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INDIAN INSTITUTE FOR
HUMAN SETTLEMENTS

Urban India 2011: Evidence

November 22, 2011

INDIA URBAN CONFERENCE
2011: EVIDENCE & EXPERIENCE

Urban India 2011: Evidence

India's urban transition, a once in history phenomenon, has the potential to shift the country's social, environmental, political, and economic trajectory. It could catalyse, the end of calorie poverty if post-1989 China is any example. It could deepen democracy and human development, leading to more Indians living longer, better quality and better educated lives. It could enable the transition to a less resource intensive development, with lower throughputs, footprints and environmental impacts that could reshape global trends because of India's demographic and economic size. But these are only aspirations. Hard evidence indicates that much work needs to be done to realize these opportunities over the next twenty to thirty years.

India's urbanization will interact with the country's ongoing demographic evolution to shape the extent of the "demographic dividend" as a young labor force moves into more or less productive employment. The process will help redefine India's imagination as a country that lives primarily in its villages and is largely immobile; and tease out the linkages that enable small urban centres to become catalysts for rural employment and to end rural poverty. It will affect the possibilities for the country to pioneer a new, less resource-intensive form of development. India's output is already relatively less carbon-intensive than many other countries'. The nature of the urban transition will determine whether it can stay this way as growth continues.

Urbanisation will, for better or for worse, play an enormous role in social transformation and economic mobility. It may exacerbate inequalities, create new opportunities, or all of the above. Cities could be engines of poverty reduction, both within their boundaries and through the financial, people, and goods flow between urban and rural India. They could also replicate existing social stratification and exacerbate the misery of poverty by concentrating on the poor. In short, urbanisation is a transition to be reckoned with.

The India Urban Conference: Evidence and Experience (IUC 2011) is a series of events designed to raise the salience of urban challenges and opportunities in the ongoing debate on India's development. The series is convened by the Indian Institute for Human Settlements (IIHS), Janaagraha Centre for Citizenship and Democracy (JCCD), and the South Asian Studies Council at Yale University, in collaboration with Ministry of Housing and Urban Poverty Alleviation and the Ministry of Urban Development of the Government of India. The events also relied on the expertise and networks of Context Anchors including Arghyam, Bangalore; DRONAH (Development and Research Organisation for Nature Art and Heritage), Gurgaon; IFMR Finance Foundation, Chennai; PHFI (Public Health Foundation of India), Delhi; India Urban Space Foundation (IUSF), Bangalore; SPA (School of Planning and Architecture), Delhi; and Pratham, Mumbai and Delhi.

The IUC seeks to contribute to building a strong and inclusive knowledge foundation for this transition. The series of events - an academic conference in New Haven, CT, USA, an ideas forum and discussion of emerging evidence and research in Mysore, a policy conference in Delhi, and a national student challenge seeking innovative proposals for urban solutions - seeks to create a platform for research and dialogue among practitioners, academics, and citizens to identify priorities for policy, research, and action by all stakeholders in India's urban transition.

The "Urban India 2011: Evidence," is no more than a starting point for that foundation. It was created as a briefing for panelists at the India Urban Conference: Delhi policy dialogue on 22 November 2011, enables policymakers, private sector and civil society leaders, and other practitioners to ground their views derived from experience in some of the broader evidence on the state of India's urban areas and settlements.

This brief and intensive underlying analysis pulls together available evidence from national surveys, the Census of India remote sensing data on urban spatial dynamics, published and grey literature. The picture created is far removed from the lived reality of urban India, and the aggregate summaries may be at odds with the varied circumstances that policymakers, entrepreneurs and civil society face as they seek to intervene in the urban transition. However, it places these experiences in their broader context and provides some basis for a shared understanding of the underlying trends behind the everyday and individual observations of how India, and its urban areas are evolving.

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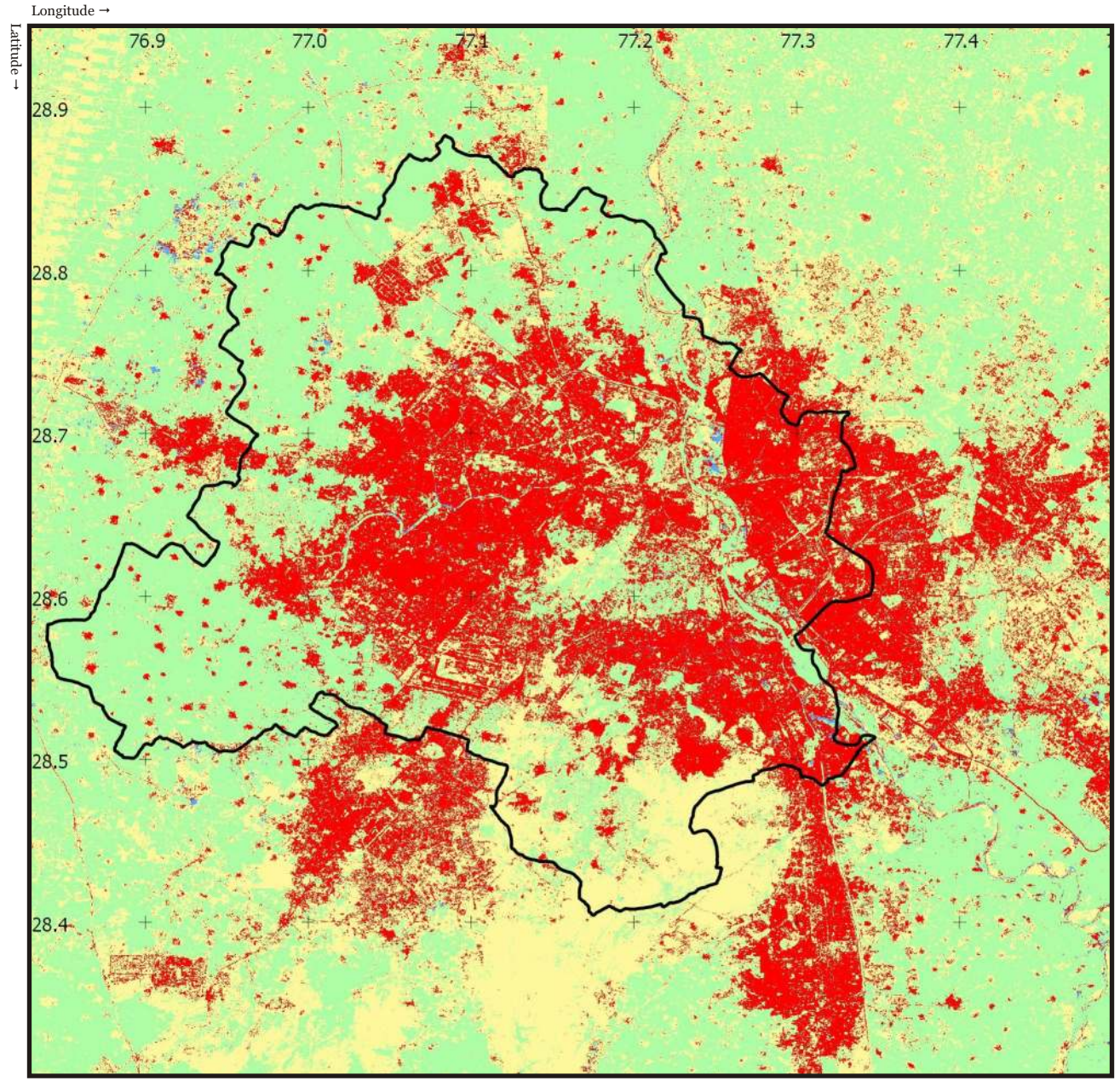


NCTof Delhi: Urban Land Cover 2011

Urban Dynamics

Urban Dynamics

This section provides an overview of India's urban dynamics in both spatial and demographic terms. The first set of maps places India's present settlement distribution in historic context and suggests one scenario of how this may evolve over the next two decades. India's impending urbanisation, particularly an acceleration of urbanisation in the southern and parts of western India, are apparent and formidable. The next set of analyses disaggregates this overall pattern to show the broad spatial distribution of cities by size class. Insets on the pages summarize the current distribution of population, land, and economic output across cities of various sizes.

This analysis shows how urban areas account for a disproportionately small amount of India's terrain when compared with their significant and rising share of economic output. According to the Census of India 2011 as well as calculations by the IIHS Geospatial Lab, the top 10 cities of India account for almost 8% of India's population, produce 15% of total economic output but only occupy 0.1% of the total land area. Similarly, the 53 million plus cities account for 13% of the population produce, about a third of total economic output and occupy 0.2% of the land. The top 100 cities, account for 16% of the population, produce 43% of India's total output and occupy 0.26% of the land. These estimates are necessarily rough given the absence of reliable disaggregated data for urban areas but the emerging economic importance of cities as well their increasing demographic presence is clear.

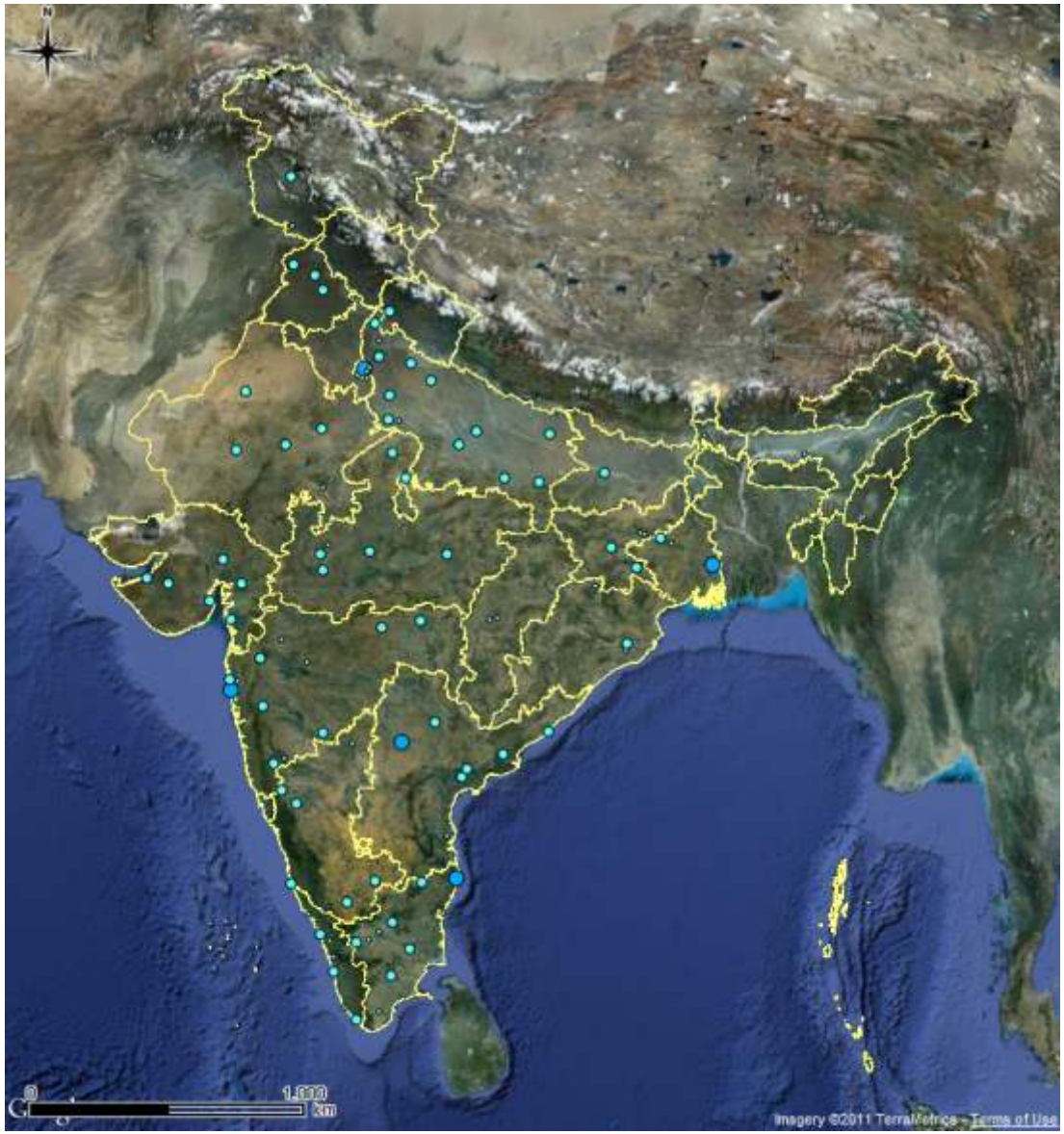
The next set of plates traces the evolution of India's entire settlement structure – across villages, small towns and cities showing the changing distribution of India's population since Independence. The distribution has a high concentration in the million cities and a very long decentralised tail – the 2011 Census estimated 8,000 urban centres, situated in a sea of over 6,60,000 villages. The graphs show a decline in the number of people and proportion living in hamlets and small villages, partially because of population growth, but also because of the clustering and agglomeration of settlements as mobility networks increased in coverage and settlement sizes grew. The analysis shows that the most significant change is in the proportion of the smallest and the largest cities.

Two striking questions emerge: the distribution of both India's urban and rural population across settlement size class over the next half century as we move from a rural-agrarian to an urban-industrial/services-led economy. The second is the impact of the grey zone between Class IV to VI towns (<5,000-20,000) population and the large fraction of rural population who live in villages that have more than 5,000 people and have an increasing urban character. There are between 80-140 million people estimated to be living in this zone. A shift towards the urban would mean a rise in India's level of urbanisation to 40% or above, but a loss of rural entitlements and an increased burden of urban taxation – both of which have major policy implications. It is between the medium and small towns and this grey zone of large villages that the success of India's new manufacturing, livelihood and skill building policies will be sorely tested.

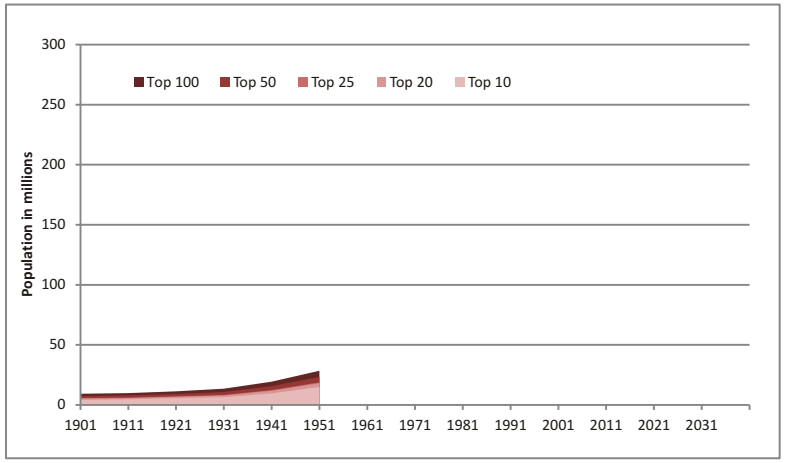
The next series focuses in on the patterns of urbanisation as deduced from changes in land cover over time. A single summary is that cities are sprawling. As they expand past their formal administrative boundaries, city densities lower over time as population growth rates lag behind the rate of the growth of built-up areas. The drop in built-up area densities is greater in the top 100 cities when compared to the top 10 or the million plus cities but sprawl is happening in smaller as well as larger cities. This is hardly an unusual pattern when seen from a global perspective, but it does have obvious and possibly unfortunate consequences for urban governance, regional planning, and the sustainability of India's cities. Urbanisation has the potential to be an environmentally sustainable way to work and live – life in compact settlements requires less transport, less energy for cooling and heating, and directly alters less terrain than more spatially dispersed living patterns. Increasing sprawl challenges these possibilities.

