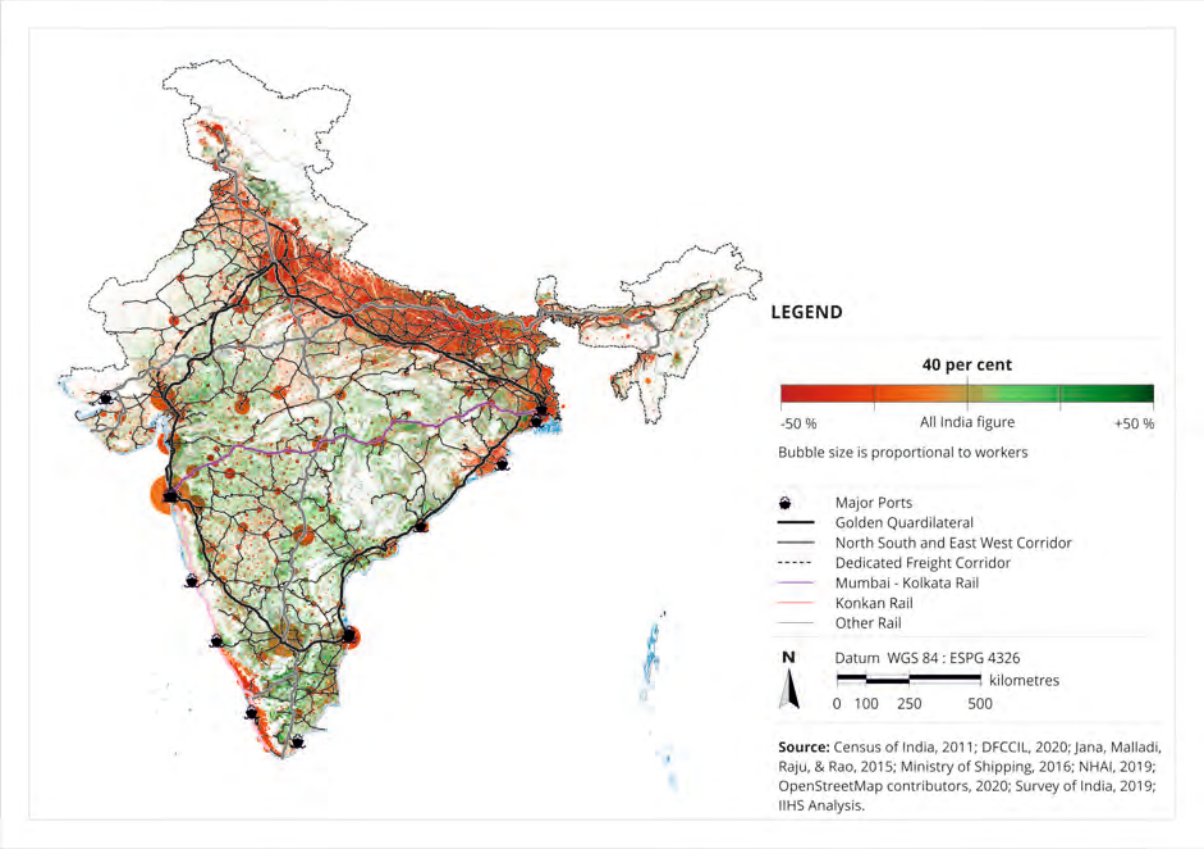
Support to the urban poor, informal sector workers and MSMEs are critical to facilitate a 'jobs-rich' post-COVID economic recovery. Proposals for an urban employment guarantee scheme need to be considered, but its exact provisions should be tailored to meet the needs of each city, region and sector.

The following section details India's levels of workforce participation based on the 2011 Census.

India: Workforce participation

India has a median workforce participation rate of 40%. Large cities and settlements along the Gangetic Plain have lower than average workforce participation rates as shown in Figure 1.8. In big cities, this is because female workforce participation rates are lower than average. This highlights India's regional economic development and urbanisation conundrum. Much of the post-liberalisation incremental income and employment growth has taken place in particular regions and clusters. It is not a surprise that much of the post-COVID distress return migration, has taken place to districts and states in northern and eastern India.

Figure 1.8: Workforce Participation (2011)



Implications for the XV Finance Commission

India needs to prioritise urban job creation and a possible urban employment guarantee scheme to support its post-COVID economic recovery. As the rural economy sheds millions of jobs, we need sustained public investment to address the deepest jobs crisis, over the last many decades. The assumptions that the manufacturing sector will lead this shift is unlikely to materialise, given its capital-intensive nature and the slowdown in global manufacturing.

The 2017-18 PLFS survey indicates that the largest numbers of job losses were in rural areas and impacting those with very low levels of education. As employment growth in the construction sector slows down, options become even more limited for this group. Skills development or other interventions in urban areas will need to consider this structural challenge as they select areas of focus.

The COVID lockdown and consequent migrant crisis highlighted the extreme vulnerabilities of the migrant workforce in cities. Strong governmental support in the form of a minimum urban employment guarantee or rapid deployment of a deep urban social safety nets are the most credible alternatives to address the livelihoods-informality-migration crisis in urban areas.

Gaps in urban economic data are a serious constraint to the planning, management and tracking of urban employment, which is a necessary condition for India's post-COVID economic recovery.

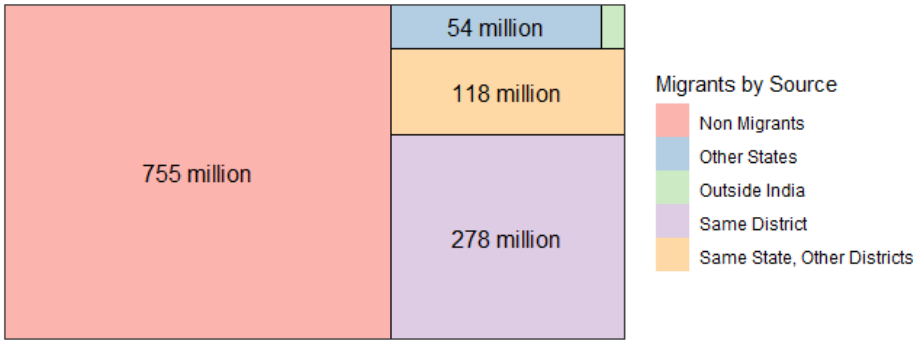
Migration

Migration Trends (2001-2011)

India's urbanisation is not driven by rural to urban migration, but by 'natural' population growth and reclassification of existing areas as urban (Revi et al., 2015). In India, national-level information on migration primarily comes from the population Census and the National Sample Surveys. However, many of the complex patterns of migration such as short-term and circular migration (Nayyar and Kim, 2018), and women's mobility for work (Mazumdar et al., 2013), are largely missing in these data sets.

Only a small part of migrants in India are inter-state migrants – 12% of the 455.8 million migrants (54 million persons) (Census of India, 2011) as shown in Figure 1.9. Uttar Pradesh and Bihar are the largest senders of migrants, followed by Rajasthan, Maharashtra and Madhya Pradesh. Maharashtra and the NCT of Delhi were the states that received the largest number of interstate migrants, with 17% and 12% of the total respectively, followed by Uttar Pradesh, West Bengal and Gujarat.

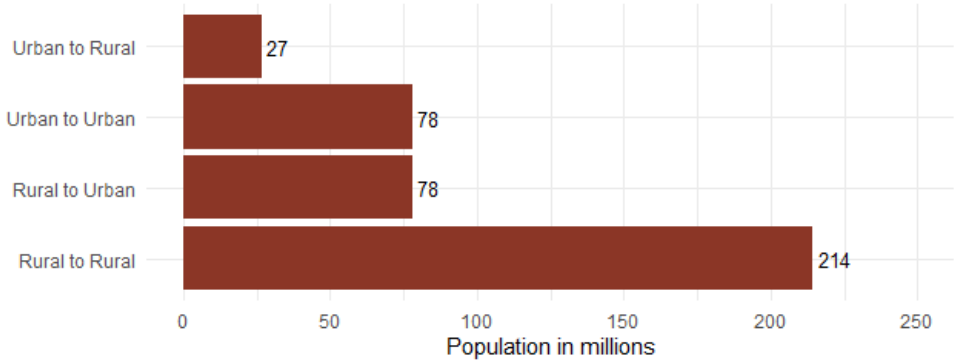
Figure 1.9: Where India's Migrants Came From



Source: Census, 2011

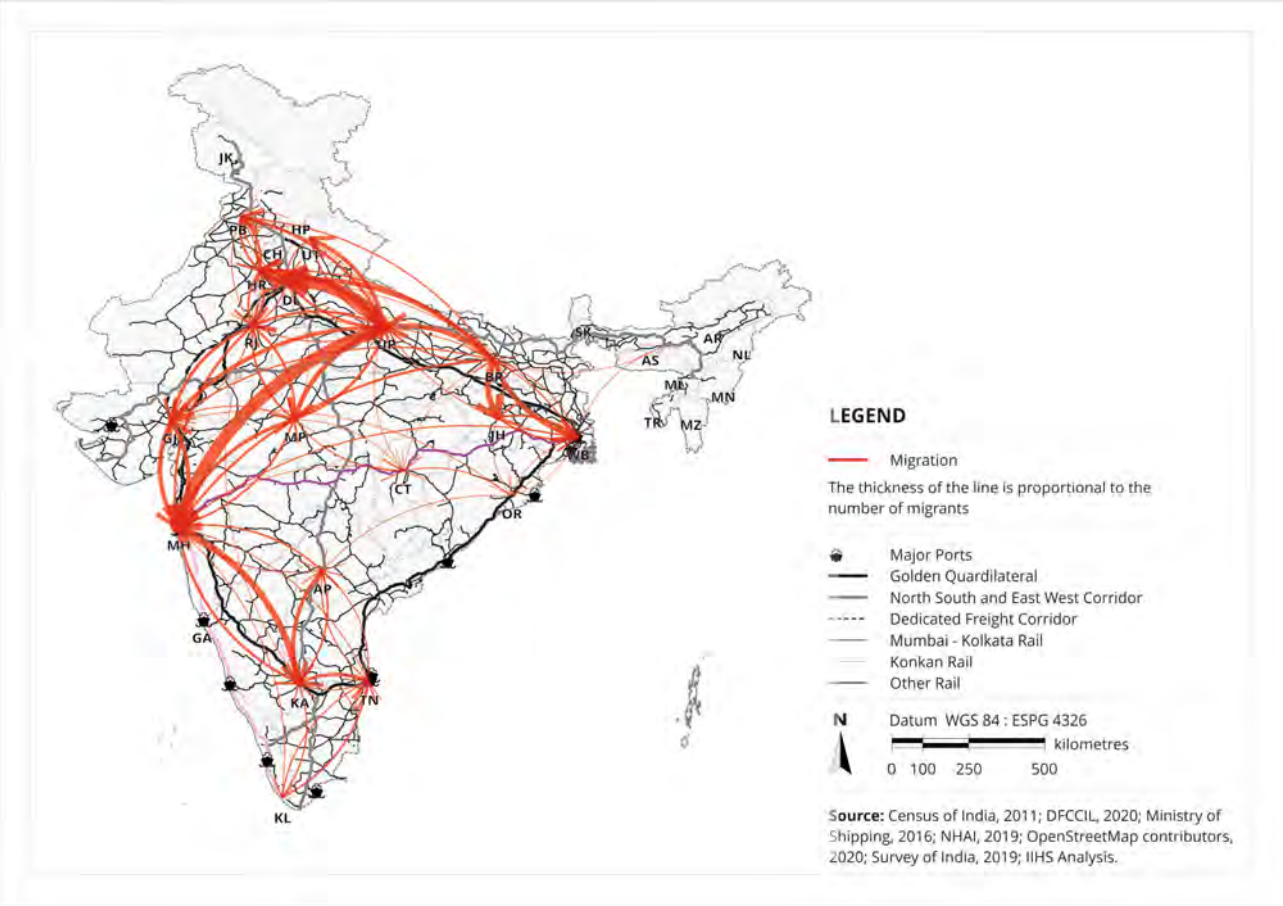
A lot of this migration is mainly to neighbouring states and districts, for instance, from Bihar to UP and Jharkhand, and from western Uttar Pradesh to the NCT of Delhi, as shown in Figure 1.11. The Census tends to undercount part-time, seasonal and circular migrants (Nayyar and Kim, 2018), while the Economic Survey 2016-17 made substantially higher estimates of inter-state migration (60 million persons).

Figure 1.10: Movement Across Rural and Urban Areas (millions)



Source: Census, 2011

Figure 1.11: Inter State Migration Flows (2011)



Migration During the COVID-19 Pandemic

A large number of migrant workers, most of them short-term, seasonal and cyclical migrants, returned to their homes from urban centres during the COVID-19 pandemic. According to the Indian Railways (Ministry of Railways, 2020a; Ministry of Railways, 2020b): 4,277 special Shramik trains brought back 6 million workers to their home states by 12 June 2020. A vast majority (68%) of these trains originated in Gujarat (24%), Maharashtra (19%), Punjab (10%), UP (7%), and Bihar (7%) and overwhelmingly ended up in UP (41%), Bihar (36%), Jharkhand (5%), Odisha (5%) and West Bengal (4%).

The COVID crisis has highlighted the extreme vulnerabilities faced by India's migrant population. The pattern of returning migrants maps onto development patterns and regional disparities. State governments and urban areas will need to improve welfare and social protection measures and secure work opportunities in order to get this workforce to return to cities.

Implications for the XV Finance Commission

Migration is a structural response to under-development in some regions and economic and educational opportunities in others. It is a complex phenomenon which is poorly understood and even worse addressed in state and regional development policy. The COVID lockdown has forced an examination of questions of access to food, basic infrastructure and services, adequate housing, and decent and secure work for migrants.

It has also highlighted the low economic resilience of most million+ cities, considering informal enterprises and the large population of workers in this sector account for up to 40% of India's GDP. Finance Commission investments need to carefully evaluate their needs and target interventions that will balance between sending and receiving regions for migration, but with a different emphasis in both:

- **In sending regions**: Improvements in economic opportunity, productivity, infrastructure and services, and access to finance in the local economies need to be prioritised.
- **In receiving regions**: Creation of universal social safety nets and employment security.

Gaps in data on migration is a serious challenge to planning urban and regional development, employment creation and building the resilience of the urban and national economy to shocks that COVID has clearly showed us. A special thick-round round of the National Sample Survey should be conducted once every 3-4 years that covers both the source districts and key destination districts and the 100-largest urban centres. This will cover all mega-urban regions, emerging urban clusters and less developed regions.

Sustainable Urbanisation

Sustainable urbanisation in India is a considerable opportunity for at least a third of the population, but it also presents a set of complex challenges as large, highly vulnerable populations live in poverty in multi-hazard environments and climate change hotspots. Indian cities can increase sustainability and resilience by reducing vulnerability and exposure by providing access to safe housing, basic services and sustainable livelihoods. India's urban areas have the potential to drive regional, national, and global sustainable development, but this growth needs to align with the country's commitments to the UN Sustainable Development Goals (SDGs), Habitat III Agenda and the Paris Climate Agreement.

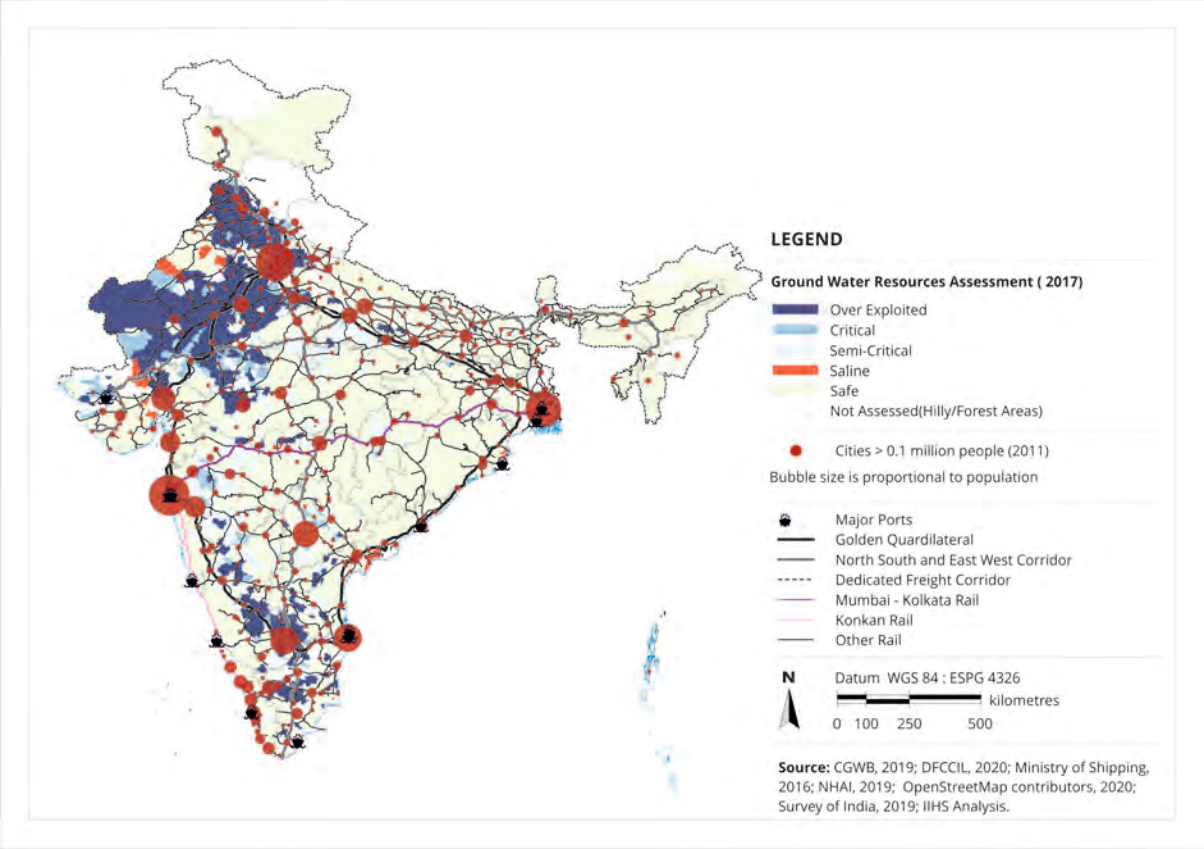
Groundwater Deficit (2017)

Water is the most critical constraint to urbanisation in much of India, even though urban areas still make up less than 10 percent of the gross water demand. This is because of the mix of serious surface water deficits that are forcing mega-cities to draw water from 150-300 km. away via pipelines and canals from dams and reservoirs that are becoming increasingly unsustainable due to local environmental impacts, drought and flooding that come with climate variability and change. Hence, most cities and a large number of households within them with the resources, have shifted to the extensive use of groundwater (Revi et al., 2015).

Groundwater use may be highly unsustainable especially in hard rock terrains in peninsular India and in mountain areas where much of the water being drawn comes from fossil aquifers that may not be possible to recharge over the lifetimes of these settlements. In coastal and other areas, saline intrusion or high levels of arsenic, iron and fluoride could contaminate groundwater making it either very expensive to treat or a serious risk to human health.

Hence, very close attention to groundwater is necessary to address the sustainability of urban development as presented in Figure 1.12, which outlines the mega-urban regions, clusters and corridors that are at risk due to groundwater-related challenges.

Figure 1.12: Block Wise Groundwater Resources Assessment (2017)



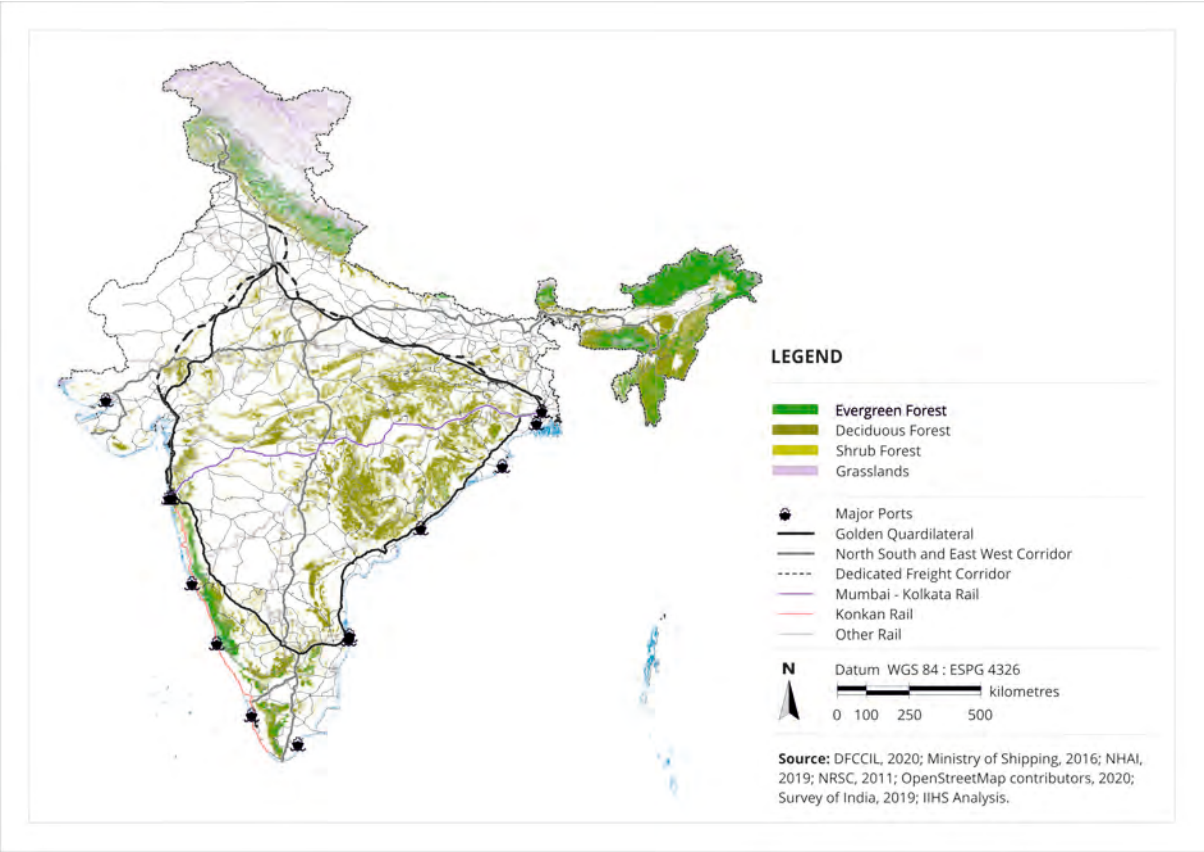
Critical to over-exploited Groundwater

Mega-urban regions (2031)	1. NCR+ 2. Chennai-Coimbatore-Trichy 3. Greater Kolkata-Asansol 4. Ahmedabad-Vadodara-Surat
Emerging economic corridors	1. Chandigarh-Amritsar-Ludhiana 2. Greater Bengaluru-Mysore 3. Greater Hyderabad

Forests & Ecologically Sensitive Areas

India has been attempting to maintain a fair balance of areas under forests and tree cover, that is now close to 22% against a policy goal of 25% of its geographical area by 2025 (Forest Survey of India, 2019). Urbanisation has been a serious threat to this. Urbanisation is in direct conflict with forest, coastal and ecosystem conservation in many parts of India. Conservation of forests and ecologically-sensitive areas are critical for the long-term survival of its cities and the well-being of its people, as they provide ecosystem services: e.g. clean water, clean air, flood control and biomaterials that these human settlements need. New urban and infrastructure development, urban expansion needs to be managed to deliver sustainable development outcomes through planning, regulation and incentives, to limit their environmental impacts.

Figure 1.13: Distribution of Evergreen, Deciduous, Shrub Forests and Grasslands (2011)



Mega-urban regions (2031)	1. NCR+ 2. Mumbai-Pune 3. Greater Chennai 4. Greater Kolkata 5. Surat
Emerging economic corridors	1. Greater Bengaluru 2. Coastal Andhra 3. Raipur-Durg-Bilaspur

Underdeveloped Regions	1. Mumbai-Nagpur-Raipur-Kolkata traverse 2. North-eastern states (7) 3. Hill states & UTs (4) 4. Konkan coast 5. Andaman & Nicobar Islands

Implications for the XV Finance Commission

Indian cities need to be at the forefront of urban sustainability and building resilience to address climate mitigation and adaptation. The development of urban regions needs to integrate environmental risk and hazard sensitivity into their planning framework and processes – as the following section outlines.

Coherent urban governance, institutional arrangements, planning and service delivery frameworks are necessary to enable urban renewal and development processes to deliver sustainable urban development outcomes. Thorough planning, investments and monitoring frameworks are necessary to enable public, private, civil society institutions and citizen action to reduce vulnerability, exposure and environmental risk of drought, groundwater depletion, flooding, deforestation and damage to vulnerable ecosystems.

Urban sustainability must be tracked first for the 100-largest urban areas (that cover all mega-urban regions and emerging urban clusters) and then for the ~500 Class I towns and cities, with a population of 1 Lakh. This will assist State governments and the Govt. of India in making the best of their investments and development expenditure, provide a framework to monitor performance outcomes of ongoing national and state programmes. This would assist India and the NITI Aayog in comprehensively monitoring and reporting the performance of Indian cities and states on the SDGs in urban areas, and more specifically the 100-largest urban areas.

Building Resilience Against Urban Hazard Risk

Urban Risk and Resilience

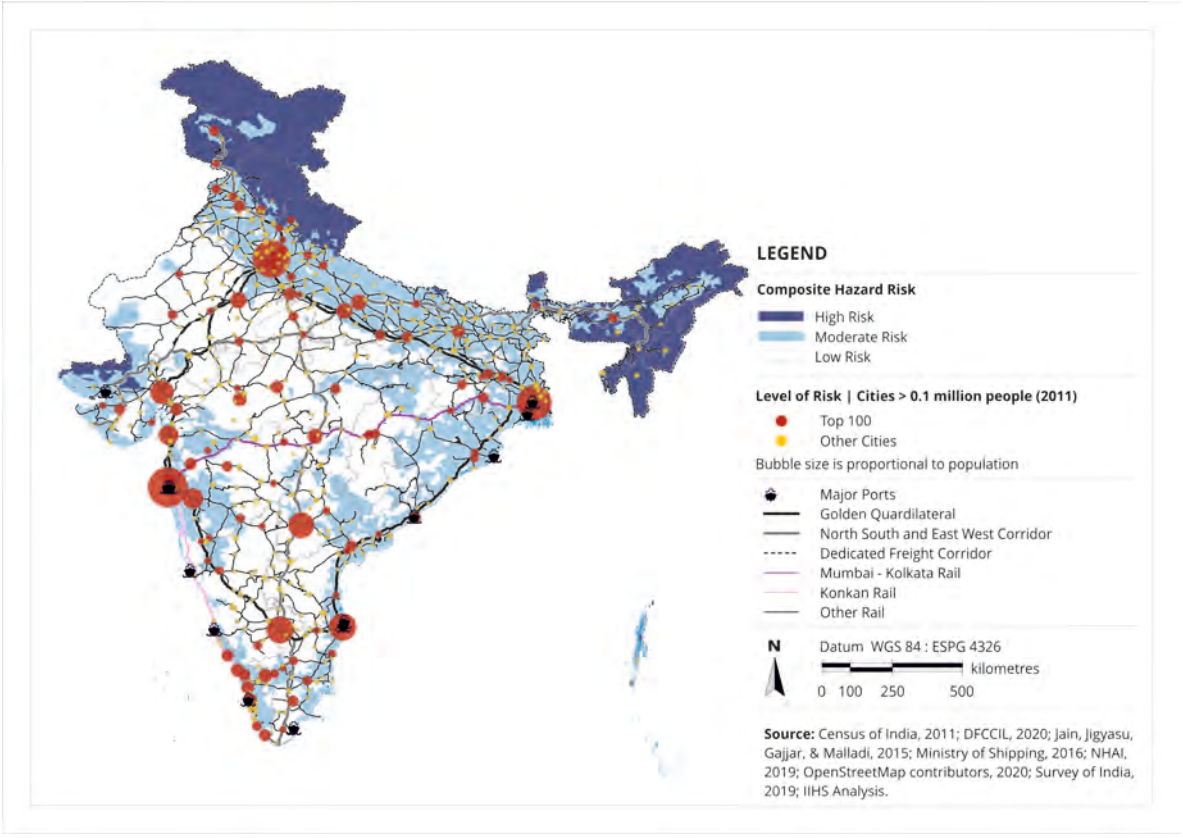
Urban infrastructure and resilience investments are important to reduce future economic losses, and to fulfil the economic and livelihood creation role of urban areas. Indian cities are complex, multi-hazard environments and climate change hotspots. Growing concentrations of people and built and economic assets in Indian cities increase their exposure to disaster risk. Many are highly vulnerable to both everyday risks as well as extreme events and risks arising from climate change-related variability such as drought-induced water scarcity and food insecurity, localised urban floods, and urban heat island effect, as well as environmental and health risks.

Cities also accumulate and generate new environmental risks through unplanned development. They are vulnerable to food, energy and water scarcity and consequent social and political unrest. These risks and challenges undermine the potential of cities to foster inclusive and sustainable growth. Building resilience to risk needs to be a foundational principle of urban development in India and should govern planning, investment and infrastructure development decision making.

Composite Hazard Risk

Composite Hazard Risk brings together multiple hazards that impact the Indian subcontinent including earthquakes, cyclonic storms and surge, flooding and drought as presented in Figure 1.14. This outlines the mega-urban regions, clusters and corridors and the 100-largest cities that are exposed to risk.

Figure 1.14: Composite Hazard Risk for Cities with Population Greater than 0.1 million (2011)



Moderate to High Composite Hazard risk

Mega-urban regions	1. NCR+ 2. Mumbai-Pune-Nasik 3. Chennai-Coimbatore-Trichy 4. Greater Kolkata-Asansol 5. Ahmedabad-Vadodara-Surat
Emerging economic corridors	1. Chandigarh-Amritsar-Ludhiana 2. Coastal Andhra
Underdeveloped Regions	1. Mumbai-Nagpur-Raipur-Kolkata traverse 2. North-eastern states (7) 3. Hill states & UTs (4) 4. Konkan coast 5. Andaman & Nicobar Islands

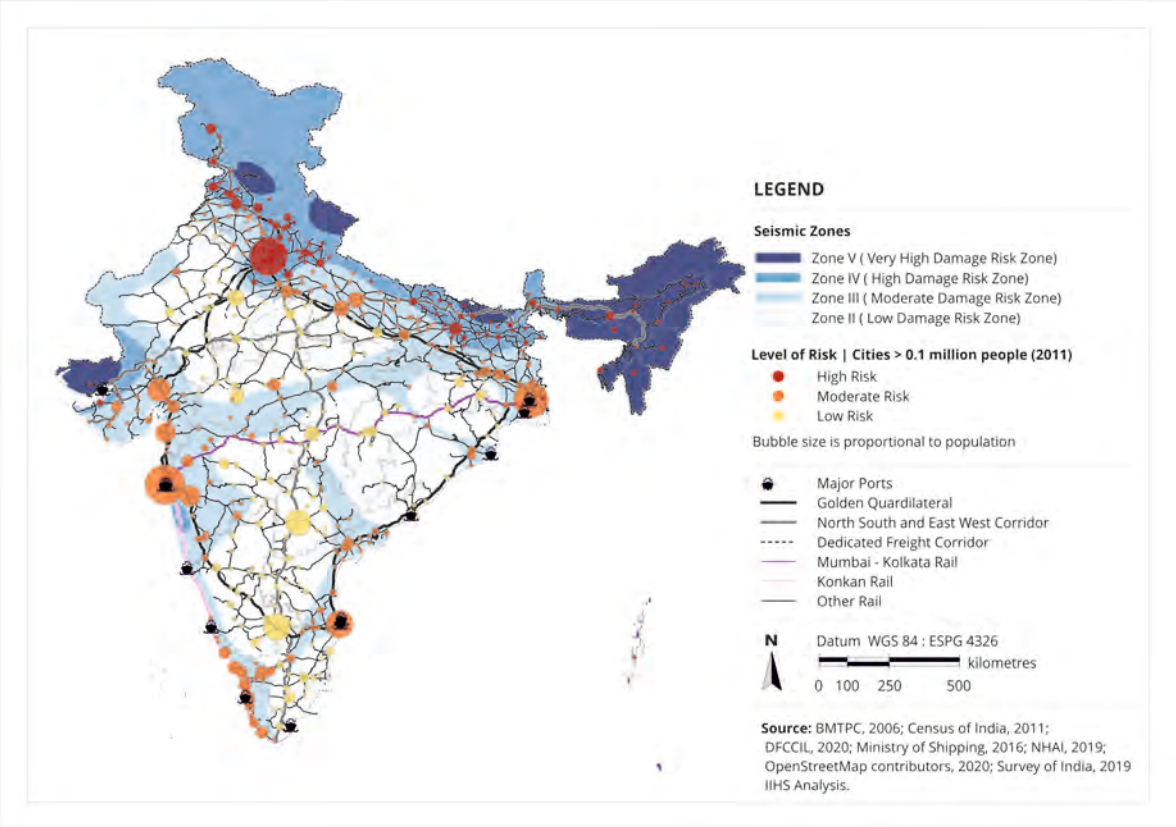
A large number of India's larger cities and urban regions are exposed to multiple risks. This not only induces economic shocks after a major event, but can cause large loss of life, buildings and capital stocks that have negative impacts on future output. Urban areas concentrate vulnerability and risk. Hence planning, investment and disaster risk reduction need to be integrated in urban development and investment decisions.

Indian cities face risks on multiple fronts and the following sections delve into three key hazards: earthquakes, cyclones and floods.

Earthquake Hazard Risk

Earthquakes are among the most devastating risks that cities are exposed to in India, starting from the Bihar-Nepal earthquake of 1932 to the Gujarat earthquake of 2001. The earthquake hazard risk map in Figure 1.15 outlines the mega-urban regions, clusters and corridors and the 100-largest cities that are exposed to earthquake risk across seismic Zones I to V (Jain et al., 2015).

Figure 1.15: Earthquake Hazard Risk for Cities with Population Greater than 0.1 million (2011)



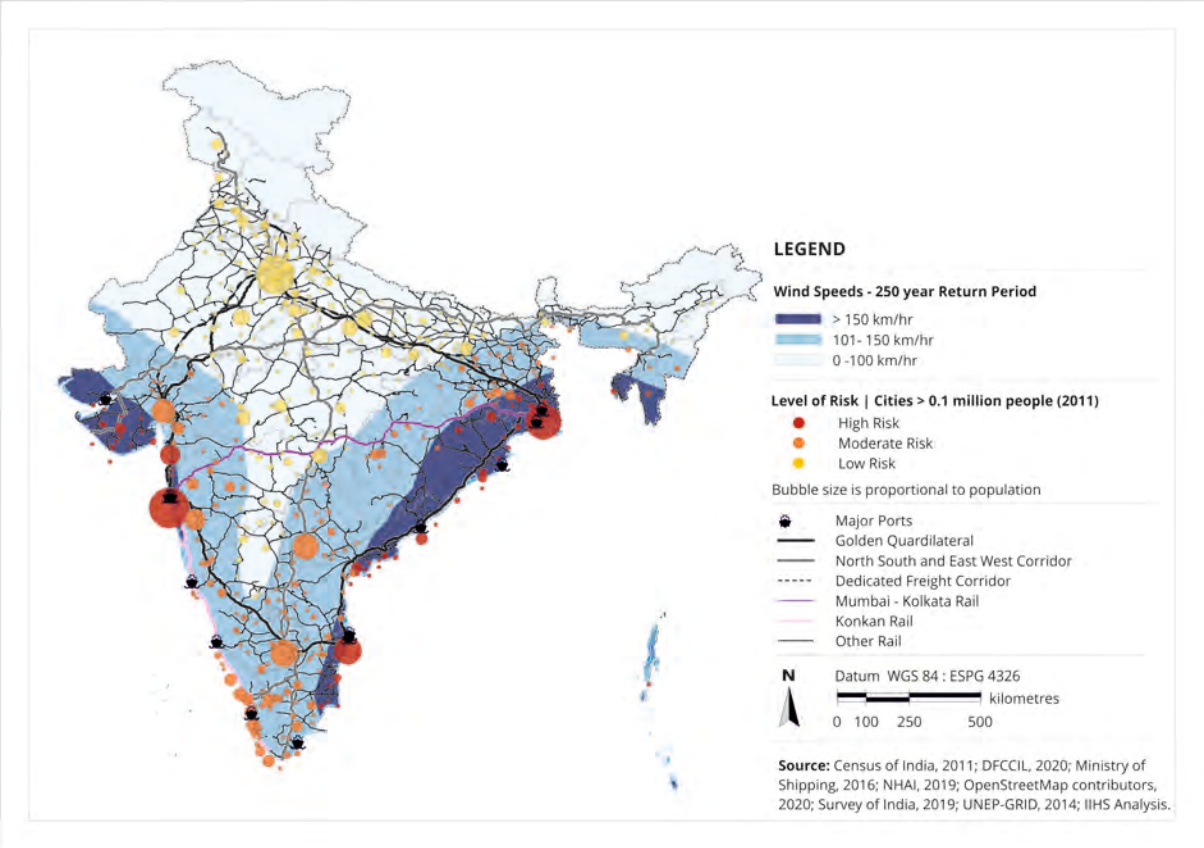
Earthquake Hazard risk (Zone III to V)

Mega-urban regions (2031)	1. NCR+ 2. Mumbai-Pune-Nasik 3. Greater Kolkata-Asansol 4. Ahmedabad-Vadodara-Surat
Emerging economic corridors	1. Chandigarh-Amritsar-Ludhiana 2. Greater Hyderabad 3. Coastal Andhra
Underdeveloped Regions	1. Mumbai-Nagpur-Raipur-Kolkata traverse 2. North-eastern states (7) 3. Hill states & UTs (4) 4. Konkan coast 5. Andaman & Nicobar Islands

Cyclone Hazard Risk (2014)

Cyclonic storms and associated storm surges have been the cause of significant casualties and destruction of property in India, including the Orissa supercyclone of 1999. The cyclone hazard risk map in Figure 1.16 outlines the mega-urban regions, clusters and corridors and the 100-largest cities that are exposed to cyclonic storm risk (Jain et al., 2015).