While the extent of land under urban cover remains small, the effects of urban land dynamics may be more significant. For one, location of the land matters – we may be urbanising in productive and eco-sensitive areas. Second, spatial size matters. Globally, cities typically sprawl and disturb land area twice their built up area – this relationship is unstudied for India. Third, low density urban expansion affects energy use for transport, the prospects for and costs of resource-efficient infrastructure, the extent of disruption to watersheds and albedo, and other aspects of urbanisation that in turn affects extraction of water, energy and material resources from the hinterland for the construction and operation of these cities.

Urban India: 1951



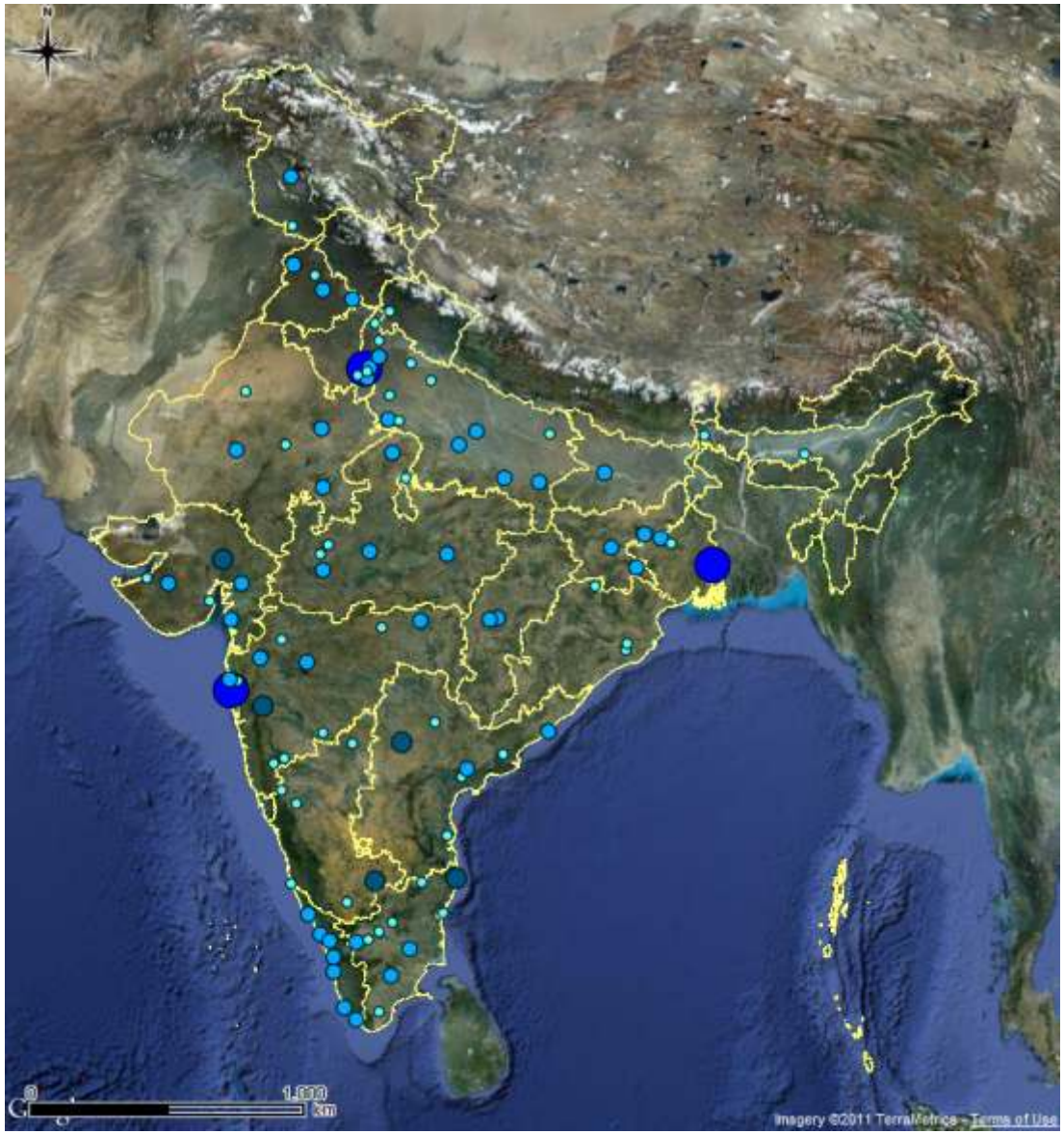
In 1951, there were only 5 Indian cities with a population greater than 1 million and only 41 cities greater than 0.1 million population. Yet much of India effectively lived in 0.56 million villages.



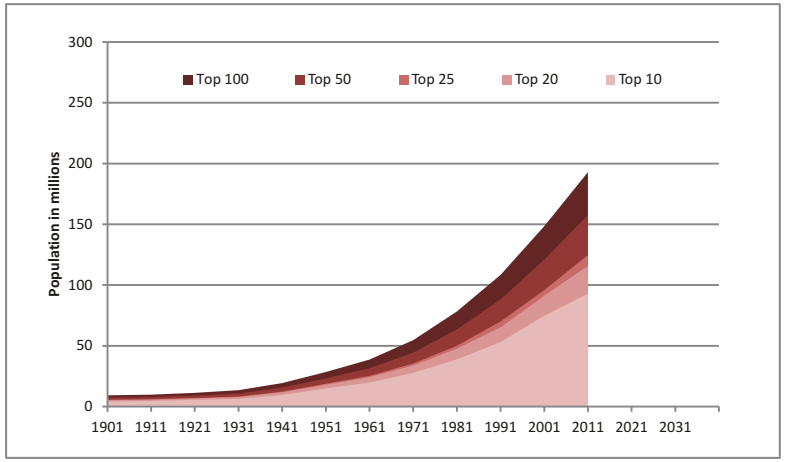
Cities Size Class by Population
- 0 - 0.1 million
- 0.1 - 1 million
- 1 - 5 million
- 5 - 10 million
- 10 - 30 million

Source: Source: IIHS Analysis of Census data, 1951. (Satellite Map, Google Inc.)

Urban India: 2011

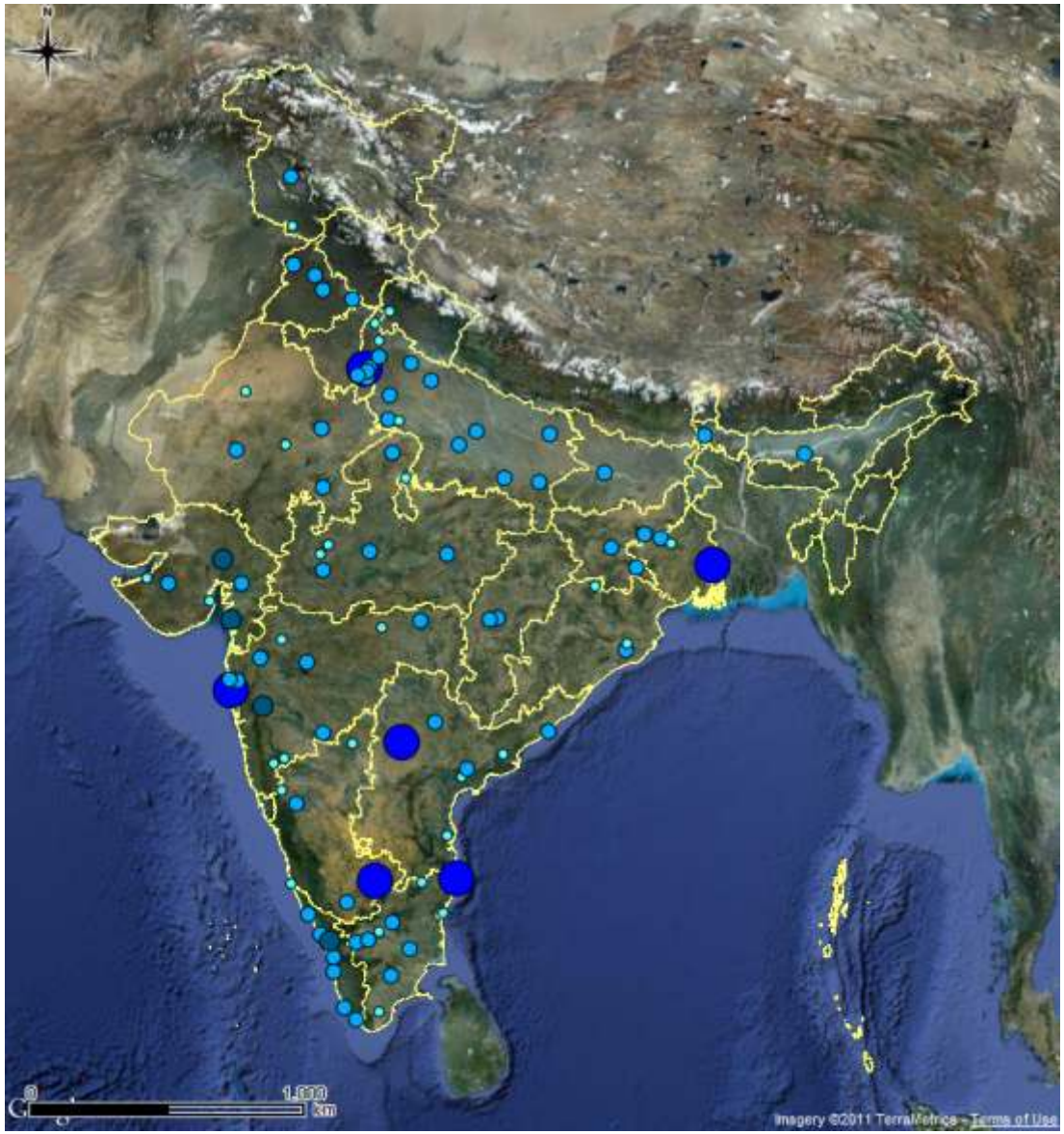


In 2011, there are 3 cities with population greater than 10 million and 53 cities with population greater than 1 million. Over 833 million Indians lived in 0.64 million villages but 377 million lived in about 8,000 urban centres.

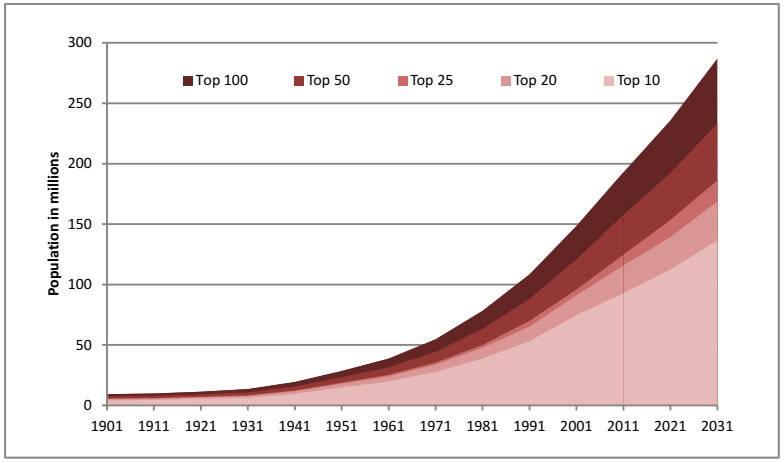


Source: Source: IIHS Analysis of Census data, 2011. (Satellite Map, Google Inc.)

Urban India: 2031



By 2031, it is projected that there will be 6 cities with a population greater than 10 million. A key question is how many Indians would live in how many medium and small towns - the bridge between a transforming rural and urban India?



Cities Size Class by Population
- 0 - 0.1 million
- 0.1 - 1 million
- 1 - 5 million
- 5 - 10 million
- 10 - 30 million

Source: Source: IIHS Analysis based on Census of India. (Satellite Map, Google Inc.)

India's Largest Cities: 2011

(List in descending order of population of Urban Agglomerations)

Top Ten

Greater Mumbai
Delhi
Kolkata
Chennai
BANGALORE
Hyderabad
Ahmedabad
Pune
Surat
Jaipur (M Corp.)