Figure 1.16: Cyclonic wind speed hazard risk for cities with population greater than 0.1 million (2014)

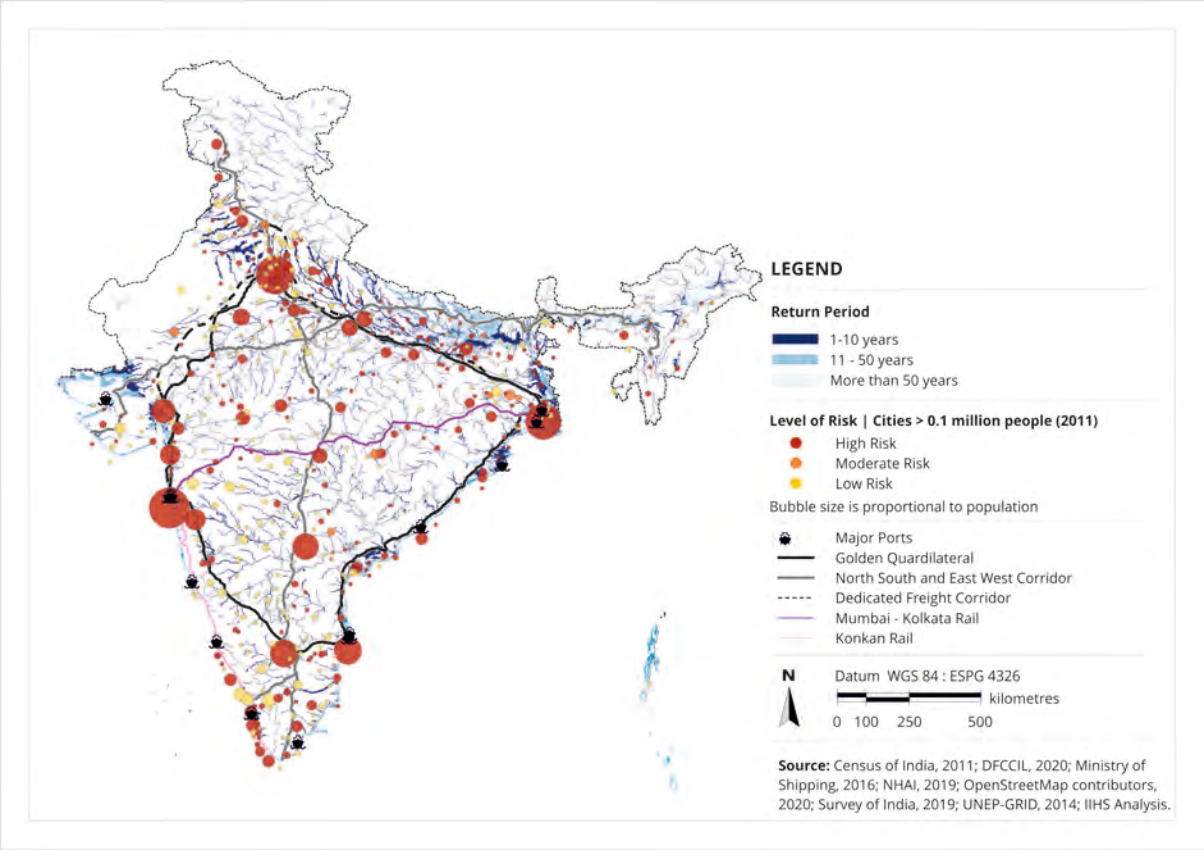


Mega-urban regions (2031)	1. Mumbai-Pune-Nasik 2. Chennai-Coimbatore-Trichy 3. Greater Kolkata-Asansol 4. Ahmedabad-Vadodara-Surat
Emerging economic corridors	1. Chandigarh-Amritsar-Ludhiana 2. Greater Bengaluru-Mysore 3. Greater Hyderabad 4. Coastal Andhra 5. Raipur-Durg-Bilaspur
Underdeveloped Regions	1. North-eastern states (4) 2. Konkan coast 3. Andaman & Nicobar Islands

Flood Hazard Risk (2014)

Flooding is the most widespread hazard that Indian cities and settlements are exposed to. Some regions, especially in the plains of the Ganga and Brahmaputra are impacted every year. The flood risk map in Figure 1.17 outlines the mega-urban regions, clusters and corridors and the 100-largest cities that are exposed to recurrent flood risk at 10-year return periods or less.
A large area of eastern and north-eastern India, and some parts of coastal and western India are exposed to recurrent flooding. This can be expected to increase in frequency and intensity with extreme climate events. Local flooding is a widespread challenge to hundreds of Indian cities because of unplanned development and poor or no drainage.

Figure 1.17: Flood Hazard Risk for Cities with Population Greater than 0.1 million (2014)



Recurrent Flood risk

Mega-urban regions (2031)	1. Delhi and parts of NCR+ 2. Greater Mumbai 3. Chennai 4. Greater Kolkata 5. Ahmedabad-Surat
Emerging economic corridors	1. Greater Bengaluru 2. Coastal Andhra 3. Greater Hyderabad

Implications for the XV Finance Commission

A coherent framework needs to be built involving the public and private sectors, and civil society to ensure urban development that links short-run priorities with long-run strategic actions. States and cities need strong fiscal incentives to take pre-emptive measures to reduce vulnerability and exposure and build resilience and institutional capacity for disaster risk reduction.

The capacities of ULBs and other local governance institutions needs to be improved for disaster mitigation. Resilience building can be incentivised by:

1. Reducing loss of life by establishing agile and robust early warning and emergency response systems and developing long-term plans for managing lifeline infrastructure;
2. Mitigation of output losses via robust economic production systems;
3. Mitigation of capital losses and building of long-term resilience, as part of all new infrastructure investments;
4. Building ULB/other local institutional capacity to raise their own revenue, plans and execute retrofits and new resilient infrastructure and public buildings;
5. Addressing future population growth in urban areas (particularly accounting for high-intensity peri-urban growth) and balancing current and future infrastructure investment needs.

Resources can be specifically directed (based on the 100-largest cities: other urban areas: rural population share) to enable urban resilience to multiple hazards, reduction of multi-dimensional vulnerability and building of disaster risk reduction capacities. This builds on the XV Finance Commission's emphasis on disaster risk reduction and resilience building in urban areas (Revi, A., Bazaz, A. 2019).

CHAPTER 2

Post-COVID Priorities

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Post-COVID Urban Economic Recovery

India's Pre-COVID Economic Condition (2019-20)

Key economic sectors in India were experiencing a slowdown well before COVID-19 struck. Since 2019, India's GDP growth had slowed[1], narrowing the fiscal space for intervention. A decline in urban private sector investments in construction and infrastructure played a key role in this slowdown[2]. The effect of the economic slowdown on livelihoods and employment was also severe.

Construction[3], manufacturing and agriculture account for three-fourths of India's working population as well as a significant share of informal workers. All these sectors experienced pre-COVID contraction in employment in 2019. Moreover, employment in manufacturing declined and the growth rate of jobs in construction declined over the 2011-12 and 2017-18 period.

Pre-COVID economic and employment growth slowdown constrains the space for economy recovery. But a stimulus in basic infrastructure, housing and urban development sectors, along with a focus on underlying vulnerabilities can assist in long-term recovery and expand livelihood opportunities in the urban informal sector.

The COVID-19 Pandemic and Resulting Urban Economic Shock

The COVID-19 shock started in India's metropolitan areas with higher incomes, assets and better health and other infrastructure, than smaller cities and villages. As India's total infections crossed two million, the pandemic is expected to expand to smaller cities and towns across the country, over 2020-21. This will continue to disrupt economic activity and exacerbate existing regional and spatial inequalities, especially in its poorer and more vulnerable states and districts.

The March to May 2020 lockdown was applied nationwide and provided a critical breather to build state health infrastructure and response systems, but it led to massive economic disruption. This came with differential economic impacts with the worst-affected being vulnerable and migrant groups in many urban areas, with limited financial resources and low resilience. Most chose to return to their home villages and states, even though they knew economic opportunities and health services were poorer there.

Post-COVID urban interventions and investments need to accelerate economic and employment recovery and proactively address underlying vulnerability and risk. This could be initiated in the largest 100 urban areas but expanded in phases to cover ~500 1 lakh+ AMRUT towns and eventually, the whole country.

[1] See https://www.businesstoday.in/current/economy-politics/gdp-slowdown-longest-india-2019/story/391754.html
[2] See https://api.anarock.com/uploads/research/Private-Equity-in-Indian-Real-Estate-ANAROCK-Capital.pdf
[3] See http://iamrindia.gov.in/writereaddata/UploadFile/report6_1007.pdf

The GoI's Post-COVID Economic Recovery Package

The Rs. 20-lakh crore economic recovery package announced in May 2020[4] targeted groups and economic sectors vulnerable to the pre-lockdown economic slowdown and liquidity crisis. This was compounded by the economic impact of the COVID lockdown. Key interventions in urbanisation-relevant areas include:

1. A range of loan packages and a 'Fund of Funds' to facilitate equity investments in MSMEs, as they are seen as key to economic recovery[5].
2. Pre-COVID financial and the liquidity crises impacting the energy sector was addressed by provision for loans to repay GENCOs, against state guarantees through PFC and REC[6].
3. Airport auctions announced in a dozen Tier II urban centres[7].
4. Liquidity boost to NBFCs/ HFCs/ MFIs via a 'Stressed Asset Fund', Partial Credit Guarantee Scheme 2.0. Plus, special refinance facilities, a special liquidity facility for MFs and extension of loan moratoria were also announced[8].

The real estate liquidity crisis[9] drew prominent interventions to induce and infuse liquidity by rescuing private entities and projects via government guarantees. Moreover, bad investment instruments were purchased without requiring these entities to liquidate underlying physical assets. Steps were also taken to provide credit guarantees, loan extensions[10], ease RERA date stipulations, and increase Viability Gap Funding for social infrastructure projects[11].

The focus of the economic recovery package on MSMEs and acknowledgement of the deep liquidity crises in the real estate and construction sectors are important steps towards medium-term economic recovery in urban areas. But private investment that follows public expenditure will be key, and this may be difficult due to fiscal constraints.

Post-COVID Economic Recovery: Real Estate and Construction

Housing and infrastructure sectors require 'patient' long-term capital with financial horizons of 10-30 years and more. As discussed above, real estate and construction sectors are currently facing multiple crises, ranging from a demand-supply mismatch to a severe liquidity crisis. The returns for investors in the residential sector in India dropped to 2-3% in 2019. Infrastructure Leasing & Financial Services (IL&FS), a key NBFC involved in financing and developing infrastructure, collapsed in September 2018[12] due to a loss of liquidity, underlining a deep crisis in the industry[13].

[4] See https://pib.gov.in/PressReleseDetailm.aspx?PRID=1623601
[5] See https://www.factchecker.in/before-msme-fund-of-funds-a-rs60000cr-fund-for-startups-disbursed-6-of-target/
[6] See https://www.crisil.com/en/home/newsroom/press-releases/2020/05/rs90000-crore-liquidity-injection-a-breather-for-power-gencos.html
[7] See https://www.business-standard.com/article/pti-stories/govt-to-auction-six-more-airports-under-ppp-model-fm-120051600847_1.html
[8] See https://www.outlookindia.com/outlookmoney/magazine/story/housing-sector-crisis-and-beyond-371
[9] See https://assets.kpmg/content/dam/kpmg/in/pdf/2019/08/disruptions-real-estate-india.pdf
[10] See https://www.financialexpress.com/industry/rbi-allows-nbfcs-to-extend-dcco-for-loans-to-commercial-real-estate-by-one-year/1931435/
[11] See https://www.outlookindia.com/newsscroll/vgf-support-for-social-infra-enhanced-to-30-on-higher-rs-8100-cr-outlay/1836575
[12] See https://thewire.in/business/ilfs-downfall-banking-india-economy
[13] See https://economictimes.indiatimes.com/industry/banking/finance/a-year-after-ilfs-collapse-debt-destruction-and-dithering/articleshow/70868024.cms?from=mdr

The real estate crisis[14] had attracted pre-COVID public policy interventions to infuse liquidity, including:

- The establishment of a Rs. 25,000 crores 'Alternative Investment Fund' (AIF)[15];
- A range of regulatory support measures, for e.g. credit guarantees and NPA write-offs[16];
- Judicial interventions that brought public sector agencies (e.g. NBCC) to complete private sector projects[17].

India's real estate industry currently poses high risks to both domestic and foreign investors, due to the following reasons:

- A significant price mismatch between housing demand and supply;
- High financing costs and risky practices of fund management;
- Low returns which are insufficient to offset risks; and
- Delayed deliveries and litigation, leading to the deployment of the Insolvency and Bankruptcy Code.

In the current economic environment, easy availability of 'patient capital' is unlikely, with domestic markets' illiquidity and a post-COVID shrinking of the global economy. It would be best to be deeply conservative on large private sector participation in urban and infrastructure development-led post-COVID economic recovery.

Post-COVID Urban Economic Recovery: Sectoral Opportunities

A range of urban economic opportunities that have not yet been targeted by recovery packages, have the potential to build on existing public programmes and schemes and release institutional barriers and bottlenecks:

1. **Economic recovery and development:**
   The informal sector was and continues to be severely impact by the pandemic and lockdown. Focusing on the needs of groups such as construction workers, street vendors, domestic workers is key to recovery. Supporting MSMEs to uplift sectors such as manufacturing, trade and tourism – also affected by the lockdown – should be a priority area.

   The post-COVID reality offers opportunities to proactively move towards clean energy sources. This would not only spur sustainable urban development but is also a step towards realising India's climate commitments. Connected to this is also the opportunity to transition towards carbon-neutral or e-mobility on a large scale. This could mean more job opportunities in manufacturing as well as moving to transportation systems that are more efficient and cleaner.

2. **Climate and disaster resilient infrastructure:**
   Related to the previous point, mitigation and adaptation to climate change is essential to move towards more resilient economies. Identifying cleaner energy sources such as solar and ensuring more widespread energy access is integral for growth. Plus, lack of basic infrastructure compounds vulnerability among poorer sections. Hence, investing in

[14] See https://realty.economictimes.indiatimes.com/news/industry/banks-reluctant-to-lend-to-realty-sector-on-rising-npa-survey/62703764
[15] See https://bfsi.economictimes.indiatimes.com/news/policy/government-approves-rs-25000-crore-alternate-fund-for-stalled-housing-projects-nirmala-sitharaman/71948211
[16] See https://www.indiatoday.in/business/story/severe-cash-crunch-in-real-estate-leaves-beleaguered-banks-exposed-1609029-2019-10-14
[17] See https://timesofindia.indiatimes.com/india/sc-asks-nbcc-to-take-over-housing-projects-orders-ed-probe-against-amrapali/articleshow/70341361.cms

environmental services and tackling neglected, yet essential, infrastructure such as water supply, drainage and sanitation services, will be key for longer-term recovery.

3. **Securing tenure and affordable housing:**
   COVID has also underlined the need for multiple reforms in land systems and affordable housing. These include a focus on land and property tax systems reform, planning for integrated land use, mobility and infrastructure, and economic development. Housing needs should be tackled with a multi-pronged approach of enabling upgradation and rental housing and making affordable new construction.

4. **Improved governance and finance:**
   Despite the 74th Constitutional Amendment and subsequent reforms, it is essential to work towards strengthening ULBs' fiscal base as well as institutional capacities. Governance and finance policies that improve urban economic and fiscal data and digital management are essential. Improved capacities can be achieved through state municipal cadres as well as governance reform and devolution.

The XV Finance Commission's contribution towards accelerating post-COVID economic recovery may be limited due to mandate and fiscal envelope constraints. Nevertheless, set of concrete steps could be taken, within the current framework:

- Policy convergence of Finance Commission transfers with the Govt. of India's economic stimulus package and commitment to the sustainable development of urban areas, is a no-cost high-impact contribution.
- Incentivising the building of all infrastructure in at least the 100-largest urban areas to disaster and climate resilient standards, under FC grants, as per NDMA guidelines, would be a significant step forward and in keeping with the FCs disaster management priorities and mandate.
- Strengthening land and property tax systems reform and tenure security under a Governance, Finance & Outcome Monitoring Improvement grant to ~500 Class I towns and cities across all States. This would be distributed on a population (90%) and expenditure performance (10%) basis and converge strongly with Govt. of India's Housing for All programme expenditure and outcomes.
- Strengthening Municipal governance and capacity and information systems under a Governance, Finance & Outcome Monitoring Improvement grant to improve urban economic and fiscal data and digital management in ~500 Class I towns and cities across all States.

Addressing Post-COVID Urban Risk

Urban areas concentrate risk because of their density of population, location (often near sources of water or risk-prone areas because of the economic and strategic advantages they provide) and inequality that forces a large proportion of people to live in unsafe locations (e.g. flood plains or seismically unstable locations and slopes) because of land market and livelihood access constraints.

The COVID pandemic has brought into sharp focus the risks that urban areas concentrate during a pandemic, for e.g. rapid and sometimes exponential infection transmission, difficulty of breaking the chain because of the very high population densities in cities and especially in informal settlements. This section provides an overview of a wide range of risks that urban areas are exposed to in India. They need to be systematically addressed if post-COVID recovery has to be effected rapidly and sustainably, keeping equity in mind.

Economic Risks

1. **GDP slowdown** and consequent sectoral challenges especially in construction and real estate, transport, tourism, trade, manufacturing, utilities and banking.
2. Decline in overall **employment and livelihood opportunities**, especially in MSMEs and the informal sector.
3. **Lower savings** and investment and urban **consumer demand.**
4. **Very limited fiscal space** for public expenditure in urban infrastructure, services and asset building-led recovery.

Financial Risks

1. **Highly constrained liquidity** and widespread insolvency especially among urban MSMEs, own-account enterprises.
2. **Debt and NPA crisis** deepen in particular sectors, for e.g., real estate, transport, power utilities, banking and finance.
3. **Long gestation for incremental investment** especially in smaller towns and depressed regions.
4. **Higher risk premium for long-gestation** infrastructure and urban development projects, especially with land, regulation and implementation delay-related constraints.

Social and Health Risks

The COVID pandemic has exposed the fault lines in urban health systems, gaps in a universal social safety net and the consequent impact on livelihood security, migration and the economy. Land and investment-related risks are long standing constraints to planned urbanisation and economic development, which the COVID crisis may provide an opening to address.

1. **Universal social safety net** is needed to protect the poor and vulnerable and mitigate the economic and human consequences of urban economic and livelihood shock inflicted by the spread of COVID-19 and ensuing lockdowns.
2. **Urban health systems** are critical to enable universal coverage and access to affordable health services, as well as address the deepening multi-pronged burdens of common diseases, pollution, accidents and epidemics.
3. **Migration** has emerged as a primary faultline in urban India, with tens of millions of workers with little or no safety net in terms of livelihoods, food and tenure security and very limited economic opportunities in areas from where they migrated from. This will require a systemic response to deepen social safety nets, provide universal entitlements, irrespective of location and enable balanced regional development to create economic and livelihood opportunities in less-developed states, regions and districts.

4. **Urban education systems** have suffered tremendous dislocation as they are the last service to come online, impacting the lives, education and nutrition-support of hundreds of millions of school children, students in higher educational institutions and teachers across the country. A re-imagination of the resilience and accessibility to education, in a country with a deep digital divide will be necessary.

Regulatory and Legal Risks

1. **Land-related legal and regulatory risks** are serious impediments to land acquisition, assembly, land-use change and planning that inhibit tenure security, local economic development, infrastructure provisioning and sustainable land-use planning.
2. **Investment-related risks** are serious impediments to safe, cost-effective, productive, employment-enhancing and ecologically sustainable urban and infrastructure development required to lower cost of capital, ensure higher liquidity and accessibility of finance.

Environmental Risks

1. In terms of urban **pollution and health risk,** the COVID lockdown has shown that drastic reduction in air and water pollution is possible with a positive impact on human health.
2. **Deteriorating urban ecosystems and services** can be addressed with changes in production and consumption systems and working within regional resource constraints.
3. **Vulnerability of ecosystem services,** i.e., food, energy and water security need to be addressed by transitioning to a green circular economy, powered by renewable energy.
4. **Unplanned and unsustainable urban growth** can be addressed through environmentally-sensitive land-use planning and by integrating climate and disaster resilience into investment.

Climate Risks

1. **Climate-induced extreme weather** requires risk mitigation responses to urban flooding, storm surge, cyclonic winds as they become more frequent and intense.
2. **Urban drought risk** combined with overuse of groundwater will need to be addressed through water efficiency schemes, recycling and conjunctive water resource management.
3. **Urban heat stress** will need to be managed to reduce the impact of urban heat waves, exacerbated by urban heat island effect, on human health and outdoor work.
4. **Sea level rise** is a long-term constraint to the location and expansion of cities and threatens the safety of infrastructure in low-elevation coastal zones.
5. For **air pollution,** mitigation responses can be linked to deep decarbonisation of urban energy and transport systems and a transition to e-mobility.

Post-COVID Goals, Outcomes and Strategic Policy Options

The risks detailed above need to be examined in the context of pre-COVID levels of differential vulnerability across communities and sectors. This understanding yields a list of broad strategic options and goals that can haul the country back on the path towards recovery:

1. Enable short-term post-COVID economic recovery
2. Establish safety nets for food, tenure/housing, decent work and basic services.
3. Enable jobs-rich economic recovery and resilience while addressing migration, informality & precarity.
4. Improve conditions for current (2021) urban population: ~450 m. in ~8,000 places.
5. Address needs of incremental (2031) urban population: ~150 m. in ~12,000+ places, in the 2020s.
6. Strengthen urban-rural linkages between urban areas, outgrowths and adjoining villages.

Priority Development Outcomes

Over the next 5 to 10 years, tangible development outcomes are necessary, including: (i) accelerating recovery and growth possibilities in locations and sectors that have the most potential; (ii) addressing the employment crisis by focusing on an informal work and MSME-led recovery that is broad-based and can stimulate demand in the economy; (iii) mitigating risks and vulnerabilities in the least developed states and districts; and (iv) addressing key bottlenecks in institutional capacity and implementation.

The XV Finance Commission could make a significant contribution to building the capacity to address short and medium-term risk across the multiple dimensions outlined above by enabling a shift in focus from reactive to proactive risk mitigation. This is well addressed by shifting the proportion of grants to urban areas to match and track ongoing levels of urbanisation e.g. moving from 32.5 percent to 35 percent over (2020-25) with 0.5 percent increments each year. This addressed both the current and incremental urban population. Second expanding the coverage of basic services investments in urban areas to include health and education. Third, specifying that all investments in urban and regional infrastructure meet national disaster and climate resilient standards. Fourth, specifying that all investments will be made with full cognisance of the multidimensional risks that they are be exposed to, with mitigation measures pre-identified.

Post-COVID Intervention Strategies and Regional Priorities

The COVID-19 pandemic has exposed a wide range of fault lines across India, between urban and rural areas, metropolitan areas, large cities and small towns, the formal and informal sectors, residents and 'migrants'. Each of these is underpinned by regional and spatial inequality, that have not been adequately addressed over the last-30 odd years of liberalisation and economic reform, in spite of a long history of uneven and divergent economic development that successive Finance Commissions have sought to correct, using population-based and development performance based metrics.

This report presents strong evidence around the need to address inter-state, intra-state divergence, inequality and differentials in resources, productivity, income and wealth using place and regional clusters as an organising principle as this is a key dimension of India's economic geography.

A territorial, regional cluster-based approach outlined below provides the opportunity to link places across the rural-urban continuum from hamlets and villages, through small towns, million-cities to large mega-urban regions. These circuits of connectivity, value addition, agglomeration economies and migration, can provide the basis to mobilise, prioritise, target and phase post-COVID intervention strategies.

Balancing Opportunities Across States

Investments in and around existing urban centres and linked settlement systems, and economic corridors, needs to be organised around:

- Mega-Urban regions
- Emerging Urban clusters
- 5 Economic corridors
- 5 Less developed States and risk-prone regions

Investments in creating new towns and cities are not advisable in the current economic and fiscal environment

Post-COVID Urban Economic Recovery: Intervention Strategies

Schemes that are initially state-led, followed by crowding-in of other resources, can be implemented via the following strategic interventions:

- Leverage and redirect existing central schemes and programmes
- Strengthen ULBs and state governments' capacity to mobilise, implement and regulate
- Build enterprise capacity to implement and finance projects
- Build disaster resilience and mitigate climate risk
- Use differential spatial development strategies

Regional Development Strategies for the 100-largest cities by population

Coverage of all of India's urban areas is ideal, but seriously constrained on the supply-side by limited resources and on the demand-side by limited institutional capacities to plan, deliver and monitor. Hence, a targeted and phased approach appears the most pragmatic way forward. The detailed methodology for phased and targeted regional development strategies for the 100-largest cities by population is presented below and in greater detail in Annex IV.

- **Expansion:** Spatial expansion of urban area and planning boundaries, typically via de facto change in peripheral land use, along corridors, urban outgrowths or the integration of non-urban areas; or via a de jure expansion or modification of planning boundaries.
- **Nucleation:** Spatial expansion through the creation of new outgrowths, countermagnets or the upgradation of Census towns or non-urban areas, adjacent or outside existing urban boundaries.
- **Decongestion:** Decreasing or altering gross built-up densities of urban land-uses within existing urban boundaries to acceptable levels, for e.g. 175 persons per Ha.
- **Densification:** Increasing gross built-up densities of urban land-uses within existing urban boundaries within acceptable levels e.g. 175 persons per Ha.
- **Access (Regional & intra-urban):** The development of climate and disaster resilient physical and social infrastructure networks, sustainable ecosystems services and green infrastructure at the regional level.

Finance Commission transfers should incentivise a set of strong contextual regional development strategies, and only support weak strategies, as outlined below, when locally warranted.

100 Largest Cities: Expansion Potential
India's 100-largest cities have limited potential to expand, especially in the Mumbai-Pune-Nasik and NCR region; Greater Bengaluru, Chennai and Kolkata, Hyderabad and a few smaller cities still have some potential.

1. Megacities: Greater Bengaluru, Chennai & Kolkata
2. Million+ cities: Surat, Ahmedabad
3. Other Class I towns

100 Largest Cities: Nucleation Potential
India's 100-largest cities have considerable potential for nucleation including the large and dense: Mumbai, Kolkata and NCR mega-urban regions. This will emerge as a key spatial strategy could support the development of regional networks with greater economic potential along with deeper resilience, if adequately planned and incentivised.

1. Megacities: Bengaluru, Chennai
2. Million+ cities: moderate to strong
3. Other Class I towns: most

100 Largest Cities: Decongestion Potential
Most of India's 100-largest cities have the potential for decongestion within their planned boundaries, including the NCR and Greater Bengaluru. This is a key spatial development strategy to improve liveability, if implemented along with sustainable mobility and appropriate planning and land market interventions.

1. Megacities: Mumbai, Kolkata, Chennai
2. Million+ cities: many
3. Other Class I towns: most

100 Largest Cities: Densification Potential
Only a few of India's 100-largest cities have residual potential for densification. Greater Bengaluru is an exception, along with a range of million+ cities: e.g. Jaipur & Mysore

1. Megacities: Bengaluru
2. Million+ cities: few
3. Other Class I towns: few

100 Largest Cities: Regional Connectivity Potential
Improving regional connectivity is an important strategic option across many regions and corridors, especially mega-urban regions. Central India cities and many in the Gangetic plain, need further strategic infrastructure investments to integrate better with their region and major economic & infrastructure corridors.

1. Megacities: All
2. Million+ cities: some
3. Other Class I towns: some

100 Largest Cities: Intra-Urban Connectivity Potential
Almost all of India's 100-largest cities have considerable potential to improve intra-city mobility and connectivity, especially if low-carbon and electric technological options and integrated planning are considered.

1. Megacities: All
2. Million+ cities: All
3. Other Class I towns: most

Implications for the XV Finance Commission

Differential contextualised and coordinated regional development strategies are necessary for both national and state-level development as India urbanises to match limited resources with local potential, priorities and binding constraints. A mix of weak and strong strategies for the 100-largest cities are noted below.

Strong strategies

- **Nucleation**: India's 100-largest cities have considerable potential for nucleation including the large and dense mega-urban regions
- **Decongestion**: Most of India's 100-largest cities have the potential for decongestion within their planned boundaries
- **Regional Connectivity & Access**: Improving regional connectivity is an important strategic option across many regions and corridors, especially mega-urban regions
- **Intra-Urban Connectivity & Access**: Almost all of India's 100-largest cities have considerable potential to improve intra-city mobility and connectivity

Weak strategies

- **Densification**: Only a few of India's 100-largest cities have residual potential for densification.
- **Expansion**: Most of India's 100-largest cities have limited potential to expand

Finance commission transfers should incentivise strong regional development strategies: nucleation, decongestion and regional and intra-urban connectivity; and only support weak strategies when locally warranted. This focus on the 100-largest cities will cover all mega-urban regions, emerging urban clusters and many of the less developed States.

CHAPTER 3

Implementation

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Building on current Urban Development and Reform Programmes

Second and Third Generation Urban Development and Reform Programmes

India is in the midst of its third generation of urban development programmes and reforms, since 2015, following on from a first generation of reforms in the 1990s, and a second-generation from 2005-14. Convergence between these reforms and post-COVID economic recovery will be necessary to mobilise enhanced investment, create appropriate enabling conditions and incentives for urban regeneration, upgradation, expansion and decongestion.

Table 3.1: Urban Development and Reform Programmes

Scheme	Mission Period	Total Central Allocation (crore INR)	State/ULB/Parastatal Share	Cities/Towns Covered
Second Generation Urban Reforms				
JNNURM	2005-2013	66,085 (2005-2012) 14,000 (2013-2014)	UIG (10-65%); BSUP (10-50%); UIDSSMT (10%); IHDSP (20%)	65 (UIG, BSUP); Remaining cities and towns (UIDSSMT, IHSP)
Third Generation Urban Reforms				
AMRUT	2015-2020	50,000	State contribution to not less than 20%	500 across India
PMAY (U)	2015-2022	Varies by component	-	All statutory towns (4,041 Census 2011)
Swachh Bharat	2014-2019	14,623	Minimum of 25% of GoI funding	
Smart Cities	2015-2020	48,000	Equal amount, on a match-funding basis	100 across India
HRIDAY	2014-2019	500	-	12 heritage cities

Sources: CAG 2012, Performance Audit of Jawaharlal Nehru National Urban Renewal Mission (JNNURM); SBM-U Guidelines, Smart Cities Guidelines, HRIDAY Operational Guidelines https://amrut.gov.in/writereaddata/Preparation%20of%20SAAPs.pdf, Press Information Bureau, GoI MoHUA Feb 2018

Three critical areas of intervention are necessary to enable the convergence of third generation urban reforms and an urbanisatiion-led post-COVID economic stimulus. These are: land system reform, urban governance reform as well as appropriate financing and institutional arrangements to enable them, as outlined in the following sections.

Land

Land is one of the binding constraints to sustainable urban development in India and the creation of regional and urban infrastructure, which will be key drivers of post-COVID recovery. Over the last few decades, it has become a critical financial, legal and social challenge, faced by large-scale development projects across the country.

This is because of multiple causes, including: the scale of direct and indirect displacement that it may cause, the economic and financial value of the land itself, that may grow many times in a speculative market; the legal and procedural challenges of land acquisition, land pooling and aggregation, by the public or the private sector; and multiple contests, both outside and inside of India's judicial system.

The fiscal, governance and legal responsibilities of making land available are the mandate of state governments and cities. This is because land is a state subject. Many ULBs, state governments and central government agencies (e.g. Railways, Forests and Defence) have large 'land banks' within or on the peripheries of the 100-largest cities in the country and hence, are important stakeholders in medium-term urban development.

In addition, the current generation of centrally-sponsored urban programmes such as AMRUT and Smart Cities do not provide for land costs – which have to be mobilised by the ULBs, development authorities or state governments. This can become an impediment to accelerate implementation, along with environmental clearances, and impact mitigation. The significant financial resources required for urban infrastructure development, as calculated in the HPEC report, also does not include land costs as indicated in a broad-brush estimate presented in Table 3.2.

The cost of land and amelioration of the social, economic and ecological costs associated with acquiring or aggregating large parcels of land is necessary, but not a sufficient condition for successful project implementation. The recent case of the pooling of 30,000 acres of land for Amaravati in Andhra Pradesh highlights the risks associated with large-scale aggregation that can impact public agencies, multilateral lending agencies, private investors, as well as individual owners.

A set of key land-related issues that need to be addressed while using urban development as a strategic driver, to accelerate economic recovery, include:

- Land is expensive in most Indian cities, with land markets that are often distorted (Morris and Pandey, 2009)[18]. Not only are the monetary costs of land high, but so also are the social, economic, ecological and political costs (Morris and Pandey, 2007)[19]. The administrative and fiscal risks of aggregating large land parcels are significant, and impact the functioning, fiscal management and risk management capacities of not only government bodies, but also private developers and investors[20]. Including land costs (even at subsidized, non-market rates) in larger cities, typically makes development financially infeasible, and create market distortions that can open the space for elite projects that target high-income groups and speculative investors (Sivam, 2002)[21]. These conditions often compromise the delivery of affordable housing and

[18] Morris, S., & Pandey, A. (2009). Land markets in India: Distortions and issues. *India Infrastructure Report*.

[19] Morris, S., & Pandey, A. (2007). Towards reform of land acquisition framework in India. *Economic and Political Weekly*, 2083-2090.

[20] Searle, L. G. (2016). *Landscapes of accumulation: Real estate and the neoliberal imagination in contemporary India*. University of Chicago Press.

[21] Sivam, A. (2002). Constraints affecting the efficiency of the urban residential land market in developing countries: a case study of India. *Habitat International*, *26*(4), 523-537.

public access to infrastructure despite regulations, such as RERA, that attempt to prioritise the concerns of homeowners.

- The use of Eminent Domain for Land acquisition that was prevalent in the pre-liberalisation and early states of economic reform is associated with high social, political and monetary costs (Morris and Pandey, 2007). Public protests against the use of the eminent domain for key projects such as the Maha Mumbai SEZ, Nandigram and Singur (Chakravorty, 2016)[22], played a role in the replacement of colonial era legislation with the LARR Act (2013). The subsequent changes in key clauses in the LARR, such as the need to conduct a Social Impact Assessment, has affected the Act's power to address the social and economic concerns that triggered earlier public protests. Yet, there are very few examples of the new LARR Act being successfully used for land acquisition for large developments over the last few years.
- Land pooling for large-scale land aggregation involves high costs, places high levels of social and monetary responsibilities on participating landowners and means significant increase in project gestation periods. Detailed negotiations with landowners, adds to project costs and risks. Even small-scale land pooling exercises, as a part of town planning schemes in Gujarat and Maharashtra have taken more than 15 years to be implemented (Ballaney, 2008).[23]
- Large-scale land pooling, such as in Amaravati, are unique and highlights the importance of state governments taking on the long-term responsibility of regular compensation to landowners during project implementation. This will almost certainly, add to project costs and risks.
- The Amaravati case offers several lessons regarding the high monetary, political and social risks associated with large-scale land pooling. Mandatory participation by landowners in a large land pooling exercise is essential. This mandatory nature, as well as other terms and conditions of land pooling, may make land pooling similar to outright acquisition (in terms of complexity of implementation, and the tine-value of money) through eminent domain, adding to project financial, legal and political risk.
- Large-scale land acquisition and land pooling in long gestation urban infrastructure and development projects are now under greater public, judicial, banking and insurance and investor scrutiny. This is another important factor to consider in implementing urban development projects.
- Large-scale land assembly by private parties is difficult and severely constrained by the current system of land legislations and regulations in India (Sheshadri, 2012).[24]
- Foreign private equity investment interest in land has declined after the negative experiences of private equity investors over 2005-2008. After the mass exit of private equity firms from India following the 2008 global financial crisis, equity has been replaced by mezzanine debts and structured loans via NBFCS that typically do not invest in projects at the land aggregation stage (Anarock, 2019)[25]. This effectively translates to low levels of foreign equity interest in land aggregation investment in urban development, marking a return to a burden on government and public institutions to aggregate land. This implies, that the assumption of public investment crowding in private finance in post-COVID urban development may be far-fetched.

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[22] Chakravorty, S. (2016). Land acquisition in India: The political-economy of changing the law. *Area Development and Policy*, *1*(1), 48-62.

[23] Ballaney, Shirley, (2008) The Town Planning Mechanism in Gujarat, India (Washington: World Bank Institute).

[24] Seshadri, T. (2012). An analysis of the feasibility of private land assembly for Special Economic Zones in India. *Urban Studies*, *49*(10), 2285-2300.

[25] Anarock Capital Advisors (2019). Private Equity in Indian Real Estate. Available at https://api.anarock.com/uploads/research/Private-Equity-in-Indian-Real-Estate-ANAROCK-Capital.pdf, Retrieved on 27th July 2020

- PPPs have been used extensively to fill this gap (Nataraj, 2014)[26]. But there are multiple examples of government agencies not even receiving payment for the value of land they have provided to private partners in a PPP arrangement, even after these parties made high value exits from projects.
- Domestic investor interest in land is typically short- term and speculative rather than 'patient' as is required for long gestation urban development projects. Domestic and foreign investment is also tempered by alternate investment options in India with higher risk adjusted returns on investment (Anarock, 2019).
- It is often stated that the lack of land is a critical barrier to development, Nevertheless, empirical evidence across many states, shows that even when land is available in ample quantities and at low costs, project implementation and delivery has not taken place. For example, more than half of the land aggregated for SEZs in India, i.e. more than 20,000 hectares of land, currently lies unutilized (CAG, 2014)[27]. Another example is Greater NOIDA, where land with infrastructure has been made available to developers at low prices by the government, for which original owners are not fully compensated. Yet, developers have not completed housing delivery. Under court supervision, NBCC has been asked to come in to complete some of these projects (Economic Times, 2019)[28].
- Public lands in India's megacities have been under increasing pressure for monetisation (Gandhi and Phatak, 2016)[29], given the scarcity of developable land for transport infrastructure and low-income housing. As it is difficult and expensive for state governments or ULBs to acquire lands in prime locations where livelihood access is high or green spaces are imperative - it is important that these lands are utilised for 'public purpose'.

India's urbanisation, development of strategic regional infrastructure and urban infrastructure, cannot take place without the steady and systemic availability of land that is not risk prone, environmentally sensitive, displaces large numbers of people or their livelihoods, and exacerbates inequality - that in turn deepens economic and social vulnerability. This is a complex set of simultaneous constraints that may have to be addressed, state-by-state to find a pragmatic way forward.

State governments, ULBs, development authorities and other parastatals and SPVs will be critical to addressing this challenge and protecting the public interest, as the appetite for private investment in this space is limited and seriously constrained. This is one of the key factors that makes the creation of greenfield new cities and towns a long-term prospect.

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[26] Nataraj, G. (2014). *Infrastructure challenges in India: The role of public-private partnerships*. Observer Research Foundation.

[27] CAG (2014). Report No. 21 of 2014 - Performance Audit of Special Economic Zones SEZs of Union Government, Department of Revenue - Indirect Taxes, Customs. Available at https://cag.gov.in/content/report-no-21-2014-performance-audit-special-economic-zones-sezs-union-government-department, Retrieved on 27th July 2020

[28] Economic Times (2019). Supreme Court directs NBCC to complete home projects in Noida, Greater Noida. Available at https://economictimes.indiatimes.com/news/politics-and-nation/supreme-court-directs-nbcc-to-complete-home-projects-in-noida-greater-noida/articleshow/72335118.cms, , Retrieved on 27th July 2020

[29] Gandhi, S., & Phatak, V. K. (2016). Land-based financing in metropolitan cities in India: The case of Hyderabad and Mumbai. *Urbanisation*, *1*(1), 31-52.

Urban Governance

Addressing the Roots of India's Weak Urban Governance

India suffers from weak urban governance for multiple reasons. The implementation of the 74th Constitutional amendment which mandates the devolution of governance to ULBs has been patchy over a quarter century, largely because of limited interest at state level and very limited flows of finances to them from the Govt. of India, State Finance Commissions and even the Finance Commission (IIHS, 2019). This has resulted in most ULBs having weak or non-existent fiscal bases, especially post-GST, in spite of the Finance Commission's efforts (XIII Finance Commission, 2009; XIV Finance Commission, 2014).

Moreover, little space exists in the 74th Constitutional amendment for multi-stakeholder and multi-scalar governance necessary for economic recovery and acceleration and nimble resource mobilisation. Fragmentation between state governments, ULBs and parastatals responsible for key urban sectors and outcomes needs to urgently rectified. Innovative new forms of regional and metropolitan governance need to be operationalised starting with mega-urban regions and emerging economic clusters.

This governance revamp needs to operate along clear transition timelines and implement through short-term institutions such SPVs and PPPs to constitutionally-mandated ULBs and/or innovative new regional governance institutions. There is a need to build and strengthen ULBs via a dedicated state municipal cadre, starting with five states with >40% urbanisation, with plans in place for other states to do so, over the decade.

Regional and Metropolitan Governance

An effective third-tier of metropolitan and regional governance is critical to plan and manage mega-urban regions, economic clusters and metropolitan areas, finance regional infrastructure, manage resources and mitigate risk.

Urban and metropolitan governance is crippled by a lack of governance capacity and there is a need to adopt a more comprehensive approach at this scale. Fragmentation has contributed to poor urban service delivery and resource mobilisation. All mega-urban regions and emerging economic clusters require the implementation of multi-scalar, multi-stakeholder and multi-sectoral governance.

Similarly, regional governance requires a more comprehensive approach that is cognisant of the multiple stakeholders and sectors involved. More robust regional and sometimes cross-state governance is necessary to integrate economic development, spatial planning and hence, investments. Environmental governance, especially the management of water resources and air pollution, as well as risk governance are best undertaken at regional level defined by watersheds, airsheds and risk zones.

The current context of weak institutional frameworks for environmental, climate and risk governance need to be urgently addressed. Some of the key themes include urban pollution and risk; vulnerability of deteriorating urban ecosystems and services such as food, energy, water security and green cover; and unplanned and unsustainable urban growth. In terms of climate risk, focus needs to be accorded to climate-induced extreme weather, urban drought risk, urban heat stress and sea-level rise.