Million Plus

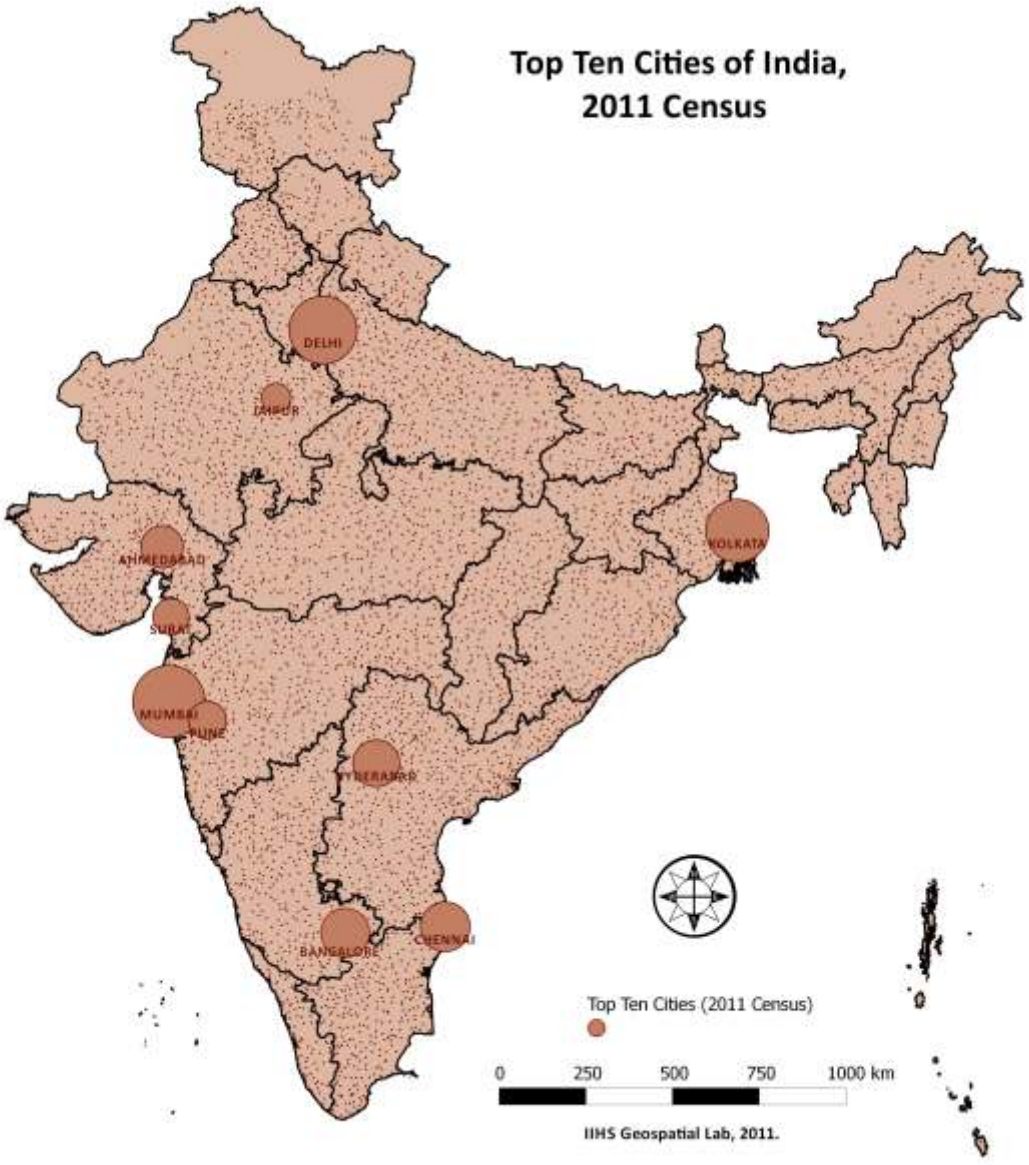
Greater Mumbai
Delhi
Kolkata
Chennai
Bangalore
Hyderabad
Ahmedabad
Pune
Surat
Jaipur (M Corp.)
Kanpur
Lucknow
Nagpur
Ghaziabad
Indore
Coimbatore
Kochi
Patna
Kozhikode
Bhopal
Thrissur
Vadodara
Agra
GVMC (MC)
Malappuram
Thiruvananthapuram
Kannur
Ludhiana (M Corp.)
Nashik
Vijayawada
Madurai
Varanasi
Meerut
Faridabad (M Corp.)
Rajkot
Jamshedpur
Srinagar
Jabalpur
Asansol
Vasai Virar City (M Corp.)
Allahabad
Dhanbad
Aurangabad
Amritsar
Jodhpur
Ranchi
Raipur
Kollam
Gwalior
Durg-Bhilainagar
Chandigarh
Tiruchirappalli
Kota (M Corp.)

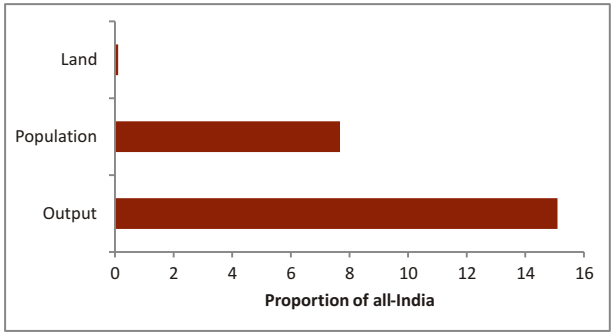
Top Hundred

Greater Mumbai
Delhi
Kolkata
Chennai
Bangalore
Hyderabad
Ahmedabad
Pune
Surat
Jaipur (M Corp.)
Kanpur
Lucknow
Nagpur
Ghaziabad
Indore
Coimbatore
Kochi
Patna
Kozhikode
Bhopal
Thrissur
Vadodara
Agra
GVMC (MC)
Malappuram
Thiruvananthapuram
Kannur
Ludhiana (M Corp.)
Nashik
Vijayawada
Madurai
Varanasi
Meerut
Faridabad (M Corp.)
Rajkot
Jamshedpur
Srinagar
Jabalpur
Asansol
Vasai Virar City (M Corp.)
Allahabad
Dhanbad
Aurangabad
Amritsar
Jodhpur
Ranchi
Raipur
Kollam
Gwalior
Durg-Bhilainagar
Chandigarh
Tiruchirappalli
Kota (M Corp.)
Mysore
Bareilly
Guwahati
Tiruppur
Solapur (M Corp.)
Hubli-Dharwad *(M Corp.)
Salem
Aligarh
Gurgaon
Moradabad (M Corp.)
Bhubaneswar
Jalandhar
Warangal
Bhiwandi
Dehradun
Saharanpur (M Corp.)
Siliguri
Gorakhpur
Guntur
Cuttack
Puducherry
Jammu
Bikaner (M Corp.)
Amravati (M Corp.)
Noida (CT)
Mangalore
Belgaum
Bhavnagar
Firozabad (NPP)
Jamnagar
Durgapur
Malegaon
Nellore
Bokaro Steel City
Kolhapur
Raurkela
Ajmer
Nanded Waghala (M Corp.)
Jhansi
Gulbarga
Erode
Ujjain (M Corp.)
Sangali
Tirunelveli
Muzaffarnagar
Vellore
Rajahmundry

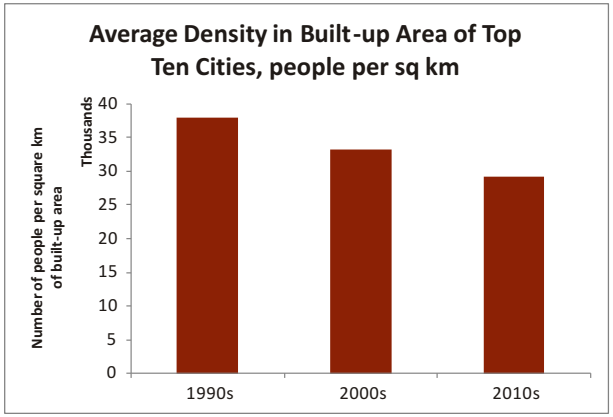
Source: Census 2011

Top Ten Cities of India: 2011



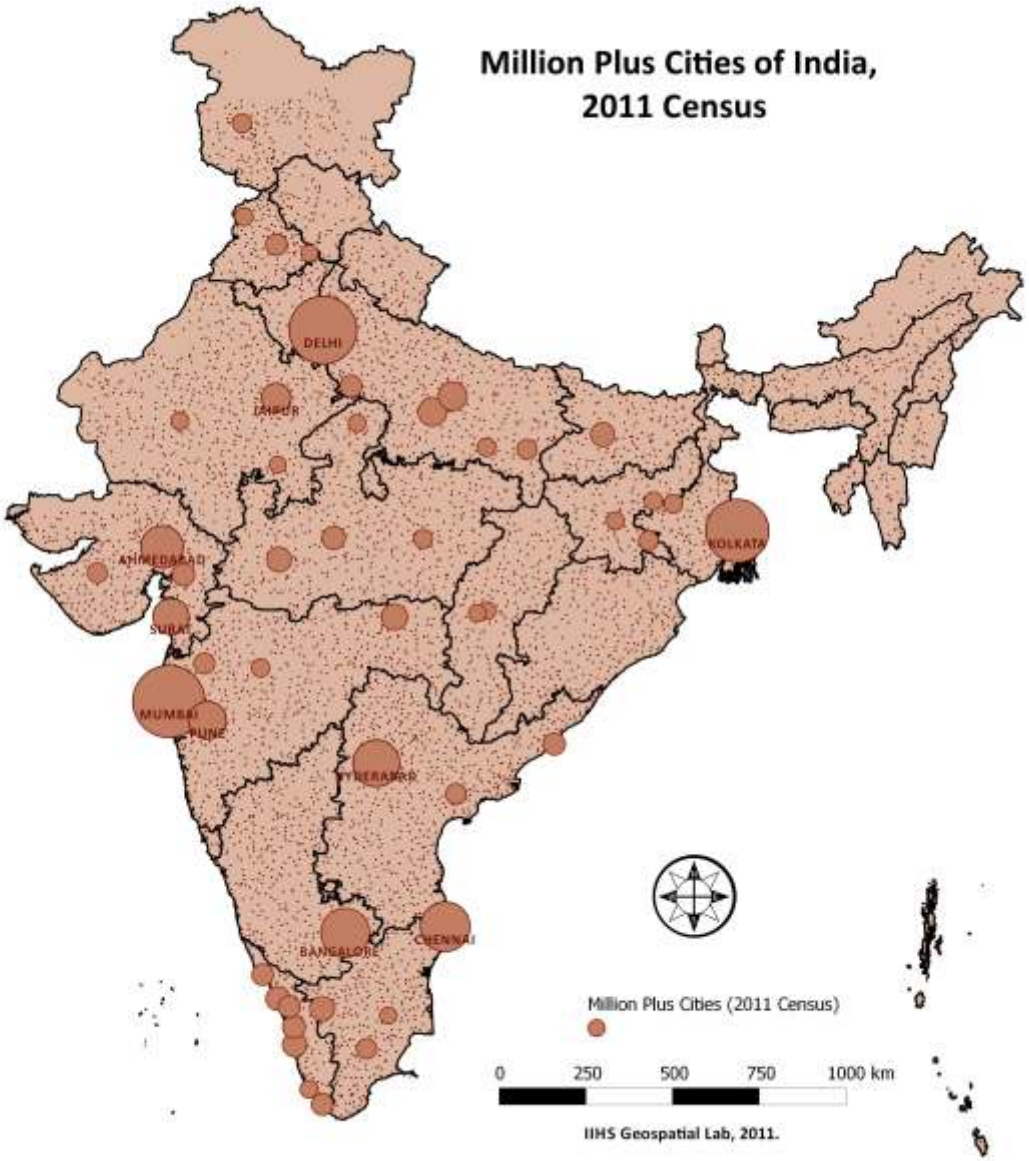


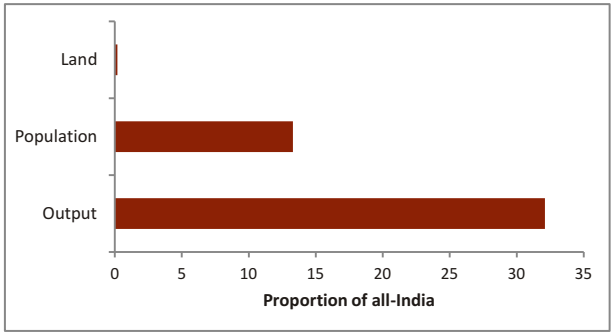
Source: Census of India (for population data) and Planning Commission (for output data)



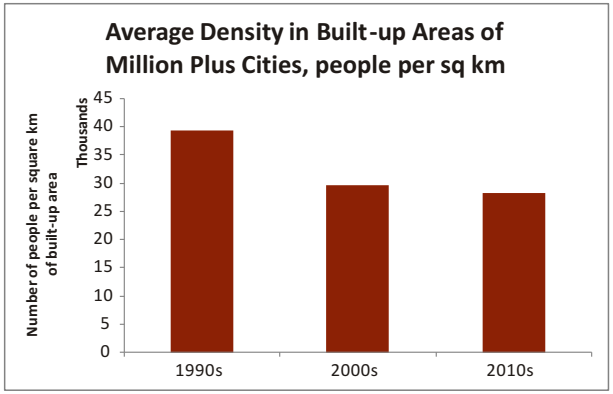
Source: IIHS Analysis based on Census of India, 2011 and Planning Commission

53 Million Plus Cities of India: 2011



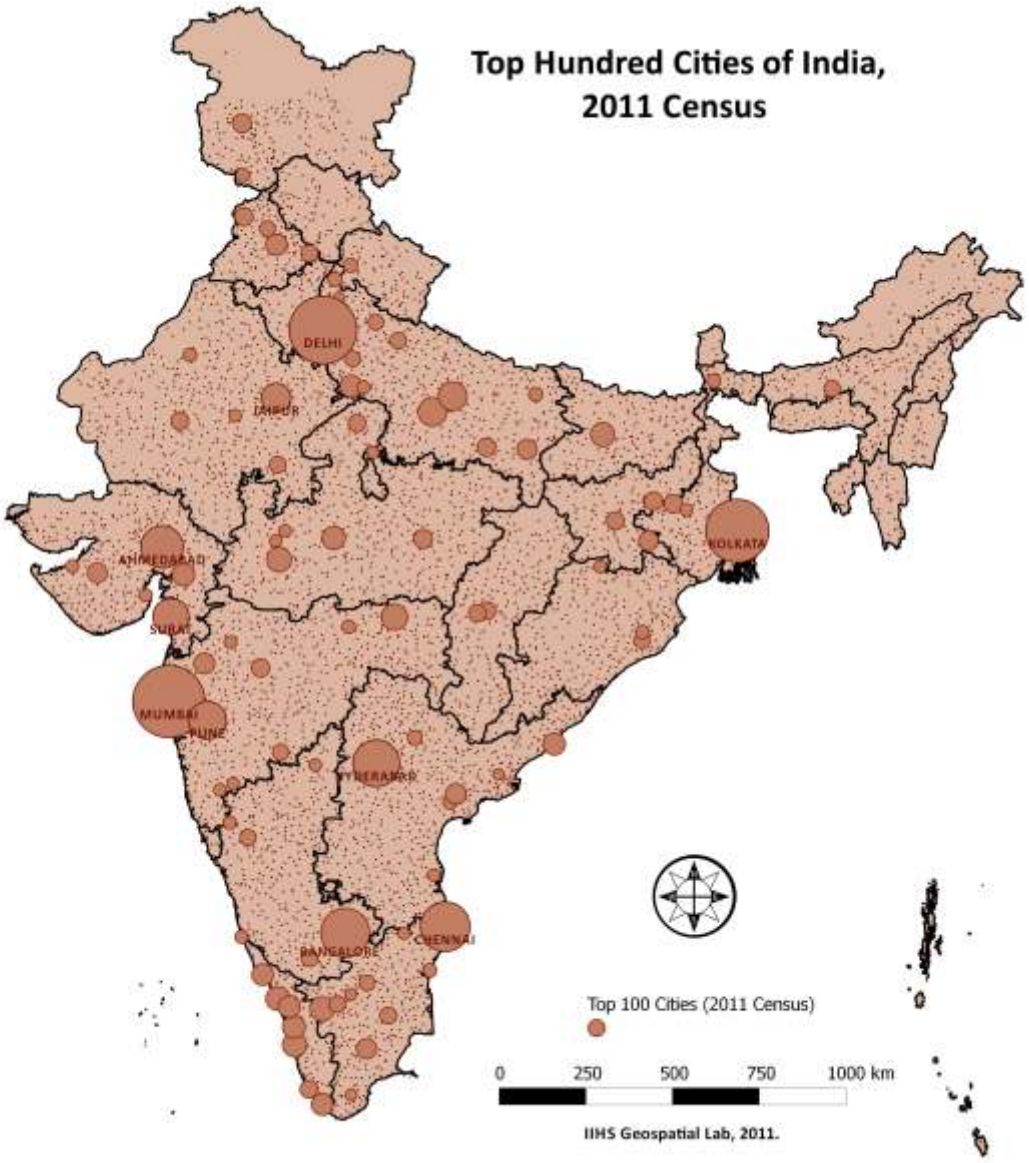


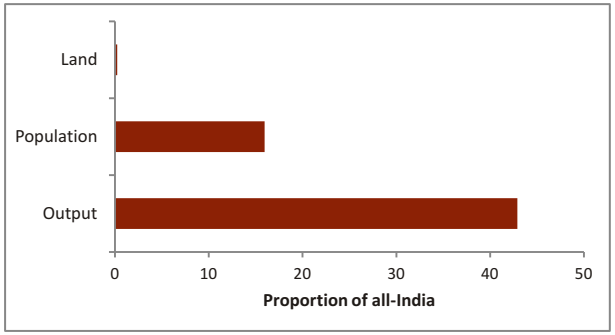
Source: IIHS Analysis, 2011 (built-up area); Census 2011 (population); Planning Commission, 2011 (DPP estimates 2005-06)



Source: IIHS Analysis based on Census of India, 2011 and Planning Commission

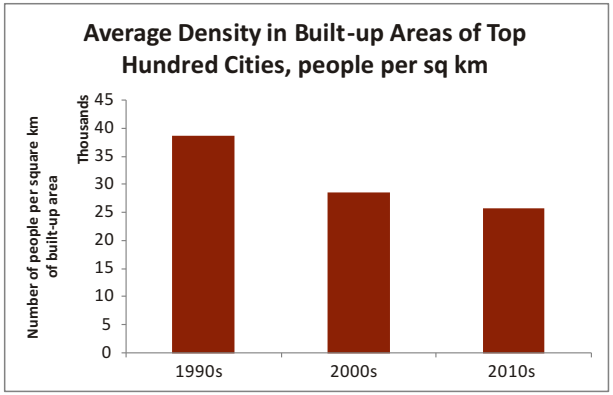
Top Hundred Cities of India: 2011





Source: Census of India (for population data) and Planning Commission (for output data)

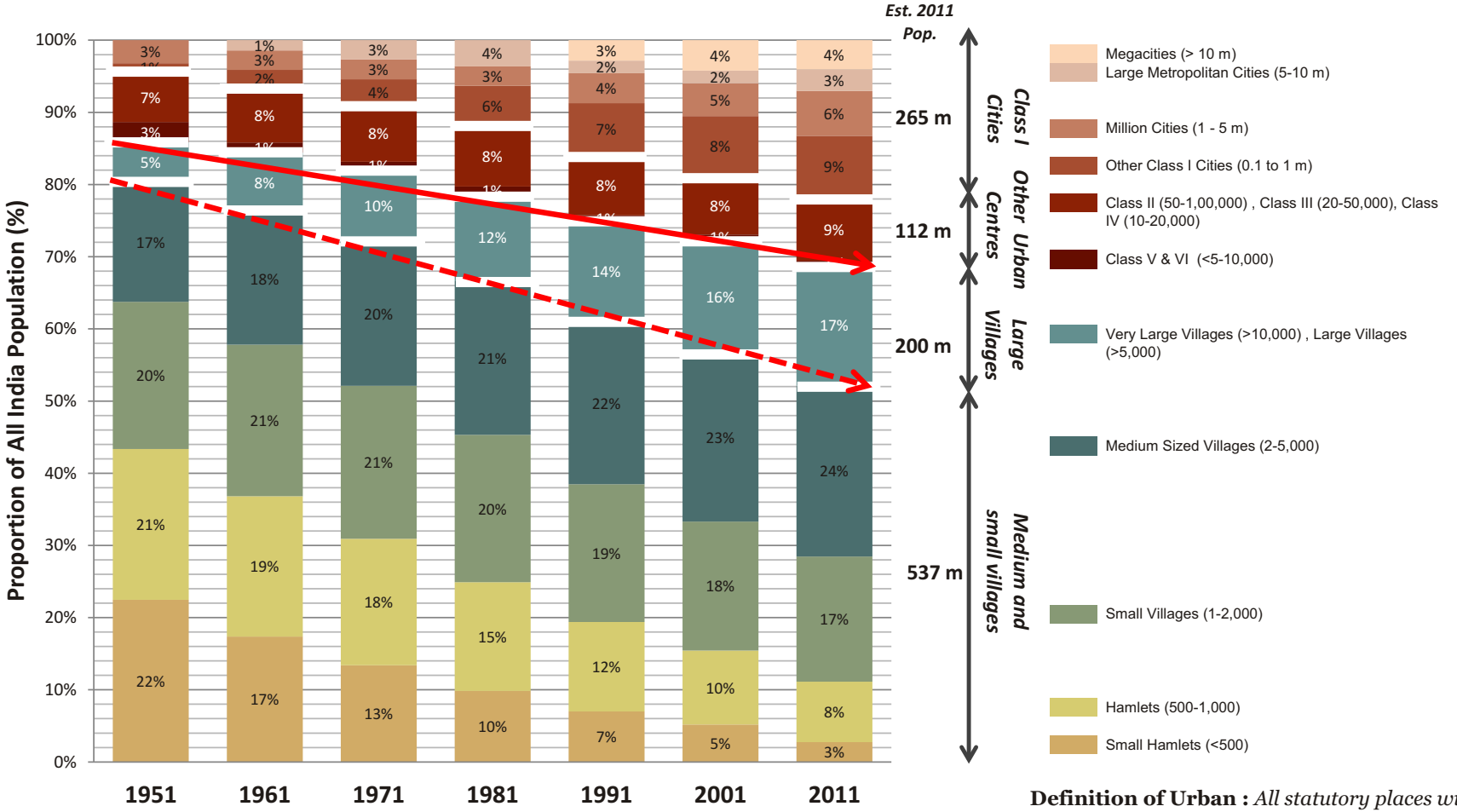
Sprawl is increasing



Source: IIHS Analysis based on Census of India, 2011 and Planning Commission

Distribution of India's Population by Settlement Size (Urban & Rural): 1951 - 2011

Depending on the definition of urban , more settlements shift from the rural into the urban category.



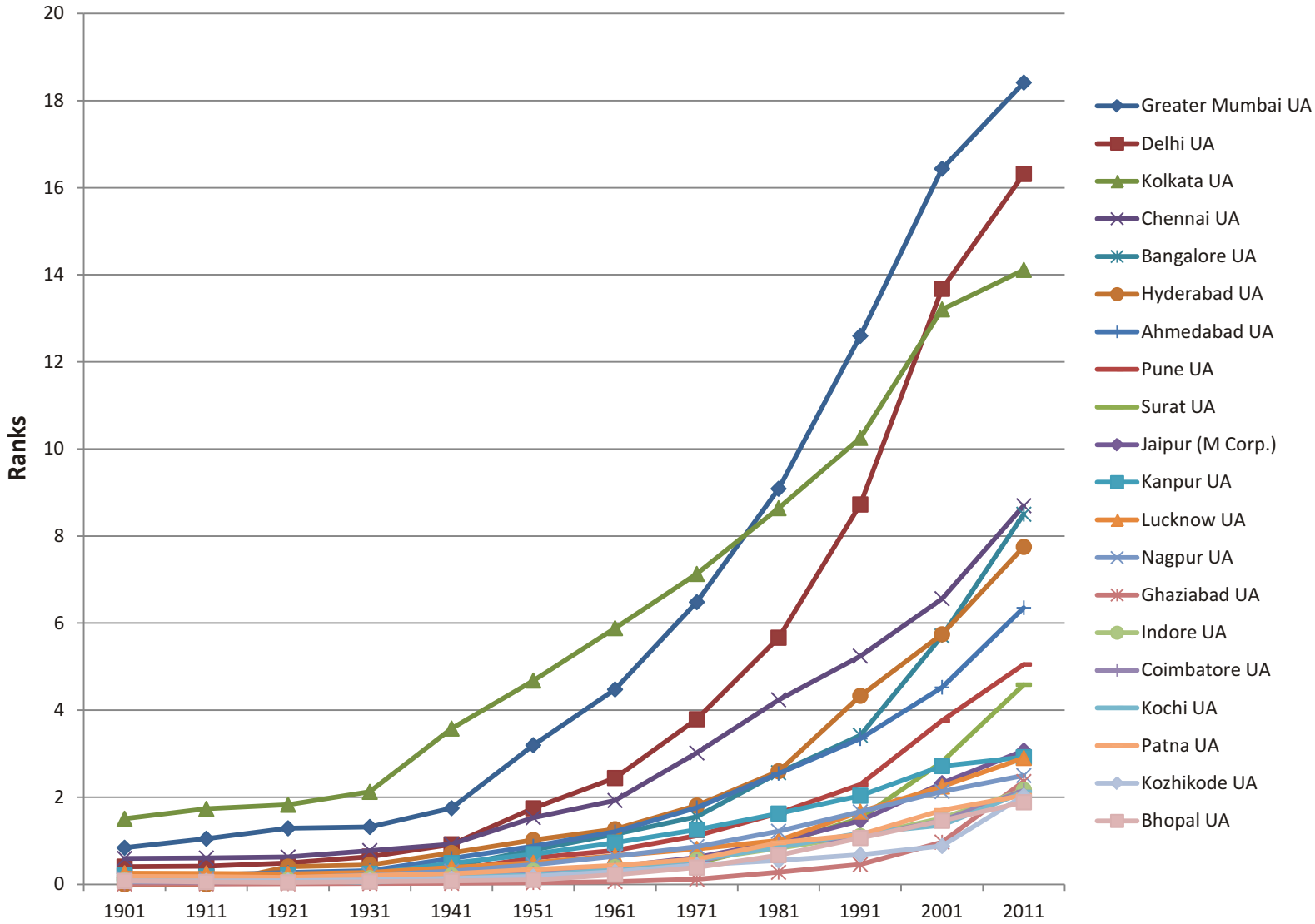
All India: Number of Settlements (1971-2011)

	1991	2001	2011
Urban	3,351	5,161	7,935
Rural	634,321	6,38,588	640,867

Definition of Urban : *All statutory places with a municipality, corporation, cantonment board or notified town area committee. A place satisfying the following three criteria simultaneously: a minimum population of 5,000; at least 75 per cent of male working population engaged in non-agricultural pursuits; and a density of population of at least 400 per sq. km.*
Source: Census, 2011

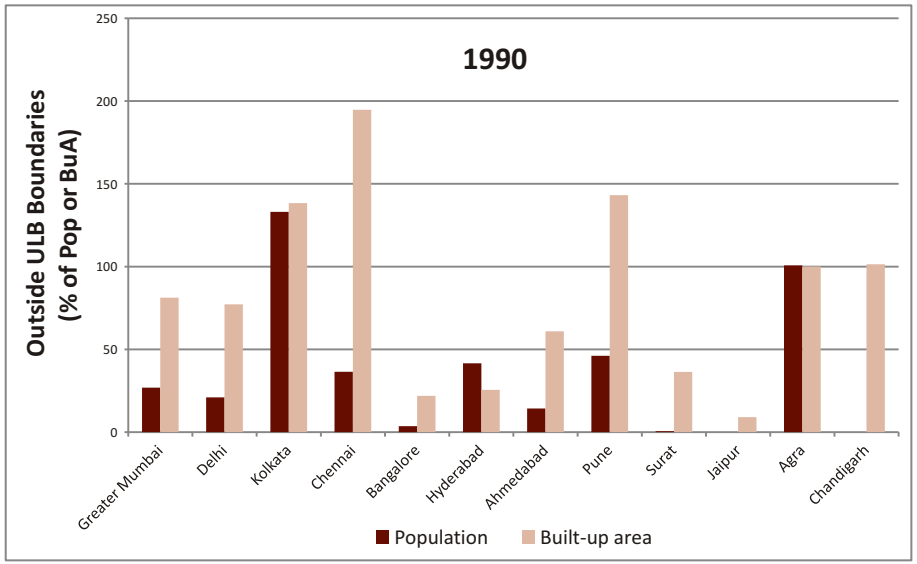
Source: IIHS Analysis based on Census 1951 to 2011

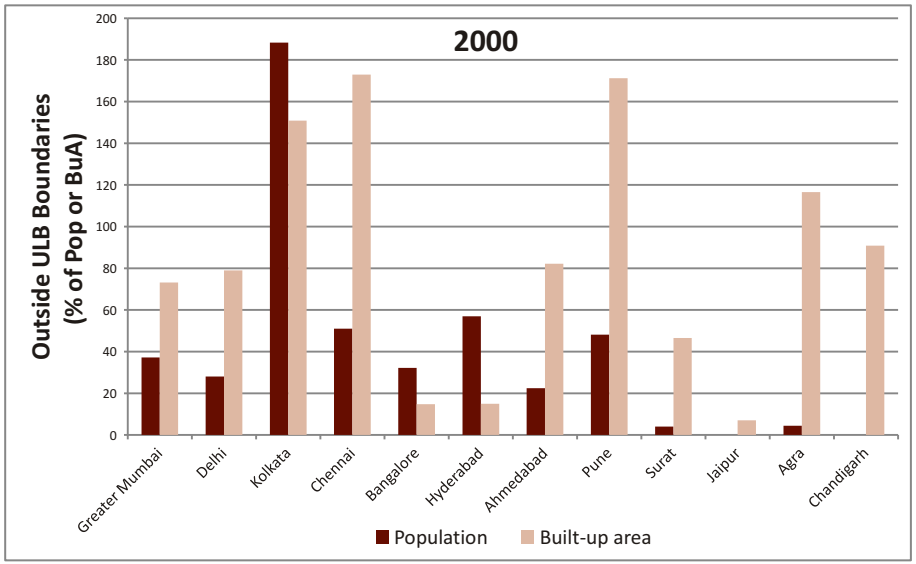
Top 20 Urban Agglomerations by Population: 2011