Establishing and Strengthening State Municipal cadres

Apart from the financial resourcing crisis that ULBs face in India (ICRIER, 2019a, 2019b) the most serious governance challenge that our cities and towns face is a massive vacuum of institutional capacity and a fragmentation and overlap of mandate between local representative municipal governance and parastatal institutions ranging from development authorities to water, wastewater and energy utilities that are governed and managed by state government, and land use and other regulators that operate from the state or national level.

Within this institutional morass, is a deep challenge of the lack of specialised, trained and motivated professionals who can manage the planning, management and development of the most important economic entities in the country, which are home to at least a third of our people. Most officials who manage these institutions are on deputation from parent departments and have little formal training and capacity to address a range of complex and interrelated urban issues as outlined in this document. Most are staffed by engineers, accountants or other generalist administrators who have no training or incentives to address economic, social and environmental questions that are central to urban development. It is no surprise, that our cities and towns suffer from poor management.

A number of states have initiated the creation of a state Municipal cadre, as part of the second generation of urban reforms, starting in the 2010s. Others have initiated this process on paper, but not enabled the legal frameworks, resources, cadre control and capacity building process that would enable the institutionalisation of this necessary condition for the implementation of the 74th Constitutional Amendment. This is especially important for states that have higher than the national average rate of urbanisation, and critical for the five states that have crossed the 40 percent urbanisation level and will soon cross the 50 percent urbanisation mark.

The Finance Commission is well placed to incentivise and catalyse the institutionalisation and operationalisation of Municipal cadres at State level. This would initiate the process of building significant state- and ULB-level public institutional capacities, which in turn would help not only everyday management and service delivery, but resource mobilisation, planning, outcome monitoring and accountability along with a stronger emphasis on efficiency, transparency and accountability to citizens.

A dedicated fund of Rs. 1,000 crore Municipal cadre fund, could be created by the XV Finance Commission to enable: (a) the strengthening of Municipal cadres in the states where they exist; (b) help create them over 2020-25 in States that have levels of urbanisation over 33 percent, and (c) prepare other states that have lower than the national average levels of urbanisation to assess the feasibility and necessary steps to create such a cadre. This could be drawn from a Governance, Finance & Outcome Monitoring Improvement grant and allocated on a population basis by State governments to the 500 Class I towns (greater than 0.1 million) to enable focussed use of these resources.

Finance & Investment

Estimating Investment Requirements for Post-COVID Urban Recovery

Investments in urban areas will be central to a rapid and sustainable post-COVID economic and employment recovery as it is the source of close to 60% of the national GVA, and also contributes to bulk of incremental employment (Revi et al., 2015). Given weak consumer demand, market illiquidity and the ongoing financial crisis in the real estate and construction sectors – a public expenditure lead is desirable, for an urbanisation-led economic recovery, even though it may be difficult given the current fiscal situation.
As the economy returns to its new normal, savings and investments rebound and much needed urban sector reforms are put into place, private investment could follow a public expenditure lead. It is unrealistic given the current economic situation, especially in the real estate and infrastructure sectors to expect a pure-play private sector lead.

The core questions, are therefore:

1. What is the gross order of magnitude of these investments?
2. What objects of expenditure should they be targeted at?
3. Which locations or sizes of cities should be prioritised? How could investment phasing be structured?
4. Could this facilitate better balance between states or lead to further divergence?
5. How could the fiscal base of ULBs be strengthened to enable greater stability and autonomy and less reliance on central, state and Finance Commission transfers, in the medium-run?

India needs to commit steady and significant public expenditure to urban areas, starting with the 100-largest cities to enable sustainable post-COVID recovery. The dependence of ULBs on central, state and Finance Commission transfers needs to be significantly reduced to enable greater stability and autonomy on delivering outcomes at the third-tier. These actions are contingent on understanding potential investment needs over this decade, which the following section will examine.

Estimating Urban Investment Needs (2021-31)

Only very broad estimates of urban investments can be made due to a massive gap in terms of data on city-wise urban economic output and investment, as well as considerable lag in reliable urban population data since Census 2011. Hence, a range of gross assumptions have been made, building on the base of the HPEC (2011) report and its estimates for the 2021-31 period. A significant shift in methods used in the past, to move from a state population-based investment estimates to a city size-class and urban region-based estimates, should incentivise better ULB performance, agency and sustainability of development and economic outcomes.

The broad method utilised to make projections is based on the following constraints:

1. Projected population estimates were made for Class I cities to 2031 using Census trends to enable prioritisation based on expected share of economic output and balance between states.
2. Estimates of investment needs were made (for ~450 million residents) to upgrade current cities to meet HPEC norms in 2021.
3. Based on analysis of satellite data of spatial growth and of plans (where available) estimates of investments needed for spatial expansion (where viable) were made.
4. Estimates of investment needs for ~150 million incremental urban residents by 2031 to upgrade cities to meet HPEC norms in 2021, were made.

5. Based on analysis of satellite data of spatial growth and of Master Plans (where available) estimates of investment needs for land for spatial expansion, nucleation and new infrastructure were made, at indexed prices based on the Sivaramakrishnan Committee report (GoI, 2014).

These are only order of magnitude investments as presented in Table 3.2. There are limited by serious data gaps on city-wise urban economic output and investments and inter-Census urban populations that constrain evidence-based urban policy. This needs to be corrected at the earliest.

Table 3.2: India: Indicative Urban Upgradation & Expansion Investment Estimates (2021-31)

Indicative Urban Upgradation & Expansion estimates (in INR Lakh crores 2020 prices)									
Population Class I Cities & Towns (million)	**Estimated Population (million)**			**Estimated Investment (2021-2031)**					
	2011	**2021**	**2031**	**Upgradation (2021)**	**Expansion (2021-31)**	**Upgradation (2021-31)**	**Total (2021-31)**	**% share**	**Land Develop-ment**
>10	**74**	**88**	**100**	**2.9**	**1.0**	**3.4**	**7.3**	**31%**	**5**
4-10	**22**	**28**	**34**	**0.9**	**0.5**	**1.1**	**2.5**	**11%**	**2**
2-4	**42**	**52**	**62**	**1.4**	**0.6**	**1.6**	**3.6**	**16%**	**2**
1-2	**40**	**47**	**54**	**1.3**	**0.5**	**1.5**	**3.3**	**14%**	**3**
0.1-1	**89**	**102**	**111**	**2.6**	**0.9**	**3.0**	**6.5**	**28%**	**nd**
Grand Total	**267**	**317**	**361**	**9.1**	**3.5**	**10.6**	**23.2**	**100%**	**12**
% share				**39%**	**15%**	**46%**	**100%**		
Note: based on IIHS population projections (Malladi et al.,2017), HPEC infrastructure Capex estimates (2010-31), Sivaramakrishnan Committee report (2014)									

An estimated annual investment of 1.1% of India's current (2020) annualised GDP of around Rs. 2.3 lakh crores will be necessary to execute this strategy to its logical conclusion, to meet HPEC (2011) investment norms. This would enable:

- **Upgradation of ~475 Class I Cities, home to ~315 million residents;**
- **Planned urban expansion that caters to ~50 million more residents and**
- **Further upgradation of infrastructure and urban services for this population by 2031**

These projections will require systematic public investments of around Rs 1 lakh crore per year, on land development which is primarily a state government responsibility. This may be the most serious operational constraint, given the post-COVID fiscal stress and deficits that states are labouring under.

Targeting and Phasing Post-COVID Urban Economic Recovery

Considering the enormity of the challenge, it is critical that post-COVID urban recovery is carefully targeted and carried out in three phases over the next decade (2021 to 2031). It needs to be cognisant of the current limited fiscal space and its resource constraints.

Phase One: Focus on 100-largest cities over 2021-2024
The first phase can be broadly split into two parts: starting with a focus on the 100-largest cities in India. This focus will cover all mega-urban regions, emerging urban clusters and cities in most of the less developed states and underdeveloped regions. This is essential to prioritise, right at the onset, creating a balance across states by building on existing central and state schemes, utilising available institutional capacities, incentivise livelihood-enhancing and green investments and attempt to crowd in private investment at the appropriate time.

The second part is to maintain regional balance, it is necessary to invest in critical regional connectivity and disaster and climate resilient infrastructure, prioritised by mega-urban regions, emerging urban clusters and underdeveloped regions. Part of the post-COVID economic recovery package can be channelled for this, and this public investment-led initiative could create appropriate conditions for PPP opportunities and private investments. This should be a primary focus of the XV Finance Commission.

Phase Two: Expanding to all ~ 500 Class I towns (2025-2029)
The second phase needs to prioritise expanding the investment phase to all Class I Towns that are currently beneficiaries of the AMRUT scheme. This should follow a strong push for state-level urban and land system reforms, initiated in Phase One to promote security of tenure and affordable housing, improved regional and intra-state connectivity and building institutional capacity though a state-level municipal cadre. This could be a secondary focus of the XV Finance Commission.

Phase Three: Expand to cover all ~ 10,000+ Urban Centres by 2031
This phased approach should ultimately strengthen ULBs via fiscal federalism, by expanding their fiscal base, governance mandate and capacity to address all urban areas. This could enable coverage of an incremental 150 million people through regionally-defined processes of expansion, nucleation, decongestion and densification (as outlined in Chapter 2). This may be part of the XVI Finance Commission's mandate.

CHAPTER 4

Conclusions

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This section presents a set of consolidated conclusions from earlier sections of the report, on key cross-cutting themes.

Urbanisation Trends and Drivers

- Urban areas are India's most important driver of growth, incremental employment, international trade, investment and taxes
- India needs to maintain a balance between rural and urban areas around work, income, wealth and inequality.
- Investment in housing, physical and social infrastructure are key drivers of scale agglomeration in cities, that facilitate development. Risk adjustments of economic output for poverty, inequality, disasters, epidemics and conflict that concentrate in cities, are necessary to start internalising the costs of these externalities
- India's economic policies are weakly linked to its economic geography, leading to severe bottlenecks - exacerbating spatial inequality and impacting employment, economic value added, investment and poverty reduction.
- Following 30-years of economic reforms, five mega-urban regions (> 20 million) are set to emerge in India, as well as five emerging economic corridors in south, central and eastern India.
- The urbanisation, infrastructure and development needs of five other, historically underdeveloped regions do need to be addressed to maintain horizontal balance
- India's strategic rail, road and port infrastructure and economic corridors link existing million+ cities. Further intra-state and regional linkages with ~ 470 other Class I towns and the villages linked to them, can enable sustainable and balanced economic development and rapid post-COVID economic recovery
- Urban Local Bodies are chronically underinvested in terms of both, finances and institutional capacity, in spite of the 74th Constitutional Amendment. This has not changed substantially, even after three generations of urban reforms, significant changes in the tax base post-GST and the Finance Commission's emphasis on transfers to, and the strengthening of ULBs

Urban Economic Development and Employment Creation

- The post-COVID migrant crisis has highlighted the extreme vulnerabilities of the urban migrant workforce
- India needs to prioritise urban job recovery and creation to support its post-COVID economic recovery.
- The assumptions that the manufacturing sector will lead this shift is unlikely to materialise, given its capital-intensive nature & slowdown in global manufacturing.
- The largest numbers of job losses are in rural areas, and with very low levels of education. As employment growth in the construction sector slows down, there are limited urban options available for these workers
- Skills training or other interventions in urban areas will need to consider this structural challenge as they select areas of focus.
- Strong public sector support in the form of a minimum urban employment guarantee, or rapid deployment of a deep urban social safety net is the most credible alternative to address the livelihoods-informality-migration crisis in urban areas.
- Medium-term Urban investment in India needs to be targeted at four broad goals:
    - Improve conditions for current (2021) urban population: ~450 m. in ~8,000 places
    - Address needs of incremental (2031) urban population: ~150 m. in ~12,000+ places, over the 2020s
    - Enable and incentivise economic activity that creates opportunities for decent productive work

- Strengthen urban-rural linkages: between urban areas, outgrowths & adjoining villages

Regional Concentration and Convergence

- Economic development in India has been uneven and regionally imbalanced
- Indian development planning has emphasized sectoral investment focusing on particular types of industrial or economic development, largely ignoring the economic geography
- Industrially advanced states and districts, with major million+ cities continue to receive large shares of private investment
- This is despite measures to balance regional industrialisation, for e.g. directing industrial investment to lagging states and discouraging the location of heavy and polluting industry in metropolitan regions.
- Regional inequality was on the rise before liberalization in 1991: western India gaining differentially, followed by the southern and north-western India.
- Regional economic concentration has been amplified by the development of transportation corridors that connect larger urban centres, with limited improvement in intra-state logistics & passenger mobility
- The strongest differentials are observed in less developed states and regions that have large pools of migrant and under-employed rural labour or are in high-risk zones
- Uneven investment in health and education infrastructure have further exacerbated regional inequality.
- Corridors offer an opportunity to rebalance regional development along with a balance of four critical regional infrastructure networks: renewable electric power, gas, rail and road transport, ICT apart from local and regional access to sustainable environmental services

Regional Development Strategies

Regional spatial development strategies are necessary for both national & state development as India urbanises, to match limited resources with local potential, priorities and binding constraints.

India's economic and fiscal environment in the early 2020s indicates that significant new investment in creating New Towns may not be prudent

A mix of weak and strong regional development strategies for the 100-largest cities:

Strong Strategies:

- **Nucleation:** India's 100-largest cities have considerable potential for nucleation including the large and dense mega-urban regions
- **Decongestion:** Most of India's 100-largest cities have the potential for decongestion within their planned boundaries
- **Regional Connectivity & Access:** Improving regional connectivity is an important strategic option across many regions and corridors, especially mega-urban regions
- **Intra-urban Connectivity & Access:** Almost all of India's 100-largest cities have considerable potential to improve intra-city mobility and connectivity

Weak strategies

- **Densification:** Only a few of India's 100-largest cities have residual potential for densification.
- **Expansion:** Most of India's 100-largest cities have limited potential to expand

Finance Commission transfers should incentivise strong regional development strategies: nucleation, decongestion and regional and intra-urban connectivity; and only support weak strategies when locally warranted

COVID-19 and Resulting Urban Economic Shock

COVID-19 has exacerbated existing faultlines in India's political economy especially across states and regions and within urban areas, as outlined below:

- The COVID-19 shock started in India's metropolitan areas with higher incomes, assets and better health and other infrastructure, than smaller cities and villages.

- As India's total infections are set to cross 2 million, the pandemic is expected to expand to smaller cities and towns across the country, over the year

- This will continue to disrupt economic activity and exacerbate existing regional and spatial inequalities, esp. in our poorer and more vulnerable states and districts

- The March to May 2020 national lockdown was universally applicable and provided a critical breather to build state health infrastructure and response systems, but led to massive economic disruption and the space for nationwide spread of the pandemic, accelerated by distress migration

- This came with differential economic impacts esp. on vulnerable and migrant groups in many urban areas, with limited financial resources and low resilience. Most chose to return to their home villages and states, even though they knew economic opportunities and health services were poorer there

- Post-COVID economic recovery can be initiated in the largest-100 urban areas, but expand in a second phase to cover ~ 500 AMRUT cities and towns and eventually, the whole country, in a third phase

Post-COVID urban interventions and investments need to accelerate economic and employment recovery and proactively addressing underlying vulnerability and risk. These may start with the largest-100 urban areas, but expand in phases to cover smaller cities and towns and then, the entire country.

Addressing Data and Information Gaps

One of the most critical constraints to operationalising this is the lack of systematic and time-series information on the economic output, value addition, productivity, public and private investments (ideally by key sectors) for the major urban centres in the country. Given, that close to two-thirds of the economic output comes from urban areas, about 40 percent from the top-100 urban areas, evidence based policy and rule-based transfers by the Finance Commission become almost impossible to implement. Given the expansion and rationalisation of the tax network, advances in survey techniques and technology it should be possible for detailed economic studies, monitoring and public disclosure on an annual or bi-annual basis. This will assist in planning, tracking economic activity, public investment, expenditure and outcomes, and the monitoring of large-scale urban and regional infrastructure investments.

Gaps in urban economic data, are also serious constraint to the planning, management and tracking of urban employment, which is a necessary condition for India's post-COVID economic recovery.

Gaps in data on migration is a serious challenge to planning urban and regional development, employment creation and building the resilience of the urban and national economy to shocks that

COVID has clearly showed us. A special thick-round round of the National Sample Survey should be conducted once every 3-4 years that covers both the source districts and key destination districts and the 100-largest urban centres.

Post-COVID Urban Economic opportunities

A range of urban economic opportunities have yet to be targeted by the economic recovery package, building on existing public programmes and schemes and releasing institutional barriers and bottlenecks:

- **Economic recovery & development**
  - Clean Energy
  - Housing: upgrading, new construction & rental
  - e-Mobility or Carbon-neutral Mobility
- **Climate and Disaster Resilience Infrastructure**
  - Environmental services: water, sanitation & solid waste
  - Energy services: solar, gas and energy efficiency
  - ICT
- **Accessible Land and Affordable Housing**
  - Land and property tax systems reform
  - Planning for integrated land use, mobility and infrastructure & economic development
- **Improved Governance & Finance**
  - Strengthen ULB fiscal base and ability to access and deploy finances
  - Rapidly strengthen ULB institutional capacity via state municipal cadres

Post-COVID economic recovery in Real estate & Construction

- The Housing and Infrastructure sectors require 'patient' long-term capital' with financial horizons of 10-30 years & more.
- The Indian real estate and construction sectors are currently facing multiple crises, ranging from a demand-supply mismatch to a severe liquidity crisis.
- The real estate crisis attracted pre-COVID public policy interventions to infuse liquidity, including:
  - The establishment of an INR 25,000 crores 'Alternative Investment Fund' (AIF)
  - A range of regulatory support measures e.g. credit guarantees and NPA write-offs
  - Judicial interventions that brought public sector agencies (e.g. NBCC) to complete private sector projects
- India's Real Estate industry currently poses high risks to both domestic and foreign, due to
  - A significant price mismatch between housing demand and supply
  - High financing costs and risky practices of fund management
  - Low returns, insufficient to offset risks
  - Delayed deliveries and litigation, leading to the deployment of the Insolvency and Bankruptcy Code

In the current economic environment, easy availability of 'patient capital' is unlikely, with domestic markets illiquidity and a post-COVID shrinking of the global economy. It would be best to be deeply conservative on large-scale private sector participation in urban and infrastructure development-led post-COVID economic recovery.

Sustainable Urbanisation

- Indian cities need to be at the forefront of urban sustainability and building resilience to address climate mitigation and adaptation
- Development of urban regions needs to integrate environmental risk and hazard sensitivity into the planning framework & process
- Coherent urban governance, institutional arrangements, planning and service delivery frameworks are necessary to link urban renewal and development with sustainable urban development
- Coherent planning, investment and monitoring framework is necessary, to enable public, private, civil society institutions and citizen action reduce vulnerability, exposure and risk

Tracking urban sustainability first for the 100-largest urban areas and then for the ~500 Class I towns and cities, with a population of 1 Lakh will assist State governments and the Govt. of India in making the best of their investments and development expenditure, provide a framework to monitor performance outcomes of ongoing national and state programmes. This would assist India and the Niiti Aayog in comprehensive monitoring and reporting the performance of Indian cities and states on the SDGs in urban areas, and more specifically the 100-largest urban areas.

Urban Risk Reduction

- Building a coherent risk reduction framework for urban development will need new set of incentives & structures to balance short-run priorities with long-run strategic actions and link across the public, private and civil society sectors
- Strong fiscal incentives for states and cities to act pre-emptively to reduce vulnerability & exposure, build resilience and institutional capacity for disaster risk reduction
- Building state government and ULB's risk reduction capacities & incentivising resilience building by:
    - Reducing loss of life by establishing agile and robust Early Warning and Emergency Response Systems;
    - Mitigation of output losses via robust economic production systems;
    - Mitigation of capital losses and building of long-term resilience, as part of all new infrastructure investments
    - Developing long-term plans for managing lifeline infrastructure
    - Building of ULB institutional capacity to raise their own revenue, plan and execute retrofits and new resilient infrastructure and public buildings.
- Addressing future population growth in urban areas, particularly to account for high-intensity peri-urban growth and taking into account future changes in city size classes, balancing current, and future infrastructure investment needs.

Resources can be specifically directed (based on the 100-largest cities: other urban areas: rural population share) to enable urban resilience to multiple hazards, reduction of multi-dimensional vulnerability and building of disaster risk reduction capacities. This builds on the XV Finance Commission' emphasis on disaster risk reduction and resilience building in urban areas.

The XV Finance Commission could make a significant contribution to building the capacity to address short and medium-term risk across the multiple dimensions, outlined above by enabling a shift in focus from reactive to proactive risk mitigation. This is well addressed by shifting the proportion of grants to urban areas to match and track ongoing levels of urbanisation e.g. moving from 32.5 per cent to 35 per cent over (2020-25) with 0.5 per cent increments each year. This addressed both the current and incremental urban population. Second expanding the coverage of basic services investments in urban areas to include health and education. Third, specifying that all investments in

urban and regional infrastructure meet national disaster and climate resilient standards. Fourth, specifying that all investments will be made with full cognisance of the multidimensional risks that they are be exposed to, with mitigation measures pre-identified.

State Municipal Cadres

The Finance Commission is well placed to incentivise and catalyse the institutionalisation and operationalisation of Municipal cadres at the State level. This would initiate the process of building significant state- and ULB-level public institutional capacities, which in turn would help not only everyday management and service delivery, but also resource mobilisation, planning, outcome monitoring and accountability along with a stronger emphasis on efficiency, transparency and accountability to citizens.

CHAPTER 5

Recommendations

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This section presents key recommendations to the XV Finance Commission based on key policy questions on urbanisation and post-COVID economic recovery and a wide-ranging analysis across key states and regions, themes and issues of concern. A high-level estimate of the scale of investments that are needed to address current and future (2021-31) urbanisation are also presented to assist in helping define a method to aid regional convergence and development, prioritisation and phasing of investment.

Strategic Choices

This report's recommendations hinge on the following strategic choices that prioritise prudent investments that address inequality between and within states and strengthen regional linkages.

1. Significant investment in creating New Towns is not prudent in the current economic and resource environment, due to their long gestation, medium-term impact and resource intensity.
2. Appropriate spatial and sectoral investments and incentives are needed to address divergence and inequality between states, and within each state, between smaller and Class I towns (between 0.1 million and 1 million population) and million+ cities to enable spatial balance, urban-rural linkages & regional convergence.
3. India's strategic rail, road and port infrastructure and economic corridors largely link existing million+ cities. Further strengthening these intra-state and inter-regional linkages with ~ 400 other Class I towns and rural areas, can enable balanced economic development and more rapid post-COVID economic recovery.

Goals and Strategic Priorities

The strategic choices listed above need to be supplemented with goals that specifically target post-COVID urban economic recovery:

1. **Enable immediate post-COVID economic recovery** by establishing safety nets for food, tenure/housing, decent work and basic services, and enabling economic recovery and resilience while addressing migration and informality.
2. **Improve conditions for (2021) urban population** of approximately 450 million in about 8,000 urban places.
3. **Address needs of incremental (2021-31) urban population** of approximately 150 million in about 12,000+ urban places.
4. **Enable economic activities** that create opportunities for decent productive work.
5. **Strengthen urban-rural linkages** between urban areas, outgrowths and adjoining villages.

These can be achieved by focusing on three strategic priorities: (i) accelerating recovery and growth in locations and sectors that have the most potential; (ii) mitigating risks and vulnerabilities in the least developed and most exposed states and districts; and (iii) addressing bottlenecks in resource mobilisation, institutional capacity and implementation.

This will record a diversification of devolution strategy initiated by the XV Finance Commission, from a solely population and state area basis, to one that recognises the importance of regions and place in the process of economic and sustainable development, and explicit measures to address regional inequality, potential and risks between and with states (Revi, A., Bazaz, A. 2019). **Hence, to match with the distribution of India's population the proportion of grants between rural and urban local bodies should shift from 67.5:32.5 in (2020-21) to 65:35 in (2024-25), or an annual transition of 0.5 percent of divisible pool for local bodies.**

Sectoral and Locational Priorities and Interventions

1. **Sectoral priorities** supported by **central and state schemes should converge** to enable economic recovery and development across Micro, Small and Medium Enterprises (MSME) in manufacturing, trade and tourism; construction; clean energy; and carbon-neutral mobility. **Climate and disaster resilient infrastructure** across environmental services such as water, sanitation and solid waste; energy services including solar, gas and efficiency, e-mobility and logistics, and ICT, should also be enabled.

2. **Multiple reforms are necessary in land systems and affordable housing.** These include a focus on land and property tax systems reform, planning for integrated land use, mobility and infrastructure, and economic development. Housing needs should be tackled with a multi-pronged approach of enabling upgradation and rental housing and making affordable new construction.

3. **Improved governance and finance policies** improve urban economic and fiscal data and digital management and are essential to strengthen the fiscal base and ability of Urban Local Bodies (ULB) to access and deploy finances. They also strengthen their institutional capacity via State Municipal cadres as well as their governance frame and devolution.

4. **State-led strategic interventions** crowd-in other resources leveraging and redirecting existing Central Schemes and Programmes. They also: (i) strengthen the capacity of ULBs and state governments to mobilise, implement and regulate; (ii) build enterprise capacity to implement and finance; (iii) build disaster resilience and mitigate climate risk; and (iv) implement regional development strategies.

5. In addition to central and state interventions, **balanced regional priorities across states** such as investments in and around existing urban centres and linked settlement systems, and economic corridors along the top 5: mega-urban regions, emerging urban clusters, economic corridors, and less developed states and risk-prone regions, is necessary, in addition to investments in creating new towns and cities.

Table 5.1: Indicative Urban Upgradation and Expansion Investment Estimates (2021-31)

Indicative Urban Upgradation & Expansion estimates (in INR Lakh Crores 2020 prices)									
Population Class I Cities & Towns (million)	**Estimated Population (million)**			**Estimated Investment (2021-2031)**					
	2011	**2021**	**2031**	**Upgradation (2021)**	**Expansion (2021-31)**	**Upgradation (2021-31)**	**Total (2021-31)**	**% share**	**Land Develop-ment**
>10	**74**	**88**	**100**	**2.9**	**1.0**	**3.4**	**7.3**	**31%**	**5**
4-10	**22**	**28**	**34**	**0.9**	**0.5**	**1.1**	**2.5**	**11%**	**2**
2-4	**42**	**52**	**62**	**1.4**	**0.6**	**1.6**	**3.6**	**16%**	**2**
1-2	**40**	**47**	**54**	**1.3**	**0.5**	**1.5**	**3.3**	**14%**	**3**
0.1-1	**89**	**102**	**111**	**2.6**	**0.9**	**3.0**	**6.5**	**28%**	**nd**
Grand Total	**267**	**317**	**361**	**9.1**	**3.5**	**10.6**	**23.2**	**100%**	**12**
% share				**39%**	**15%**	**46%**	**100%**		

Source: IIHS analysis, 2020 based on Urban population projections (Malladi et al., 2017), HPEC (2011) infrastructure capital expenditure estimates (2010-31), Sivaramakrishnan Committee report (2014).
Nd: no data

An estimated annual investment of 1.1% of India's current (2020) annualised GDP of around Rs. 2.3 lakh crores will be necessary to execute this strategy to its logical conclusion, to meet HPEC (2011) investment norms. This would enable:

- **Upgradation of ~475 Class I Cities, home to ~315 million residents;**
- **Planned urban expansion that caters to ~50 million more residents and**
- **Further upgradation of infrastructure and urban services for this population by 2031**

These projections will require systematic public investments of around Rs 1 lakh crore per year, on land development which is primarily a state government responsibility. This may be the most serious operational constraint, given the post-COVID fiscal stress and deficits that states are labouring under.

Targeting & Phasing Post-COVID Urban Recovery

Resource constraints and limited current fiscal space imply the need to target and phase post-COVID urban recovery, over the next decade (2021-31) in the following manner:

Phase One: Focus on 100-largest cities (2021-2024)

- **Phase 1A:** starting with a focus on the 100-largest cities in India. This focus will cover all mega-urban regions, emerging urban clusters and cities in most of the less developed states and underdeveloped regions. This is essential to prioritise, right at the onset, creating a balance across states by building on existing central and state schemes, utilising available institutional capacities, incentivise livelihood-enhancing and green investments and attempt to crowd in private investment at the appropriate time.

- **Phase 1B:** to maintain regional balance, invest in critical regional connectivity and disaster and climate resilient infrastructure, prioritised by mega-urban regions, emerging urban clusters and underdeveloped regions. Part of the post-COVID economic recovery package can be channelled for this, and this public investment-led initiative could create appropriate conditions for PPP opportunities and private investments.

Phase Two: Expand to all ~ 500 Class I towns (2024-2029)

Expanding the investment phase to all Class I Towns that are currently beneficiaries of the AMRUT scheme. This should follow a strong push for state-level urban and land system reforms, initiated in Phase One to promote security of tenure and affordable housing, improved regional and intra-state connectivity and building institutional capacity though a state-level municipal cadre. This could be a secondary focus of the XV Finance Commission.

Phase Three: Expand to cover all ~ 10,000+ Urban Centres by 2031

This phase should ultimately strengthen ULBs via fiscal federalism, by expanding their fiscal base, governance mandate and capacity to address all urban areas. This could enable coverage of an incremental 150 million people through regionally-defined processes of expansion, nucleation, decongestion and densification (as outlined in Chapter 2). This may be part of the XVI Finance Commission mandate.

Priorities & Institutional Arrangements

The XV Finance Commission's contribution towards accelerating post-COVID economic recovery may be limited due to mandate and fiscal envelope constraints. Nevertheless, a set of concrete steps could be taken, within the current framework:

- Policy convergence of Finance Commission transfers with the Govt. of India's economic stimulus package and commitment to the sustainable development of urban areas, is a no-cost high-impact contribution.
- Strengthening land and property tax systems reform and tenure security under a Governance, Finance & Outcome Monitoring Improvement grant to 500 Class I towns and cities across all States. This would be distributed on a population (90%) and expenditure performance (10%) basis and converge strongly with Govt. of India's Housing for All programme expenditure and outcomes and ongoing attempts to reform land record systems.
- Strengthening Municipal governance and capacity and information systems under a Governance, Finance & Outcome Monitoring Improvement grant to improve urban economic and fiscal data and digital management in ~500 Class I towns and cities across all States.
- Incentivising the building of all infrastructure in at least the 100-largest urban areas to disaster and climate resilient standards, under FC grants, as per NDMA guidelines, would be a significant step forward and in keeping with the FCs disaster management priorities and mandate. This would require minimal resourcing.

Dedicated Urban Governance & Financial Resilience Fund

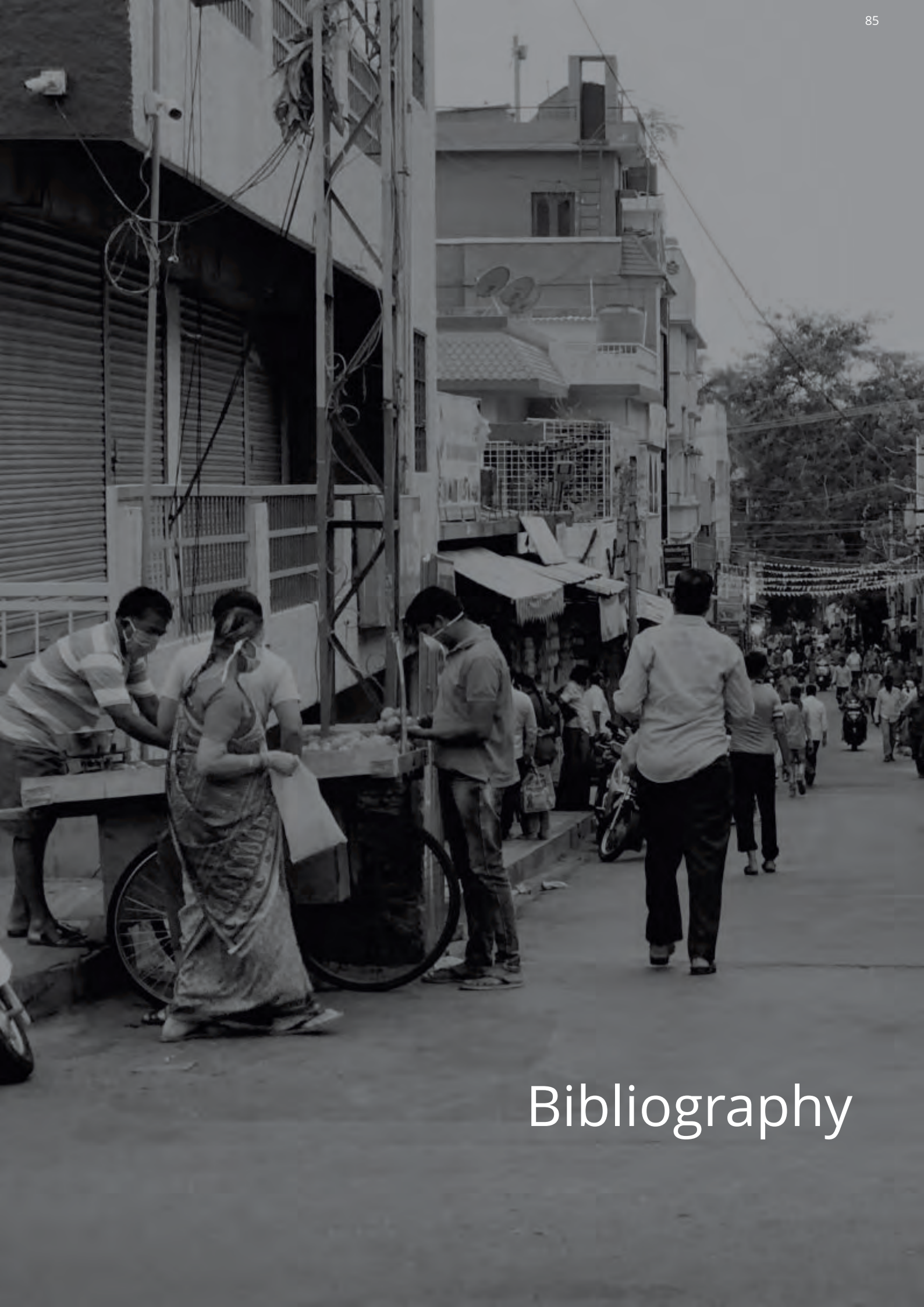
To accelerate and incentive these processes, the Finance Commission could create a dedicated Urban Governance, Financial Resilience & Outcome Monitoring Improvement grant fund to 500 Class I towns and cities across all States, at ~5 percent share of the total Finance Commission grant to Urban Local Bodies. This would help strengthen local government capacities in line with the 74th Constitutional Amendment and attempt to address key bottlenecks around land systems and ULB financing.

This grant fund could be provided oversight by a national committee with representatives of the Ministries of Housing and Urban Affairs, Finance, Niiti Aayog, State governments and leading urban experts. Within this, three strategic outcomes could be targeted:

- A Rs. 3,000 crore **Urban Land and Property systems Reform grant fund** to enable: (a) the reform of revenue, peri-urban and urban land systems to enable access of land to enable tenure security, upgradation in-situ, affordable housing and disaster and climate resilient infrastructure development; (b) the implementation and strengthening of digital property taxation, registration and land records systems and land value capture, to enable greater buoyancy of ULB finances around their single most important source of revenue. This could be distributed on a population (90%) and expenditure performance (10%) basis and implemented by the 100-largest ULBs by population size and the State governments for other urban centres

- A Rs. 2,000 crore **Municipal Cadre development grant fund**, to enable: (a) the strengthening of Municipal cadres in the states where they exist; (b) help create them over 2021-25 in States that have levels of urbanisation over 33 percent, and (c) prepare other states that have lower than the national average levels of urbanisation to assess the feasibility and necessary steps to create such a cadre, including a pooled cadre in some regions. This could be drawn from the Urban Governance, Financial Resilience grant fund and allocated on a population basis by State governments and targeted at the 500 Class I towns (greater than 0.1 million) to enable focussed use of these resources.

- A dedicated Rs. 1,000 crore **Economic and Financial Data systems improvement grant fund** to enable: the establishment of institutional capacities in the 100-largest cities and at State level to track, monitor and report on economic activity, public investment, expenditure and outcomes, and the monitoring of large-scale urban and regional infrastructure investments. This could be executed by an appropriate set of third-party institutions including universities, thinktanks, research institutions and urban observatories with a track record in addressing question of urbanisation.



Bibliography

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Anarock Capital Advisors (2019). Private Equity in Indian Real Estate. Available at https://api.anarock.com/uploads/research/Private-Equity-in-Indian-Real-Estate-ANAROCK-Capital.pdf, Retrieved on 27th July 2020

Ballaney, Shirley, (2008) The Town Planning Mechanism in Gujarat, India (Washington: World Bank Institute).

Basole, A., 2018, State of Working India, 2018, Bengaluru, Azim Premji University, https://cse.azimpremjiuniversity.edu.in/wp-content/uploads/2019/02/State_of_Working_India_2018-1.pdf,

Bazaz, A., Jana, A., Revi, A., & Malladi, T. (2017). Unpacking Population Scaling Effects. Bengaluru.

BMTPC. (2006). India Earthquake Hazard Map: Vulnerability Atlas −2nd Edition; Peer Group, MoH&UPA; Map is Based on digitised data of SOI, GOI; Seismic Zones of India Map IS:1893 −2002, BIS, GOI, Seismotectonic Atlas of India and its Environs, GSI, GOI. New Delhi.

CAG (2014). Report No. 21 of 2014 - Performance Audit of Special Economic Zones SEZs of Union Government, Department of Revenue - Indirect Taxes, Customs. Available at https://cag.gov.in/content/report-no-21-2014-performance-audit-special-economic-zones-sezs-union-government-department, Retrieved on 27th July 2020

Census of India, 2011. Provisional population totals, census of India, 2011; urban agglomerations/cities having population 1 lakh and above. Census of India, New Delhi, India, Accessed on July 29, 2013

Chakravorty, S. 2000. How does structural reform affect regional development? Resolving contradictory theory with evidence from India. *Economic Geography,* 76 (4) (367-394)

Chakravorty, S. (2016). Land acquisition in India: The political-economy of changing the law. *Area Development and Policy*, *1*(1), 48-62.

CGWB. (2019). National Compilation on Dynamic Ground Water Resources of India, 2017. Faridabad.

DFCCIL. (2020). Dedicated Freight Corridor. Retrieved from https://uic.org/IMG/pdf/d2_s4_mechanised_maintenance_philosophy_of_railway_assets_punit_agrawal_india_part2.pdf

Forest Survey of India. (2019). State of Forest Report.

Gandhi, S., & Phatak, V. K. (2016). Land-based financing in metropolitan cities in India: The case of Hyderabad and Mumbai. *Urbanisation*, *1*(1), 31-52.

Glover , W. J. 2012. The troubled passage from 'village communities' to planned new town developments in mid-twentieth-century South Asia. *Urban History,* 39 (01) (108-127)

Himanshu. 2019. The Seriousness of the Unemployment Problem in India. *LiveMint*, 1 Aug 2019. https://www.livemint.com/opinion/columns/opinion-the-seriousness-of-the-problem-of-unemployment-in-india-1564679281965.html.

Home, R. 2013. *Of planting and planning: The making of British colonial cities*, Routledge.

ICRIER (2019a) State of Municipal Finances in India

ICRIER (2019b) Finances of Municipal Corporations in Metropolitan Cities of India

Jain, G., Jigyasu, R., Gajjar, S. P., & Malladi, T. (2015). Cities Provide a Transformational Opportunity to Reduce Risk Accumulation. RF Policy Briefs. Https://Doi.Org/10.24943/9789387315075.

Jain, G., Revi, A., Koduganti, J., & Abbas, A. (2018). Localising SDGs for India. https://doi.org/10.24943/sdgsindia.2018

Jana, A., Malladi, T., Raju, J. S. M., & Rao, P. (2015). Urban India 2015: Evidence (Demographic Dynamics). Https://Doi.Org/10.24943/Urbindia.2015_1.

Kalia, R. 1994. Bhubaneswar: from a temple town to a capital city, SIU Press.

Kalia, R. 1999. Chandigarh: The making of an Indian city, Oxford University Press New Delhi.

Kalia, R. 2006. Modernism, modernization and post-colonial India: a reflective essay. *Planning Perspectives,* 21 (2) (133-156) Routledge

Kannan, K. & Raveendran, G. 2019. From Jobless to Job-loss Growth. *Economic & Political Weekly,* 54 (44) (39)

Malladi, T., Chatterji, N., & Jana, A. (2017). India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion. Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

Mazumdar, I., Neetha, N. & Agnihotri, I. 2013. Migration and gender in India. *Economic and Political Weekly,* (54-64)

Ministry of Shipping. (2016). Sagaamala National Perspective Plan.

Ministry of Railways. 2020a. Indian Railways operationalizes 4197 Shramik Special trains. Available: https://pib.gov.in/PressReleasePage.aspx?PRID=1629043.

Ministry of Railways. 2020b. Indian Railways to continue to give Shramik Special Trains to States as demanded. Available: https://pib.gov.in/PressReleasePage.aspx?PRID=1631092.

Ministry of Urban Development (1987). The National Commission on Urbanisation Report

Morris, S., & Pandey, A. (2007). Towards reform of land acquisition framework in India. *Economic and Political Weekly*, 2083-2090.

Morris, S., & Pandey, A. (2009). Land markets in India: Distortions and issues. *India Infrastructure Report*.

Nataraj, G. (2014). *Infrastructure challenges in India: The role of public-private partnerships*. Observer Research Foundation.

Nayyar, G. & Kim, K. Y. 2018. *India's internal labour migration paradox: the statistical and the real*, The World Bank.

NHAI. (2019). National Highways Development Project. Retrieved from https://nhai.gov.in/nhdp-english-map.htm

NOAA -NGDC. (2011). Version 4 DMSP-OLS Nighttime Lights Time Series. Boulder, Colarado: Image and data processing by NOAA's National Geophysical Data Center. DMSP data collected by US Air Force Weather Agency.

OpenStreetMap contributors. (2020). Planet dump. retrieved 2013-10-19.[Online]. Available: http://www. openstreetmap. org. Retrieved from https://planet.openstreetmap.org/

Patel, S., Mehta, P. & Correa, C. 1965. Planning for Bombay: 1. Patterns of Growth 2. The Twin City 3. Current Proposals. *MARG* [Online], 18, 3, Available: https://marg-art.org/product/UHJvZHVjdDozMDA5 [Accessed July 10, 2020].

Revi, A. (2020) Where & When to Lift a Lockdown, What to Do to enable a Transition to Normalcy? (https://doi.org/10.24943/WWLETN.2020)

Revi, A., Idicheria, C., Jain, G., Anand, G., Sudhira, H. S., Seddon, J., … Srinivasan, S. (2011). Urban India 2011: Evidence (Third Edit). Indian Institute for Human Settlements. https://doi.org/10.24943/9789350674307

Revi, A., Jana, A., Malladi, T., Anand, G., Anand, S., Bazaz, A., Bhan, G., JS, M. R., Koduganti, J., Harish, S., Wankhade, K., MJ, V., Rao, P., Sami, N. & Shah, S. 2015. *Urban India 2015: Evidence,* Bangalore, Indian Institute for Human Settlements.

Revi, A., Sen, G., Suresh, Y., Kuruvilla, R., & Bazaz, A. (2019). Localising SDGs for India: 2019. Bengaluru.

Revi, A., Bazaz, A. (2019). Study for the XV Finance Commission on Urban Infrastructure and Resilience

Searle, L. G. (2016). *Landscapes of accumulation: Real estate and the neoliberal imagination in contemporary India*. University of Chicago Press.

Seshadri, T. (2012). An analysis of the feasibility of private land assembly for Special Economic Zones in India. *Urban Studies*, *49*(10), 2285-2300.

Sivam, A. (2002). Constraints affecting the efficiency of the urban residential land market in developing countries: a case study of India. *Habitat International*, *26*(4), 523-537.

Survey of India. (2019). Political Map of India - Ninth Edition. Dehradun, India: Department of Science and Technology, Government of India. Retrieved from http://www.surveyofindia.gov.in/files/Political Map of India.jpg

UNEP-GRID. (2014). PREVIEW Global Risk Data Platform. Geneva, Switzerland. Retrieved from https://preview.grid.unep.ch

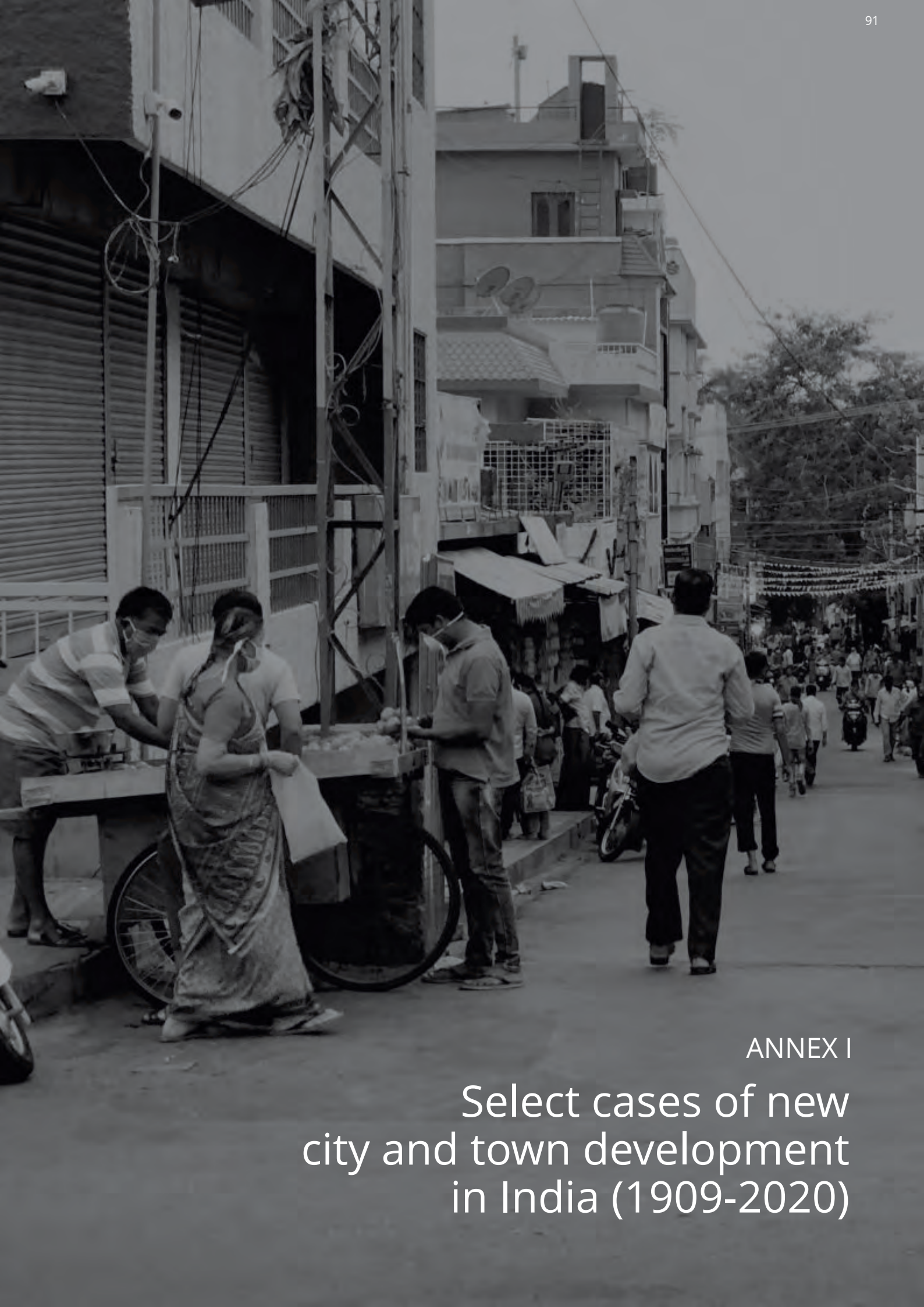
United Nations, Department of Economic and Social Affairs, & Population Division. (2019). World Population Prospects 2019, Volume I: Comprehensive Tables. New York.

Vyas, M. 2019. Surveying India's Unemployment Numbers. *The Hindu*, 9 Feb 2019. https://www.thehindu.com/opinion/lead/surveying-indias-unemployment-numbers/article26218615.ece.

XIII Finance Commission (2009). Report of the XIII Finance Commission, Government of India.

XIV Finance Commission (2014) Report of the XIV Finance Commission, Government of India.

XV Finance Commission (2014) Report of the XV Finance Commission for the year 2020-21, Government of India.



ANNEX I

Select cases of new city and town development in India (1909-2020)

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Amaravati

Significance of the case

Amaravati was proposed in 2014 as a greenfield capital city by the Government of Andhra Pradesh, after the bifurcation of the state through the Andhra Pradesh Reorganization Act (2014). The project was conceptualised by the GoAP, under Chief Minister Chandrababu Naidu.

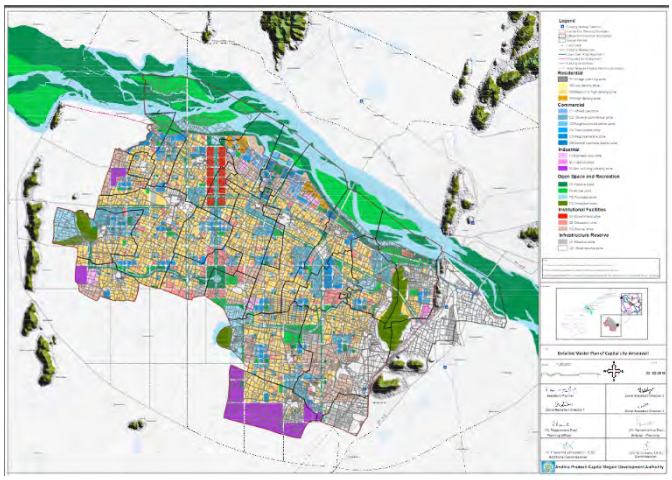
Within five years after extensive land pooling of about 33,000 acres of land, the plan for the new capital city has been scrapped, after the Chandrababu Naidu led government lost state elections to the YSR Congress Party in 2019. The new YSR Congress government has decided that the state's new capital would be located at Vishakhapatnam.

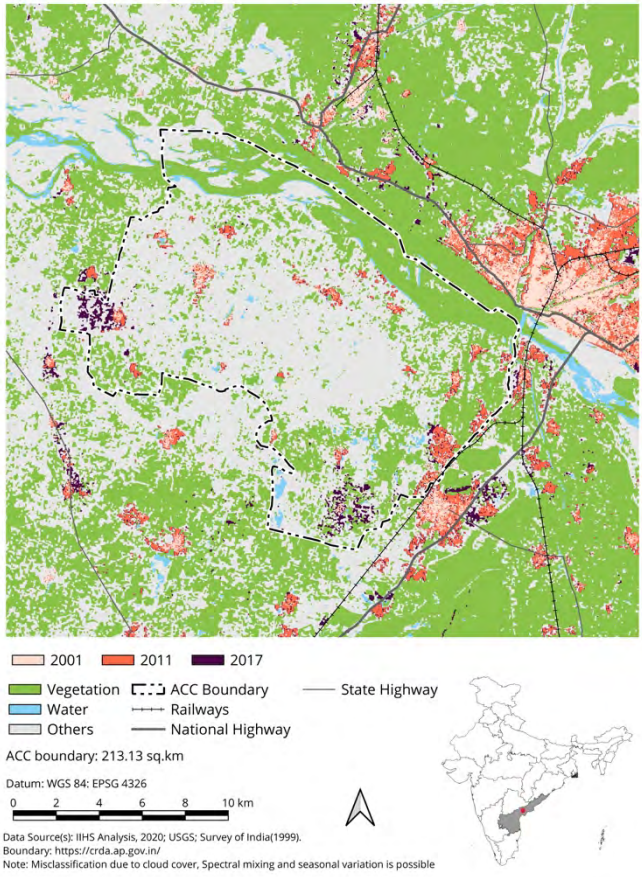
Major multilateral lenders such as the World Bank and the Asian Infrastructure Investment Bank have pulled out from the project.

Size, location, population and demographic growth rate

Location: Between Vijayawada and Guntur alongside the River Krishna, comprising 24 revenue villages and part of Tadepalli municipality of Guntur district.
Population: 0.1 million (2011)
Area: Total area of 53,748 acres, with 38,581 acres proposed to be aggregated through land pooling. The remaining land was already owned by the government.

Map





Vision and reasons for establishment

Amaravati was envisioned as the greenfield capital city for the newly formed state of Andhra Pradesh. It was launched as the 'People's Capital'. The Master Plan incorporated nine 'theme' cities at Amaravati: Government City, Justice City, Finance City, Knowledge City, Electronics City, Health City, Sports City, Media City and Tourism City.

Land aggregation and investments

Amaravati was proposed at a location, which predominantly consisted of agricultural fields, mainly with commercial crops, spread across 25 villages in three mandals (Thulluru, Mangalagiri and Tadepalli) of Guntur District.

The land pooling approach was adopted to aggregate land, to avoid the costs, delays and public opposition against land acquisition. The land pooling scheme was started in January 2015, with the aim of obtaining 38,581 acres of land. As per official reports, 22 out of the 24 villages approached to give up their land agreed within four months of the scheme's announcement. It was also decided that the Land Acquisition Act would be used to assemble land from the villages that did not agree to the land pooling scheme. This makes the Amaravati land pooling exercise more compulsory than voluntary.

The official report prepared by the APCRDA in July 2018 pegged the required investment for the new city to be between Rs 424.5 billion to Rs 495 billion (USD 6 billion to USD 7 billion). IBRD (World Bank) financing was proposed to be US$300 million, with co-financing from the Asian Infrastructure Investment Bank (AIIB) of US$200 million.

At the time of the project being scrapped projects worth Rs 281 million (around USD400 million) had been launched. The Andhra Pradesh Capital Region Development Authority (APCRDA) also raised Rs 200 million by issuing Amaravati bonds, which witnessed a 1.53 times oversubscription. In 2019 the new government allowed subscribers who had purchased the bonds the option of consensual premature termination of these instruments.

Implementation and governance structure

Lead role in visioning, land pooling, investment pooling and coordination: Government of Andhra Pradesh
Planning and development authority for Amaravati: APCRDA:
Preparation of the Master Plan: Surbana, Jurong Pvt. Ltd:
Master Plan for the government complex: Norman Fosters:
Infrastructure development and implementation: Amaravati Development Corporation/ VGTMUDA:
All powers and loans of the APCRDA were transferred to the VGTMUDA in 2019
ADC partners to develop the new city: Ascendas- Singbridge and Sembcorp, Ascendas- Singbridge Andhra Investment Holdings, Singapore Amaravati Investment Holdings (JV):
Amaravati Metro Rail Corporation Limited

Key issues

The new capital project was ambitious in its greenfield imagination, the scale of the planned city, and the short gestation period that was envisioned. As other examples highlight, urban areas often take two-three decades to be established economically and socially, over and beyond the demographic

numbers that they may able to attract. However, the Amaravati project worked with a 4-5 year time horizon to 'start- up' certain areas of the city.

The scale of the project was associated with significant land and investment requirements. The short gestation period proposed created further implementation challenges and risks that applied across the land pooling stage to the infrastructure development stages. The new city was associated with significant environmental risks as the Master Plan was partially located on the Krishna riverbed. The project was also associated with high political risks as the election results in 2019 revealed.

Economic profile

Amaravati was located 30 kms from Vijayawada and 18 kms from Guntur. The land identified for the new capital city comprised of agricultural fields, mainly with commercial crops. As such, the economy of the Capital Region was primarily driven by the agricultural (production of cotton, sugarcane, pulses and spices) and service sectors (trading, construction and hospitality). The industrial activity in the region is limited to upstream manufacturing and characterised by industrial units across sectors such as food processing, textile, non-metallic minerals, pharmaceuticals and aquaculture.

Amaravati City and the surrounding region is located on the banks of the perennial Krishna river and various religious and cultural heritage sites such as a Durga temple, Buddhist Stupa, Undavalli Caves, Bhavani temple, Narasimhaswamy temple, Dharanikota, and others.

Investments and economies in the new city of Amaravati were directed through nine theme cities: Government City, Justice City, Finance City, Knowledge City, Electronics City, Health City, Sports City, Media City and Tourism City.

Infrastructure profile and gaps

Proposed infrastructure interventions included: (i) priority road networks that provided connectivity across the future Capital City; (ii) flood management and resilience investments; and (iii) village infrastructure upgrade investments.

As per APCRDA, the economic potential of the Capital Region included: a strong network of transport infrastructure via rail (Vijayawada and Guntur cities have major railway stations), roads (the NH-16 and the NH-65 pass through the region), domestic airport near Vijayawada city (proposed to be converted into an international airport), and a proposed sea port at Machilipatnam.

Disaster resilience and environmental sensitivity

Amaravati was partially located on the Krishna riverbed and extensive flood management plans were envisioned as a part of the new city development. The EIA for the project came under intense scrutiny and critique at the time that the city's proposals were made and subsequently by the YSR Congress Party, since 2019.

The location within the floodplain also led to engineering challenges as the design of gravity-led water and drainage systems were made keeping in mind the low levels of marginal slope available across the city. These engineering design challenges also led to difficulties in procurement and contracting as multiple contractors were involved with the implementation of different parts of the city's underground infrastructure grids. There was also a need for a high level of precision to ensure that various parts of the grid came together in a coordinated and workable design for the whole city,

with low margins of change/ error possible during implementation, within fast- tracked implementation schedules.

Conclusions

Amaravati highlights several issues associated with large-scale greenfield urban projects, including the challenges of large-scale land aggregation, the fallouts of underplaying environmental considerations, the challenges of managing investment risks that can be allayed by large government guarantees but only over the short term, the fallouts of managing public participation towards pre-determined goals, as well as the challenges of managing the gap between development proposals and development needs.

References

- APCRDA: https://crda.ap.gov.in/apcrdav2/views/home.aspx
- APCRDA Resettlement Policy Framework: Total investment: https://crda.ap.gov.in/apcrdacommuni/media/asccdp/16082017/Amaravati%20RPF-Cleared%20by%20RSA.pdf
- World Bank EIA Plan: http://documents1.worldbank.org/curated/en/334341534487697595/pdf/Environmental-Impact-Assessment-Environment-Management-Plan-Report-for-Flood-Mitigation-Works.pdf
- World Bank Environment and Social Management Framework: http://documents1.worldbank.org/curated/pt/650051486971245674/pdf/Environmental-and-Social-Management-Framework.pdf
- Land pooling case study by Director of Planning, APCRDA: https://blog.avenue.in/2018/08/02/case-study-amaravati-land-pooling-scheme/
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

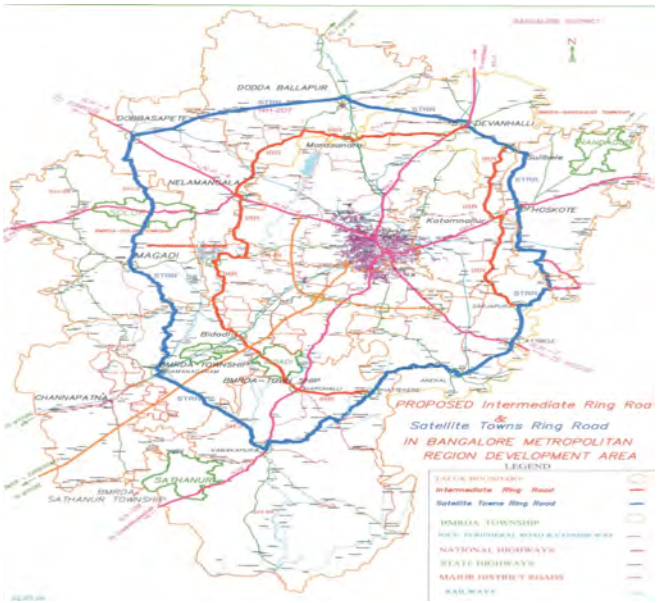
Bidadi

Significance of the case

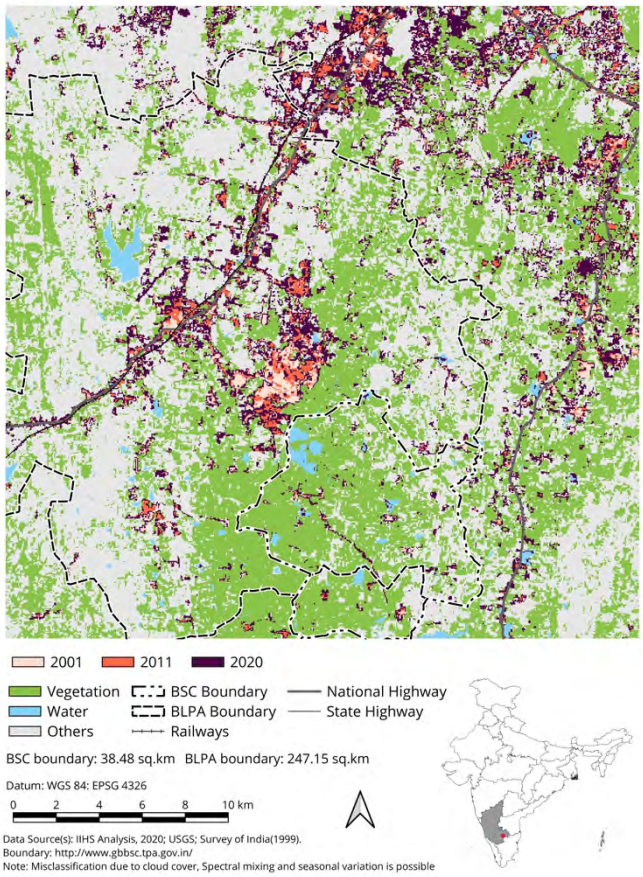
In 2006, the Government of Karnataka approved five townships to be developed by BMRDA/ BDA in Bangalore's periphery. These were in addition to townships that were approved as a part of the NICE project. In time, four of the BMRDA/ BDA townships were denotified. However, Bidadi a proposed new Knowledge City in the southern periphery of Bangalore, continues to be held by the BMRDA/ BDA. Bidadi is proposed over 9,178 acres, across 10 villages.

The project has experienced several attempts by the BMRDA/ BDA to bring in private sector developers and private sector investments.

Map



Bidadi | Karnataka



A brief chronology

- **2006:** In a major move, land use conversions in the identified area were frozen. This meant that farmers and land owners in the area could sell their land but only as agricultural land, thus effectively freezing the increase in land values in the area. This however did not stop the land values in surrounding areas to increase, compromising the economic options for project affected persons. The land freeze has been in place for the past 15 years. In response, project affected persons have formed the Sri Ranganatha Raitha Hitarakshana Samithi, which has been the petitioner in High court against BMRDA for land acquisition in the area.

- **2007:** DLF was selected to prepare a Master Plan for Bidadi and offered a turn key role from master planning to development to delivery. DLF was supported by a range of other private sector actors/ activities – e.g. Calthorpe prepared the 2007 Master Plan for Bidadi Township, Alcon Consulting Engineers Pvt. Ltd. conducted the detailed survey of proposed peripheral ring road for a length of 117 Km for BDA and also conducted detailed survey for the layout plan and DPR at Bidadi Phase 2 Industrial area for KIADB, Limitless, a Dubai based developer, part of Nakheel group had 50% stake in the DLF led consortium. However, in 2009 DLF made an exit citing land concerns.

- **2010:** BMRDA revived the project with an RFQ that divided the project into smaller parts. GVK, Reliance, Hindustan Construction were among the developers shortlisted. However, land concerns continued, and in 2011 the project was shelved.

- **2015:** BMRDA revived the project under a TPS format, a form of land pooling in an effort to build support with the project affected persons that had formed the Sri Ranganatha Raitha Hitarakshana Samithi. However not much progress was made, and the project was again shelved**.**

- **2017:** A fresh BMRDA/ BDA call was advertised inviting bids only to prepare a Master Plan for Bidadi rather than a private sector turn- key approach, as attempted earlier.

Key issues

Bidadi enjoys several advantages of economic and urban agglomeration benefits due to its proximity to Bangalore as well as the increasing congestion being experienced in the city's existing IT hubs, ranging from Electronic City in the South-East to Whitefield and Sarjapur Road in the East. However, these advantages have not been sufficient to derisk the project to facilitate its implementation through private sector participation and investments.

The project has been attempted through various modes of private sector participation for the past 15 years. Implementation challenges have included managing the investment and risk appetite of the private sector, as well as managing the needs of project affected persons. Through the years BDA/ BMRDA have attempted several strategies to derisk the project to facilitate implementation – from a turnkey private sector-led approach, it moved to spatial division of the township into smaller projects, followed by a land pooling approach. However, none of these approaches have been adequate to address underlying land concerns and the private sector's perceptions of risk and investment appetite.

References:

- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

Bhubaneshwar

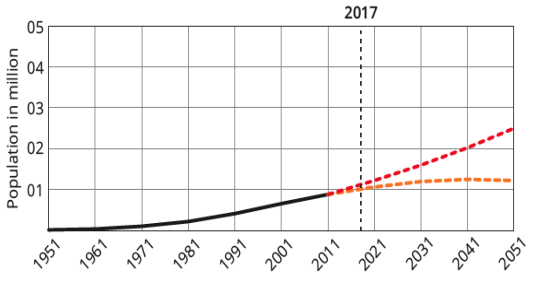
Significance of the case

Bhubaneshwar was reinstated as the capital of Odisha in 1948 as riverine natural barriers inhibited the further expansion of Cuttack. It became functional and shifted officially only in 1959 (Census Handbook). It was planned and built as an administrative and service sector city using the gridiron pattern (Routray et al 1996). Industrial establishments emerged only in 1980, but the city continues to have a high population working in the tertiary sector (India Smart City Profile).

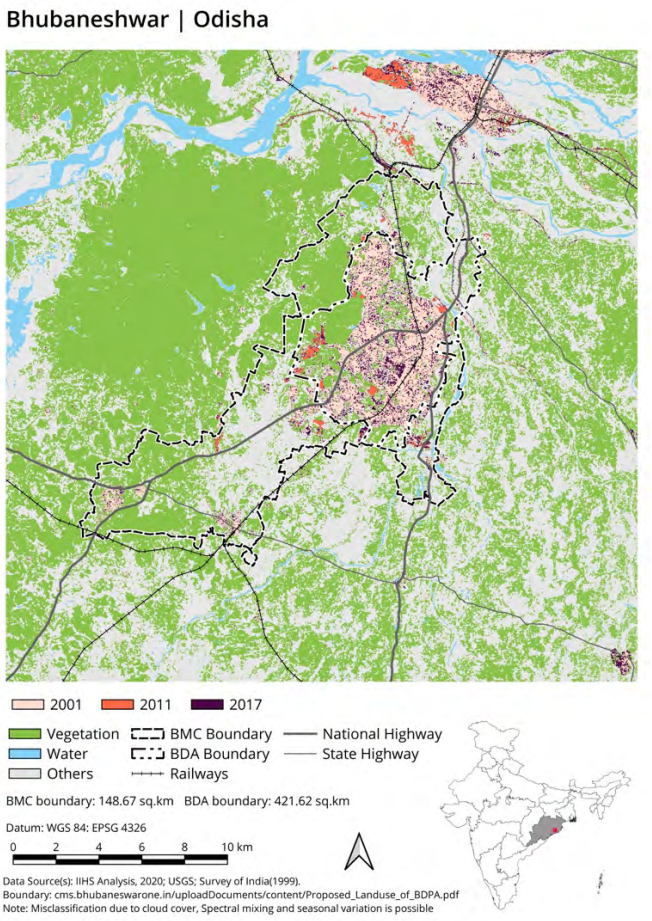
Size, location, population and demographic growth rate

Bhubaneswar is the largest city in Odisha, with a Municipal Corporation area covering approximately 135 sq.km. The city was planned by Otto H Koenigsberger for 40,000 people across 16 sq. km. The population has grown considerably from 0.038 million in 1961 to 0.88 million in 2011, due to migration in the metropolitan region.

It was planned as an administrative state and employed close to 90% of its population in the tertiary sector until 1991 (Routray et al 1996).



Map



Vision and reasons for establishment

Its location near the eastern coast of India with good connectivity to existing and emerging ports, petrochemical and steel hubs at Paradip, Kalinga Nagar, Dhamra and Gopalpur, makes Bhubaneshwar a strategic regional gateway for South-East India. Several new ports are being proposed along the Odisha coast, which could further improve the connectivity required for exports. Tourism is another important industry for Bhubaneswar as it serves as the gateway to the Golden Tourist Triangle of Puri, Konark and Chilika Lake.

Land aggregation and investments

Most of the growth is taking place to the north, northeast and southwest. The city can be broadly divided into the old town, planned city (or state capital), added areas and outer peripheral areas. It is subdivided into Units and Colonies. Though parts of the city followed the Master Plan, others have grown rapidly, outstripping the planning process. The peripheral areas are outside the municipal boundary or have subsequently been included within the extended boundary, including Tomando, Patia and Raghunathpur. Most of these areas were developed in a haphazard manner, without proper planning.

Implementation and governance structure

The Legislative Assembly of Odisha was shifted from Cuttack to Bhubaneswar in 1949. From 1952 to 1979, it was administered by a Notified Area Council or a Nagar Panchayat; a municipality was established only in 1979. Bhubaneswar Municipal Corporation was established in 1994.

Bhubaneshwar secured the first place in the national Smart City Challenge competition to emerge as one the first contenders to be selected for funding under the Smart City Mission. The city has done justice to this, by adopting and integrating 'smart' elements across all infrastructure to enable improved services and living conditions for its citizens. Among the significant development projects, Bhubaneshwar has re-invented its public services with e-governance initiatives, paved the way for a Capital City Transport Authority to streamline policy formulation, planning and implementation of its motorised and non-motorised transport.

Key issues

- The city is prone to disasters due to its geographical location
- Bhubaneshwar has a significant slum population which is being addressed through various Centrally sponsored Schemes to enable tenure security and better access to employment.
- Connectivity to the port and strategic economic corridor is important to accelerate economic development.

Economic profile

Bhubaneswar has a rich cultural heritage and a strong regional economic base. The city has emerged as a major destination for the IT industry, higher education and advanced medical care along with the boom in the metals and metal processing industries.
Bhubaneswar is the only Tier-2 city in the country with the presence of top Indian IT firms as well as high employment growth. The city has a dedicated IT SEZ and is also one of the four notified 'Information Technology Investment Region' in India. The city also has several eminent institutions like IIT, NIFT, AIIMS, NISER, IIIT, XIMB, XUB, BGU, and KIIT. Bhubaneshwar has been recognised

internationally for its social equity programs e.g. Gram Tarang (skill development) and KISS (Tribal residential education).

Infrastructure profile and gaps

Odisha has borne the brunt of extreme climate events over the years (e.g. a supercyclone and drought in 1999) along with significant portion of its population being poverty. Bhubaneshwar was reported to have a slum population of 30% in 2011. The city has subsequently improved and upgraded its infrastructure, enabling improved services for its citizens. The implementation of urban development programs like RAY and PMAY have helped improved conditions in slums and informal settlements, consolidated by Odisha's pioneering urban tenure initiative.

Disaster resilience and environmental sensitivity

Odisha and Bhubaneswar are exposed to multiple weather and climate related risks from: heat waves to cyclones and storm surge; droughts to floods. The city was severely affected by the Extremely Severe Cyclonic Fani in 2019, that disrupted passenger traffic at the only major airport in the state for several days. The cyclone caused a lot of loss of green cover leading to heat waves in 2019.

The increase in the frequency and intensity of hydro-meteorological hazards such as cyclones, floods and droughts are being linked to climate change. The city is exposed to urban and riverine flooding from River Kuakhai to the east, and the Daya river in the west. Bhubaneshwar lies in moderate Earthquake Damage Risk Zone (Zone III).

Conclusions

Bhubaneshwar has the potential to:

- Accelerate employment generation, that can be built on for post-COVID recovery
- Emerge as a logistics hub, based on its proximity to the East-coast transport corridor
- Improve its attractiveness for investment through better infrastructure and public services
- Enable tenure security and employment potential in slums and informal settlements
- Improve institutional capacity to respond to and build urban disaster reliance

References

- https://www.bmc.gov.in/
- https://www.bda.gov.in/
- https://www.smartcitybhubaneswar.gov.in/
- https://censusindia.gov.in/2011census/dchb/2117_PART_B_DCHB_KHORDHA.pdf
- https://www.sciencedirect.com/science/article/pii/026427519500128X
- http://www.dataforall.org/dashboard/censusinfoindia_pca/
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

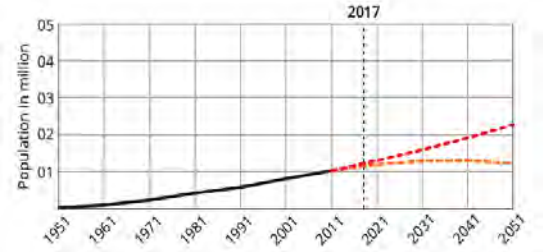
Chandigarh

Significance of the case

Chandigarh, planned by the French architect Le Corbusier in the late 1950s, is considered a symbol of post-Independent India's foray into planned urbanisation. It was one of the pioneering 20th century experiments in greenfield urban planning and modern architecture. The Master Plan was developed by Le Corbusier who also designed the Capital Complex and established the architectural and urban design controls for the city.
Chandigarh offers historical and contemporary lessons in the challenges that planners and builders of 'new towns' face as the region deals with the adaptability of formal, rigid planned development with the growing demands of spatial and economic urban growth (Kalia, 1985).

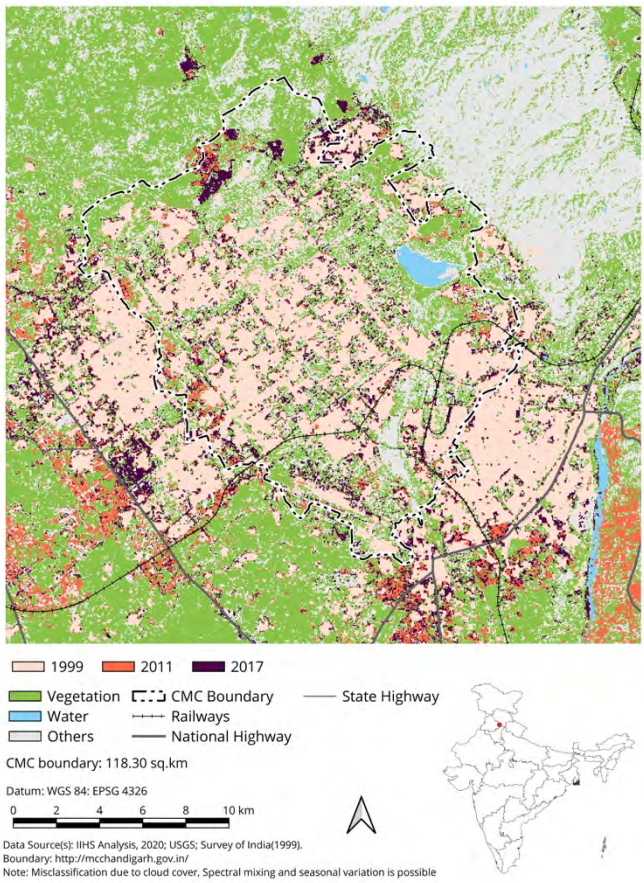
Size, location, population and demographic growth rate

The Union Territory (UT) of Chandigarh is located near the foothills of the Shivalik range in northwest India and has a total area of 114 sq. km. Chandigarh witnessed a decennial population growth (2001-2011) of 27 percent with a metropolitan population of 1 million (Census, 2011).



Map

Chandigarh | Punjab and Haryana



Vision and reasons for establishment

Chandigarh, the capital of two states Punjab and Haryana, has a strong regional influence over hinterlands in both states, especially the satellite towns of Mohali (Punjab) and Panchkula (Haryana). As a planned city with strict development controls and bye-laws, Chandigarh displays high service levels. With a population density of 9,258 persons/ sq.km. (Census, 2011) the city is challenged by urban sprawl and the expansion of unplanned outgrowths, slums and informal settlements.

Land aggregation and investments

The site for Chandigarh was selected in 1948 considering its central location, proximity to Delhi, availability of water, moderate climate, fertile soil, gradient for natural drainage, and a panorama of hills as backdrop.

The Government of Punjab, in consultation with the Government of India, approved the site for the new capital. The foundation stone for the city was laid in 1952.

Implementation and governance structure

At the time of the reorganisation of Punjab, Haryana and Himachal Pradesh, in 1966, it was declared a Union Territory under the direct control of the Central Government and the capital of both Punjab and Haryana. The Municipal Corporation of Chandigarh was established in 1995. The Chandigarh Administration and Municipal Corporation have overlapping jurisdictions.

Key issues

Chandigarh's limited land area, rigid planning guidelines and unplanned peripheries make for a challenging case of sustainable urban management. Peripheral and former village *abadi* lands are extensively encroached, in spite of the Chandigarh administration's rehabilitation drive across almost 18,000 dwellings, to regularise tenure. The relationship between the city and its region in two states, makes for a serious governance challenge as there are three separate jurisdictions that need to be addressed.

Economic profile

Chandigarh has become one of the wealthiest towns in India with a high per capita income and a Human Development Index. The economic character of the UT, conceived as an administrative centre is changing character, with the development of several knowledge and service industries. Chandigarh has high quality health and education services with premier medical, research and educational institutions.

Infrastructure profile and gaps

The bulk of Chandigarh is well planned and has high quality of infrastructure and services, outside the peripheral unplanned development. This is partially because of an industrial policy that only permits non-polluting industries that are run on electricity to be based in the city. It is also making the slow transition to solar PV-based power. Conservation of the Sukhna lake and other water bodies and watershed development and groundwater recharge are also key initiatives. Chandigarh's green cover has increased by almost 9%, over the last two decades. Chandigarh airport is expected be upgraded into an international airport to improve global connectivity.

Disaster resilience and environmental sensitivity

Chandigarh, along with adjoining urban agglomerations of Mohali and Panchkula in the adjoining states, due to its locational proximity at the foothills of the Shivalik range, is vulnerable towards natural and manmade calamities like, Floods, Earthquakes, Windstorms, Sunstroke, Heat and Cold Wave, Fire Accidents and Chemical and Biological accidents/threats etc. The Chandigarh Disaster Management Plan (CDMP) has been envisaged as a preparedness plan and has been incorporated

within the Chandigarh Master Plan 2031. The CDMP addresses earthquake as a prime potential hazard due to its location at the foothills of Himalayas, among other multiple hazards. Earthquake simulation exercises have been carried out at the district level by NDMA to assess 'multi-state Disaster Preparedness'. Risk and Vulnerability Analysis of Chandigarh has also identified several environmental risks like chemical spills on the environmental resources in Chandigarh like the lakes, leisure parks, reserved forests, etc. Environmental resources may be impacted when a primary hazard (earthquake, flood) leads to secondary hazards like chemical spills, sewage overflow, etc.

Chandigarh lies in the high earthquake damage risk zone (Zone IV) and faces urban floods with heavy rainfall. The city disaster management plan recognises the earthquake as the most critical risk to the city and lists enforcement of the building codes and laws, retrofitting existing structures, mock drill and training as some of the key activities for risk mitigation in the city.

Conclusions

Since its conception in 1952, Chandigarh has emerged as one of India's leading planned cities, with a strong balance of education, health and knowledge institutions, emerging technology and innovation:

- Ranked first on the Human Development Index.
- Rated as the "wealthiest town" in India and the sixth most prosperous city, in terms of family wealth, with a high economic growth rate.
- Bank deposits of USD 4 billion.
- Education: Panjab University, PGIMER, an Architecture and Fine Arts college, ISB.
- Health: Seven large government hospitals and other hospitals in the private sector.
- Research Institutes: IMTECH, CSIO, NIPER.

It has taken over 50 years for the city to get to a critical economic and demographic mass, even though it is a UT, capital of two of India's more prosperous states and part of one of the largest mega-urban regions in the world.