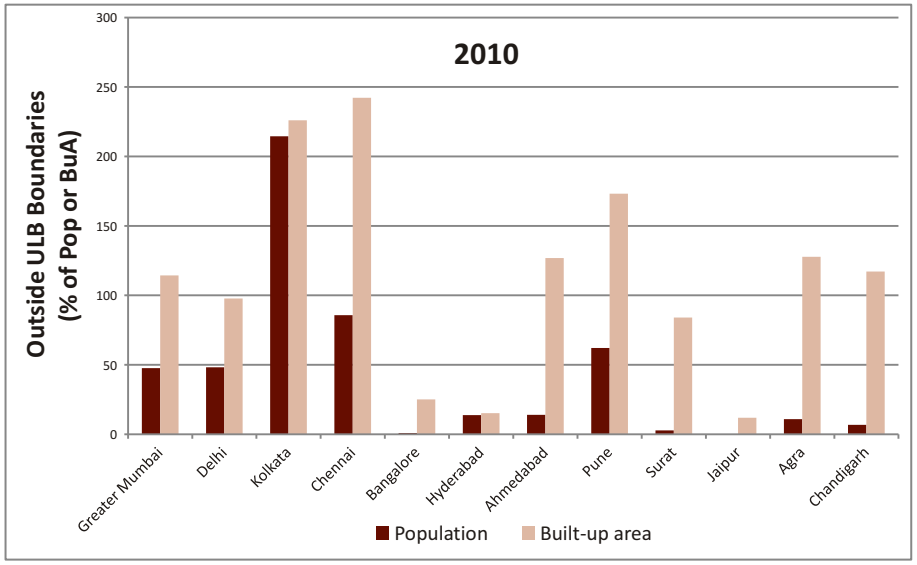


Source: IIHS Analysis based on Census of India, 2011

Population and Built up Area: Inside and Outside India's 10 Largest Cities



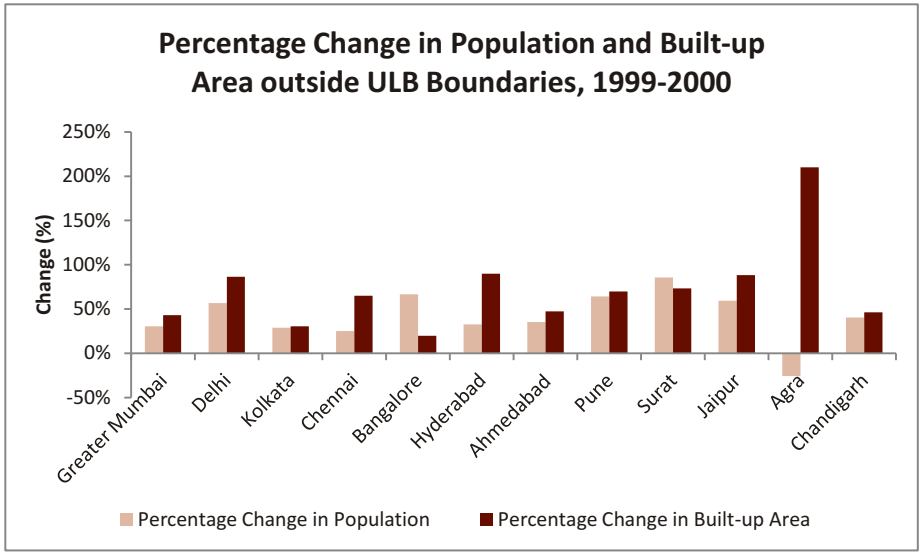


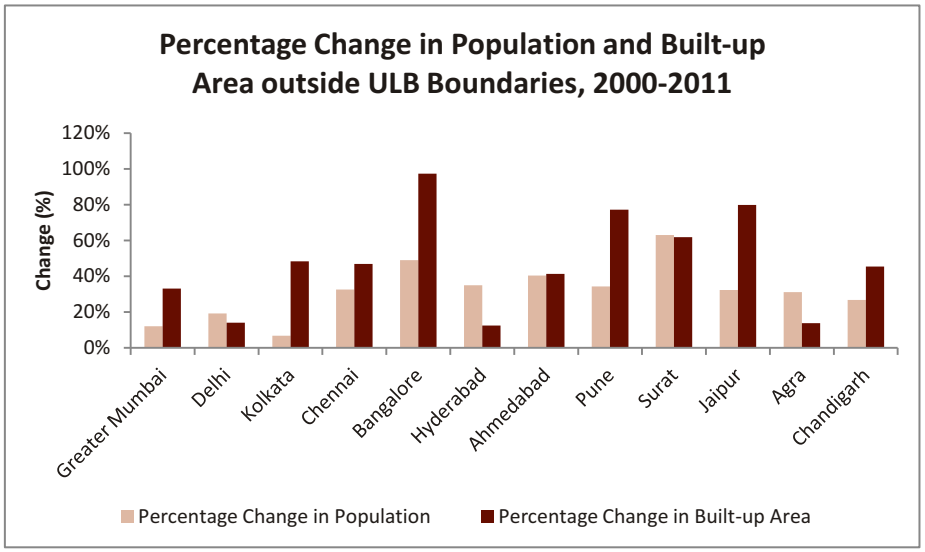


India's largest cities have a significant portion of both population and built-up areas outside ULB boundaries. In most cases, the proportion of built- up area outside ULB boundaries is greater than the proportion of population outside the administrative boundaries, implying relatively low-density sprawl. Comparison over time (highlighted in the next page) shows that this spatial expansion has accelerated between 2000 and 2010.

Source: H.S. Sudhira (2011) and IIHS Analysis

Urban Growth: Population vs Built up Areas

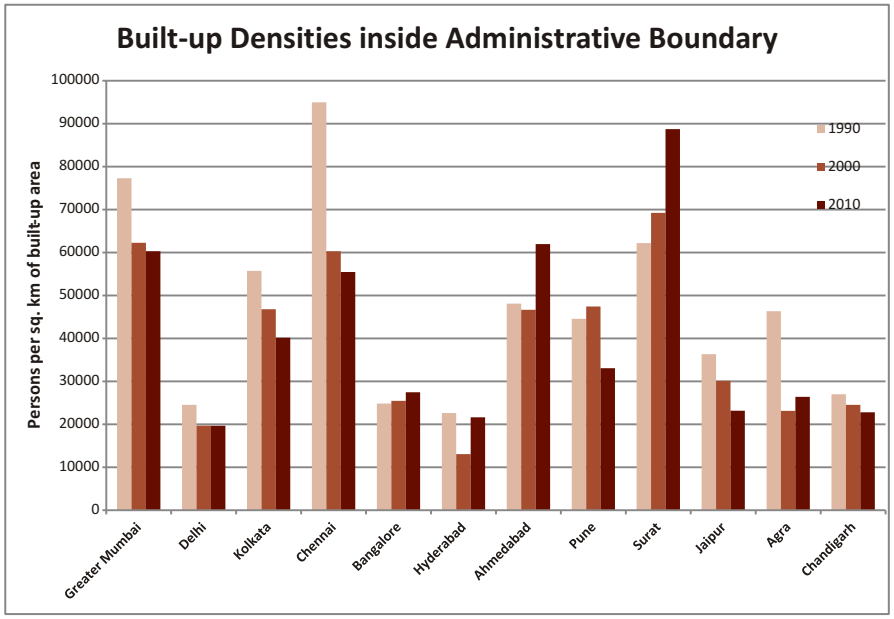


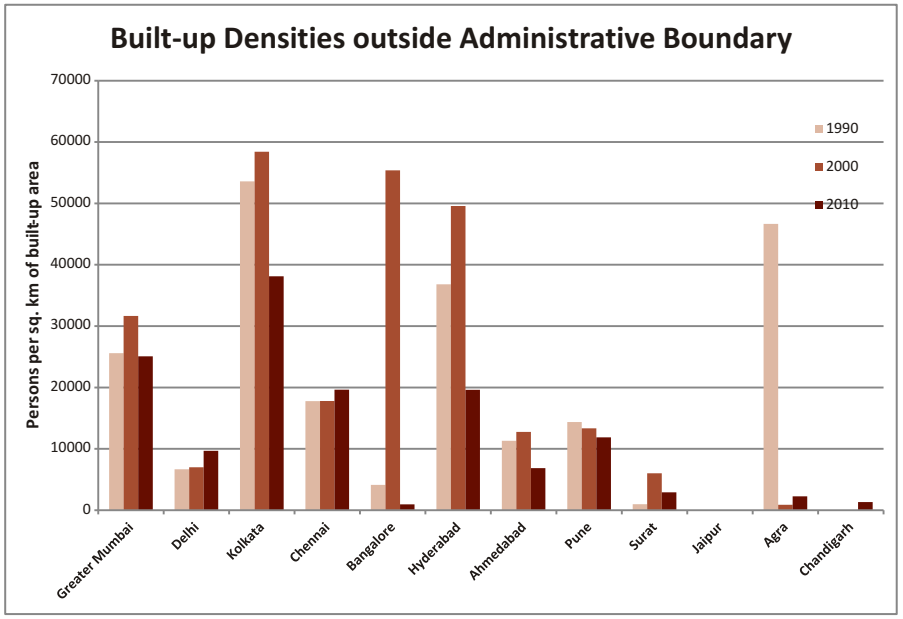


Built-up area is growing faster than population in nearly all of the largest cities, especially between 2000-2011. In other words, lower-density sprawl is accelerating.

Source: H.S. Sudhira (2011) and IIHS Analysis

Urban Growth : Density



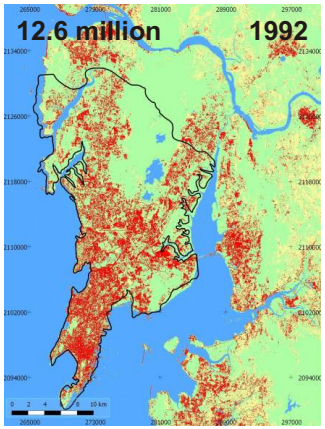


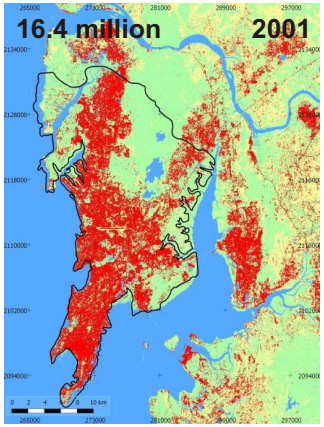
Built-up density, estimated as population over of built-up area, is decreasing for most cities and is more prominent beyond the administrative boundary. This essentially points out that with higher change in built-up over population, low-density sprawl is taking place in all these cities.

Source: H.S. Sudhira (2011) and IIHS Analysis

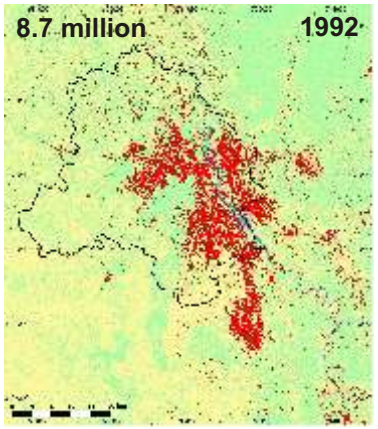
Change in Urban Built-up Area & Land Cover

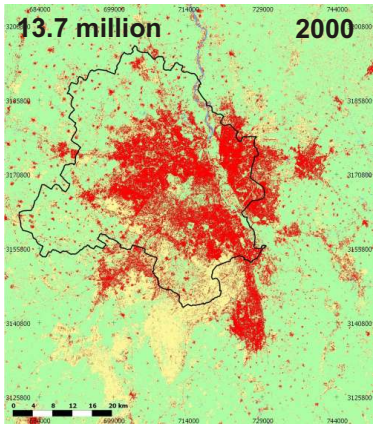
Mumbai

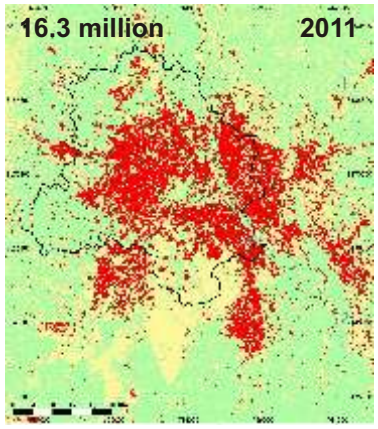




Delhi





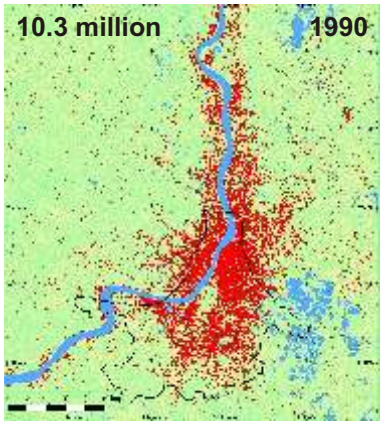


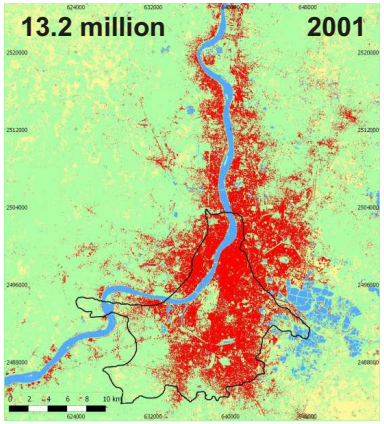
Built-up
Vegetation
Water bodies
Others

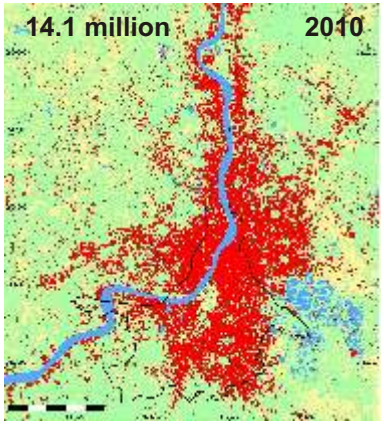
Source: H.S. Sudhira (2011) and IIHS Analysis

Change in Urban Built-up Area & Land Cover

Kolkata







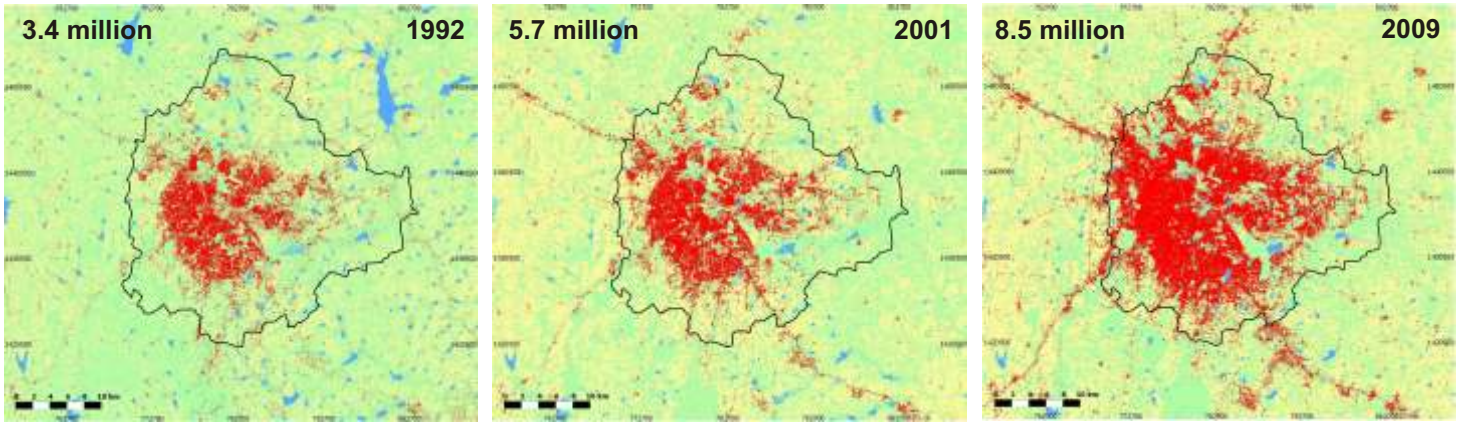
Chennai

Built-up
Vegetation
Water bodies
Others

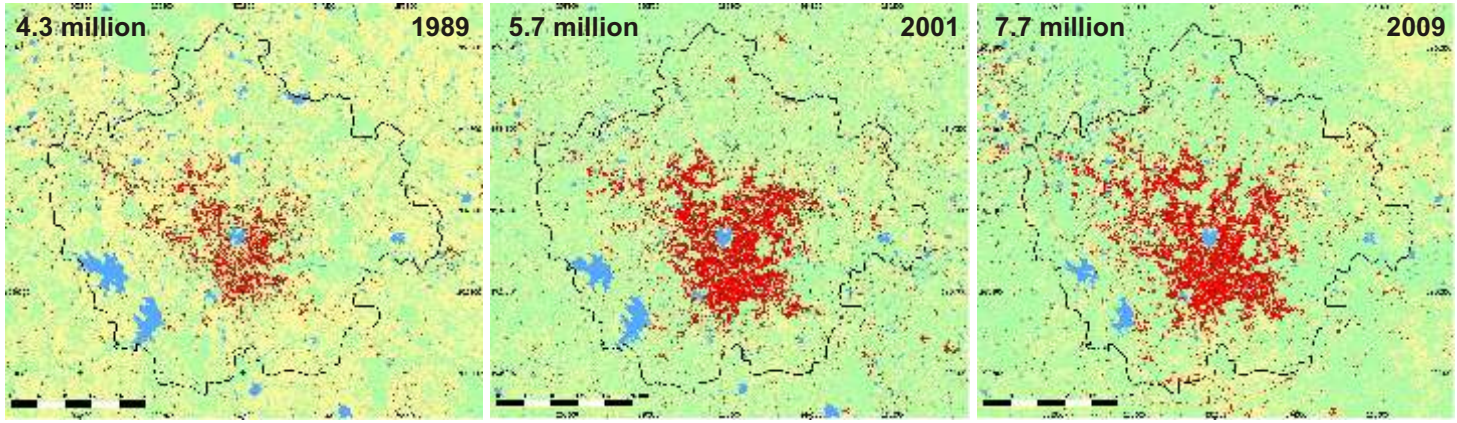
Source: H.S. Sudhira (2011) and IIHS Analysis