References:

- http://mcchandigarh.gov.in/
- http://chandigarh.gov.in/welcome.asp
- http://chandigarh.gov.in/pdf/civild18-cdmp.pdf
- http://chandigarh.gov.in/cmp2031/disaster.pdf
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

Durgapur

Significance of the case

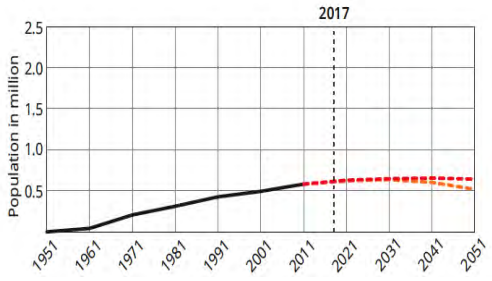
Durgapur is one of the fastest emerging cities of West Bengal, planned as a countermagnet to Kolkata. Popularly known as the Steel city of eastern India, Durgapur was a greenfield city planned in the post-Independence era. Known as the "Ruhr of India, born out of the vision of Dr. B. C. Roy, the Chief Minister of West Bengal (1948-62). The well laid out industrial township was designed by Joseph Allen Stein and Benjamin Polk as an integrated industrial town. It is home to Durgapur Steel Plant, one of the largest integrated steel plants of SAIL. Durgapur was planned and remains one of the biggest industrial hubs in India.

Size, location, population and demographic growth rate

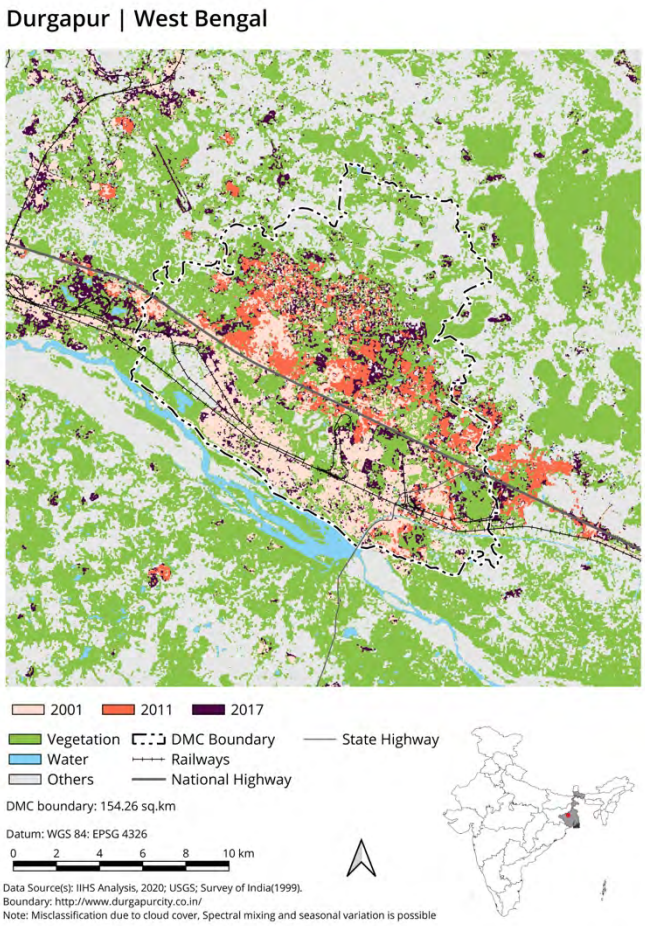
Durgapur is in Paschim Bardhaman district of West Bengal, an undulating topography on the banks of the River Damodar just before it enters the alluvial plains of Bengal. The coal-bearing area of the Raniganj coalfields lies just beyond Durgapur.

Durgapur is the third largest city in West Bengal in terms of area (154 sq. km) and population 0.6 million (2011 Census).

The city was planned along the Grand Trunk road, with the residential areas to the north of and the industrial areas to the south.



Map



Vision and reasons for establishment

The topography of the lower Damodar Valley region along with proximity to the Raniganj coal fields, made Durgapur a suitable site for the location of a giant steel plant. The opening of Chittaranjan Locomotive Works in 1951 was an important driver for the location of several heavy and medium

industries in the steel and alloy, mining and allied machinery sectors. Hundreds of ancillary industries at Durgapur have completely changed the industrial landscape of the region.

Land aggregation and investments

The urbanisation in Burdwan district started in the mid-19th century with the opening of modern coal mines at Raniganj and steel production in Asansol.

The Durgapur Steel township was planned in 1961, adjoining a Coke Oven Plant and an Alloy Steel Plant on three distinct pieces of land sandwiched and separated by the Damodar river, railway and NH2 highway alignment.

The Durgapur Development Authority was formed in 1958 to coordinate and integrate development across the industrial city. In 1966, an Intermediate Development Plan was prepared that paved the way for the half a dozen townships that currently make up the city.

Implementation and governance structure

Durgapur City is the headquarters of the Durgapur subdivision consisting of the Durgapur Municipal Corporation and five community development blocks. The five blocks contain 36 Gram Panchayats and 30 census towns. The Durgapur Urban Agglomeration includes the Durgapur (Municipal Corporation), Bamunara (Census town) and Arrah (Census town). The Durgapur Notified Area Authority was created in1962 to bring individual industrial townships into the municipal structure as ratepayers. The state later passed a Municipal Act in 1994 to transfer powers of this body to the Durgapur Municipal Corporation.

Key issues

- Air Pollution from steel industries/ industrial establishments is severe.
- Unplanned growth in the peripheral areas housing small scale enterprises and workers contributes to the 40% slum population of the city.
- Some upgradation of slum infrastructure has been achieved via BSUP.
- Limited planning framework with limited development regulations within various private townships.

Economic profile

Durgapur has a large industrial base of with the Durgapur Steel Plant and Alloy Steel Plant with their respective townships. Other major industries include: thermal power, cement, chemicals, and machinery. NTPC, DVC, CMERI, Durgapur Cements, Durgapur Chemicals, Graphite India Ltd, Philips Carbon Black Ltd. (PCBL), Ultratech Cement Ltd and ALSTOM Projects India Ltd are located here, as well as a large number of MSMEs.

Infrastructure profile and gaps

A new greenfield Aerotropolis is being developed at Andal to cater to the cargo needs of the industrial townships. Connectivity with Kolkata has been upgraded with a 200km long expressway. The Damodar Valley Corporation Power project provides a dedicated source of power and water for the area. The Durgapur Municipal Corporation has upgraded water supply and sewage treatment in the city via JNNURM to improve water supply to new townships and the Aerotropolis.

Disaster resilience and environmental sensitivity

Durgapur is located in the Raniganj coal mining belt and on the Damodar river is exposed to several multiple hazards. Key risks include land subsistence, flood and drought. Durgapur has also witnessed water scarcity due to groundwater extraction by heavy industries, Environmental risks like air pollution and chemical accidents are also important risks to the city.

Conclusions

Over a period of more than 70 years Durgapur, along with the industrial town of Asansol, has developed into an industrial and employment countermagnet to Kolkata's urban agglomeration, but at less than a twentieth of its size. A strong industrial base of steel and coal-based industries has developed but will be deeply challenged by the decarbonisation imperatives of the 21st century to address climate change. The city will have deep challenges diversifying, even with the creation of a new greenfield aerotropolis and improved road connectivity with Kolkata through a 200 km expressway.

References

- http://www.durgapurmunicipalcorporation.org/
- Urbanisation and Rural Change in West Bengal, *Economic and Political Weekly,* Vol. 22, No. 7 (Feb. 14, 1987), pp. 276-287 (12 pages)
- https://www.researchgate.net/publication/306346235_The_Impact_of_Urbanization_on_Environment_A_Study_in_Durgapur_City
- https://shodhganga.inflibnet.ac.in/bitstream/10603/159805/13/13_chapter%208.pdf
- https://www.censusindia.gov.in/2011-prov-results/paper2/data_files/India2/Table_3_PR_UA_Citiees_1Lakh_and_Above.pdf
- https://www.jstor.org/stable/pdf/4376849.pdf?casa_token=ieOkeFi3-aMAAAAA:GRo6fnYZU5gNPWskzbqtt6zCgnALcauEXaY90lnM_fuednMiTAh5A1vOYgfEGKzm4S3gyAnbgoGRke_u50tAtt1bLcKRb8ycLLseY2nk9mSLFgCQQWOt
- https://sarthac.gov.in/view-act-file?file_id=1514
- https://censusindia.gov.in/2011census/dchb/1909_PART_B_DCHB_BARDDHAMAN.pdf
- https://books.google.co.in/books?hl=en&lr=&id=tBslBQAAQBAJ&oi=fnd&pg=PP1&dq=durgapur+city+planning&ots=cJ_CtQpbkt&sig=aTImrlCvR5hD1zWwKgDbIRfLd8Q&redir_esc=y#v=onepage&q&f=true
- http://wbdmd.gov.in/writereaddata/uploaded/DP/DPPaschim%20Bardhaman20500.pdf
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

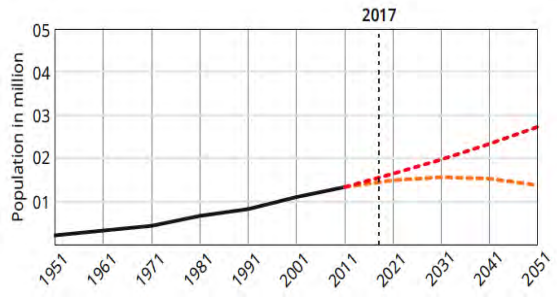
Jamshedpur

Significance of the case

Jamshedpur is one of India's earliest steel towns, and an early example of a privately built industrial settlement that was built through a partnership between the Tata Iron and Steel Company and the colonial Indian government. After Independence, several other steel towns were developed and modelled on Jamshedpur, including Bhilai, Rourkela and Durgapur. While it has expanded a lot since the early decades of its establishment, this growth has been very uneven across the constituent units of the Jamshedpur Urban Agglomeration (JUA). The City Development Plan prepared for Jamshedpur under JNNURM, as well as the Master Plan 2027, highlight significant issues in governing and managing the JUA, including the absence of a local tax base.

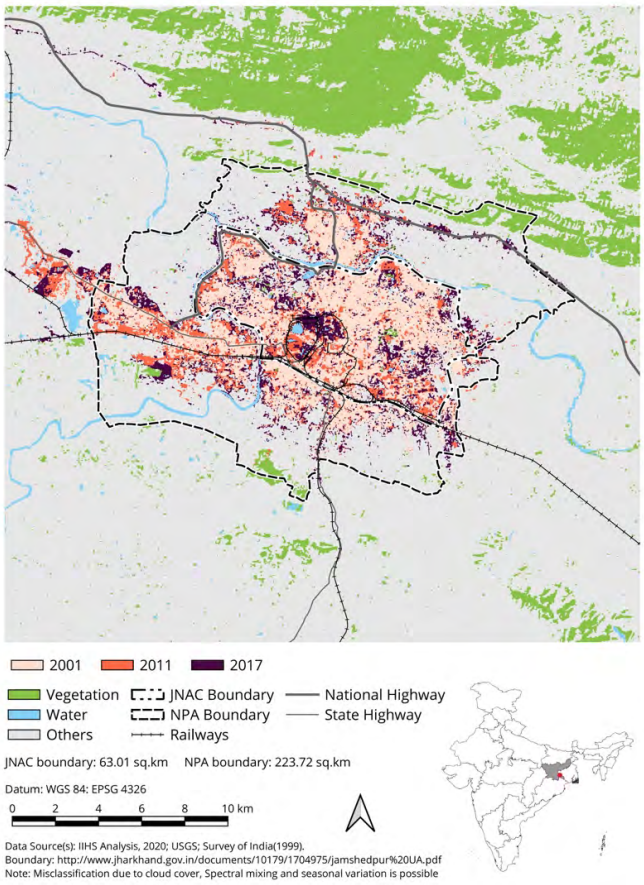
Size, location, population and demographic growth rate

Jamshedpur Urban Agglomeration: 1.4 million (2011 Census).



Map

Jamshedpur | Jharkhand



Vision and reasons for establishment

The city of Jamshedpur was built around Jamsedji Tata's vision of building India's first steel plant and town to support it. Based on the agreement between the Tata Iron and Steel Company (TISCO, later renamed Tata Steel Ltd.) and the Government of India in 1909, the government acquired approximately 3,500 acres of land for the company to establish a steel plant. Considered one of the most significant experiments in building an industrial town in India, it became the model for other post-Independence steel towns. During the colonial period, several American and British architects, engineers and firms drew up Master Plans for the town of Jamshedpur, including the final pre-

Independence plan in 1943 by Otto Koenigsberger. For many years, the company town of Jamshedpur had a very high quality of service provision and a planned approach to development that was implemented by the Town Planning Division of the Tatas. After multiple extensions of their lease agreement, the Tatas now pay an agreed sum of money to the government of Jharkhand in exchange for maintaining services in the Jamshedpur Notified Area, while the adjoining areas Adityapur, Mango and Jugsalai have their own Notified Area Committees or municipalities.

Land aggregation and investments

Initially, the government acquired approximately 3,500 acres of land for the company to establish a steel plant. Subsequent agreements between the government and the company provided more land for expansion and for the provision of housing and civic amenities.

Implementation and governance structure

Jamshedpur does not have a democratically elected urban local body, an issue that has been contested in the High Courts and the Supreme Court since the late 1980s. JUA consists of several constituent units: JUSCO (Jamshedpur Utilities and Services Company, a Tata enterprise responsible for the management of the township), Jamshedpur Notified Area Committee (JNAC), Adityapur Notified Area Committee (ANAC), Mango Notified Area Committee (MNAC), Jugsalai Municipality, 8 village panchayats, and Adityapur Industrial Development Authority (AIDA). One of the main concerns for Jamshedpur is that it needs a unified entity with a legal status to implement its Master Plan and to provide unified administrative and civic services required for the entire JUA area as it expands.

Key issues

As Jamshedpur and the steel industry have grown, ancillaries and other firms have come up in surrounding areas. Successive plans for the city since its formation, including those formulated by British and American engineers and planners since 1909, have highlighted the issue of inadequate housing for workers, and the issue of *bastis* with inadequate services adjoining well-planned areas (Sinha and Singh, 2011). The final pre-Independence plan drawn up by Otto Koenigsberger in 1943, also included a plan for the relocation and redevelopment of *bastis*.

The constituent units of the JUA have done their own planning and implemented projects (particularly in the area of transport planning and housing). Hence a unified approach to the overall region does not exist, leading to issues like inadequate housing of decent quality, poor service provision, environmental contamination due to the absence of adequate treatment infrastructure, and traffic congestion. In particular, the sharp inequality in access to infrastructure, services, and adequate housing between the planned and unplanned parts of the city is a key issue.

The lack of a local tax base in order to bring about improvements is also a major concern, limiting the ability of the government to bring about infrastructure improvements.

Economic profile

The economy of the Jamshedpur area is centered around the original steel industry, with many ancillaries and other related companies coming up around it in subsequent decades, such as Telco, Tinplate Company, Indian Cable Company, Tata Robins Frazer, and others. In addition to the tinplate, steel and cable industries that started in the 1920s, the post-Independence state

government established a new satellite industrial town (Adityapur) in the 1960s for firms and industries that were providing inputs to Tata Steel.

Infrastructure profile and gaps

A key factor when selecting the original location was its proximity to a railway station on the Bombay-Calcutta line, which allowed goods to be transported easily to Calcutta port.

When assessing existing service levels and quality, Jamshedpur's City Development Plan highlights that there is a highly uneven level of service provision for water supply, sewerage and sanitation, storm water drainage, solid waste management, and transport, as well as slum settlements across the JUA as contrasted with the JUSCO areas having very high levels of service provision.

There are also major concerns around traffic congestion, with a lot of outbound traffic carrying industrial output from Jamshedpur and Adityapur, as well as traffic cutting through the city from the south to the north (Sinha and Singh, 2011). The absence of overall planning for the Urban Agglomeration limits the possibilities of addressing the transport problem in a holistic way.

Conclusions

While Jamshedpur originally came up with a clearly identified economic and industrial logic, the very nature of its industrial history and governance prevents it from having a unified planned approach to its urban growth. Issues of inadequate housing and uneven service provision across the different constituents are not new for Jamshedpur. However, bringing in either a democratically elected local body or a parastatal to manage the urban agglomeration and bring about improvements for its residents, seem elusive – outlining one of the most serious governance challenges with industry or private sector-led new town development.

References

- Sinha, A. & Singh, J. (2011) Jamshedpur: Planning an ideal steel city in India. *Journal of Planning History,* 10 (4), 263-281.
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

Lavasa

Significance of the case

Lavasa is a privately built 'new town' that was initially focused on increasing tourism in the area, made possible as a result of the Hill Station Regulation passed by the Government of Maharashtra in 1996. The project has been opposed on environmental grounds and has also faced resistance from local residents. Development has been halted recently due to financial challenges that the parent company – Lavasa Corporation Limited (LCL) has been facing (Balakrishnan, 2019; Parikh, 2015).

Size, location, population and demographic growth rate

Lavasa is being planned and built by a private corporation: the Lavasa Corporation Limited (LCL). It began as a 7,000-acre development in 2000 and grew to 25,000 acres by 2005 and was originally planned for a stable population of 240,000 and 2 million annual visitors. Current estimates (as of 2018-19) show that only one of the proposed five towns – Dasve – has been partially built, with a population of less than 10,000 residents (Balakrishnan, 2019; Antony and Pandya, 2018b; Antony and Pandya, 2018a).

Vision and reasons for establishment

Planned to be independent India's first hill station, Lavasa was the first such new town to be built entirely by a private corporation. It aimed to offer a new (private) model of building, planning and governing cities that would respond to failed planning and governance history in contemporary urban India.
The development of Lavasa has run into financial difficulties with the corporation engaged in resolution processes under IBC 2016. Construction and development have now been halted.

Land aggregation and investments

It went through very complex and political processes of land acquisition through several subsidiary companies that eventually came together/sold their land to Lavasa Corporation. It was made possible by the Hill Station Regulation passed by the GoM in 1996-97.

Implementation and governance structure

Lavasa has a private governance structure that is run largely by the LCL with little to no resident involvement. There has also been little to no involvement of erstwhile residents or residents from surrounding jurisdictions.

Key issues

Lavasa is being planned and developed entirely by a private enterprise – LCL, which is a subsidy of the Hindustan Construction Company (HCC). The development of Lavasa was funded through equity, including through Foreign Institutional Investors (FIIs) of about USD 492 million (Balakrishnan, 2019). However, LCL is now struggling to repay lenders, and the company is engaging in resolution processes under the IBC 2016 (Antony and Pandya, 2018a). Failure and financial crises have compromised investors and residents, several of whom are retirees. The state government, in a controversial move, had transferred land-use planning powers to LCL, effectively granting regulatory

control over the proposed development area to a private firm (Balakrishnan, 2019), leading to a lack of accountability to residents.

Economic profile

Lavasa was planned primarily as a retirement and tourism destination in the Western Ghats. However, given the ongoing challenges with project completion, this has not been entirely realised, and it remains to be seen if the project will be completed as envisioned.

Infrastructure profile and gaps

One of the key selling points for Lavasa was its relative isolation from urban centres like Mumbai and Pune. Infrastructure on site was managed privately by LCL, while drawing on water from nearby sources. Although situated off the Mumbai-Pune expressway, road connectivity is limited. There are plans to connect Lavasa to the two metros through a series of underground tunnels, but the construction of these has been stayed by the national government, citing environmental concerns (Balakrishnan, 2019).

Disaster resilience and environmental sensitivity

Lavasa is located in the Western Ghats, which is an ecologically sensitive and fragile region. There are also concerns around water use, potential landslides and erosion as a result of construction.

Conclusions

As the financial challenges facing Lavasa show, transferring new town development entirely to a private firm is a high-risk strategy. There is little public oversight, and concerns around the legitimacy of private authority to take on state functions such as land-use and infrastructure planning remain (Balakrishnan, 2019).

References

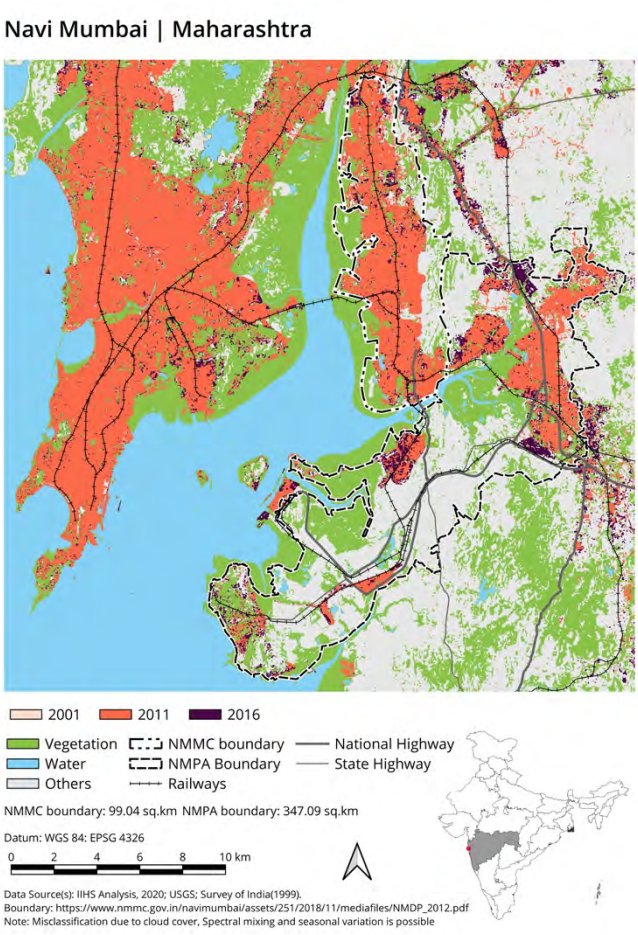
- Balakrishnan, S. 2019. Shareholder Cities: Land Transformations Along Urban Corridors in India, Philadelphia, PA, University of Pennsylvania Press.
- Antony, A. & Pandya, D. 2018a. How the unfinished city of Lavasa became a nightmare for Indian banks. Business Standard [Online], Available: https://www.business-standard.com/article/current-affairs/how-the-unfinished-city-of-lavasa-became-a-nightmare-for-indian-banks-118061900095_1.html [Accessed July 10, 2020].
- Antony, A. & Pandya, D. 2018b. Lavasa: Indian billionaire's paradise has now become a hell on earth. The Print [Online], Available: https://theprint.in/featured/lavasa-indian-billionaires-paradise-has-now-become-a-hell-on-earth/72043/ [Accessed July 10, 2020].
- Parikh, A. 2015. The private city: planning, property, and protest in the making of Lavasa New Town, India. The London School of Economics and Political Science (LSE).

Navi Mumbai

Significance of the case

New Bombay (now Navi Mumbai) was planned as a satellite town and built by CIDCO, to act as a countermagnet to Mumbai and its suburbs. The explicit aim as laid out in the 1964 Development Plan was decongestion and industrial decentralisation of Mumbai within the Greater Mumbai area (Shaw, 2004). The primary aim was to move tertiary sector workers to Navi Mumbai and decongest the southern end of Mumbai. This has not been entirely achieved, partly due to the reluctance of public and private sector enterprises to move away from Mumbai, and the decision to invest in redeveloping the Bandra-Kurla Complex as an alternate business district within Mumbai. Navi Mumbai however has managed to grow into a manufacturing location building on nearby industrial estates and is planning to develop IT/ITES zones as economic growth drivers.

Map



Vision and reasons for establishment

Located on mainland Maharashtra on the Mumbai-Pune highway, Navi Mumbai was planned to be about 345 sq. km in area. Since it was planned as a countermagnet to Mumbai, it needed to be in close proximity to the city.

Founded in 1971, it was functional by the end of 1991. Its population in 1971 was 0.11 million and had reached 1.1 million by 2011, with a density of 3,257 people/sq.km. The plan and the city's development were characterised by multiple nodes which were multi-nucleated settlements along a mass transit railway line, with each settlement being self-contained in terms of amenities such as schools, shopping, and other essential services.

Land aggregation and investments

The primary aims were to decongest Mumbai by building a satellite town, and to provide an alternate growth centre within the Mumbai Metropolitan Region (Patel et al., 1965). The original plan was to decongest industry and commerce and move tertiary sector workers to a new planned satellite town, to be called Navi Mumbai and decongest the Central Business District in the southern end of Mumbai.

Land acquisition and investments

The capital expenditure for land acquisition and development was to be financed through Municipal bonds. The plan proposal indicated an estimate of Rs. 730 crores for the acquisition, reclamation and development of low-lying land (Shaw, 2004; Patel et al., 1965). However, by 1998, CIDCO had spent Rs. 48,000 crores on physical infrastructure alone (Shaw, 2004).

Implementation and governance structure

Navi Mumbai was planned and built by CIDCO. Its main governing body is the Navi Mumbai Municipal Corporation (NMMC) which governs the built-up area (about 56% of the total land). CIDCO continues to own and develop vacant plots within Navi Mumbai.

Key issues

The actual amount of investment required for the development of Navi Mumbai was much more than anticipated. There were also challenges around developing the land, with significant costs for reclamation as well as resistance from local residents to sell land, which increased the cost of development.

The original aim of decongesting Mumbai was not fulfilled (Shaw, 2004). Although the individual nodes were envisaged as being self-contained in terms of jobs, this has not happened. According to a 2011 report by CIDCO, only 35% of the people living in Navi Mumbai had migrated from Mumbai. The lack of commitment from the Government of Maharashtra to move administrative offices to Navi Mumbai also impacted the city's development.

Economic profile

The city was originally planned as a countermagnet to Mumbai with the aim of decongesting the Central Business District in South Mumbai, focusing primarily on tertiary sector, white collar jobs, and decentralising industrial development. These goals were not entirely met.

Navi Mumbai has a mix of economic activities from fisheries to financial markets. It includes manufacturing (industry), trade and commerce (wholesale and warehousing), as well as service sector (office) jobs. The Navi Mumbai Special Economic Zone (NMSEZ) is located at the heart of Navi Mumbai and comprises four zones, namely Dronagiri, Kalamboli, Ulwe and the Jawaharlal Nehru Port Terminal (JNPT) area. The NMSEZ is slated to provide for world-class infrastructure, utilities, service for business, living, learning, recreation and healthcare. The per household monthly income of Navi Mumbai is reported to be about Rs. 24,000 (CIDCO, 2012).

The Taloja Industrial Area consists of 277 Industrial Units – large, medium and small. All types of process industries including chemical, paper and plastic are located here (IIHS, 2018). The Trans Thane Industrial Belt developed by the Maharashtra Industrial Development Corporation (MIDC) in the mid-sixties witnessed a sharp growth of industries in terms of number of units, capital deployed, employment and turnover. Most of the industrial units continue to be high capital-intensive industries. The Thane Belapur Industrial belt had 72 industrial units in 1974. Now there are about 2,300 industrial units with an employment of over 1 lakh with an annual turnover of more than Rs. 10,000 crores. Thirteen major wholesale Agricultural Produce Markets from Mumbai were shifted to APMC Vashi with the necessary facilities provided to facilitate trade. The Jawaharlal Nehru Port is India's biggest container port, handling around 60% of the country's containerised cargo.

Infrastructure profile and gaps

The development plan of Navi Mumbai provides for an integrated transportation system. Rail and road are the two main surface transport modes providing connectivity to Mumbai and Thane, with controlled access roadways being planned. The MMRDA is also planning waterways along Wharf, Vashi, Nerul and Belapur. The Mumbai International Airport is the closest airport and a new airport at Khargar is being planned. Water Supply to Navi Mumbai is supplied through the Morbe Dam, which is owned by the Navi Mumbai Municipal Corporation (NMMC). It has the capacity to provide 450 MLD water, of which only 330 MLD is being utilised today. The Hetawane Water Supply Project, which is owned by the Irrigation Department, has also provided additional supply with a capacity to provide 350 MLD water. As of 2017, only 3% of households in the NMMC area have unsafe source of drinking water (Andharia, et al., 2017).

CIDCO has provided 1-2 Sewerage Treatment Plants (STP) in each node. These are state-of-the-art C-Tech/SBR STPs which run on gravity and pumping mechanisms. Standards of the Maharashtra Pollution Control Board are met before the treated effluent is discharged. This treated effluent is used for landscaping and gardening. Despite this planning, about 2.2% of households in the NMMC area have no access to latrines and 12.5% have unsafe drainage (Andharia, et al., 2017). Disposal of rain water from the city area is a critical issue: about 20% land is low lying and prone to tidal submergence. The height of surrounding hill ranges varies from 50 to 500 metres above MSL, increasing surface runoff. Reclaimed land also makes it difficult for storm water drain construction.

Disaster resilience and environmental sensitivity

Navi Mumbai faces a high risk of urban flooding, particularly due to coastal storm surge and heavy rainfall. Around 10% of Navi Mumbai has been declared as a low-lying area. As per its disaster management plan, nearly 90 locations have recurring water logging problems during the monsoon and around 41 slum pockets at various locations are affected. The city's growing population increases the vulnerability of the city to natural hazards.

Conclusions

Navi Mumbai has taken much longer to develop with unforeseen challenges around land acquisition. The state government has also prioritised investment in reclaiming/developing locations in Mumbai as opposed to Navi Mumbai (for example, BKC). Manufacturing and IT/ITES seems to be the proposed driver of employment and economic growth in Navi Mumbai. It has not been able to grow into a tertiary sector hub yet, but the creation of IT parks and SEZs that focus on related sectors may change that.

The division of governance responsibilities between CIDCO, MMRDA, MIDC, NMMC, and other ULBs has created governance challenges especially when it comes to the management of land. Flooding remains a key concern because of coastal storm surges, heavy rain, and inadequate drainage.

References

- Yaseen, S. M., Nalla, V., Dhanapal.G., Jain, G., Anand, G., Mohan, R.J.S., Jain, S., Malladi, T. (2018). Navi Mumbai City profile: Developing Resilient Cities Through Risk Reduction. Indian Institute for Human Settlements
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017
- Shaw, A. 2004. *The Making of Navi Mumbai*, Orient Blackswan.
- Patel, S., Mehta, P. & Correa, C. 1965. Planning for Bombay: 1. Patterns of Growth 2. The Twin City 3. Current Proposals. *MARG* [Online], 18, 3, Available: https://marg-art.org/product/UHJvZHVjdDozMDA5 [Accessed July 10, 2020].

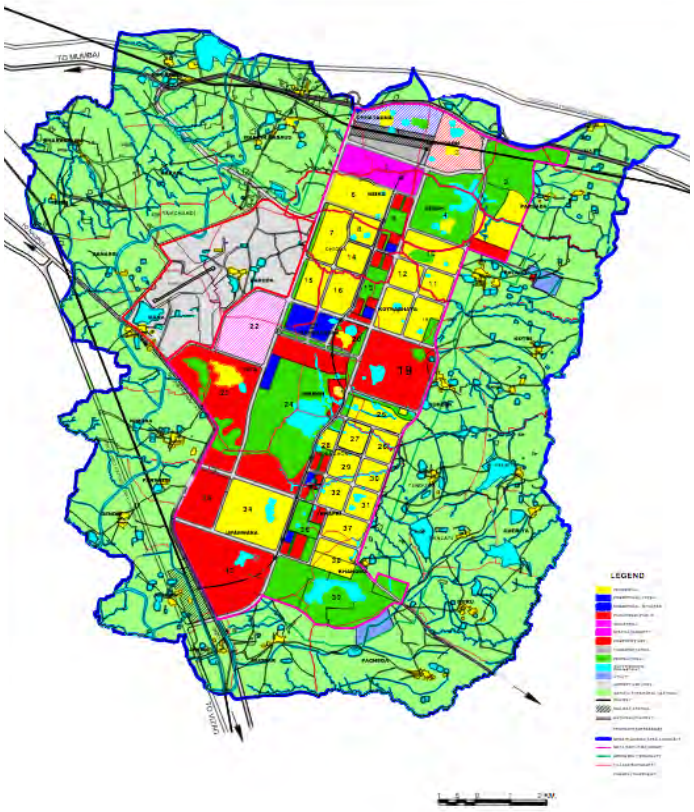
Naya Raipur

Significance of case

Naya Raipur Atal Nagar was created as the greenfield capital city for the newly formed state of Chhattisgarh. It currently functions as an administrative hub with a population of 0.1 million in 2011.

Naya Raipur has been in the making since 2000, with substantial Master Planning inputs and investments into physical and social infrastructure. However, the new city is yet to attract a sustainable urban population base. The Naya Raipur experience highlights that long gestation periods (20 years+) are required to create an urban agglomeration in a greenfield location. It also highlights the need for large-scale public investment in land and infrastructure, supplemented by concrete administrative and economic hub-making policies.

Map



Demographic Profile

Location: 17 kms to the south-east of Raipur, Chhattisgarh, comprising of 41 villages
Population: 0.1 million (2011)
Area: 95 sq.kms. (core), 130 sq.kms. (peripheral region, 12sq.kms. (airport), 237 sq.kms. (total)
Density (pp. sq.km): 631.79 (2011)

Vision and reasons for establishment of the city

In November 2000, Chhattisgarh was created from 16 districts previously part of Madhya Pradesh. Following this, Raipur, the existing capital, experienced a demographic surge. It was decided that to accommodate future development a new greenfield capital city with new hubs for: State government offices, regional financial, healthcare, cultural and educational centres. In addition 50% of the planned area is dedicated to green uses to promote a sustainable urban lifestyles.

A radius of 50 kms around Raipur was screened to select a potential location for Naya Raipur. The location selected was based on water availability, road connectivity via NH30 and NH53, new and proposed airport and rail networks, absence of mining and low pollution levels, natural water bodies that could be converted into recreational areas, and availability of barren/ non- agricultural lands and government owned lands, in sufficient quantities.

Land aggregation and investments

The land acquired covered 41 villages, which were incorporated into the Master Plan 2031, rather than relocating the population. The Master Plan has been designed into 41 blocks and incorporates Village Development Plans with a proposed expenditure of Rs. 6 to 20 crores per village.

The land was acquired by notifying a 'special area' under section 64 of Nagar Tatha Gramnivesh Adhiniyam 1973 at estimated investment was Rs. 1,500 crores.

Implementation and governance structure

Naya Raipur Atal Nagar Vikas Pradhikaran was created under the Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam, 1973. The Chhattisgarh Housing Board is building housing units across five designated residential sectors of Naya Raipur.

Key issues

Naya Raipur consists of over 237 sq. kms. of land that was acquired over 20 years ago in 2000, with extensive investments in water, power, drainage, telecommunications and social infrastructure. It highlights that creating greenfield urban agglomerations requires extensive land, extensive investments and long gestation periods. It also highlights that extensive public investments do not guarantee that corporate/ private sector investments will follow immediately, as Naya Raipur is still to see extensive private sector investment interest beyond the education sector.

Economic profile

Naya Raipur accommodates the administrative block for the Chhattisgarh state government. The Central Business District of over 1 sq. km. has been planned to accommodate retail, office and government space requirements. Each sector has commercial hubs. An Electronics Manufacturing Cluster (EMC) has been set up and offers incentives under Chhattisgarh Electronics and ITeS Policy (2014-19). The EMC is integrated with the city's Command and Control Center. Twenty hectares have been designated as an IT park in Sector 22, which is under development. The government plans to invite domestic and foreign IT corporates to establish a base in Naya Raipur. Other planned economic zones include a sports complex, gems and jewellery park, and a logistics hub. Major educational institutions in Naya Raipur include IIIT, IIMT, HMI, IIM and ITM University, National Law University and an AIIMS.

Infrastructure profile and gaps

Naya Raipur has been branded as a 'Integrated Smart City' with SCADA infrastructure, for water, power supply and LED and solar PV street lighting, managed through a command and control center.

Basic services: Underground water, sewerage, drainage, telecommunications, and electricity networks are being developed with provisions for 24-hour power and water supply, and decentralised sewage treatment.
Transportation: The city has six and four-lane expressways totalling 140 kms as well as a BRTS. The city is connected to Raipur through NH 53 and NH30. Roads have been constructed to connect the new international airport to Naya Raipur and Raipur. There is a train line proposed to connect Naya Raipur to Mumbai.
Green spaces: The Master Plan incorporates a dedicated green belt. The Nandanvan Forest Reserve in the city incorporates the land that had substantial wildlife cover at the time of land acquisition.

Telecom: Eight Optical Fibre Cable (OFC) ducts are in place covering 32 sq. km. of which 10 blocks that cater to private telecom operators. T hese will be extended to all remaining sectors, especially the IT hub in Sector 22. The government has also built cellular network towers and is waiting for private telecom companies to use them.
Housing: The Chhattisgarh Housing Board is building residential units across five designated residential sectors. The Development Authority has allotted land to developers to build residential zones in the city. An 18-hole golf course is being constructed at Sector 24. Recreational facilities, such as a laser show, dome theatre and jungle safari, have been built. Theme parks, water parks, bowling alley and go-karting are proposed.

Disaster resilience and environmental sensitivity

The Master Plan incorporates a dedicated green belt. The Nandanvan Forest Reserve in the city incorporates the land that had substantial wildlife cover at the time of land acquisition. The site was selected keeping water availability in mind.

Conclusions

Naya Raipur is based on Master Planning principles, extensive investment and with government offices providing an economic anchor. The city has attracted significant institutional presence and incorporated Smart City features through considerable public investment over the past 20 years. However, a sustainable urban agglomeration is still to take hold.