Change in Urban Built-up Area & Land Cover

Bangalore



Hyderabad

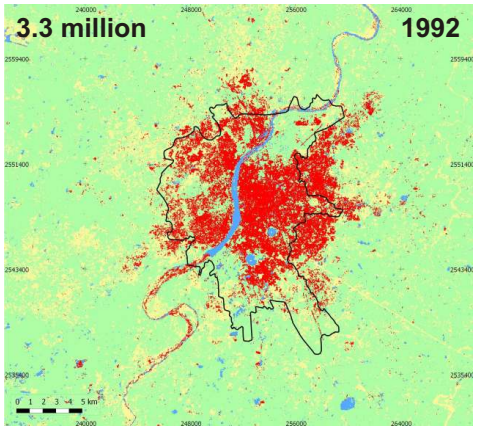


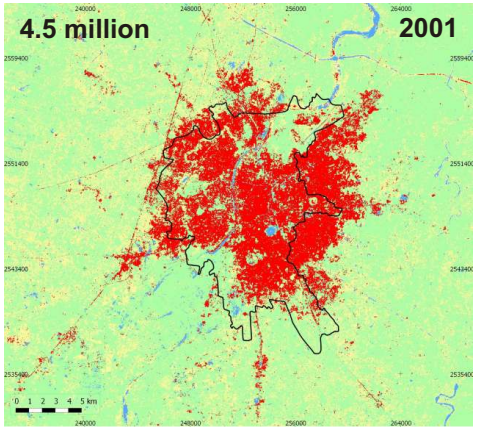
Built-up
Vegetation
Water bodies
Others

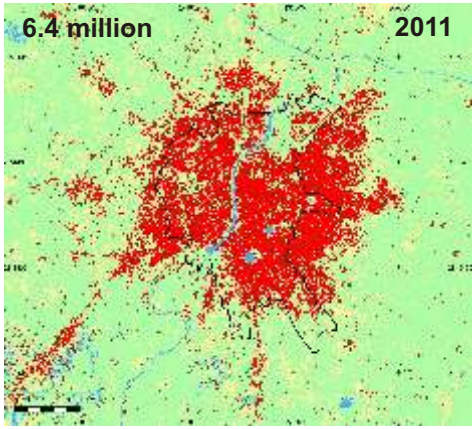
Source: H.S. Sudhira (2011) and IIHS Analysis

Change in Urban Built-up Area & Land Cover

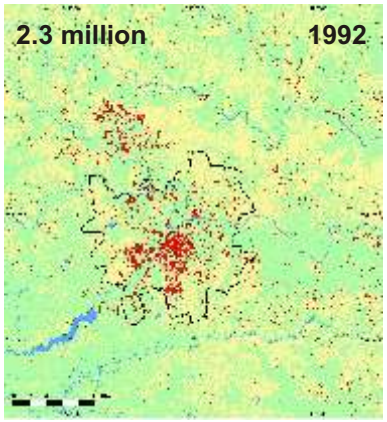
Ahmedabad

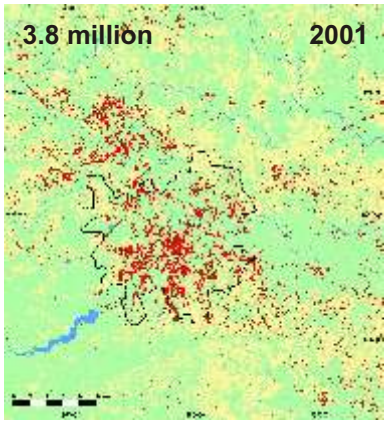


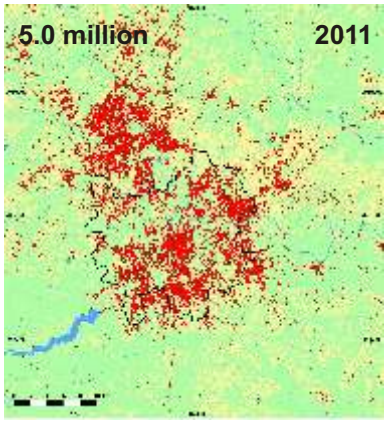




Pune





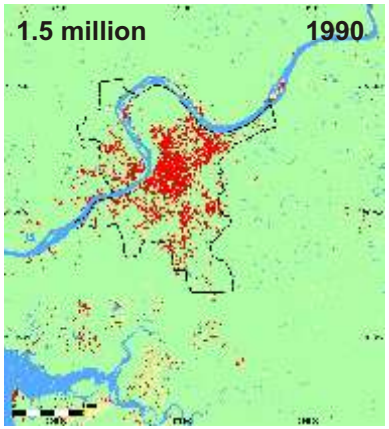


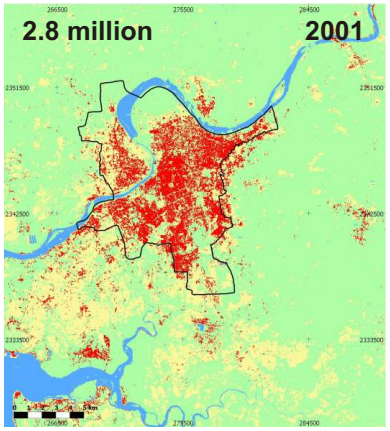
Built-up
Vegetation
Water bodies
Others

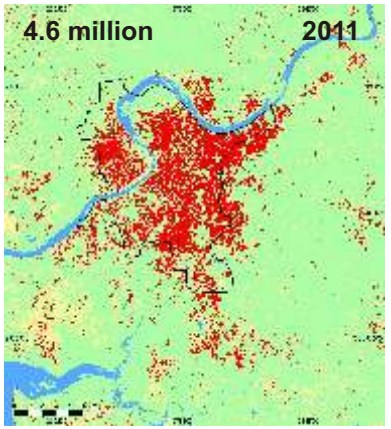
Source: H.S. Sudhira (2011) and IIHS Analysis

Change in Urban Built-up Area & Land Cover

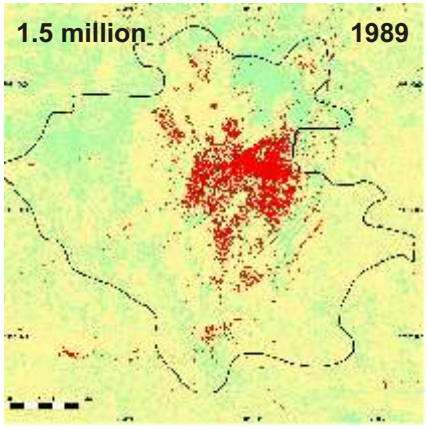
Surat

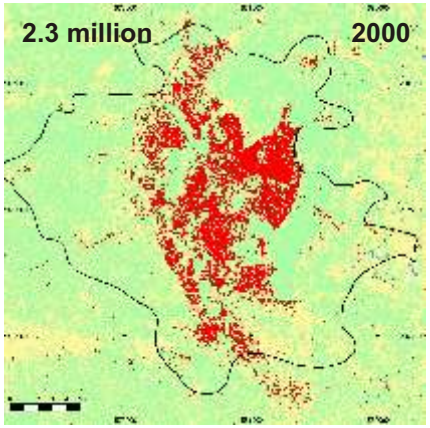


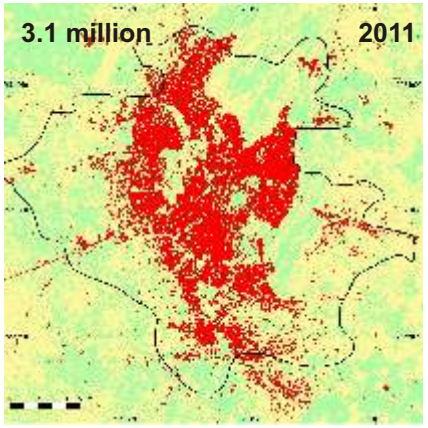




Jaipur





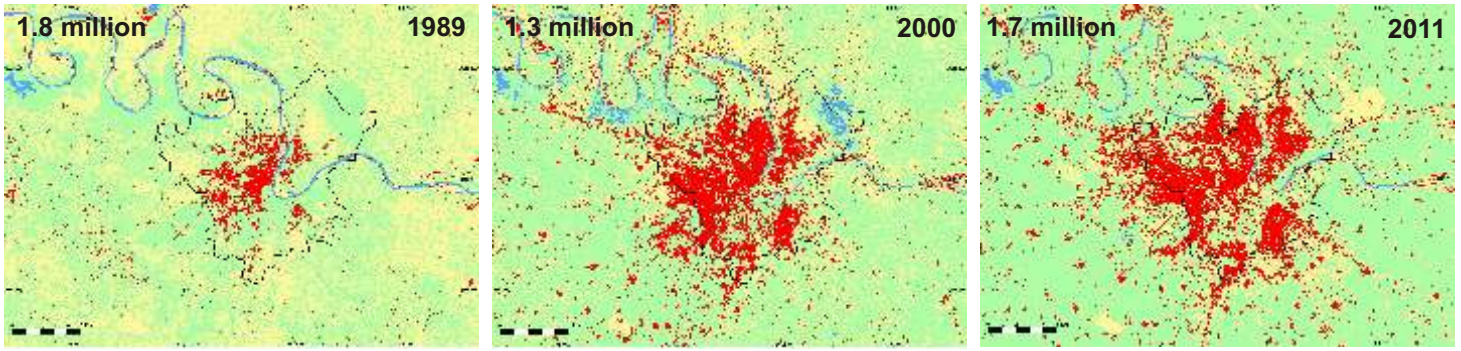


Built-up
Vegetation
Water bodies
Others

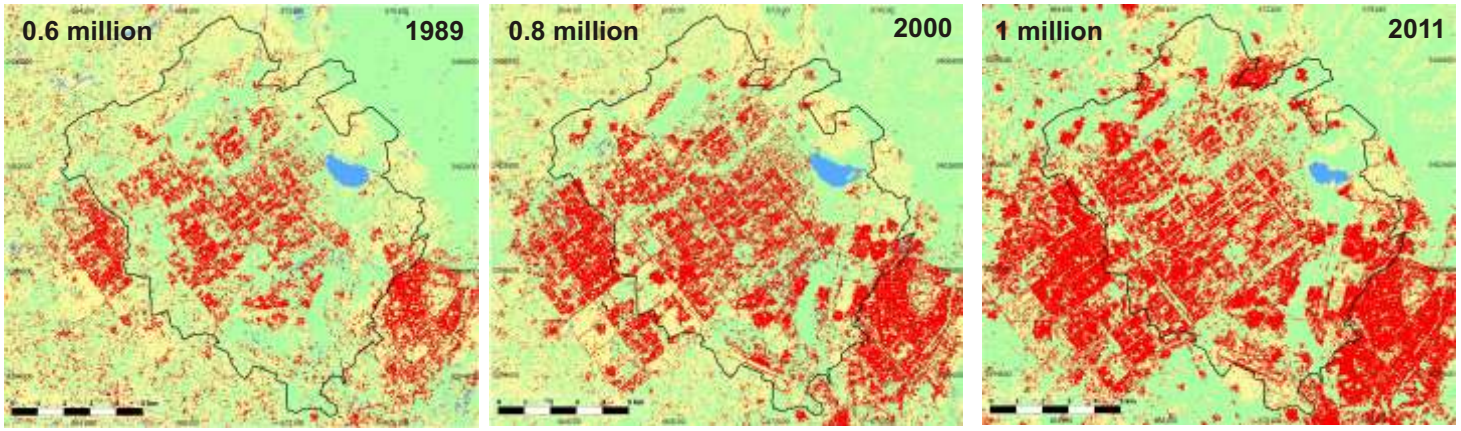
Source: H.S. Sudhira (2011) and IIHS Analysis

Change in Urban Built-up Area & Land Cover

Agra



Chandigharh



Built-up
Vegetation
Water bodies
Others

Source: H.S. Sudhira (2011) and IIHS Analysis

Economic Geography

Economic Geography

India's economic dynamism varies dramatically across India. Unfortunately no comparable official estimates are available for city economic output, in spite of urban areas producing close to two-thirds of the GDP.

Hence, the series of maps present the closest spatial approximation - district-level data on economic output, disaggregated by sector, that highlight the spatial distribution of economic activity for select sectors as well as for aggregate output. The striking pattern is the concentration of economic output in districts that host some of the largest cities, across most economic sectors especially services, but including manufacturing. This is set in a highly unequal landscape in terms of natural resource endowments (some of the poorest districts have high concentrations of energy, forest and mineral wealth) and agricultural land-use and productivity.