References

- NRANVP website: https://navaraipuratalnagar.com/wps/portal/Home/
- Government of India, Planning Commission. State Human development reports. <http://planningcommission.nic.in/plans/stateplan/shdr.php?state=b_shdrbody.htm> Government of India, Census 2011. <http://censusindia.gov.in/> Jawaharlal Nehru National Urban Renewal Mission, City Development plan. <http://jnnurm.nic.in/citywise-cdp.html> Naya Raipur development authority (2008) Naya Raipur Development Plan 2031.
- Malladi, T., Chatterji, N., & Jana, A. (2017). *India Urban Atlas 2017: Visualising and Understanding Urban Growth and Expansion.* Bengaluru: Indian Institute for Human Settlements. https://doi.org/https://doi.org/10.24943/urbindia.2017

ANNEX II

India's 100-largest cities demographic, infrastructure and connectivity profile

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India's Top 300 cities demographic profile | 2011 – 2031

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
1	Delhi UA	Delhi	> 10 million	16.3	20.3	24.1
2	Greater Mumbai UA	Maharashtra	> 10 million	18.4	21.4	23.6
3	Kolkata UA	West Bengal	> 10 million	14.1	15.3	15.8
4	Bangalore UA	Karnataka	> 10 million	8.5	10.9	13.4
5	Chennai UA	Tamil Nadu	> 10 million	8.7	10.4	11.9
6	Hyderabad UA	Telangana	> 10 million	7.7	9.7	11.7
7	Ahmadabad UA	Gujarat	4-10 million	6.4	7.9	9.5
8	Surat UA	Gujarat	4-10 million	4.6	6.2	8.0
9	Pune UA	Maharashtra	4-10 million	5.0	6.4	7.7
10	Jaipur (M Corp.)	Rajasthan	4-10 million	3.1	3.9	4.7
11	Lucknow UA	Uttar Pradesh	4-10 million	2.9	3.6	4.2
12	Kanpur UA	Uttar Pradesh	2-4 million	2.9	3.3	3.5
13	Indore UA	Madhya Pradesh	2-4 million	2.2	2.7	3.3
14	Kochi UA	Kerala	2-4 million	2.1	2.7	3.3
15	Coimbatore UA	Tamil Nadu	2-4 million	2.2	2.7	3.2
16	Ghaziabad UA	Uttar Pradesh	2-4 million	2.4	2.9	3.2
17	Nagpur UA	Maharashtra	2-4 million	2.5	2.9	3.2
18	Patna UA	Bihar	2-4 million	2.0	2.5	2.9
19	Thiruvananthapuram UA	Kerala	2-4 million	1.7	2.2	2.8
20	Kozhikode UA	Kerala	2-4 million	2.0	2.5	2.8
21	Bhopal UA	Madhya Pradesh	2-4 million	1.9	2.3	2.7
22	Vasai Virar City (M Corp.)	Maharashtra	2-4 million	1.2	1.9	2.7
23	Thrissur UA	Kerala	2-4 million	1.9	2.2	2.5
24	Vadodara UA	Gujarat	2-4 million	1.8	2.2	2.5

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
25	Agra UA	Uttar Pradesh	2-4 million	1.7	2.1	2.5
26	Greater Vishakapatnam (MC)	Andhra Pradesh	2-4 million	1.7	2.1	2.5
27	Nashik UA	Maharashtra	2-4 million	1.6	2.0	2.5
28	Malappuram UA	Kerala	2-4 million	1.7	2.1	2.3
29	Faridabad (M Corp.)	Haryana	2-4 million	1.4	1.8	2.3
30	Kannur UA	Kerala	2-4 million	1.6	2.0	2.2
31	Vijayawada UA	Andhra Pradesh	2-4 million	1.5	1.9	2.2
32	Ludhiana (M Corp.)	Punjab	2-4 million	1.6	1.9	2.2
33	Rajkot UA	Gujarat	2-4 million	1.4	1.8	2.2
34	Meerut UA	Uttar Pradesh	2-4 million	1.4	1.7	2.0
35	Aurangabad UA	Maharashtra	1-2 million	1.2	1.5	1.9
36	Raipur UA	Chhattisgarh	1-2 million	1.1	1.5	1.8
37	Srinagar UA	J&K	1-2 million	1.3	1.6	1.8
38	Madurai UA	Tamil Nadu	1-2 million	1.5	1.6	1.8
39	Varanasi UA	Uttar Pradesh	1-2 million	1.4	1.6	1.8
40	Asansol UA	West Bengal	1-2 million	1.2	1.5	1.8
41	Jamshedpur UA	Jharkhand	1-2 million	1.3	1.6	1.8
42	Tiruppur UA	Tamil Nadu	1-2 million	1.0	1.3	1.7
43	Jodhpur UA	Rajasthan	1-2 million	1.1	1.4	1.6
44	Ranchi UA	Jharkhand	1-2 million	1.1	1.4	1.6
45	Amritsar UA	Punjab	1-2 million	1.2	1.4	1.6
46	Allahabad UA	Uttar Pradesh	1-2 million	1.2	1.4	1.5
47	Jabalpur UA	Madhya Pradesh	1-2 million	1.3	1.4	1.5
48	Kollam UA	Kerala	1-2 million	1.1	1.4	1.5
49	Kota (M Corp.)	Rajasthan	1-2 million	1.0	1.3	1.5
50	Gwalior UA	Madhya Pradesh	1-2 million	1.1	1.3	1.5

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
51	Chandigarh UA	Chandigarh	1-2 million	1.0	1.2	1.4
52	Dhanbad UA	Jharkhand	1-2 million	1.2	1.3	1.4
53	Gurgaon UA	Haryana	1-2 million	0.9	1.2	1.4
54	Bhubaneswar UA	Orissa	1-2 million	0.9	1.1	1.4
55	Durg-Bhilainagar UA	Chhattisgarh	1-2 million	1.1	1.2	1.4
56	Aligarh UA	Uttar Pradesh	1-2 million	0.9	1.1	1.4
57	Bareilly UA	Uttar Pradesh	1-2 million	1.0	1.2	1.4
58	Guwahati UA	Assam	1-2 million	1.0	1.2	1.3
59	Moradabad (M Corp.)	Uttar Pradesh	1-2 million	0.9	1.1	1.3
60	Mysore UA	Karnataka	1-2 million	1.0	1.2	1.3
61	Tiruchirappalli UA	Tamil Nadu	1-2 million	1.0	1.2	1.3
62	Jalandhar UA	Punjab	1-2 million	0.9	1.0	1.2
63	Siliguri UA	West Bengal	1-2 million	0.7	0.9	1.2
64	Solapur (M Corp.)	Maharashtra	1-2 million	1.0	1.1	1.2
65	Hubli-Dharwad *(M Corp.)	Karnataka	1-2 million	0.9	1.1	1.2
66	Salem UA	Tamil Nadu	1-2 million	0.9	1.0	1.2
67	Bhiwadi (M)	Maharashtra	1-2 million	0.7	1.0	1.1
68	Warangal UA	Telangana	1-2 million	0.8	0.9	1.1
69	Saharanpur (M Corp.)	Uttar Pradesh	1-2 million	0.7	0.9	1.1
70	Dehradun UA	Uttarakhand	1-2 million	0.7	0.9	1.1
71	Jammu UA	J&K	0.1 to 1 million	0.7	0.8	0.9
72	Firozabad (NPP)	Uttar Pradesh	0.1 to 1 million	0.6	0.8	0.9
73	Puducherry UA	Puducherry	0.1 to 1 million	0.7	0.8	0.9
74	Bikaner (M Corp.)	Rajasthan	0.1 to 1 million	0.6	0.8	0.9
75	Gorakhpur UA	Uttar Pradesh	0.1 to 1 million	0.7	0.8	0.9
76	Noida (CT)	Uttar Pradesh	0.1 to 1 million	0.6	0.8	0.9

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
77	Amravati (M Corp.)	Maharashtra	0.1 to 1 million	0.6	0.8	0.9
78	Guntur UA	Andhra Pradesh	0.1 to 1 million	0.7	0.8	0.9
79	Nellore UA	Andhra Pradesh	0.1 to 1 million	0.6	0.7	0.8
80	Cuttack UA	Orissa	0.1 to 1 million	0.7	0.8	0.8
81	Malegaon UA	Maharashtra	0.1 to 1 million	0.6	0.7	0.8
82	Nanded Waghala (M Corp.)	Maharashtra	0.1 to 1 million	0.6	0.7	0.8
83	Belgaum UA	Karnataka	0.1 to 1 million	0.6	0.7	0.8
84	Mangalore UA	Karnataka	0.1 to 1 million	0.6	0.7	0.8
85	Bhavnagar UA	Gujarat	0.1 to 1 million	0.6	0.7	0.8
86	Muzaffarnagar UA	Uttar Pradesh	0.1 to 1 million	0.5	0.6	0.8
87	Gulbarga UA	Karnataka	0.1 to 1 million	0.5	0.7	0.8
88	Tirupati UA	Andhra Pradesh	0.1 to 1 million	0.5	0.6	0.8
89	Jamnagar UA	Gujarat	0.1 to 1 million	0.6	0.7	0.7
90	Kurnool UA	Andhra Pradesh	0.1 to 1 million	0.5	0.6	0.7
91	Jhansi UA	Uttar Pradesh	0.1 to 1 million	0.5	0.6	0.7
92	Erode UA	Tamil Nadu	0.1 to 1 million	0.5	0.6	0.7
93	Agartala (M Cl)	Tripura	0.1 to 1 million	0.4	0.5	0.7
94	Mathura UA	Uttar Pradesh	0.1 to 1 million	0.5	0.6	0.7
95	Jalgaon (M Corp.)	Maharashtra	0.1 to 1 million	0.5	0.6	0.7
96	Panipat UA	Haryana	0.1 to 1 million	0.4	0.6	0.7
97	Ujjain (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.5	0.6	0.7
98	Ajmer UA	Rajasthan	0.1 to 1 million	0.6	0.6	0.6
99	Bilaspur UA	Chhattisgarh	0.1 to 1 million	0.5	0.6	0.6
100	Imphal UA	Manipur	0.1 to 1 million	0.4	0.5	0.6
101	Kolhapur UA	Maharashtra	0.1 to 1 million	0.6	0.6	0.6
102	Durgapur UA	West Bengal	0.1 to 1 million	0.6	0.6	0.6

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
103	Patiala UA	Punjab	0.1 to 1 million	0.4	0.5	0.6
104	Sangali UA	Maharashtra	0.1 to 1 million	0.5	0.6	0.6
105	Udaipur UA	Rajasthan	0.1 to 1 million	0.5	0.6	0.6
106	Vellore UA	Tamil Nadu	0.1 to 1 million	0.5	0.6	0.6
107	Gaya UA	Bihar	0.1 to 1 million	0.5	0.6	0.6
108	Raurkela UA	Orissa	0.1 to 1 million	0.6	0.6	0.6
109	Cherthala UA	Kerala	0.1 to 1 million	0.5	0.5	0.6
110	Tirunelveli UA	Tamil Nadu	0.1 to 1 million	0.5	0.6	0.6
111	Bokaro Steel City UA	Jharkhand	0.1 to 1 million	0.6	0.6	0.6
112	Latur (M Cl)	Maharashtra	0.1 to 1 million	0.4	0.5	0.6
113	Davanagere (M Corp.)	Karnataka	0.1 to 1 million	0.4	0.5	0.6
114	Korba UA	Chhattisgarh	0.1 to 1 million	0.4	0.5	0.6
115	Rajahmundry UA	Andhra Pradesh	0.1 to 1 million	0.5	0.5	0.6
116	Thoothukkudi UA	Tamil Nadu	0.1 to 1 million	0.4	0.5	0.6
117	Bellary (M Corp.)	Karnataka	0.1 to 1 million	0.4	0.5	0.6
118	Kakinada UA	Andhra Pradesh	0.1 to 1 million	0.4	0.5	0.6
119	Ahmednagar UA	Maharashtra	0.1 to 1 million	0.4	0.5	0.5
120	Muzaffarpur UA	Bihar	0.1 to 1 million	0.4	0.5	0.5
121	Yamunanagar UA	Haryana	0.1 to 1 million	0.4	0.5	0.5
122	Bhilwara (M Cl)	Rajasthan	0.1 to 1 million	0.4	0.4	0.5
123	Rohtak (M Cl)	Haryana	0.1 to 1 million	0.4	0.5	0.5
124	Anantapur UA	Andhra Pradesh	0.1 to 1 million	0.3	0.4	0.5
125	Kadapa UA	Andhra Pradesh	0.1 to 1 million	0.3	0.4	0.5
126	Baharampur UA	West Bengal	0.1 to 1 million	0.3	0.4	0.5
127	Santipur UA	West Bengal	0.1 to 1 million	0.3	0.4	0.5
128	Akola (M Corp.)	Maharashtra	0.1 to 1 million	0.4	0.5	0.5

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
129	English Bazar UA	West Bengal	0.1 to 1 million	0.3	0.4	0.5
130	Shillong UA	Meghalaya	0.1 to 1 million	0.4	0.4	0.5
131	Bhagalpur UA	Bihar	0.1 to 1 million	0.4	0.5	0.5
132	Purnia UA	Bihar	0.1 to 1 million	0.3	0.4	0.5
133	Kottayam UA	Kerala	0.1 to 1 million	0.4	0.4	0.5
134	Alwar UA	Rajasthan	0.1 to 1 million	0.3	0.4	0.5
135	Hardwar UA	Uttarakhand	0.1 to 1 million	0.3	0.4	0.5
136	Brahmapur Town (M Corp.)	Orissa	0.1 to 1 million	0.4	0.4	0.5
137	Junagadh (M Corp.)	Gujarat	0.1 to 1 million	0.3	0.4	0.5
138	Karimnagar UA	Telangana	0.1 to 1 million	0.3	0.4	0.5
139	Bijapur (CMC)	Karnataka	0.1 to 1 million	0.3	0.4	0.5
140	Karnal UA	Haryana	0.1 to 1 million	0.3	0.4	0.5
141	Dhule (M Corp.)	Maharashtra	0.1 to 1 million	0.4	0.4	0.5
142	Rampur UA	Uttar Pradesh	0.1 to 1 million	0.3	0.4	0.5
143	Begusarai (M Corp.)	Bihar	0.1 to 1 million	0.3	0.3	0.5
144	Aizawl (NT)	Mizoram	0.1 to 1 million	0.3	0.4	0.4
145	Barddhaman UA	West Bengal	0.1 to 1 million	0.3	0.4	0.4
146	Sonipat UA	Haryana	0.1 to 1 million	0.3	0.4	0.4
147	Tumkur (CMC)	Karnataka	0.1 to 1 million	0.3	0.4	0.4
148	Parbhani (M Cl)	Maharashtra	0.1 to 1 million	0.3	0.4	0.4
149	Dewas (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.3	0.4	0.4
150	Chandrapur (M Cl)	Maharashtra	0.1 to 1 million	0.3	0.4	0.4
151	Shimoga (CMC)	Karnataka	0.1 to 1 million	0.3	0.4	0.4
152	Maunath Bhanjan (NPP)	Uttar Pradesh	0.1 to 1 million	0.3	0.4	0.4
153	Anand UA	Gujarat	0.1 to 1 million	0.3	0.4	0.4
154	Habra UA	West Bengal	0.1 to 1 million	0.3	0.4	0.4

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
155	Gandhidham (M)	Gujarat	0.1 to 1 million	0.2	0.3	0.4
156	Shahjahanpur UA	Uttar Pradesh	0.1 to 1 million	0.3	0.4	0.4
157	Bathinda (M Corp.)	Punjab	0.1 to 1 million	0.3	0.4	0.4
158	Hisar UA	Haryana	0.1 to 1 million	0.3	0.4	0.4
159	Ichalkaranji UA	Maharashtra	0.1 to 1 million	0.3	0.4	0.4
160	Satna UA	Madhya Pradesh	0.1 to 1 million	0.3	0.3	0.4
161	Dindigul UA	Tamil Nadu	0.1 to 1 million	0.3	0.3	0.4
162	Biharsharif (M Corp.)	Bihar	0.1 to 1 million	0.3	0.4	0.4
163	Jalna (M Cl)	Maharashtra	0.1 to 1 million	0.3	0.3	0.4
164	Palakkad UA	Kerala	0.1 to 1 million	0.3	0.3	0.4
165	Coonoor	Tamil Nadu	0.1 to 1 million	0.2	0.3	0.4
166	Khammam UA	Telangana	0.1 to 1 million	0.3	0.3	0.4
167	Morvi UA	Gujarat	0.1 to 1 million	0.2	0.3	0.4
168	Hapur (NPP)	Uttar Pradesh	0.1 to 1 million	0.3	0.3	0.4
169	Navsari UA	Gujarat	0.1 to 1 million	0.3	0.3	0.4
170	Darbhanga UA	Bihar	0.1 to 1 million	0.3	0.3	0.4
171	Thanjavur UA	Tamil Nadu	0.1 to 1 million	0.3	0.3	0.4
172	Ranaghat UA	West Bengal	0.1 to 1 million	0.2	0.3	0.4
173	Farrukhabad-cum-Fatehgarh UA	Uttar Pradesh	0.1 to 1 million	0.3	0.3	0.4
174	Etawah (NPP)	Uttar Pradesh	0.1 to 1 million	0.3	0.3	0.4
175	Haldwani-cum-Kathgodam UA	Uttarakhand	0.1 to 1 million	0.2	0.3	0.4
176	Arrah (M Corp.)	Bihar	0.1 to 1 million	0.3	0.3	0.4
177	Karur UA	Tamil Nadu	0.1 to 1 million	0.2	0.3	0.4
178	Nizamabad (M Corp.)	Telangana	0.1 to 1 million	0.3	0.3	0.4
179	Bharatpur UA	Rajasthan	0.1 to 1 million	0.3	0.3	0.4
180	Sikar UA	Rajasthan	0.1 to 1 million	0.2	0.3	0.3

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
181	Ratlam UA	Madhya Pradesh	0.1 to 1 million	0.3	0.3	0.3
182	Panchkula (M Cl)	Haryana	0.1 to 1 million	0.2	0.3	0.3
183	Bulandshahr UA	Uttar Pradesh	0.1 to 1 million	0.2	0.3	0.3
184	Faizabad UA	Uttar Pradesh	0.1 to 1 million	0.3	0.3	0.3
185	Silchar UA	Assam	0.1 to 1 million	0.2	0.3	0.3
186	Rewa (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.2	0.3	0.3
187	Pali (M Cl)	Rajasthan	0.1 to 1 million	0.2	0.3	0.3
188	Mirzapur-cum-Vindhyachal UA	Uttar Pradesh	0.1 to 1 million	0.2	0.3	0.3
189	Katihar UA	Bihar	0.1 to 1 million	0.2	0.3	0.3
190	Sambalpur UA	Orissa	0.1 to 1 million	0.3	0.3	0.3
191	Panvel (M Cl)	Maharashtra	0.1 to 1 million	0.2	0.2	0.3
192	Mahbubnagar UA	Telangana	0.1 to 1 million	0.2	0.3	0.3
193	Ganganagar UA	Rajasthan	0.1 to 1 million	0.3	0.3	0.3
194	Proddatur UA	Andhra Pradesh	0.1 to 1 million	0.2	0.3	0.3
195	Nandyal UA	Andhra Pradesh	0.1 to 1 million	0.2	0.3	0.3
196	Vizianagaram UA	Andhra Pradesh	0.1 to 1 million	0.2	0.3	0.3
197	Bidar UA	Karnataka	0.1 to 1 million	0.2	0.3	0.3
198	Kharagpur UA	West Bengal	0.1 to 1 million	0.3	0.3	0.3
199	Bharuch UA	Gujarat	0.1 to 1 million	0.2	0.3	0.3
200	Kanhangad UA	Kerala	0.1 to 1 million	0.2	0.3	0.3
201	Sambhal (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.3	0.3
202	Madanapalle UA	Andhra Pradesh	0.1 to 1 million	0.2	0.2	0.3
203	Ongole UA	Andhra Pradesh	0.1 to 1 million	0.2	0.3	0.3
204	Raichur (CMC)	Karnataka	0.1 to 1 million	0.2	0.3	0.3
205	Orai UA	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.3
206	Haldia (M)	West Bengal	0.1 to 1 million	0.2	0.2	0.3

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
207	Bhind (M)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.3
208	Eluru UA	Andhra Pradesh	0.1 to 1 million	0.3	0.3	0.3
209	Morena (M)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.3
210	Hospet (CMC)	Karnataka	0.1 to 1 million	0.2	0.2	0.3
211	Chapra UA	Bihar	0.1 to 1 million	0.2	0.2	0.3
212	Mahesana UA	Gujarat	0.1 to 1 million	0.2	0.2	0.3
213	Jalpaiguri UA	West Bengal	0.1 to 1 million	0.2	0.2	0.3
214	Puri Town (M)	Orissa	0.1 to 1 million	0.2	0.2	0.3
215	Chhindwara UA	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.3
216	Ambala (M Cl)	Haryana	0.1 to 1 million	0.2	0.2	0.3
217	Ambala UA	Haryana	0.1 to 1 million	0.2	0.2	0.3
218	Bhuj UA	Gujarat	0.1 to 1 million	0.2	0.2	0.3
219	Alappuzha UA	Kerala	0.1 to 1 million	0.2	0.3	0.3
220	Fatehpur (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.3
221	Murwara (Katni) (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.3
222	Guna (M)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.3
223	Raiganj UA	West Bengal	0.1 to 1 million	0.2	0.2	0.3
224	Nadiad UA	Gujarat	0.1 to 1 million	0.2	0.2	0.3
225	Bhiwani (M Cl)	Haryana	0.1 to 1 million	0.2	0.2	0.3
226	Kancheepuram UA	Tamil Nadu	0.1 to 1 million	0.2	0.2	0.3
227	Munger (M Corp.)	Bihar	0.1 to 1 million	0.2	0.2	0.3
228	Unnao (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.3
229	Rae Bareli (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.3
230	Karaikkudi UA	Tamil Nadu	0.1 to 1 million	0.2	0.2	0.3
231	Porbandar UA	Gujarat	0.1 to 1 million	0.2	0.2	0.3
232	Amroha (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.3

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
233	Sitapur UA	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
234	Udupi UA	Karnataka	0.1 to 1 million	0.2	0.2	0.2
235	Shivpuri (M)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.2
236	Modinagar UA	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
237	Gandhinagar	Gujarat	0.1 to 1 million	0.2	0.2	0.2
238	Jind (M Cl)	Haryana	0.1 to 1 million	0.2	0.2	0.2
239	Hassan UA	Karnataka	0.1 to 1 million	0.2	0.2	0.2
240	Sirsa (M Cl)	Haryana	0.1 to 1 million	0.2	0.2	0.2
241	Veraval UA	Gujarat	0.1 to 1 million	0.2	0.2	0.2
242	Sagar UA	Madhya Pradesh	0.1 to 1 million	0.3	0.3	0.2
243	Robertson Pet UA	Karnataka	0.1 to 1 million	0.2	0.2	0.2
244	Burhanpur (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.2
245	Shimla UA	Himachal Pradesh	0.1 to 1 million	0.2	0.2	0.2
246	Krishnanagar UA	West Bengal	0.1 to 1 million	0.2	0.2	0.2
247	Tonk (M Cl)	Rajasthan	0.1 to 1 million	0.2	0.2	0.2
248	Bahraich (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
249	Khandwa (M Corp.)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.2
250	Nagercoil (M)	Tamil Nadu	0.1 to 1 million	0.2	0.2	0.2
251	Bhusawal UA	Maharashtra	0.1 to 1 million	0.2	0.2	0.2
252	Phusro UA	Jharkhand	0.1 to 1 million	0.2	0.2	0.2
253	Saharsa (NP)	Bihar	0.1 to 1 million	0.2	0.2	0.2
254	Ramagundam UA	Telangana	0.1 to 1 million	0.3	0.3	0.2
255	Adoni UA	Andhra Pradesh	0.1 to 1 million	0.2	0.2	0.2
256	Chittoor UA	Andhra Pradesh	0.1 to 1 million	0.2	0.2	0.2
257	Valsad UA	Gujarat	0.1 to 1 million	0.2	0.2	0.2
258	Vidisha (M)	Madhya Pradesh	0.1 to 1 million	0.2	0.2	0.2

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
259	Banda UA	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
260	Rewari (M Cl)	Haryana	0.1 to 1 million	0.1	0.2	0.2
261	Godhra UA	Gujarat	0.1 to 1 million	0.2	0.2	0.2
262	Nabadwip UA	West Bengal	0.1 to 1 million	0.2	0.2	0.2
263	Giridih UA	Jharkhand	0.1 to 1 million	0.1	0.2	0.2
264	Hanumangarh (M Cl)	Rajasthan	0.1 to 1 million	0.2	0.2	0.2
265	Hathras UA	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
266	Medinipur (M)	West Bengal	0.1 to 1 million	0.2	0.2	0.2
267	Hindupur (M)	Andhra Pradesh	0.1 to 1 million	0.2	0.2	0.2
268	Neyveli UA	Tamil Nadu	0.1 to 1 million	0.2	0.2	0.2
269	Moga UA	Punjab	0.1 to 1 million	0.2	0.2	0.2
270	Batala UA	Punjab	0.1 to 1 million	0.2	0.2	0.2
271	Hazaribag UA	Jharkhand	0.1 to 1 million	0.2	0.2	0.2
272	Gadag-Betigeri (CMC)	Karnataka	0.1 to 1 million	0.2	0.2	0.2
273	Rajnandgaon (M Corp.)	Chhattisgarh	0.1 to 1 million	0.2	0.2	0.2
274	Palwal UA	Haryana	0.1 to 1 million	0.1	0.2	0.2
275	Botad (M)	Gujarat	0.1 to 1 million	0.1	0.2	0.2
276	Khargone UA	Madhya Pradesh	0.1 to 1 million	0.1	0.2	0.2
277	Gangapur City UA	Rajasthan	0.1 to 1 million	0.1	0.2	0.2
278	Beawar UA	Rajasthan	0.1 to 1 million	0.2	0.2	0.2
279	Budaun (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
280	Sasaram (NP)	Bihar	0.1 to 1 million	0.1	0.2	0.2
281	Adilabad UA	Telangana	0.1 to 1 million	0.1	0.2	0.2
282	Jaunpur (NPP)	Uttar Pradesh	0.1 to 1 million	0.2	0.2	0.2
283	Balurghat UA	West Bengal	0.1 to 1 million	0.2	0.2	0.2
284	Chirala UA	Andhra Pradesh	0.1 to 1 million	0.2	0.2	0.2

	City Name	State	Projected Population size 2031	Population 2011	Projected Population 2021	Projected Population 2031
285	Damoh UA	Madhya Pradesh	0.1 to 1 million	0.1	0.2	0.2
286	Mainpuri UA	Uttar Pradesh	0.1 to 1 million	0.1	0.2	0.2
287	Cuddalore (M)	Tamil Nadu	0.1 to 1 million	0.2	0.2	0.2
288	Chitradurga UA	Karnataka	0.1 to 1 million	0.1	0.2	0.2
289	Etah UA	Uttar Pradesh	0.1 to 1 million	0.1	0.2	0.2
290	Malerkotla (M Cl)	Punjab	0.1 to 1 million	0.1	0.2	0.2
291	Bahadurgarh (M Cl)	Haryana	0.1 to 1 million	0.2	0.2	0.2
292	Chakdaha UA	West Bengal	0.1 to 1 million	0.1	0.2	0.2
293	Khanna (M Cl)	Punjab	0.1 to 1 million	0.1	0.2	0.2
294	Deoria (NPP)	Uttar Pradesh	0.1 to 1 million	0.1	0.2	0.2
295	Chirkunda UA	Jharkhand	0.1 to 1 million	0.1	0.1	0.2
296	Sawai Madhopur (M)	Rajasthan	0.1 to 1 million	0.1	0.2	0.2
297	Bid (M Cl)	Maharashtra	0.1 to 1 million	0.1	0.2	0.2
298	Tiruvannamalai (M)	Tamil Nadu	0.1 to 1 million	0.1	0.2	0.2
299	Jorhat UA	Assam	0.1 to 1 million	0.2	0.2	0.2
300	Dibrugarh UA	Assam	0.1 to 1 million	0.2	0.2	0.2

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	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
1	Delhi UA	Delhi						
2	Greater Mumbai UA	Maharashtra						
3	Kolkata UA	West Bengal						
4	Bangalore UA	Karnataka						
5	Chennai UA	Tamil Nadu						
6	Hyderabad UA	Telangana						
7	Ahmadabad UA	Gujarat						
8	Surat UA	Gujarat						
9	Pune UA	Maharashtra						
10	Jaipur (M Corp.)	Rajasthan						
11	Lucknow UA	Uttar Pradesh						
12	Kanpur UA	Uttar Pradesh						
13	Indore UA	Madhya Pradesh						
14	Kochi UA	Kerala						
15	Coimbatore UA	Tamil Nadu						
16	Ghaziabad UA	Uttar Pradesh						
17	Nagpur UA	Maharashtra						
18	Patna UA	Bihar						
19	Thiruvananthapuram UA	Kerala						
20	Kozhikode UA	Kerala						
21	Bhopal UA	Madhya Pradesh						
22	Vasai Virar City (M Corp.)	Maharashtra						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
23	Thrissur UA	Kerala						
24	Vadodara UA	Gujarat						
25	Agra UA	Uttar Pradesh						
26	Greater Vishakapatnam (MC)	Andhra Pradesh						
27	Nashik UA	Maharashtra						
28	Malappuram UA	Kerala						
29	Faridabad (M Corp.)	Haryana						
30	Kannur UA	Kerala						
31	Vijayawada UA	Andhra Pradesh						
32	Ludhiana (M Corp.)	Punjab						
33	Rajkot UA	Gujarat						
34	Meerut UA	Uttar Pradesh						
35	Aurangabad UA	Maharashtra						
36	Raipur UA	Chhattisgarh						
37	Srinagar UA	J&K						
38	Madurai UA	Tamil Nadu						
39	Varanasi UA	Uttar Pradesh						
40	Asansol UA	West Bengal						
41	Jamshedpur UA	Jharkhand						
42	Tiruppur UA	Tamil Nadu						
43	Jodhpur UA	Rajasthan						
44	Ranchi UA	Jharkhand						
45	Amritsar UA	Punjab						
46	Allahabad UA	Uttar Pradesh						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
47	Jabalpur UA	Madhya Pradesh						
48	Kollam UA	Kerala						
49	Kota (M Corp.)	Rajasthan						
50	Gwalior UA	Madhya Pradesh						
51	Chandigarh UA	Chandigarh						
52	Dhanbad UA	Jharkhand						
53	Gurgaon UA	Haryana						
54	Bhubaneswar UA	Orissa						
55	Durg-Bhilainagar UA	Chhattisgarh						
56	Aligarh UA	Uttar Pradesh						
57	Bareilly UA	Uttar Pradesh						
58	Guwahati UA	Assam						
59	Moradabad (M Corp.)	Uttar Pradesh						
60	Mysore UA	Karnataka						
61	Tiruchirappalli UA	Tamil Nadu						
62	Jalandhar UA	Punjab						
63	Siliguri UA	West Bengal						
64	Solapur (M Corp.)	Maharashtra						
65	Hubli-Dharwad *(M Corp.)	Karnataka						
66	Salem UA	Tamil Nadu						
67	Bhiwadi (M)	Maharashtra						
68	Warangal UA	Telangana						
69	Saharanpur (M Corp.)	Uttar Pradesh						
70	Dehradun UA	Uttarakhand						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
71	Jammu UA	J&K						
72	Firozabad (NPP)	Uttar Pradesh						
73	Puducherry UA	Puducherry						
74	Bikaner (M Corp.)	Rajasthan						
75	Gorakhpur UA	Uttar Pradesh						
76	Noida (CT)	Uttar Pradesh						
77	Amravati (M Corp.)	Maharashtra						
78	Guntur UA	Andhra Pradesh						
79	Nellore UA	Andhra Pradesh						
80	Cuttack UA	Orissa						
81	Malegaon UA	Maharashtra						
82	Nanded Waghala (M Corp.)	Maharashtra						
83	Belgaum UA	Karnataka						
84	Mangalore UA	Karnataka						
85	Bhavnagar UA	Gujarat						
86	Muzaffarnagar UA	Uttar Pradesh						
87	Gulbarga UA	Karnataka						
88	Tirupati UA	Andhra Pradesh						
89	Jamnagar UA	Gujarat						
90	Kurnool UA	Andhra Pradesh						
91	Jhansi UA	Uttar Pradesh						
92	Erode UA	Tamil Nadu						
93	Agartala (M Cl)	Tripura						
94	Mathura UA	Uttar Pradesh						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
95	Jalgaon (M Corp.)	Maharashtra						
96	Panipat UA	Haryana						
97	Ujjain (M Corp.)	Madhya Pradesh						
98	Ajmer UA	Rajasthan						
99	Bilaspur UA	Chhattisgarh						
100	Imphal UA	Manipur						
101	Kolhapur UA	Maharashtra						
102	Durgapur UA	West Bengal						
103	Patiala UA	Punjab						
104	Sangali UA	Maharashtra						
105	Udaipur UA	Rajasthan						
106	Vellore UA	Tamil Nadu						
107	Gaya UA	Bihar						
108	Raurkela UA	Orissa						
109	Cherthala UA	Kerala						
110	Tirunelveli UA	Tamil Nadu						
111	Bokaro Steel City UA	Jharkhand						
112	Latur (M Cl)	Maharashtra						
113	Davanagere (M Corp.)	Karnataka						
114	Korba UA	Chhattisgarh						
115	Rajahmundry UA	Andhra Pradesh						
116	Thoothukkudi UA	Tamil Nadu						
117	Bellary (M Corp.)	Karnataka						
118	Kakinada UA	Andhra Pradesh						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
119	Ahmednagar UA	Maharashtra						
120	Muzaffarpur UA	Bihar						
121	Yamunanagar UA	Haryana						
122	Bhilwara (M Cl)	Rajasthan						
123	Rohtak (M Cl)	Haryana						
124	Anantapur UA	Andhra Pradesh						
125	Kadapa UA	Andhra Pradesh						
126	Baharampur UA	West Bengal						
127	Santipur UA	West Bengal						
128	Akola (M Corp.)	Maharashtra						
129	English Bazar UA	West Bengal						
130	Shillong UA	Meghalaya						
131	Bhagalpur UA	Bihar						
132	Purnia UA	Bihar						
133	Kottayam UA	Kerala						
134	Alwar UA	Rajasthan						
135	Hardwar UA	Uttarakhand						
136	Brahmapur Town (M Corp.)	Orissa						
137	Junagadh (M Corp.)	Gujarat						
138	Karimnagar UA	Telangana						
139	Bijapur (CMC)	Karnataka						
140	Karnal UA	Haryana						
141	Dhule (M Corp.)	Maharashtra						
142	Rampur UA	Uttar Pradesh						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
143	Begusarai (M Corp.)	Bihar						
144	Aizawl (NT)	Mizoram						
145	Barddhaman UA	West Bengal						
146	Sonipat UA	Haryana						
147	Tumkur (CMC)	Karnataka						
148	Parbhani (M Cl)	Maharashtra						
149	Dewas (M Corp.)	Madhya Pradesh						
150	Chandrapur (M Cl)	Maharashtra						
151	Shimoga (CMC)	Karnataka						
152	Maunath Bhanjan (NPP)	Uttar Pradesh						
153	Anand UA	Gujarat						
154	Habra UA	West Bengal						
155	Gandhidham (M)	Gujarat						
156	Shahjahanpur UA	Uttar Pradesh						
157	Bathinda (M Corp.)	Punjab						
158	Hisar UA	Haryana						
159	Ichalkaranji UA	Maharashtra						
160	Satna UA	Madhya Pradesh						
161	Dindigul UA	Tamil Nadu						
162	Biharsharif (M Corp.)	Bihar						
163	Jalna (M Cl)	Maharashtra						
164	Palakkad UA	Kerala						
165	Coonoor	Tamil Nadu						
166	Khammam UA	Telangana						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
167	Morvi UA	Gujarat						
168	Hapur (NPP)	Uttar Pradesh						
169	Navsari UA	Gujarat						
170	Darbhanga UA	Bihar						
171	Thanjavur UA	Tamil Nadu						
172	Ranaghat UA	West Bengal						
173	Farrukhabad-cum-Fatehgarh UA	Uttar Pradesh						
174	Etawah (NPP)	Uttar Pradesh						
175	Haldwani-cum-Kathgodam UA	Uttarakhand						
176	Arrah (M Corp.)	Bihar						
177	Karur UA	Tamil Nadu						
178	Nizamabad (M Corp.)	Telangana						
179	Bharatpur UA	Rajasthan						
180	Sikar UA	Rajasthan						
181	Ratlam UA	Madhya Pradesh						
182	Panchkula (M Cl)	Haryana						
183	Bulandshahr UA	Uttar Pradesh						
184	Faizabad UA	Uttar Pradesh						
185	Silchar UA	Assam						
186	Rewa (M Corp.)	Madhya Pradesh						
187	Pali (M Cl)	Rajasthan						
188	Mirzapur-cum-Vindhyachal UA	Uttar Pradesh						
189	Katihar UA	Bihar						
190	Sambalpur UA	Orissa						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
191	Panvel (M Cl)	Maharashtra						
192	Mahbubnagar UA	Telangana						
193	Ganganagar UA	Rajasthan						
194	Proddatur UA	Andhra Pradesh						
195	Nandyal UA	Andhra Pradesh						
196	Vizianagaram UA	Andhra Pradesh						
197	Bidar UA	Karnataka						
198	Kharagpur UA	West Bengal						
199	Bharuch UA	Gujarat						
200	Kanhangad UA	Kerala						
201	Sambhal (NPP)	Uttar Pradesh						
202	Madanapalle UA	Andhra Pradesh						
203	Ongole UA	Andhra Pradesh						
204	Raichur (CMC)	Karnataka						
205	Orai UA	Uttar Pradesh						
206	Haldia (M)	West Bengal						
207	Bhind (M)	Madhya Pradesh						
208	Eluru UA	Andhra Pradesh						
209	Morena (M)	Madhya Pradesh						
210	Hospet (CMC)	Karnataka						
211	Chapra UA	Bihar						
212	Mahesana UA	Gujarat						
213	Jalpaiguri UA	West Bengal						
214	Puri Town (M)	Orissa						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
215	Chhindwara UA	Madhya Pradesh						
216	Ambala (M Cl)	Haryana						
217	Ambala UA	Haryana						
218	Bhuj UA	Gujarat						
219	Alappuzha UA	Kerala						
220	Fatehpur (NPP)	Uttar Pradesh						
221	Murwara (Katni) (M Corp.)	Madhya Pradesh						
222	Guna (M)	Madhya Pradesh						
223	Raiganj UA	West Bengal						
224	Nadiad UA	Gujarat						
225	Bhiwani (M Cl)	Haryana						
226	Kancheepuram UA	Tamil Nadu						
227	Munger (M Corp.)	Bihar						
228	Unnao (NPP)	Uttar Pradesh						
229	Rae Bareli (NPP)	Uttar Pradesh						
230	Karaikkudi UA	Tamil Nadu						
231	Porbandar UA	Gujarat						
232	Amroha (NPP)	Uttar Pradesh						
233	Sitapur UA	Uttar Pradesh						
234	Udupi UA	Karnataka						
235	Shivpuri (M)	Madhya Pradesh						
236	Modinagar UA	Uttar Pradesh						
237	Gandhinagar	Gujarat						
238	Jind (M Cl)	Haryana						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
239	Hassan UA	Karnataka						
240	Sirsa (M Cl)	Haryana						
241	Veraval UA	Gujarat						
242	Sagar UA	Madhya Pradesh						
243	Robertson Pet UA	Karnataka						
244	Burhanpur (M Corp.)	Madhya Pradesh						
245	Shimla UA	Himachal Pradesh						
246	Krishnanagar UA	West Bengal						
247	Tonk (M Cl)	Rajasthan						
248	Bahraich (NPP)	Uttar Pradesh						
249	Khandwa (M Corp.)	Madhya Pradesh						
250	Nagercoil (M)	Tamil Nadu						
251	Bhusawal UA	Maharashtra						
252	Phusro UA	Jharkhand						
253	Saharsa (NP)	Bihar						
254	Ramagundam UA	Telangana						
255	Adoni UA	Andhra Pradesh						
256	Chittoor UA	Andhra Pradesh						
257	Valsad UA	Gujarat						
258	Vidisha (M)	Madhya Pradesh						
259	Banda UA	Uttar Pradesh						
260	Rewari (M Cl)	Haryana						
261	Godhra UA	Gujarat						
262	Nabadwip UA	West Bengal						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
263	Giridih UA	Jharkhand						
264	Hanumangarh (M Cl)	Rajasthan						
265	Hathras UA	Uttar Pradesh						
266	Medinipur (M)	West Bengal						
267	Hindupur (M)	Andhra Pradesh						
268	Neyveli UA	Tamil Nadu						
269	Moga UA	Punjab						
270	Batala UA	Punjab						
271	Hazaribag UA	Jharkhand						
272	Gadag-Betigeri (CMC)	Karnataka						
273	Rajnandgaon (M Corp.)	Chhattisgarh						
274	Palwal UA	Haryana						
275	Botad (M)	Gujarat						
276	Khargone UA	Madhya Pradesh						
277	Gangapur City UA	Rajasthan						
278	Beawar UA	Rajasthan						
279	Budaun (NPP)	Uttar Pradesh						
280	Sasaram (NP)	Bihar						
281	Adilabad UA	Telangana						
282	Jaunpur (NPP)	Uttar Pradesh						
283	Balurghat UA	West Bengal						
284	Chirala UA	Andhra Pradesh						
285	Damoh UA	Madhya Pradesh						
286	Mainpuri UA	Uttar Pradesh						

	City Name	State	Golden Quadrilateral	North-South / East West Corridor	Proposed Dedicated Freight corridor	Existing / Proposed Industrial Corridor	Port	International / Domestic Airport
287	Cuddalore (M)	Tamil Nadu						
288	Chitradurga UA	Karnataka						
289	Etah UA	Uttar Pradesh						
290	Malerkotla (M Cl)	Punjab						
291	Bahadurgarh (M Cl)	Haryana						
292	Chakdaha UA	West Bengal						
293	Khanna (M Cl)	Punjab						
294	Deoria (NPP)	Uttar Pradesh						
295	Chirkunda UA	Jharkhand						
296	Sawai Madhopur (M)	Rajasthan						
297	Bid (M Cl)	Maharashtra						
298	Tiruvannamalai (M)	Tamil Nadu						
299	Jorhat UA	Assam						
300	Dibrugarh UA	Assam						