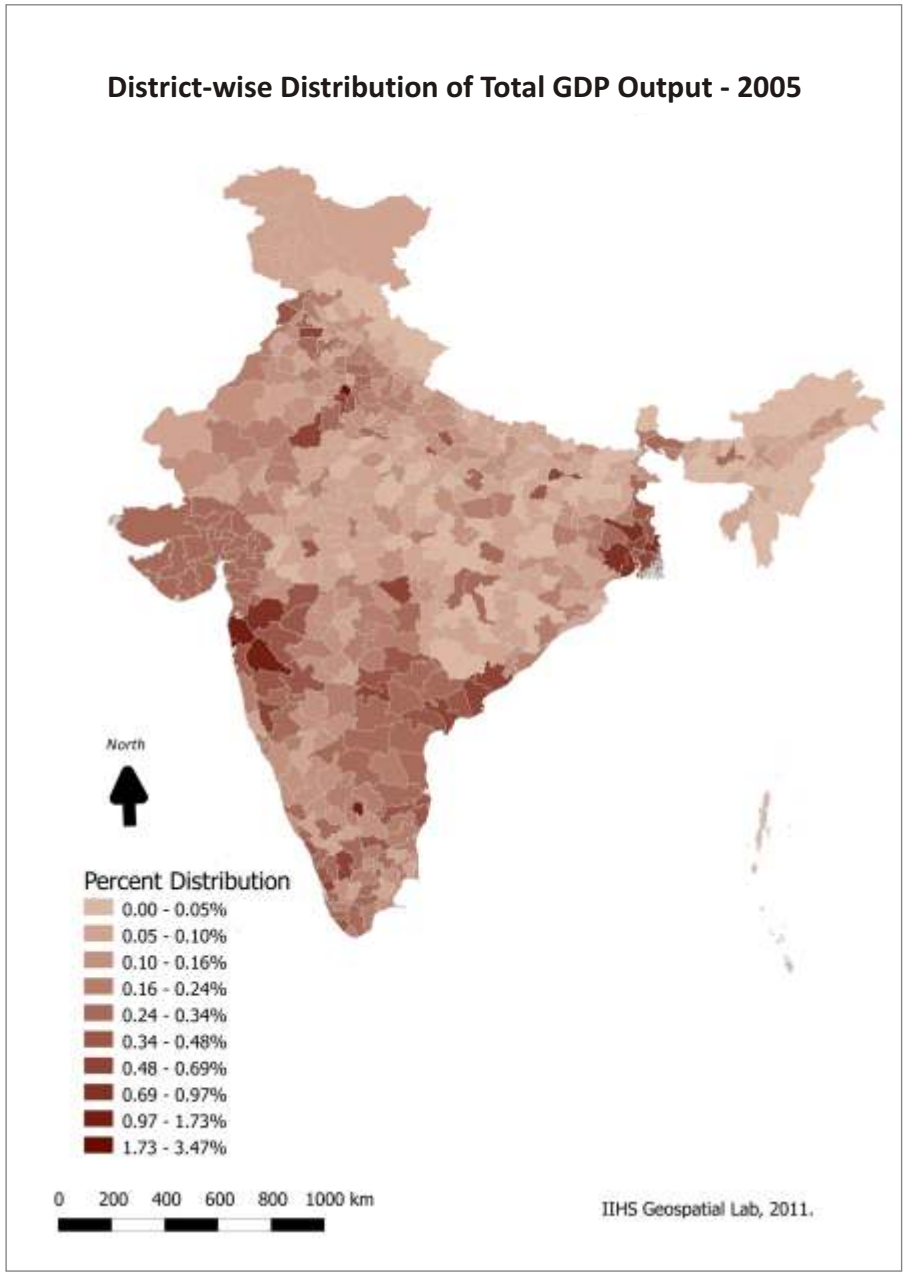
The CAGR (compound annual growth rate) maps show where the changes are taking place over the early 2000s, during an accelerating period of economic reform. It is interesting to note that tertiary sector activity is concentrated in and around large urban centres, and its growth is strongest in the more urbanised regions of the country. From the CAGR maps, one can observe that the rate of growth of agricultural output is lower than that of manufacturing, which in turn is lower than that of trade related output. These trends point to an ongoing economic restructuring and shifts in the sectoral and spatial composition of the economy, potentially moving in the direction of divergence and urban primacy.

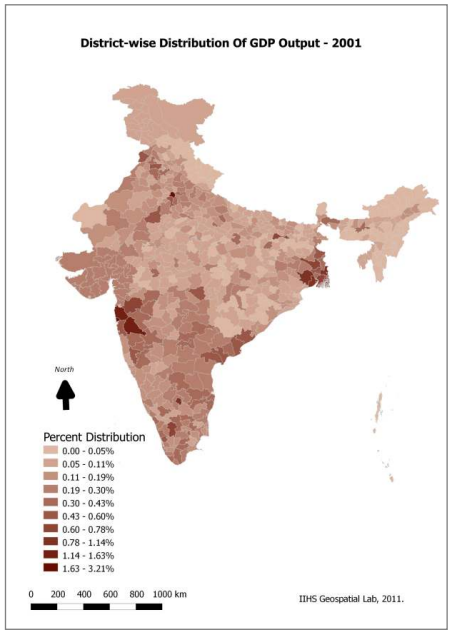
To supplement the analysis on economic activity, this brief drew on work done for the World Bank's as-yet-unpublished India Urbanisation Review to study employment patterns and look at the concentration of employment in cities disaggregated by city size. The results reinforce the general conclusion of concentrated (but slowly de-concentrating) economic activity.

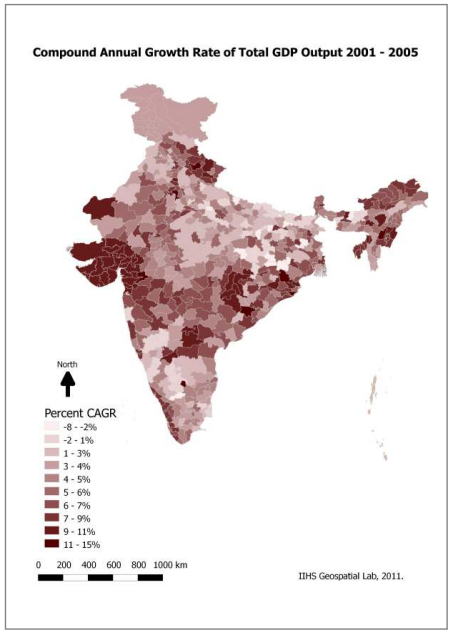
Workforce participation rates, at least in employment captured in the Economic Census, are highest in the "major metros" (population 4 million plus), and employment in "high tech" sectors (ICT, high-technology manufacturing, and fast-growing exports) is also highly concentrated in the larger cities. Manufacturing in general and low tech manufacturing in particular is relatively well distributed across the country. Further, the pattern of employment growth around the big 7 metros shows that manufacturing activity is shifting outwards from the city core. Manufacturing is shifting to a 10-100 km radius from the city centre, with high tech manufacturing shifting to a 10-50km radius from the city centre, and medium high tech manufacturing and fast growing export manufacturing shifting to a 50-100 km radius from city centres. The patterns around million plus cities are somewhat different: low tech manufacturing is growing in the city core and in a 10-50 km radius from the city core, and high tech and medium high tech manufacturing is declining in the same radius. Fast growing export manufacturing is increasing in a 50-100 km radius from the city centre.

The spread of manufacturing and other employment away from the city core connects to the issue of sprawl, and raises questions related to the links between land use and transportation. The shifting spatial distribution of economic activity as well as infrastructure has implications for the distribution of economic development as well as poverty.

Distribution and Growth Rate of Total Output: 2000-05



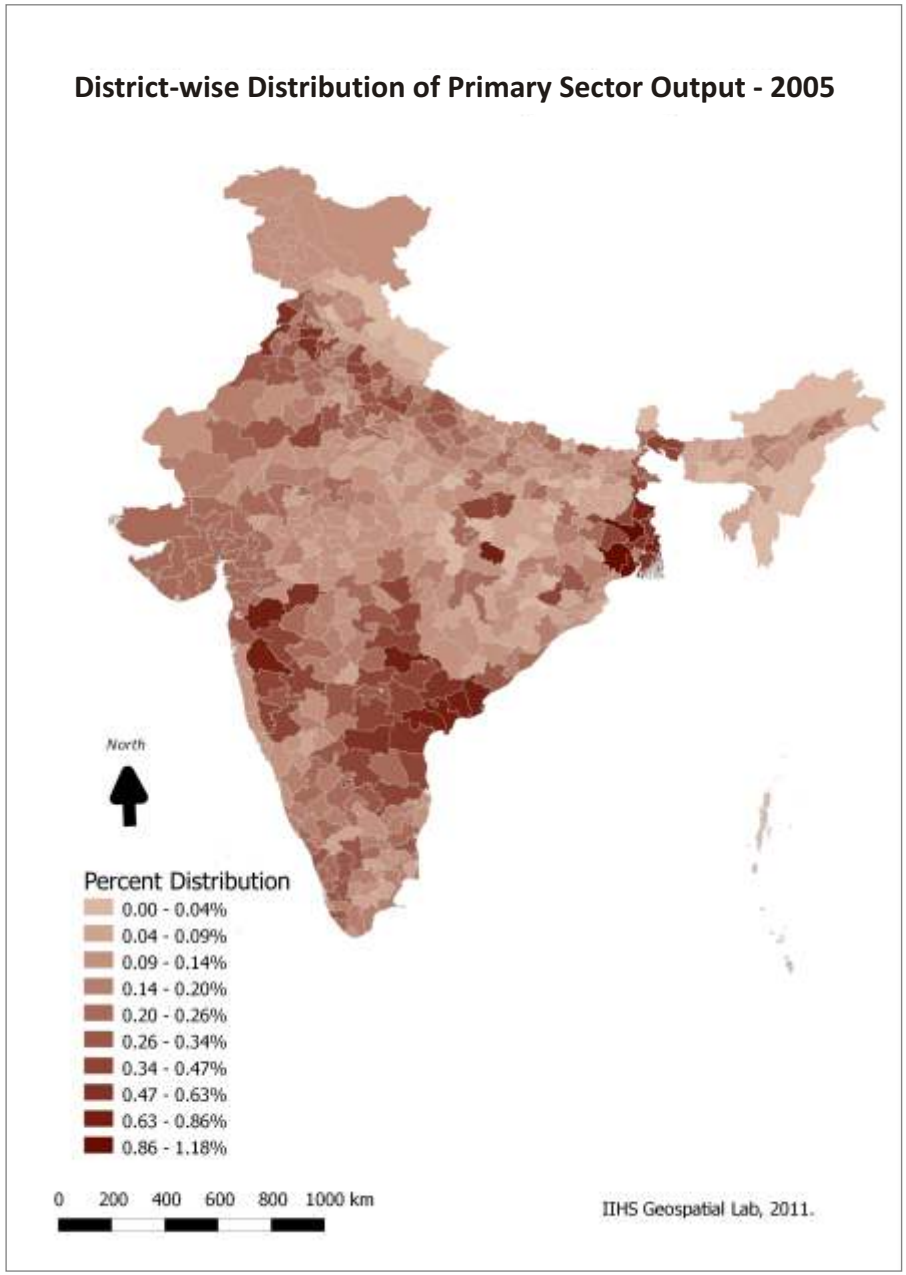


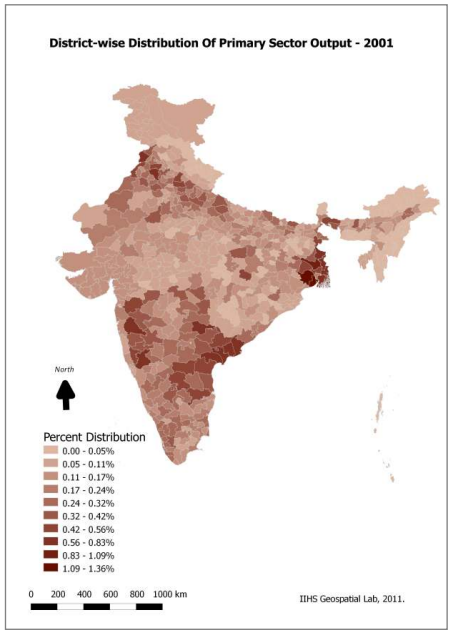


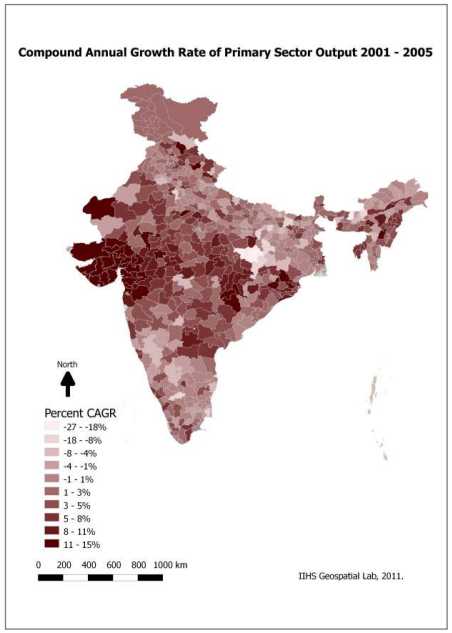
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Primary Sector Output: 2000-05