India's Top 300 cities | Urban Development Schemes

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
1	Delhi UA	Delhi				
2	Greater Mumbai UA	Maharashtra				
3	Kolkata UA	West Bengal				
4	Bangalore UA	Karnataka				
5	Chennai UA	Tamil Nadu				
6	Hyderabad UA	Telangana				
7	Ahmadabad UA	Gujarat				
8	Surat UA	Gujarat				
9	Pune UA	Maharashtra				
10	Jaipur (M Corp.)	Rajasthan				
11	Lucknow UA	Uttar Pradesh				
12	Kanpur UA	Uttar Pradesh				
13	Indore UA	Madhya Pradesh				
14	Kochi UA	Kerala				
15	Coimbatore UA	Tamil Nadu				
16	Ghaziabad UA	Uttar Pradesh				
17	Nagpur UA	Maharashtra				
18	Patna UA	Bihar				
19	Thiruvananthapuram UA	Kerala				
20	Kozhikode UA	Kerala				
21	Bhopal UA	Madhya Pradesh				
22	Vasai Virar City (M Corp.)	Maharashtra				
23	Thrissur UA	Kerala				
24	Vadodara UA	Gujarat				
25	Agra UA	Uttar Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
26	Greater Vishakapatnam (MC)	Andhra Pradesh				
27	Nashik UA	Maharashtra				
28	Malappuram UA	Kerala				
29	Faridabad (M Corp.)	Haryana				
30	Kannur UA	Kerala				
31	Vijayawada UA	Andhra Pradesh				
32	Ludhiana (M Corp.)	Punjab				
33	Rajkot UA	Gujarat				
34	Meerut UA	Uttar Pradesh				
35	Aurangabad UA	Maharashtra				
36	Raipur UA	Chhattisgarh				
37	Srinagar UA	J&K				
38	Madurai UA	Tamil Nadu				
39	Varanasi UA	Uttar Pradesh				
40	Asansol UA	West Bengal				
41	Jamshedpur UA	Jharkhand				
42	Tiruppur UA	Tamil Nadu				
43	Jodhpur UA	Rajasthan				
44	Ranchi UA	Jharkhand				
45	Amritsar UA	Punjab				
46	Allahabad UA	Uttar Pradesh				
47	Jabalpur UA	Madhya Pradesh				
48	Kollam UA	Kerala				
49	Kota (M Corp.)	Rajasthan				
50	Gwalior UA	Madhya Pradesh				
51	Chandigarh UA	Chandigarh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
52	Dhanbad UA	Jharkhand				
53	Gurgaon UA	Haryana				
54	Bhubaneswar UA	Orissa				
55	Durg-Bhilainagar UA	Chhattisgarh				
56	Aligarh UA	Uttar Pradesh				
57	Bareilly UA	Uttar Pradesh				
58	Guwahati UA	Assam				
59	Moradabad (M Corp.)	Uttar Pradesh				
60	Mysore UA	Karnataka				
61	Tiruchirappalli UA	Tamil Nadu				
62	Jalandhar UA	Punjab				
63	Siliguri UA	West Bengal				
64	Solapur (M Corp.)	Maharashtra				
65	Hubli-Dharwad *(M Corp.)	Karnataka				
66	Salem UA	Tamil Nadu				
67	Bhiwadi (M)	Maharashtra				
68	Warangal UA	Telangana				
69	Saharanpur (M Corp.)	Uttar Pradesh				
70	Dehradun UA	Uttarakhand				
71	Jammu UA	J&K				
72	Firozabad (NPP)	Uttar Pradesh				
73	Puducherry UA	Puducherry				
74	Bikaner (M Corp.)	Rajasthan				
75	Gorakhpur UA	Uttar Pradesh				
76	Noida (CT)	Uttar Pradesh				
77	Amravati (M Corp.)	Maharashtra				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
78	Guntur UA	Andhra Pradesh				
79	Nellore UA	Andhra Pradesh				
80	Cuttack UA	Orissa				
81	Malegaon UA	Maharashtra				
82	Nanded Waghala (M Corp.)	Maharashtra				
83	Belgaum UA	Karnataka				
84	Mangalore UA	Karnataka				
85	Bhavnagar UA	Gujarat				
86	Muzaffarnagar UA	Uttar Pradesh				
87	Gulbarga UA	Karnataka				
88	Tirupati UA	Andhra Pradesh				
89	Jamnagar UA	Gujarat				
90	Kurnool UA	Andhra Pradesh				
91	Jhansi UA	Uttar Pradesh				
92	Erode UA	Tamil Nadu				
93	Agartala (M Cl)	Tripura				
94	Mathura UA	Uttar Pradesh				
95	Jalgaon (M Corp.)	Maharashtra				
96	Panipat UA	Haryana				
97	Ujjain (M Corp.)	Madhya Pradesh				
98	Ajmer UA	Rajasthan				
99	Bilaspur UA	Chhattisgarh				
100	Imphal UA	Manipur				
101	Kolhapur UA	Maharashtra				
102	Durgapur UA	West Bengal				
103	Patiala UA	Punjab				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
104	Sangali UA	Maharashtra				
105	Udaipur UA	Rajasthan				
106	Vellore UA	Tamil Nadu				
107	Gaya UA	Bihar				
108	Raurkela UA	Orissa				
109	Cherthala UA	Kerala				
110	Tirunelveli UA	Tamil Nadu				
111	Bokaro Steel City UA	Jharkhand				
112	Latur (M Cl)	Maharashtra				
113	Davanagere (M Corp.)	Karnataka				
114	Korba UA	Chhattisgarh				
115	Rajahmundry UA	Andhra Pradesh				
116	Thoothukkudi UA	Tamil Nadu				
117	Bellary (M Corp.)	Karnataka				
118	Kakinada UA	Andhra Pradesh				
119	Ahmednagar UA	Maharashtra				
120	Muzaffarpur UA	Bihar				
121	Yamunanagar UA	Haryana				
122	Bhilwara (M Cl)	Rajasthan				
123	Rohtak (M Cl)	Haryana				
124	Anantapur UA	Andhra Pradesh				
125	Kadapa UA	Andhra Pradesh				
126	Baharampur UA	West Bengal				
127	Santipur UA	West Bengal				
128	Akola (M Corp.)	Maharashtra				
129	English Bazar UA	West Bengal				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
130	Shillong UA	Meghalaya				
131	Bhagalpur UA	Bihar				
132	Purnia UA	Bihar				
133	Kottayam UA	Kerala				
134	Alwar UA	Rajasthan				
135	Hardwar UA	Uttarakhand				
136	Brahmapur Town (M Corp.)	Orissa				
137	Junagadh (M Corp.)	Gujarat				
138	Karimnagar UA	Telangana				
139	Bijapur (CMC)	Karnataka				
140	Karnal UA	Haryana				
141	Dhule (M Corp.)	Maharashtra				
142	Rampur UA	Uttar Pradesh				
143	Begusarai (M Corp.)	Bihar				
144	Aizawl (NT)	Mizoram				
145	Barddhaman UA	West Bengal				
146	Sonipat UA	Haryana				
147	Tumkur (CMC)	Karnataka				
148	Parbhani (M Cl)	Maharashtra				
149	Dewas (M Corp.)	Madhya Pradesh				
150	Chandrapur (M Cl)	Maharashtra				
151	Shimoga (CMC)	Karnataka				
152	Maunath Bhanjan (NPP)	Uttar Pradesh				
153	Anand UA	Gujarat				
154	Habra UA	West Bengal				
155	Gandhidham (M)	Gujarat				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
156	Shahjahanpur UA	Uttar Pradesh				
157	Bathinda (M Corp.)	Punjab				
158	Hisar UA	Haryana				
159	Ichalkaranji UA	Maharashtra				
160	Satna UA	Madhya Pradesh				
161	Dindigul UA	Tamil Nadu				
162	Biharsharif (M Corp.)	Bihar				
163	Jalna (M Cl)	Maharashtra				
164	Palakkad UA	Kerala				
165	Coonoor	Tamil Nadu				
166	Khammam UA	Telangana				
167	Morvi UA	Gujarat				
168	Hapur (NPP)	Uttar Pradesh				
169	Navsari UA	Gujarat				
170	Darbhanga UA	Bihar				
171	Thanjavur UA	Tamil Nadu				
172	Ranaghat UA	West Bengal				
173	Farrukhabad-cum-Fatehgarh UA	Uttar Pradesh				
174	Etawah (NPP)	Uttar Pradesh				
175	Haldwani-cum-Kathgodam UA	Uttarakhand				
176	Arrah (M Corp.)	Bihar				
177	Karur UA	Tamil Nadu				
178	Nizamabad (M Corp.)	Telangana				
179	Bharatpur UA	Rajasthan				
180	Sikar UA	Rajasthan				
181	Ratlam UA	Madhya Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
182	Panchkula (M Cl)	Haryana				
183	Bulandshahr UA	Uttar Pradesh				
184	Faizabad UA	Uttar Pradesh				
185	Silchar UA	Assam				
186	Rewa (M Corp.)	Madhya Pradesh				
187	Pali (M Cl)	Rajasthan				
188	Mirzapur-cum-Vindhyachal UA	Uttar Pradesh				
189	Katihar UA	Bihar				
190	Sambalpur UA	Orissa				
191	Panvel (M Cl)	Maharashtra				
192	Mahbubnagar UA	Telangana				
193	Ganganagar UA	Rajasthan				
194	Proddatur UA	Andhra Pradesh				
195	Nandyal UA	Andhra Pradesh				
196	Vizianagaram UA	Andhra Pradesh				
197	Bidar UA	Karnataka				
198	Kharagpur UA	West Bengal				
199	Bharuch UA	Gujarat				
200	Kanhangad UA	Kerala				
201	Sambhal (NPP)	Uttar Pradesh				
202	Madanapalle UA	Andhra Pradesh				
203	Ongole UA	Andhra Pradesh				
204	Raichur (CMC)	Karnataka				
205	Orai UA	Uttar Pradesh				
206	Haldia (M)	West Bengal				
207	Bhind (M)	Madhya Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
208	Eluru UA	Andhra Pradesh				
209	Morena (M)	Madhya Pradesh				
210	Hospet (CMC)	Karnataka				
211	Chapra UA	Bihar				
212	Mahesana UA	Gujarat				
213	Jalpaiguri UA	West Bengal				
214	Puri Town (M)	Orissa				
215	Chhindwara UA	Madhya Pradesh				
216	Ambala (M Cl)	Haryana				
217	Ambala UA	Haryana				
218	Bhuj UA	Gujarat				
219	Alappuzha UA	Kerala				
220	Fatehpur (NPP)	Uttar Pradesh				
221	Murwara (Katni) (M Corp.)	Madhya Pradesh				
222	Guna (M)	Madhya Pradesh				
223	Raiganj UA	West Bengal				
224	Nadiad UA	Gujarat				
225	Bhiwani (M Cl)	Haryana				
226	Kancheepuram UA	Tamil Nadu				
227	Munger (M Corp.)	Bihar				
228	Unnao (NPP)	Uttar Pradesh				
229	Rae Bareli (NPP)	Uttar Pradesh				
230	Karaikkudi UA	Tamil Nadu				
231	Porbandar UA	Gujarat				
232	Amroha (NPP)	Uttar Pradesh				
233	Sitapur UA	Uttar Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
234	Udupi UA	Karnataka				
235	Shivpuri (M)	Madhya Pradesh				
236	Modinagar UA	Uttar Pradesh				
237	Gandhinagar	Gujarat				
238	Jind (M Cl)	Haryana				
239	Hassan UA	Karnataka				
240	Sirsa (M Cl)	Haryana				
241	Veraval UA	Gujarat				
242	Sagar UA	Madhya Pradesh				
243	Robertson Pet UA	Karnataka				
244	Burhanpur (M Corp.)	Madhya Pradesh				
245	Shimla UA	Himachal Pradesh				
246	Krishnanagar UA	West Bengal				
247	Tonk (M Cl)	Rajasthan				
248	Bahraich (NPP)	Uttar Pradesh				
249	Khandwa (M Corp.)	Madhya Pradesh				
250	Nagercoil (M)	Tamil Nadu				
251	Bhusawal UA	Maharashtra				
252	Phusro UA	Jharkhand				
253	Saharsa (NP)	Bihar				
254	Ramagundam UA	Telangana				
255	Adoni UA	Andhra Pradesh				
256	Chittoor UA	Andhra Pradesh				
257	Valsad UA	Gujarat				
258	Vidisha (M)	Madhya Pradesh				
259	Banda UA	Uttar Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
260	Rewari (M Cl)	Haryana				
261	Godhra UA	Gujarat				
262	Nabadwip UA	West Bengal				
263	Giridih UA	Jharkhand				
264	Hanumangarh (M Cl)	Rajasthan				
265	Hathras UA	Uttar Pradesh				
266	Medinipur (M)	West Bengal				
267	Hindupur (M)	Andhra Pradesh				
268	Neyveli UA	Tamil Nadu				
269	Moga UA	Punjab				
270	Batala UA	Punjab				
271	Hazaribag UA	Jharkhand				
272	Gadag-Betigeri (CMC)	Karnataka				
273	Rajnandgaon (M Corp.)	Chhattisgarh				
274	Palwal UA	Haryana				
275	Botad (M)	Gujarat				
276	Khargone UA	Madhya Pradesh				
277	Gangapur City UA	Rajasthan				
278	Beawar UA	Rajasthan				
279	Budaun (NPP)	Uttar Pradesh				
280	Sasaram (NP)	Bihar				
281	Adilabad UA	Telangana				
282	Jaunpur (NPP)	Uttar Pradesh				
283	Balurghat UA	West Bengal				
284	Chirala UA	Andhra Pradesh				
285	Damoh UA	Madhya Pradesh				

	City Name	State	JNNURM	AMRUT	Smart City	HRIDAY
286	Mainpuri UA	Uttar Pradesh				
287	Cuddalore (M)	Tamil Nadu				
288	Chitradurga UA	Karnataka				
289	Etah UA	Uttar Pradesh				
290	Malerkotla (M Cl)	Punjab				
291	Bahadurgarh (M Cl)	Haryana				
292	Chakdaha UA	West Bengal				
293	Khanna (M Cl)	Punjab				
294	Deoria (NPP)	Uttar Pradesh				
295	Chirkunda UA	Jharkhand				
296	Sawai Madhopur (M)	Rajasthan				
297	Bid (M Cl)	Maharashtra				
298	Tiruvannamalai (M)	Tamil Nadu				
299	Jorhat UA	Assam				
300	Dibrugarh UA	Assam				

India's Top 300 cities| Hazard Risk Exposure

	City Name	State	Earthquake	Cyclone	Storm Surge	Flooding	Groundwater Deficit (from GCWB blocks)
1	Delhi UA	Delhi	High	Low	Low	High	Saline/ Over-exploited / Critical
2	Greater Mumbai UA	Maharashtra	Moderate	High	High	High	Safe
3	Kolkata UA	West Bengal	Moderate	High	Low	High	Not Assessed
4	Bangalore UA	Karnataka	Low	Moderate	Low	High	Saline/ Over-exploited / Critical
5	Chennai UA	Tamil Nadu	Moderate	High	High	High	Not Assessed
6	Hyderabad UA	Telangana	Low	Moderate	Low	High	Safe
7	Ahmadabad UA	Gujarat	Moderate	Moderate	Low	High	Semi-critical
8	Surat UA	Gujarat	Moderate	High	High	High	Safe
9	Pune UA	Maharashtra	Moderate	Moderate	Low	High	Safe
10	Jaipur (M Corp.)	Rajasthan	Low	Low	Low	High	Saline/ Over-exploited / Critical
11	Lucknow UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
12	Kanpur UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
13	Indore UA	Madhya Pradesh	Low	Low	Low	High	Saline/ Over-exploited / Critical
14	Kochi UA	Kerala	Moderate	Moderate	High	High	Not Assessed
15	Coimbatore UA	Tamil Nadu	Moderate	Moderate	Low	Low	Saline/ Over-exploited / Critical
16	Ghaziabad UA	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
17	Nagpur UA	Maharashtra	Low	Low	Low	High	Safe
18	Patna UA	Bihar	High	Low	Low	High	Safe
19	Thiruvananthapuram UA	Kerala	Moderate	Moderate	High	High	Safe
20	Kozhikode UA	Kerala	Moderate	Moderate	High	Low	Not Assessed
21	Bhopal UA	Madhya Pradesh	Moderate	Low	Low	High	Semi-critical
22	Vasai Virar City (M Corp.)	Maharashtra	Moderate	High	High	High	Safe
23	Thrissur UA	Kerala	Moderate	Moderate	Low	High	Safe
24	Vadodara UA	Gujarat	Moderate	Moderate	Low	High	Not Assessed

25	Agra UA	Uttar Pradesh	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
26	Greater Vishakapatnam (MC)	Andhra Pradesh	Low	High	High	High	Safe
27	Nashik UA	Maharashtra	Moderate	Moderate	Low	Low	Safe
28	Malappuram UA	Kerala	Moderate	Moderate	Low	Low	Safe
29	Faridabad (M Corp.)	Haryana	High	Low	Low	High	Saline/ Over-exploited / Critical
30	Kannur UA	Kerala	Moderate	Moderate	High	High	Safe
31	Vijayawada UA	Andhra Pradesh	Moderate	High	Low	High	Safe
32	Ludhiana (M Corp.)	Punjab	High	Low	Low	High	Saline/ Over-exploited / Critical
33	Rajkot UA	Gujarat	Moderate	High	Low	Low	Safe
34	Meerut UA	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
35	Aurangabad UA	Maharashtra	Low	Moderate	Low	Low	Semi-critical
36	Raipur UA	Chhattisgarh	Low	Moderate	Low	High	Saline/ Over-exploited / Critical
37	Srinagar UA	J&K	High	Low	Low	High	Safe
38	Madurai UA	Tamil Nadu	Low	Moderate	Low	High	Safe
39	Varanasi UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
40	Asansol UA	West Bengal	Moderate	Moderate	Low	Moderate	Safe
41	Jamshedpur UA	Jharkhand	Low	High	Low	High	Safe
42	Tiruppur UA	Tamil Nadu	Moderate	Moderate	Low	High	Saline/ Over-exploited / Critical
43	Jodhpur UA	Rajasthan	Low	Low	Low	Moderate	Saline/ Over-exploited / Critical
44	Ranchi UA	Jharkhand	Low	Moderate	Low	High	Semi-critical
45	Amritsar UA	Punjab	High	Low	Low	Low	Saline/ Over-exploited / Critical
46	Allahabad UA	Uttar Pradesh	Low	Low	Low	High	Saline/ Over-exploited / Critical
47	Jabalpur UA	Madhya Pradesh	Moderate	Low	Low	High	Safe
48	Kollam UA	Kerala	Moderate	Moderate	High	High	Not Assessed
49	Kota (M Corp.)	Rajasthan	Low	Low	Low	High	Saline/ Over-exploited / Critical
50	Gwalior UA	Madhya Pradesh	Low	Low	Low	Low	Safe
51	Chandigarh UA	Chandigarh	High	Low	Low	Moderate	Safe

52	Dhanbad UA	Jharkhand	Moderate	Moderate	Low	Low	Safe
53	Gurgaon UA	Haryana	High	Low	Low	High	Saline/ Over-exploited / Critical
54	Bhubaneswar UA	Orissa	Moderate	High	Low	High	Safe
55	Durg-Bhilainagar UA	Chhattisgarh	Low	Moderate	Low	Moderate	Semi-critical
56	Aligarh UA	Uttar Pradesh	High	Low	Low	Low	Safe
57	Bareilly UA	Uttar Pradesh	High	Low	Low	High	Safe
58	Guwahati UA	Assam	High	Low	Low	High	Safe
59	Moradabad (M Corp.)	Uttar Pradesh	High	Low	Low	High	Not Assessed
60	Mysore UA	Karnataka	Low	Moderate	Low	Low	Semi-critical
61	Tiruchirappalli UA	Tamil Nadu	Low	Moderate	Low	High	Safe
62	Jalandhar UA	Punjab	High	Low	Low	High	Saline/ Over-exploited / Critical
63	Siliguri UA	West Bengal	High	Low	Low	Low	Not Assessed
64	Solapur (M Corp.)	Maharashtra	Moderate	Low	Low	Low	Safe
65	Hubli-Dharwad *(M Corp.)	Karnataka	Low	Moderate	Low	Low	Safe
66	Salem UA	Tamil Nadu	Moderate	Moderate	Low	Low	Not Assessed
67	Bhiwadi (M)	Maharashtra	High	Low	Low	Low	Saline/ Over-exploited / Critical
68	Warangal UA	Telangana	Low	Moderate	Low	Moderate	Safe
69	Saharanpur (M Corp.)	Uttar Pradesh	High	Low	Low	Low	Saline/ Over-exploited / Critical
70	Dehradun UA	Uttarakhand	High	Low	Low	Low	Not Assessed
71	Jammu UA	J&K	High	Low	Low	High	Safe
72	Firozabad (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
73	Puducherry UA	Puducherry	Low	High	High	High	Safe
74	Bikaner (M Corp.)	Rajasthan	Moderate	Low	Low	Low	Saline/ Over-exploited / Critical
75	Gorakhpur UA	Uttar Pradesh	High	Low	Low	High	Safe
76	Noida (CT)	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
77	Amravati (M Corp.)	Maharashtra	Low	Low	Low	Low	Semi-critical
78	Guntur UA	Andhra Pradesh	Moderate	Moderate	Low	Low	Safe

79	Nellore UA	Andhra Pradesh	Moderate	Moderate	Low	High	Safe
80	Cuttack UA	Orissa	Moderate	High	Low	High	Safe
81	Malegaon UA	Maharashtra	Moderate	Moderate	Low	High	Safe
82	Nanded Waghala (M Corp.)	Maharashtra	Low	Low	Low	High	Safe
83	Belgaum UA	Karnataka	Moderate	Moderate	Low	Low	Safe
84	Mangalore UA	Karnataka	Moderate	Moderate	High	High	Safe
85	Bhavnagar UA	Gujarat	Moderate	High	High	High	Safe
86	Muzaffarnagar UA	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
87	Gulbarga UA	Karnataka	Low	Low	Low	Low	Safe
88	Tirupati UA	Andhra Pradesh	Moderate	Moderate	Low	Low	Safe
89	Jamnagar UA	Gujarat	High	High	Low	High	Safe
90	Kurnool UA	Andhra Pradesh	Low	Moderate	Low	High	Safe
91	Jhansi UA	Uttar Pradesh	Low	Low	Low	Low	Semi-critical
92	Erode UA	Tamil Nadu	Low	Moderate	Low	High	Safe
93	Agartala (M Cl)	Tripura	High	High	Low	Low	Safe
94	Mathura UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
95	Jalgaon (M Corp.)	Maharashtra	Moderate	Low	Low	Low	Saline/ Over-exploited / Critical
96	Panipat UA	Haryana	High	Low	Low	Low	Saline/ Over-exploited / Critical
97	Ujjain (M Corp.)	Madhya Pradesh	Low	Low	Low	High	Saline/ Over-exploited / Critical
98	Ajmer UA	Rajasthan	Low	Low	Low	Low	Saline/ Over-exploited / Critical
99	Bilaspur UA	Chhattisgarh	Low	Moderate	Low	High	Semi-critical
100	Imphal UA	Manipur	High	Moderate	Low	High	Safe
101	Kolhapur UA	Maharashtra	Moderate	Moderate	Low	High	Safe
102	Durgapur UA	West Bengal	Moderate	High	Low	Moderate	Safe
103	Patiala UA	Punjab	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
104	Sangali UA	Maharashtra	Moderate	Moderate	Low	High	Safe
105	Udaipur UA	Rajasthan	Low	Moderate	Low	High	Saline/ Over-exploited / Critical

106	Vellore UA	Tamil Nadu	Moderate	Moderate	Low	High	Not Assessed
107	Gaya UA	Bihar	Moderate	Moderate	Low	High	Not Assessed
108	Raurkela UA	Orissa	Low	High	Low	High	Safe
109	Cherthala UA	Kerala	Moderate	Moderate	High	Low	Safe
110	Tirunelveli UA	Tamil Nadu	Low	Moderate	Low	High	Safe
111	Bokaro Steel City UA	Jharkhand	Moderate	Moderate	Low	Moderate	Semi-critical
112	Latur (M Cl)	Maharashtra	Low	Low	Low	Low	Semi-critical
113	Davanagere (M Corp.)	Karnataka	Low	Moderate	Low	Low	Saline/ Over-exploited / Critical
114	Korba UA	Chhattisgarh	Low	Moderate	Low	High	Safe
115	Rajahmundry UA	Andhra Pradesh	Moderate	High	Low	High	Safe
116	Thoothukkudi UA	Tamil Nadu	Low	Moderate	High	Low	Safe
117	Bellary (M Corp.)	Karnataka	Low	Moderate	Low	Low	Safe
118	Kakinada UA	Andhra Pradesh	Moderate	High	High	High	Not Assessed
119	Ahmednagar UA	Maharashtra	Moderate	Moderate	Low	Low	Safe
120	Muzaffarpur UA	Bihar	High	Low	Low	High	Safe
121	Yamunanagar UA	Haryana	High	Low	Low	Low	Saline/ Over-exploited / Critical
122	Bhilwara (M Cl)	Rajasthan	Low	Low	Low	High	Saline/ Over-exploited / Critical
123	Rohtak (M Cl)	Haryana	High	Low	Low	High	Safe
124	Anantapur UA	Andhra Pradesh	Low	Moderate	Low	Low	Safe
125	Kadapa UA	Andhra Pradesh	Low	Moderate	Low	Low	Safe
126	Baharampur UA	West Bengal	Moderate	High	Low	High	Safe
127	Santipur UA	West Bengal	Moderate	High	Low	High	Safe
128	Akola (M Corp.)	Maharashtra	Low	Low	Low	Low	Safe
129	English Bazar UA	West Bengal	High	Moderate	Low	High	Safe
130	Shillong UA	Meghalaya	High	Moderate	Low	Low	Safe
131	Bhagalpur UA	Bihar	High	Moderate	Low	High	Safe
132	Purnia UA	Bihar	High	Moderate	Low	Low	Safe

133	Kottayam UA	Kerala	Moderate	Moderate	High	High	Safe
134	Alwar UA	Rajasthan	High	Low	Low	Low	Saline/ Over-exploited / Critical
135	Hardwar UA	Uttarakhand	High	Low	Low	High	Semi-critical
136	Brahmapur Town (M Corp.)	Orissa	Low	High	High	High	Safe
137	Junagadh (M Corp.)	Gujarat	Moderate	High	Low	Low	Safe
138	Karimnagar UA	Telangana	Low	Moderate	Low	High	Safe
139	Bijapur (CMC)	Karnataka	Low	Low	Low	Low	Safe
140	Karnal UA	Haryana	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
141	Dhule (M Corp.)	Maharashtra	Moderate	Moderate	Low	High	Safe
142	Rampur UA	Uttar Pradesh	High	Low	Low	High	Not Assessed
143	Begusarai (M Corp.)	Bihar	High	Moderate	Low	Moderate	Safe
144	Aizawl (NT)	Mizoram	High	Moderate	Low	High	Safe
145	Barddhaman UA	West Bengal	Moderate	High	Low	High	Safe
146	Sonipat UA	Haryana	High	Low	Low	Low	Saline/ Over-exploited / Critical
147	Tumkur (CMC)	Karnataka	Low	Moderate	Low	Low	Saline/ Over-exploited / Critical
148	Parbhani (M Cl)	Maharashtra	Low	Low	Low	Low	Safe
149	Dewas (M Corp.)	Madhya Pradesh	Low	Low	Low	Low	Saline/ Over-exploited / Critical
150	Chandrapur (M Cl)	Maharashtra	Moderate	Moderate	Low	High	Safe
151	Shimoga (CMC)	Karnataka	Low	Moderate	Low	High	Safe
152	Maunath Bhanjan (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Safe
153	Anand UA	Gujarat	Moderate	Moderate	Low	Low	Safe
154	Habra UA	West Bengal	Moderate	High	Low	Low	Safe
155	Gandhidham (M)	Gujarat	High	High	High	High	Saline/ Over-exploited / Critical
156	Shahjahanpur UA	Uttar Pradesh	High	Low	Low	Low	Saline/ Over-exploited / Critical
157	Bathinda (M Corp.)	Punjab	Moderate	Low	Low	Low	Saline/ Over-exploited / Critical
158	Hisar UA	Haryana	Moderate	Low	Low	High	Semi-critical
159	Ichalkaranji UA	Maharashtra	Moderate	Moderate	Low	High	Safe

160	Satna UA	Madhya Pradesh	Low	Low	Low	High	Semi-critical
161	Dindigul UA	Tamil Nadu	Low	Moderate	Low	Low	Not Assessed
162	Biharsharif (M Corp.)	Bihar	High	Moderate	Low	High	Safe
163	Jalna (M Cl)	Maharashtra	Low	Moderate	Low	Low	Safe
164	Palakkad UA	Kerala	Moderate	Moderate	Low	High	Saline/ Over-exploited / Critical
165	Coonoor	Tamil Nadu					Not Assessed
166	Khammam UA	Telangana	Moderate	Moderate	Low	High	Safe
167	Morvi UA	Gujarat	High	High	Low	High	Safe
168	Hapur (NPP)	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
169	Navsari UA	Gujarat	Moderate	High	Low	High	Safe
170	Darbhanga UA	Bihar	High	Low	Low	Moderate	Safe
171	Thanjavur UA	Tamil Nadu	Low	High	Low	Low	Safe
172	Ranaghat UA	West Bengal	Moderate	High	Low	Low	Safe
173	Farrukhabad-cum-Fatehgarh UA	Uttar Pradesh	Moderate	Low	Low	Low	Semi-critical
174	Etawah (NPP)	Uttar Pradesh	Low	Low	Low	High	Safe
175	Haldwani-cum-Kathgodam UA	Uttarakhand	High	Low	Low	Low	Semi-critical
176	Arrah (M Corp.)	Bihar	High	Low	Low	High	Safe
177	Karur UA	Tamil Nadu	Low	Moderate	Low	High	Saline/ Over-exploited / Critical
178	Nizamabad (M Corp.)	Telangana	Low	Moderate	Low	Low	Safe
179	Bharatpur UA	Rajasthan	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
180	Sikar UA	Rajasthan	Low	Low	Low	Low	Saline/ Over-exploited / Critical
181	Ratlam UA	Madhya Pradesh	Low	Moderate	Low	High	Saline/ Over-exploited / Critical
182	Panchkula (M Cl)	Haryana	High	Low	Low	Moderate	Not Assessed
183	Bulandshahr UA	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
184	Faizabad UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
185	Silchar UA	Assam	High	Moderate	Low	High	Safe
186	Rewa (M Corp.)	Madhya Pradesh	Low	Low	Low	High	Safe

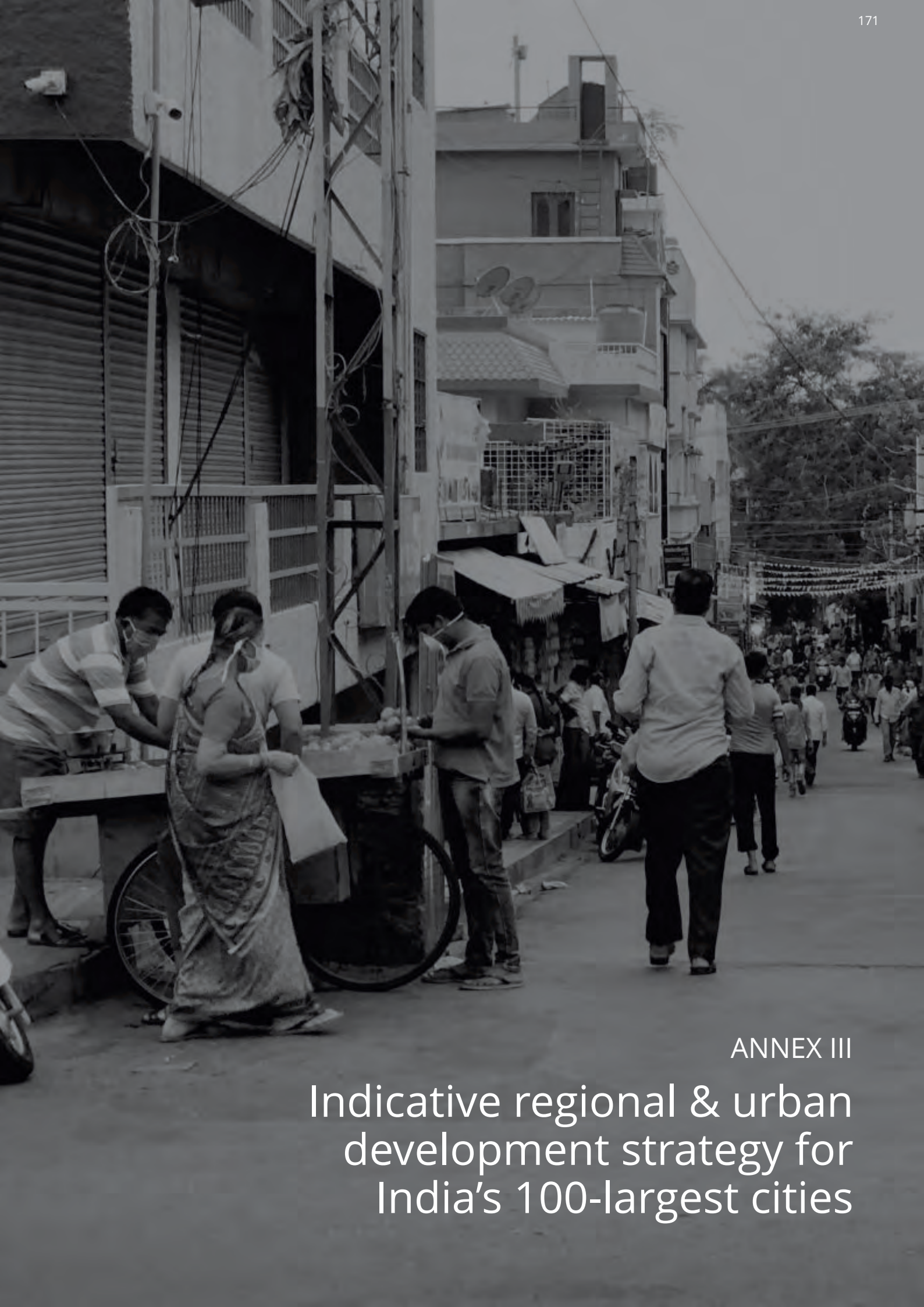
187	Pali (M Cl)	Rajasthan	Low	Low	Low	High	Saline/ Over-exploited / Critical
188	Mirzapur-cum-Vindhyachal UA	Uttar Pradesh	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
189	Katihar UA	Bihar	High	Moderate	Low	High	Safe
190	Sambalpur UA	Orissa	Moderate	Moderate	Low	High	Safe
191	Panvel (M Cl)	Maharashtra	Moderate	High	High	High	Safe
192	Mahbubnagar UA	Telangana	Low	Moderate	Low	Low	Safe
193	Ganganagar UA	Rajasthan	Low	Low	Low	Low	Safe
194	Proddatur UA	Andhra Pradesh	Low	Moderate	Low	High	Safe
195	Nandyal UA	Andhra Pradesh	Low	Moderate	Low	High	Safe
196	Vizianagaram UA	Andhra Pradesh	Low	High	Low	Low	Safe
197	Bidar UA	Karnataka	Low	Low	Low	Low	Safe
198	Kharagpur UA	West Bengal	Moderate	High	Low	Low	Safe
199	Bharuch UA	Gujarat	Moderate	Moderate	Low	High	Safe
200	Kanhangad UA	Kerala	Moderate	Moderate	Low	Low	Not Assessed
201	Sambhal (NPP)	Uttar Pradesh	High	Low	Low	Low	Saline/ Over-exploited / Critical
202	Madanapalle UA	Andhra Pradesh	Low	Moderate	Low	Low	Safe
203	Ongole UA	Andhra Pradesh	Moderate	Moderate	Low	High	Safe
204	Raichur (CMC)	Karnataka	Low	Moderate	Low	Low	Semi-critical
205	Orai UA	Uttar Pradesh	Low	Low	Low	Low	Safe
206	Haldia (M)	West Bengal	Moderate	High	High	High	Not Assessed
207	Bhind (M)	Madhya Pradesh	Low	Low	Low	Low	Safe
208	Eluru UA	Andhra Pradesh	Moderate	High	Low	High	Safe
209	Morena (M)	Madhya Pradesh	Low	Low	Low	Low	Safe
210	Hospet (CMC)	Karnataka	Low	Low	Low	Low	Safe
211	Chapra UA	Bihar	High	Low	Low	High	Safe
212	Mahesana UA	Gujarat	Moderate	Moderate	Low	Low	Saline/ Over-exploited / Critical
213	Jalpaiguri UA	West Bengal	High	Moderate	Low	Moderate	Safe

214	Puri Town (M)	Orissa	Moderate	High	High	High	Safe
215	Chhindwara UA	Madhya Pradesh	Low	Low	Low	Low	Safe
216	Ambala (M Cl)	Haryana	High	Low	Low	Low	Safe
217	Ambala UA	Haryana	High	Low	Low	Low	Safe
218	Bhuj UA	Gujarat	High	High	Low	Low	Saline/ Over-exploited / Critical
219	Alappuzha UA	Kerala	Moderate	Moderate	High	Moderate	Safe
220	Fatehpur (NPP)	Uttar Pradesh	Low	Low	Low	Low	Semi-critical
221	Murwara (Katni) (M Corp.)	Madhya Pradesh	Moderate	Low	Low	High	Safe
222	Guna (M)	Madhya Pradesh	Low	Low	Low	Low	Safe
223	Raiganj UA	West Bengal	High	Moderate	Low	High	Safe
224	Nadiad UA	Gujarat	Moderate	Moderate	Low	High	Safe
225	Bhiwani (M Cl)	Haryana	Moderate	Low	Low	High	Semi-critical
226	Kancheepuram UA	Tamil Nadu	Moderate	High	Low	Low	Safe
227	Munger (M Corp.)	Bihar	High	Moderate	Low	High	Safe
228	Unnao (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Safe
229	Rae Bareli (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Safe
230	Karaikkudi UA	Tamil Nadu	Low	Moderate	Low	Low	Safe
231	Porbandar UA	Gujarat	Moderate	High	High	High	Safe
232	Amroha (NPP)	Uttar Pradesh	High	Low	Low	Low	Saline/ Over-exploited / Critical
233	Sitapur UA	Uttar Pradesh	Moderate	Low	Low	High	Safe
234	Udupi UA	Karnataka	Moderate	Moderate	High	Low	Safe
235	Shivpuri (M)	Madhya Pradesh	Low	Low	Low	Low	Safe
236	Modinagar UA	Uttar Pradesh	High	Low	Low	High	Saline/ Over-exploited / Critical
237	Gandhinagar	Gujarat					Not Assessed
238	Jind (M Cl)	Haryana	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
239	Hassan UA	Karnataka	Low	Moderate	Low	Low	Safe
240	Sirsa (M Cl)	Haryana	Low	Low	Low	High	Saline/ Over-exploited / Critical

241	Veraval UA	Gujarat	Moderate	High	High	Low	Safe
242	Sagar UA	Madhya Pradesh	Low	Low	Low	High	Safe
243	Robertson Pet UA	Karnataka	Low	Moderate	Low	Low	Saline/ Over-exploited / Critical
244	Burhanpur (M Corp.)	Madhya Pradesh	Moderate	Low	Low	High	Safe
245	Shimla UA	Himachal Pradesh	High	Low	Low	Low	Not Assessed
246	Krishnanagar UA	West Bengal	Moderate	High	Low	High	Semi-critical
247	Tonk (M Cl)	Rajasthan	Low	Low	Low	Low	Semi-critical
248	Bahraich (NPP)	Uttar Pradesh	High	Low	Low	High	Safe
249	Khandwa (M Corp.)	Madhya Pradesh	Moderate	Low	Low	Low	Safe
250	Nagercoil (M)	Tamil Nadu	Moderate	Moderate	Low	Low	Not Assessed
251	Bhusawal UA	Maharashtra	Moderate	Moderate	Low	High	Semi-critical
252	Phusro UA	Jharkhand	Moderate	Moderate	Low	High	Safe
253	Saharsa (NP)	Bihar	High	Low	Low	Low	Safe
254	Ramagundam UA	Telangana	Moderate	Moderate	Low	Moderate	Safe
255	Adoni UA	Andhra Pradesh	Low	Moderate	Low	Low	Safe
256	Chittoor UA	Andhra Pradesh	Moderate	Moderate	Low	Low	Not Assessed
257	Valsad UA	Gujarat	Moderate	High	High	High	Safe
258	Vidisha (M)	Madhya Pradesh	Low	Low	Low	High	Safe
259	Banda UA	Uttar Pradesh	Low	Low	Low	Low	Semi-critical
260	Rewari (M Cl)	Haryana	High	Low	Low	Low	Saline/ Over-exploited / Critical
261	Godhra UA	Gujarat	Moderate	Moderate	Low	Low	Safe
262	Nabadwip UA	West Bengal	Moderate	High	Low	High	Safe
263	Giridih UA	Jharkhand	Moderate	Moderate	Low	Low	Safe
264	Hanumangarh (M Cl)	Rajasthan	Low	Low	Low	High	Safe
265	Hathras UA	Uttar Pradesh	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
266	Medinipur (M)	West Bengal	Moderate	High	Low	High	Safe
267	Hindupur (M)	Andhra Pradesh	Low	Moderate	Low	High	Saline/ Over-exploited / Critical

268	Neyveli UA	Tamil Nadu	Low	High	Low	Low	Safe
269	Moga UA	Punjab	Moderate	Low	Low	Low	Saline/ Over-exploited / Critical
270	Batala UA	Punjab	High	Low	Low	Low	Saline/ Over-exploited / Critical
271	Hazaribag UA	Jharkhand	Moderate	Moderate	Low	Low	Safe
272	Gadag-Betigeri (CMC)	Karnataka	Low	Moderate	Low	Low	Saline/ Over-exploited / Critical
273	Rajnandgaon (M Corp.)	Chhattisgarh	Low	Moderate	Low	Low	Semi-critical
274	Palwal UA	Haryana	High	Low	Low	Low	Saline/ Over-exploited / Critical
275	Botad (M)	Gujarat	Moderate	High	Low	Low	Safe
276	Khargone UA	Madhya Pradesh	Moderate	Moderate	Low	High	Safe
277	Gangapur City UA	Rajasthan	Low	Low	Low	Low	Saline/ Over-exploited / Critical
278	Beawar UA	Rajasthan	Low	Low	Low	Low	Saline/ Over-exploited / Critical
279	Budaun (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Semi-critical
280	Sasaram (NP)	Bihar	Moderate	Low	Low	High	Safe
281	Adilabad UA	Telangana	Low	Moderate	Low	Low	Safe
282	Jaunpur (NPP)	Uttar Pradesh	Moderate	Low	Low	High	Saline/ Over-exploited / Critical
283	Balurghat UA	West Bengal	High	Moderate	Low	High	Safe
284	Chirala UA	Andhra Pradesh	Moderate	High	Low	High	Safe
285	Damoh UA	Madhya Pradesh	Low	Low	Low	Low	Safe
286	Mainpuri UA	Uttar Pradesh	Moderate	Low	Low	Low	Semi-critical
287	Cuddalore (M)	Tamil Nadu	Low	High	High	High	Safe
288	Chitradurga UA	Karnataka	Low	Moderate	Low	Low	Saline/ Over-exploited / Critical
289	Etah UA	Uttar Pradesh	Moderate	Low	Low	Low	Safe
290	Malerkotla (M Cl)	Punjab	Moderate	Low	Low	Low	Saline/ Over-exploited / Critical
291	Bahadurgarh (M Cl)	Haryana	High	Low	Low	Low	Safe
292	Chakdaha UA	West Bengal	Moderate	High	Low	Low	Safe
293	Khanna (M Cl)	Punjab	High	Low	Low	Low	Saline/ Over-exploited / Critical
294	Deoria (NPP)	Uttar Pradesh	High	Low	Low	Low	Safe

295	Chirkunda UA	Jharkhand	Moderate	Moderate	Low	High	Safe
296	Sawai Madhopur (M)	Rajasthan	Low	Low	Low	Low	Saline/ Over-exploited / Critical
297	Bid (M Cl)	Maharashtra	Low	Low	Low	Low	Safe
298	Tiruvannamalai (M)	Tamil Nadu	Low	Moderate	Low	Low	Not Assessed
299	Jorhat UA	Assam	High	Low	Low	Moderate	Safe
300	Dibrugarh UA	Assam	High	Low	Low	High	Safe



ANNEX III

Indicative regional & urban development strategy for India's 100-largest cities

Methodology for Development Strategy Analysis for India's 100-largest Cities

Expansion: Expansion potential for development has been estimated based on land allocated for planning and development as available in various proposed Master Plans and Regional Plans of respective City Development and Local Planning Authorities. A qualitative assessment of the graded relative difference of land available for urbanisation between the proposed and current Master Plans/ Regional Plans was undertaken to determine the potential for expansion as below:
Strong: Strong development potential for expansion with over 500 sq.km of land planned for proposed urbanisation.
Moderate: Moderate development potential for expansion with 50-500 sq.km of land planned for proposed urbanisation.
Weak: Weak development potential for expansion with less thank 50 sq.km of land planned for proposed urbanisation.

Densification: Densification potential for development has been estimated based on the proposed urban density of various cities in 2031 as per IIHS' population projection for 2031 of 100 Urban Agglomerations and land proposed for planned urbanisation as per various City Master Plans/ Regional Plans for 2031 and onwards. A qualitative assessment was undertaken, comparing the relative grading of proposed estimated density in 2031 with respective 'ideal' urban density for various city sizes for Class I Cities/ Towns (as per HPEC, 2011), to determine the potential for densification as below:
Strong: Potential to increase density by 100 to 125 persons per hectare (pph) to achieve ideal overall urban density of 125-175 pph as per the City class by population size for 2031
Moderate: Potential to increase density by 50 to 80 persons per hectare (pph) to achieve ideal overall urban density of 100-125 pph depending on estimated City class by population size for 2031
Weak: No further densification as ideal urban density has been planned or surpassed, as per the City class by population size for 2031

Nucleation: Nucleation potential has been estimated based on available built-up data generated from GIS Land Cover Growth Maps and analysis by IIHS from 2001 to 2017 for India's100-largest cities. A qualitative assessment was undertaken by relative grading of change in built-up cover from 2001 to 2017 correlated with a visual assessment of urban sprawl morphology, connectivity and linkages from land cover growth maps and area planned for expansion as per proposed Master Plans to estimate nucleation potential as below:
Strong: Strong potential for nucleation
Moderate: Moderate potential for nucleation

Decongestion: Decongestion measures were estimated based on urban transport projects like MRTS and BRTS undertaken/ proposed to decongest cities, particularly for inner areas of cities. A qualitative assessment was undertaken, correlating transport projects against potential density estimated for 2031 to determine decongestion potential as below:
Strong: Strong potential to decongest city areas as per current operational/ under-construction or proposed MRTS and BRTS.
Moderate: Moderate potential to decongest city areas as per current operational/ under-construction or proposed BRTS.
Weak: No proposal or measure to decongest city area, given potential for high density planned for 2031.

S.No.	City	State	Population Size in 2031	Regional Clustering & Corridors		Indicative Strategic Development Strategies					
				Mega Urban Region	Corridors	Expansion	Densification	Nucleation	Intra-City	Decongestion	Linkages
1	Delhi	Delhi	> 10 million	NCR	DMIC	Weak	Weak	Moderate	Strong	Moderate	Strong
2	Greater Mumbai	Maharashtra	> 10 million	Mumbai-Pune-Nashik	DMIC, BMIC, MNRK	Weak	Weak	Moderate	Strong	Strong	Strong
3	Kolkata	West Bengal	> 10 million	Greater Kolkata - Asansol	AKIC, MNRK	Strong	Moderate	Moderate	Strong	Strong	Strong
4	Bangalore	Karnataka	> 10 million	Greater Bengaluru - Mysore	CBIC, BMIC	Strong	Strong	Strong	Strong	Moderate	Strong
5	Chennai	Tamil Nadu	> 10 million	Chennai - Trichy		Strong	Weak	Strong	Strong	Strong	Strong
6	Hyderabad	Telengana	> 10 million	Greater Hyderabad		Moderate	Weak	Moderate	Strong	Strong	Moderate
7	Ahmedabad	Gujarat	4-10 million	Ahmedabad-Vadodra-Surat	DMIC	Strong	Moderate	Moderate	Strong	Strong	Strong
8	Surat	Gujarat	4-10 million	Ahmedabad-Vadodra-Surat	DMIC	Strong	Moderate	Moderate	Strong	Strong	Strong
9	Pune	Maharashtra	4-10 million	Mumbai-Pune-Nashik	BMIC	Weak	Weak	Strong	Strong	Strong	Moderate
10	Jaipur	Rajasthan	4-10 million	NCR+	DMIC	Strong	Strong	Moderate	Strong	Strong	Moderate
11	Lucknow	Uttar Pradesh	4-10 million			Weak	Weak	Moderate	Strong	Moderate	Moderate
12	Kanpur	Uttar Pradesh	2-4 million		AKIC	Weak	Weak	Moderate	Strong	Moderate	Strong
13	Indore	Madhya Pradesh	2-4 million			Weak	Moderate	Moderate	Strong	Strong	Weak
14	Kochi	Kerala	2-4 million		BKIC, Konkan Coast	Moderate	Weak	Strong	Strong	Moderate	Strong
15	Coimbatore	Tamil Nadu	2-4 million	Chennai - Trichy	CBIC	Strong	Strong	Strong	Strong	Strong	Strong
16	Ghaziabad	Uttar Pradesh	2-4 million	NCR	DMIC	Weak	Weak	Moderate	Strong	Strong	Moderate
17	Nagpur	Maharashtra	2-4 million		Mumbai-Nagpur-Raipur-Kolkata traverse	Weak	Weak	Strong	Strong	Moderate	Strong
18	Patna	Bihar	2-4 million			Strong	Moderate	Moderate	Strong	Moderate	Weak
19	Thiruvananthapuram	Kerala	2-4 million		Konkan Coast	Weak	Weak	Moderate	Strong	Moderate	Moderate
20	Bhopal	Madhya Pradesh	2-4 million			Strong	Strong	Moderate	Strong	Strong	Weak
21	Vasai	Maharashtra	2-4 million	Mumbai-Pune-Nashik	DMIC	nd	Weak	nd	Strong	nd	Moderate
22	Vadodara	Gujarat	2-4 million	Ahmedabad-Vadodra-Surat		Weak	Weak	Moderate	Strong	Moderate	Strong
23	Agra	Uttar Pradesh	2-4 million	NCR+	AKIC	Weak	Weak	Moderate	Strong	Moderate	Strong
24	Visakhapatnam	Andhra Pradesh	2-4 million	Coastal Andhra		Weak	Strong	Strong	Strong	Strong	Weak
25	Nashik	Maharashtra	2-4 million	Mumbai-Pune-Nashik		Weak	Weak	Strong	Strong	Moderate	Weak
26	Faridabad	Haryana	2-4 million	NCR	DMIC	Moderate	Moderate	Strong	Strong	Moderate	Strong
27	Vijayawada	Andhra Pradesh	2-4 million	Coastal Andhra		Weak	Weak	Strong	Strong	Strong	Strong
28	Ludhiana	Punjab	2-4 million	Chandigarh - Amritsar	AKIC	Strong	Strong	Moderate	Strong	Moderate	Strong
29	Rajkot	Gujarat	2-4 million			Weak	Weak	Moderate	Moderate	Moderate	Moderate
30	Meerut	Uttar Pradesh	2-4 million	NCR		Weak	Weak	Strong	Strong	Moderate	Moderate
31	Aurangabad	Maharashtra	1-2 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
32	Raipur	Chhattisgarh	1-2 million	Raipur - Durg - Bilaspur	Mumbai-Nagpur-Raipur-Kolkata traverse	Weak	Weak	Strong	Moderate	Moderate	Weak
33	Srinagar	Jammu & Kashmir	1-2 million	Hill States		Strong	Strong	Strong	Strong	Moderate	Moderate
34	Madurai	Tamil Nadu	1-2 million			Weak	Weak	Strong	Moderate	Moderate	Moderate
35	Varanasi	Uttar Pradesh	1-2 million		AKIC	Strong	Strong	Strong	Strong	Moderate	Strong
36	Asansol	West Bengal	1-2 million	Greater Kolkata - Asansol	AKIC	Strong	Strong	Strong	Moderate	Moderate	Strong
37	Jamshedpur	Jharkhand	1-2 million		Mumbai-Nagpur-Raipur-Kolkata traverse	Weak	Weak	Moderate	Moderate	Moderate	Weak
38	Tiruppur	Tamil Nadu	1-2 million	Chennai - Trichy	CBIC	Weak	Moderate	Strong	Moderate	Moderate	Moderate
39	Jodhpur	Rajasthan	1-2 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
40	Ranchi	Jharkhand	1-2 million			Moderate	Strong	Strong	Moderate	Moderate	Weak
41	Amritsar	Punjab	1-2 million	Chandigarh - Amritsar	AKIC	Weak	Weak	Strong	Moderate	Moderate	Moderate
42	Allahabad	Uttar Pradesh	1-2 million			Weak	Weak	Strong	Strong	Moderate	Moderate
43	Jabalpur	Madhya Pradesh	1-2 million			Weak	Strong	Moderate	Moderate	Moderate	Weak
44	Kota	Rajasthan	1-2 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
45	Gwalior	Madhya Pradesh	1-2 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
46	Chandigarh	Chandigarh	1-2 million	Chandigarh - Amritsar	AKIC	Weak	Weak	Strong	Moderate	Moderate	Weak
47	Dhanbad	Jharkhand	1-2 million	Greater Kolkata - Asansol	AKIC	Moderate	Strong	Strong	Moderate	Strong	Moderate
48	Bhubaneswar	Orissa	1-2 million	Coastal Odisha		Weak	Weak	Strong	Moderate	Moderate	Strong

S.No.	City	State	Population Size in 2031	Regional Clustering & Corridors		Indicative Strategic Development Strategies					
				Mega Urban Region	Corridors	Expansion	Densification	Nucleation	Intra-City	Decongestion	Linkages
49	Durg-Bhilai Nagar	Chhattisgarh	1-2 million	Raipur - Durg - Bilaspur	Mumbai-Nagpur-Raipur-Kolkata traverse	Weak	Weak	Strong	Moderate	Moderate	Moderate
50	Aligarh	Uttar Pradesh	1-2 million	NCR+		Weak	Weak	Strong	Moderate	Moderate	Weak
51	Bareilly	Uttar Pradesh	1-2 million			Weak	Weak	Strong	Strong	Moderate	Weak
52	Guwahati	Assam	1-2 million	NE States		Moderate	Strong	Strong	Strong	Strong	Strong
53	Moradabad	Uttar Pradesh	1-2 million			Weak	Weak	Strong	Moderate	Moderate	Weak
54	Mysore	Karnataka	1-2 million	Greater Bengaluru - Mysore		Moderate	Strong	Moderate	Moderate	Moderate	Weak
55	Tiruchirappalli	Tamil Nadu	1-2 million	Chennai - Trichy		Weak	Weak	Moderate	Moderate	Moderate	Moderate
56	Jalandhar	Punjab	1-2 million	Chandigarh - Amritsar	AKIC	Strong	Strong	Moderate	Moderate	Moderate	Moderate
57	Siliguri	West Bengal	1-2 million	Hill States		Strong	Strong	Strong	Moderate	Moderate	Moderate
58	Solapur	Maharashtra	1-2 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
59	Hubli and Dharwad	Karnataka	1-2 million		BMIC	Weak	Moderate	Strong	Moderate	Moderate	Moderate
60	Salem	Tamil Nadu	1-2 million	Chennai - Trichy	CBIC	Weak	Weak	Strong	Moderate	Moderate	Moderate
61	Bhiwandi	Maharashtra	1-2 million	Mumbai-Pune-Nashik	DMIC	Moderate	Moderate	Strong	Moderate	Moderate	Moderate
62	Warangal	Telengana	1-2 million	Greater Hyderabad		Strong	Strong	Moderate	Moderate	Moderate	Weak
63	Saharanpur	Uttar Pradesh	1-2 million	NCR+		Weak	Weak	Strong	Moderate	Moderate	Weak
64	Dehradun	Uttarakhand	1-2 million	Hill States		Moderate	Strong	Strong	Strong	Strong	Weak
65	Jammu	Jammu & Kashmir	0.1 to 1 million	Hill States		Moderate	Moderate	Strong	Strong	Strong	Moderate
66	Firozabad	Uttar Pradesh	0.1 to 1 million		AKIC	Weak	Weak	Strong	Moderate	Moderate	Moderate
67	Puducherry	Puducherry	0.1 to 1 million	Chennai - Trichy		Weak	Moderate	Strong	Moderate	Moderate	Weak
68	Bikaner	Rajasthan	0.1 to 1 million			Weak	Moderate	Strong	Moderate	Moderate	Weak
69	Gorakhpur	Uttar Pradesh	0.1 to 1 million			Weak	Weak	Moderate	Strong	Strong	Weak
70	Amravati	Maharashtra	0.1 to 1 million		Mumbai-Nagpur-Raipur-Kolkata traverse	Weak	Weak	Moderate	Moderate	Moderate	Weak
71	Guntur	Andhra Pradesh	0.1 to 1 million	Coastal Andhra		Weak	Weak	Strong	Moderate	Moderate	Moderate
72	Nellore	Andhra Pradesh	0.1 to 1 million	Coastal Andhra	CBIC	Weak	Weak	Moderate	Moderate	Moderate	Moderate
73	Cuttack	Orissa	0.1 to 1 million	Coastal Odisha		Moderate	Moderate	Strong	Moderate	Moderate	Moderate
74	Malegoan	Maharashtra	0.1 to 1 million	Mumbai-Pune-Nashik		Weak	Weak	Moderate	Moderate	Weak	Weak
75	Nanded Waghala	Maharashtra	0.1 to 1 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
76	Belgaum	Karnataka	0.1 to 1 million		BMIC	Weak	Weak	Moderate	Moderate	Moderate	Moderate
77	Mangalore	Karnataka	0.1 to 1 million		Konkan Coast	Moderate	Moderate	Moderate	Moderate	Moderate	Strong
78	Bhavnagar	Gujarat	0.1 to 1 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
79	Muzaffarnagar	Uttar Pradesh	0.1 to 1 million	NCR		nd	Weak	nd	Moderate	nd	Weak
80	Gulbarga	Karnataka	0.1 to 1 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
81	Tirupati	Andhra Pradesh	0.1 to 1 million			nd	Strong	nd	Moderate	nd	Moderate
82	Jamnagar	Gujarat	0.1 to 1 million			Weak	Moderate	Strong	Moderate	Moderate	Weak
83	Kurnool	Andhra Pradesh	0.1 to 1 million			nd	Weak	nd	Moderate	nd	Weak
84	Jhansi	Uttar Pradesh	0.1 to 1 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
85	Erode	Tamil Nadu	0.1 to 1 million	Chennai - Trichy		Weak	Weak	Strong	Moderate	Moderate	Weak
86	Agartala	Tripura	0.1 to 1 million	NE States	Kolkata-Dhaka-Sylhet-Imphal corridor	nd	Weak	nd	Moderate	nd	Weak
87	Mathura	Uttar Pradesh	0.1 to 1 million	NCR+	AKIC	nd	Weak	nd	Moderate	nd	Moderate
88	Jalgaon	Maharashtra	0.1 to 1 million		Mumbai-Nagpur-Raipur-Kolkata traverse	Moderate	Weak	Strong	Moderate	Moderate	Weak
89	Panipat	Haryana	0.1 to 1 million	NCR	AKIC	nd	Weak	nd	Moderate	nd	Weak
90	Ujjain	Madhya Pradesh	0.1 to 1 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
91	Ajmer	Rajasthan	0.1 to 1 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
92	Bilaspur	Chhattisgarh	0.1 to 1 million	Raipur - Durg - Bilaspur	Mumbai-Nagpur-Raipur-Kolkata traverse	nd	Weak	nd	Moderate	nd	Weak
93	Imphal	Manipur	0.1 to 1 million	NE States	Kolkata-Dhaka-Sylhet-Imphal corridor	nd	Weak	nd	Moderate	nd	Weak
94	Kolapur	Maharashtra	0.1 to 1 million		BMIC	Weak	Weak	Strong	Moderate	Moderate	Moderate
95	Durgapur	West Bengal	0.1 to 1 million	Greater Kolkata - Asansol		Moderate	Strong	Strong	Moderate	Moderate	Weak
96	Patiala	Punjab	0.1 to 1 million	Chandigarh - Amritsar		nd	Strong	nd	Moderate	nd	Weak

S.No.	City	State	Population Size in 2031	Regional Clustering & Corridors		Indicative Strategic Development Strategies					
				Mega Urban Region	Corridors	Expansion	Densification	Nucleation	Intra-City	Decongestion	Linkages
97	Sangli Miraj Kupwad	Maharashtra	0.1 to 1 million			Weak	Weak	Strong	Moderate	Moderate	Weak
98	Udaipur	Rajasthan	0.1 to 1 million		DMIC	Moderate	Moderate	Moderate	Moderate	Moderate	Strong
99	Vellore	Tamil Nadu	0.1 to 1 million	Chennai - Trichy	CBIC	Weak	Weak	Strong	Moderate	Moderate	Moderate
100	Gaya	Bihar	0.1 to 1 million			Weak	Weak	Moderate	Moderate	Moderate	Weak
101	Raurkela	Orissa	0.1 to 1 million			Weak	Moderate	Moderate	Moderate	Moderate	Weak
102	Bokaro	Jharkhand	0.1 to 1 million			Weak	Moderate	Strong	Moderate	Moderate	Weak

Figure A1: Indicative Regional & Urban Development Strategy - Expansion

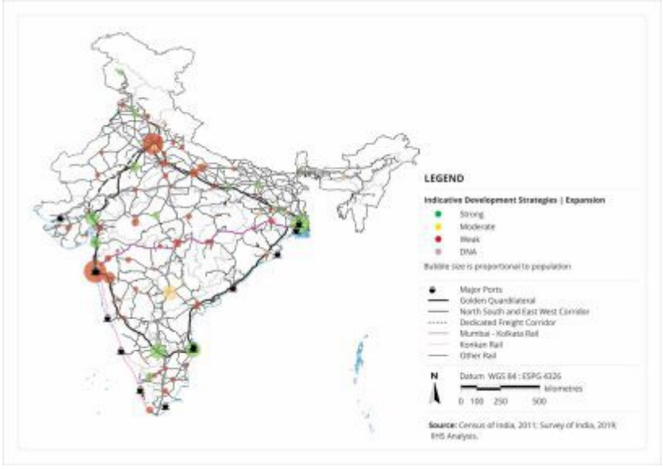


Figure A2: Indicative Regional & Urban Development Strategy - Densification

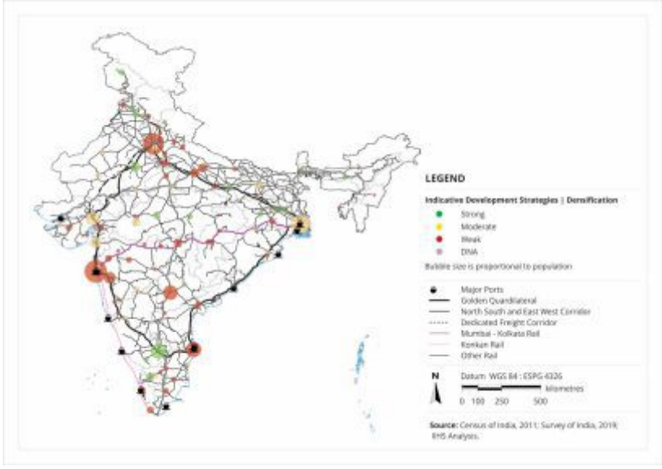


Figure A3: Indicative Regional & Urban Development Strategy - Nucleation

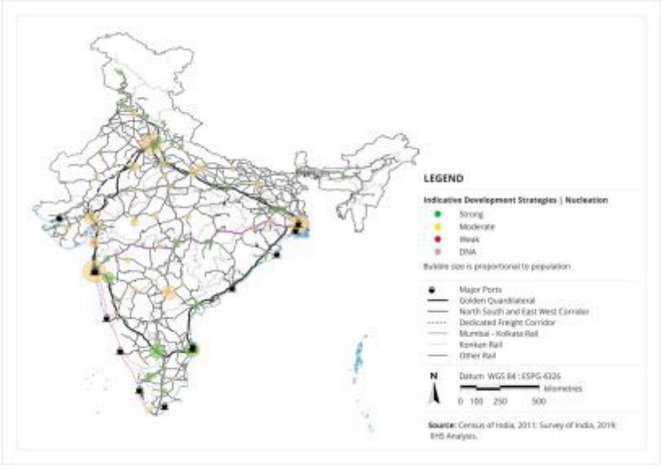


Figure A4: Indicative Regional & Urban Development Strategy - Intra-City mobility

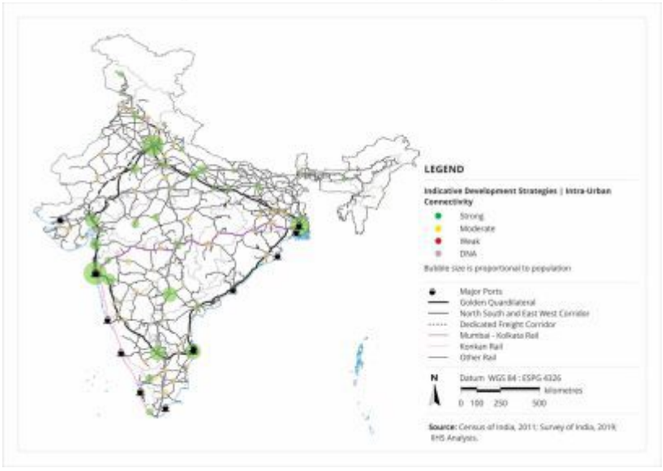


Figure A5: Indicative Regional & Urban Development Strategy - Decongestion

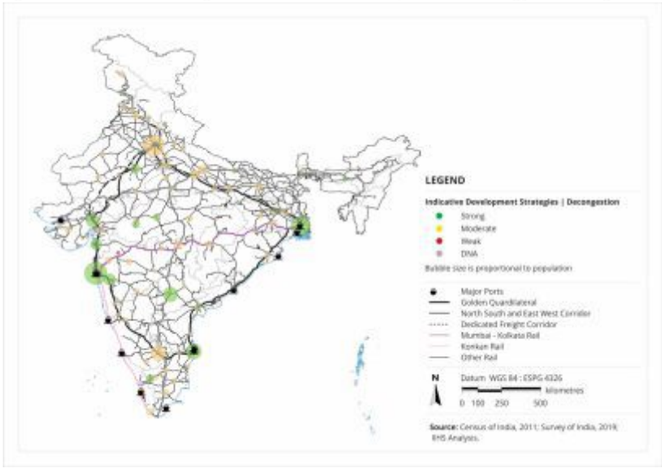
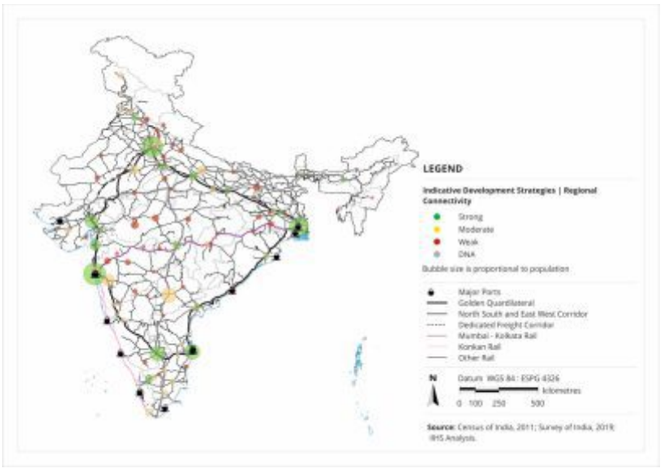


Figure A6: Indicative Regional & Urban Development Strategy - Inter-city connectivity



Growth of India's Million Plus cities (1951-2031)

Figure A7: India's million+ cities in 1951

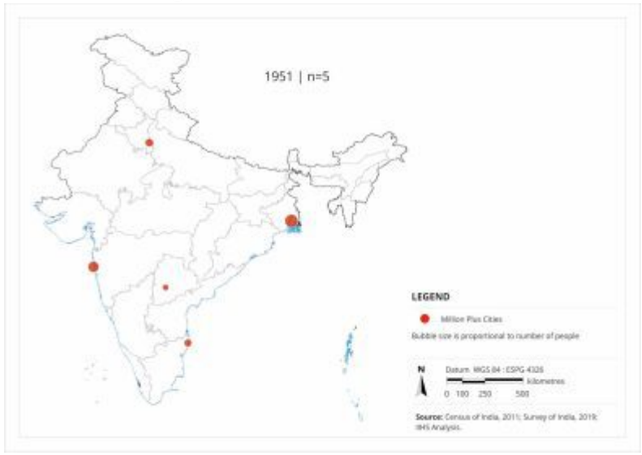


Figure A8:India's million+ cities in 1961

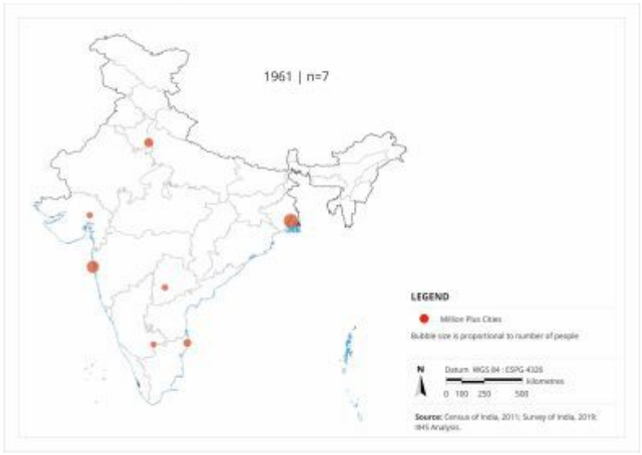


Figure A9: India's million+ cities in 1971

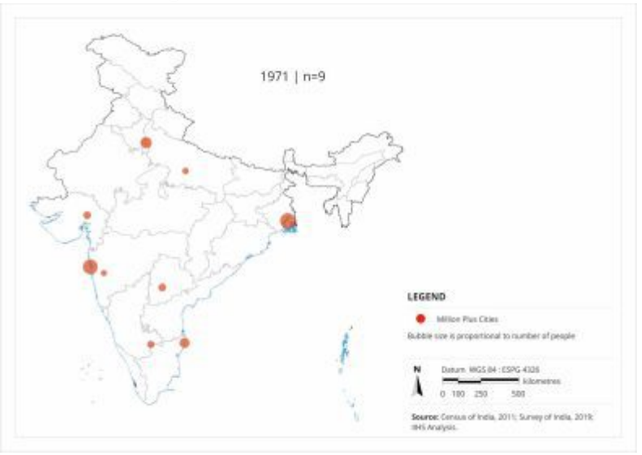


Figure A10: India's million+ cities in 1981

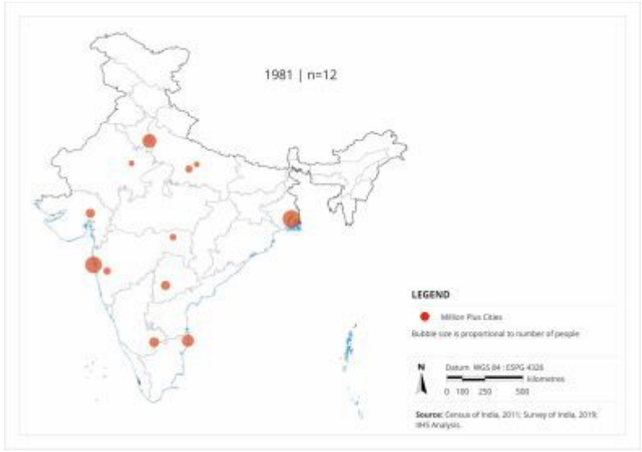


Figure A11: India's million+ cities in 1991

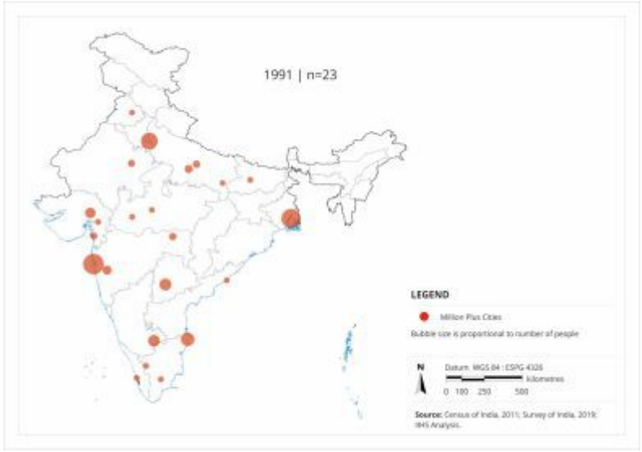


Figure A12: India's million+ cities in 2001

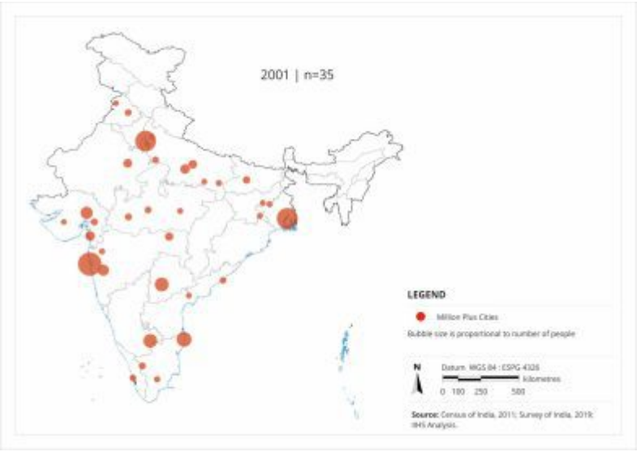


Figure A13: India's million+ cities in 2011

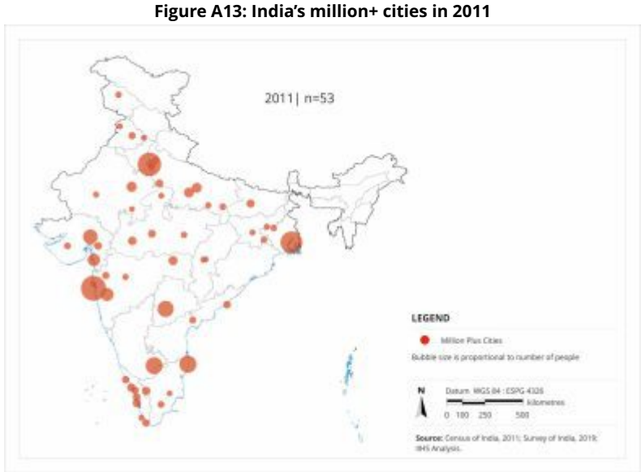
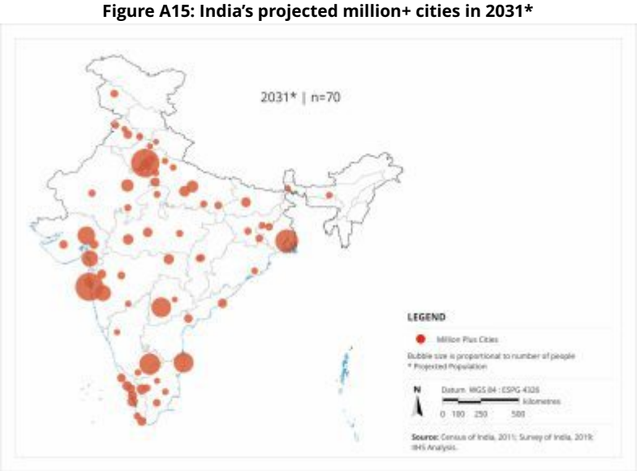


Figure A14: India's projected million+ cities in 2021

Figure A15: India's projected million+ cities in 2031*



ANNEX IV

Urban infrastructure investment estimates (2021-31)

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Methodology for urban infrastructure upgradation and expansion estimates

For the purpose of this report, urban infrastructure investment estimates consider the following infrastructure assets:

- Water supply production and distribution system
- Sewerage network system
- Solid waste management system
- Storm Water Drainage network
- Road and traffic support infrastructure
- Public transport systems (for Class 1 cities above 5 million population)
- Street lighting

Upgradation (2021): Urban infrastructure upgradation cost for 2021 has been estimated at an assumption of 40% of capital expenditure (capex) estimates. Typically, as per best engineering practices, refurbishment costs for urban infrastructure constitute in the range of 30-50% of overall life cycle costs (that includes capex, operations & maintenance (O&M) and refurbishment costs) of various urban infrastructure. Capex for urban infrastructure for 2021 of various city size class has been estimated based on Per Capita Infrastructure Cost (PCIC) (PCIC assumed as per HPEC Report for each city size class, 2009-10 rates appropriately escalated at an assumption of 3% for 2020-21 rates) for population projected for 2021 by IIHS analysis.

Expansion (2031): Urban infrastructure expansion capex for 2031 of various city size class has been estimated based on Per Capita Infrastructure Cost (PCIC) (as per HPEC Report for each city size class, 2009-10 rates appropriately escalated at 3% for 2020-21 rates) for marginal increase in population projected for 2031 from 2021 by IIHS analysis.

Upgradation (2021-31): Urban infrastructure upgradation cost for 2021-31 has been estimated at an assumption of 40% of capital expenditure (capex) estimates for urban infrastructure for 2031. Typically, as per best engineering practices, refurbishment costs for urban infrastructure constitute in the range of 30-50% of overall life cycle costs (that includes capex, operations & maintenance (O&M) and refurbishment costs) of various urban infrastructure. Capex for urban infrastructure for 2031 of various city size class has been estimated based on Per Capita Infrastructure Cost (PCIC) (PCIC assumed as per HPEC Report for each city size class, 2009-10 rates appropriately escalated at an assumption of 3% for 2020-21 rates) for population projected for 2031 by IIHS analysis.

Land Development (2021-31): Land development cost has been estimated for additional land required for expansion to accommodate increase in population from 2021 to 2031 as per IIHS analysis for Cities with population above 1 million. The additional land area is enumerated based on data available for additional land required and/ or planned for urbanisation as per proposed Master Plans/ Regional Plans for various cities above 1 million population. Land development rate for cities with population above 10 million has been assumed as per the Sivaramakrishnan Committee Report for the AP Capital (at INR 40 Lakhs/ acre for Cities with population above 10 million at 2014 prices, appropriately escalated at an assumption of 3% for 2020 prices). The land development rate for smaller cities with population of 1-10 million has been assumed at 50% of rate assumed for cities with population above 10 million.

Table A4: Indicative Urban Infrastructure Investment estimates (2021-31)

Indicative Urban Upgradation & Expansion estimates (in INR Lakh Crores 2020 prices)									
Population Class I Cities & Towns (million)	Estimated Population (million)			Estimated Investment (2021-2031)					
	2011	2021	2031	Upgradation (2021)	Expansion (2021-31)	Upgradation (2021-31)	Total (2021-31)	% share	Land Development
> 10	74	88	100	2.9	1.0	3.4	**7.3**	31%	5
4-10	22	28	34	0.9	0.5	1.1	**2.5**	11%	2
2-4	42	52	62	1.4	0.6	1.6	**3.6**	16%	2
1-2	40	47	54	1.3	0.5	1.5	**3.3**	14%	3
0.1-1	89	102	111	2.6	0.9	3.0	**6.5**	28%	nd
Grand Total	**267**	**317**	**361**	**9.1**	**3.5**	**10.6**	**23.2**	100%	**12**
% share				39%	15%	46%	100%		

Note: based on IIHS population projections (2017), HPEC infrastructure Capex estimates (2010-31), Sivaramakrishnan Committee report (2014)

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INDIAN INSTITUTE FOR
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IIHS BENGALURU CITY CAMPUS
197/36, 2nd Main Road, Sadashivanagar, Bengaluru 560 080. India.
T +91 80 6760 6666 | F +91 80 2361 6814

IIHS CHENNAI
Floor 7A, Chaitanya Exotica, 24/51 Venkatnarayana Road, T Nagar
Chennai 600 017. India. T +91 44 6630 5500 / 6555 6590

IIHS DELHI
803, Surya Kiran, 19, Kasturba Gandhi Marg, New Delhi 110 001. India.
T +91 11 4360 2798 | F +91 11 2332 0477

IIHS MUMBAI
Flat No. 2, Purnima Building, Patel Compound, 20-C, Napean Sea Road
Mumbai 400 006. India. T +91 22 6525 3874

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