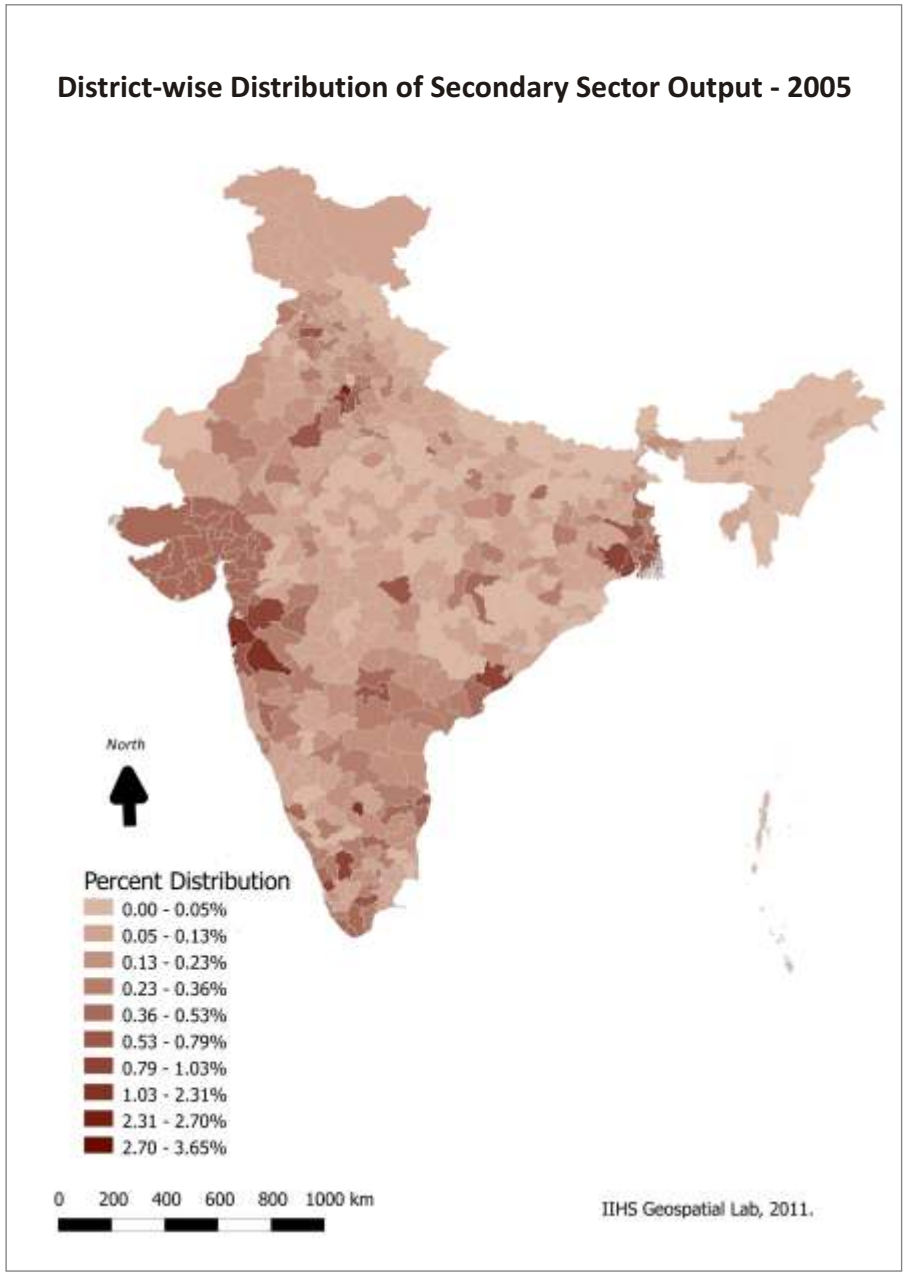


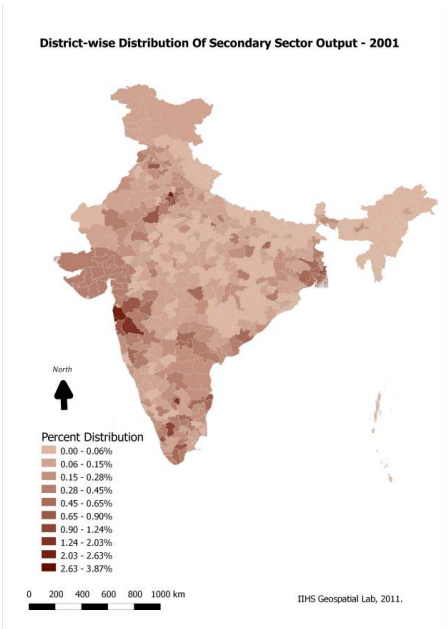


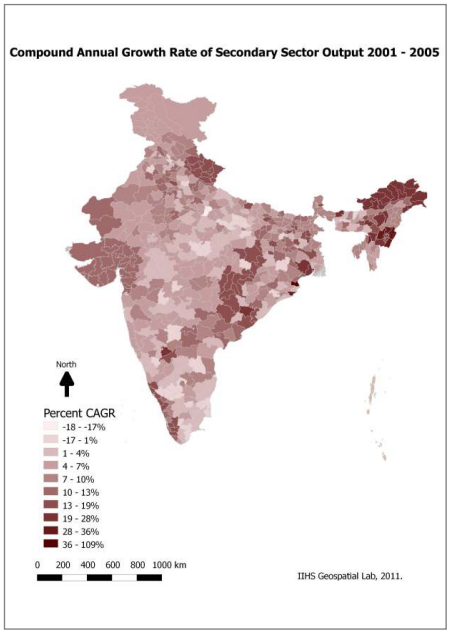
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Secondary Sector Output: 2000-05



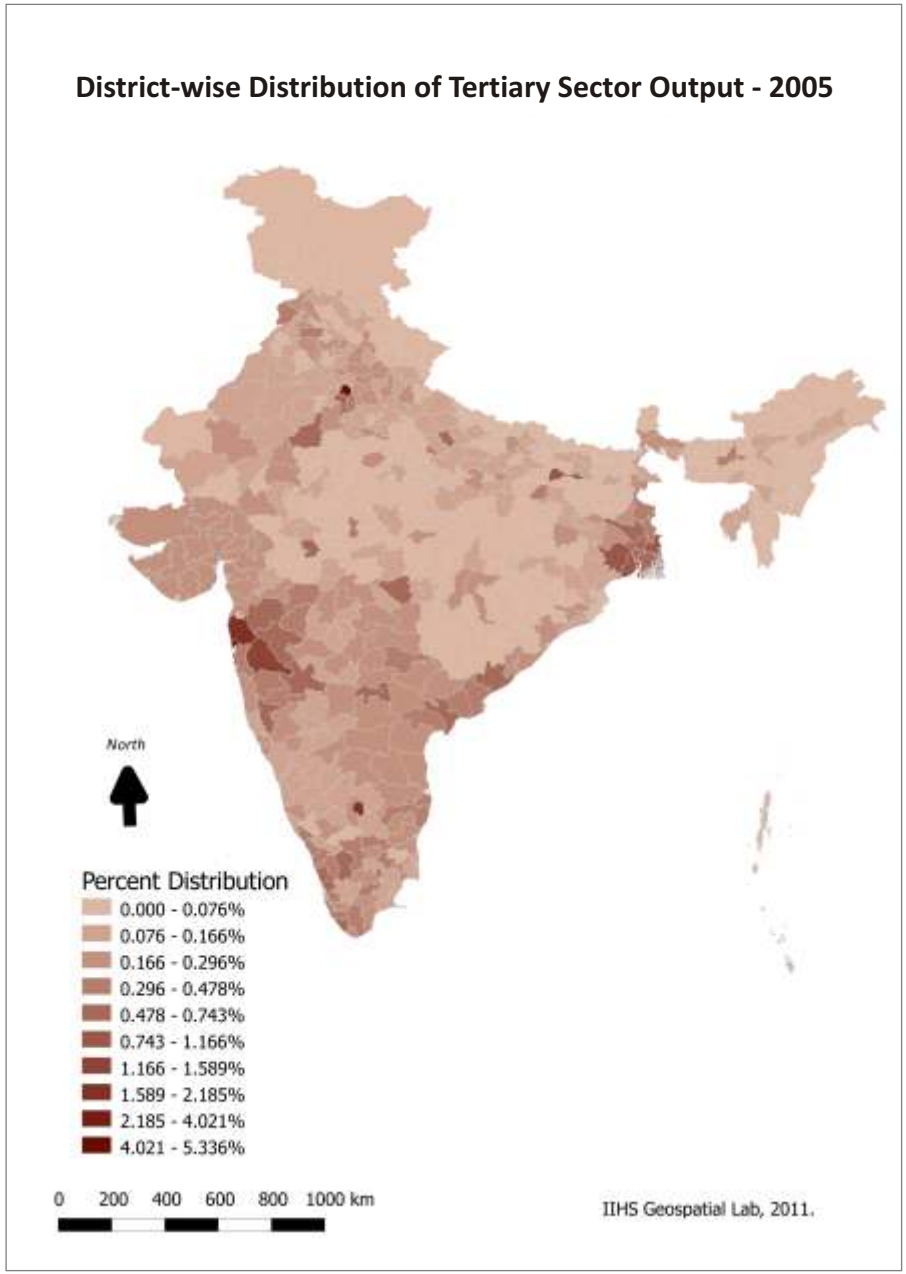


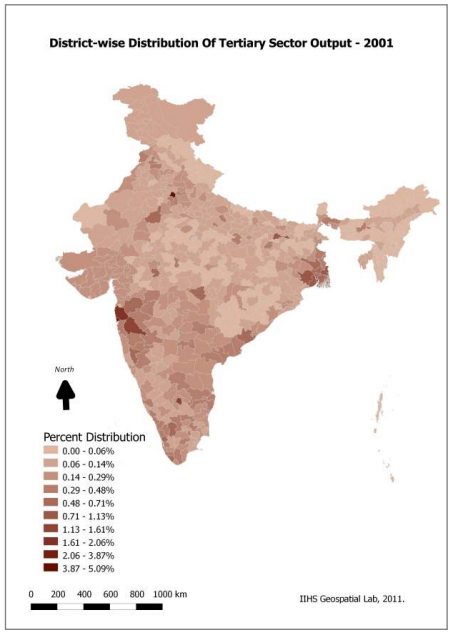


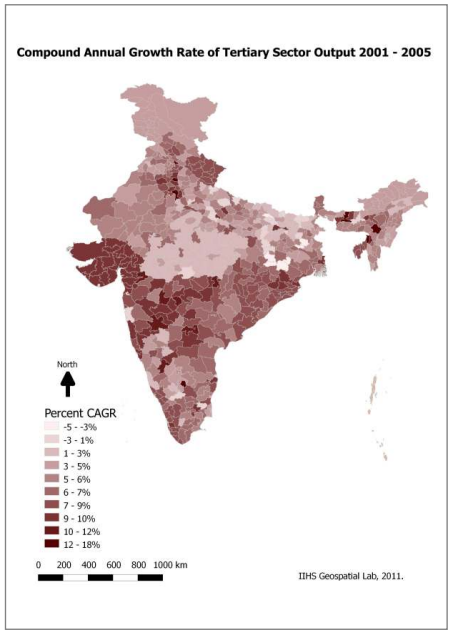
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Tertiary Sector Output: 2000-05



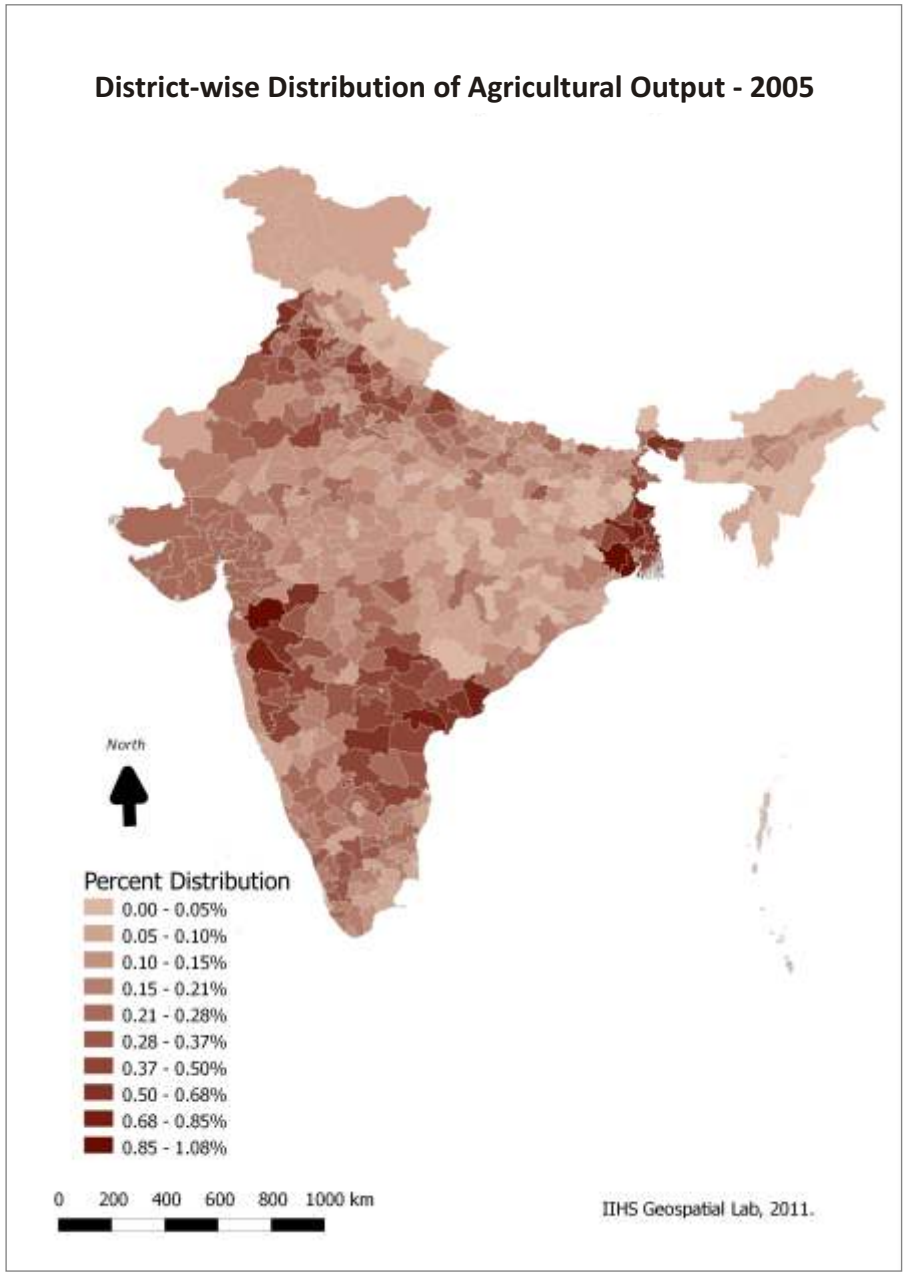


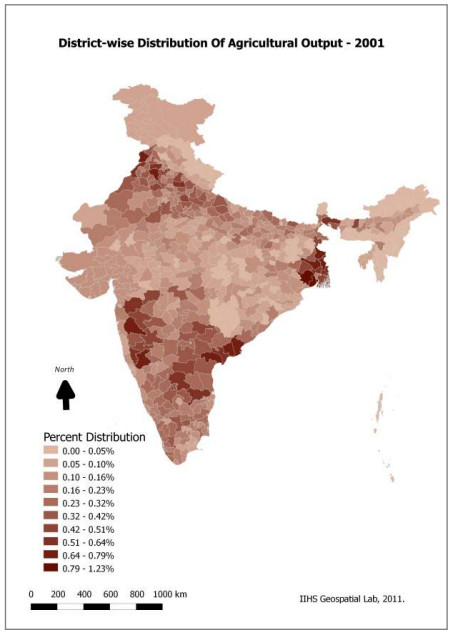


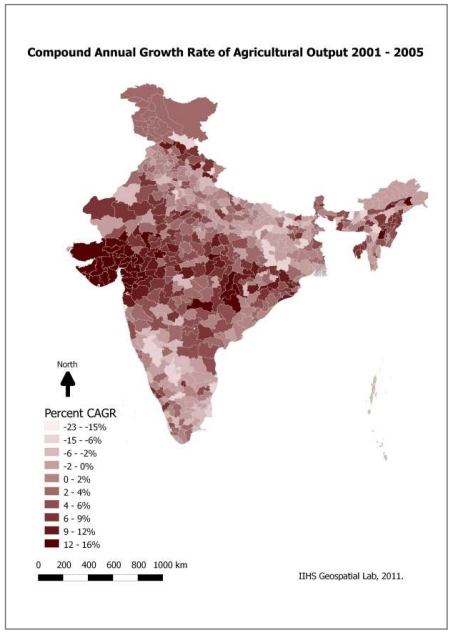
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Agricultural Output : 2000-05



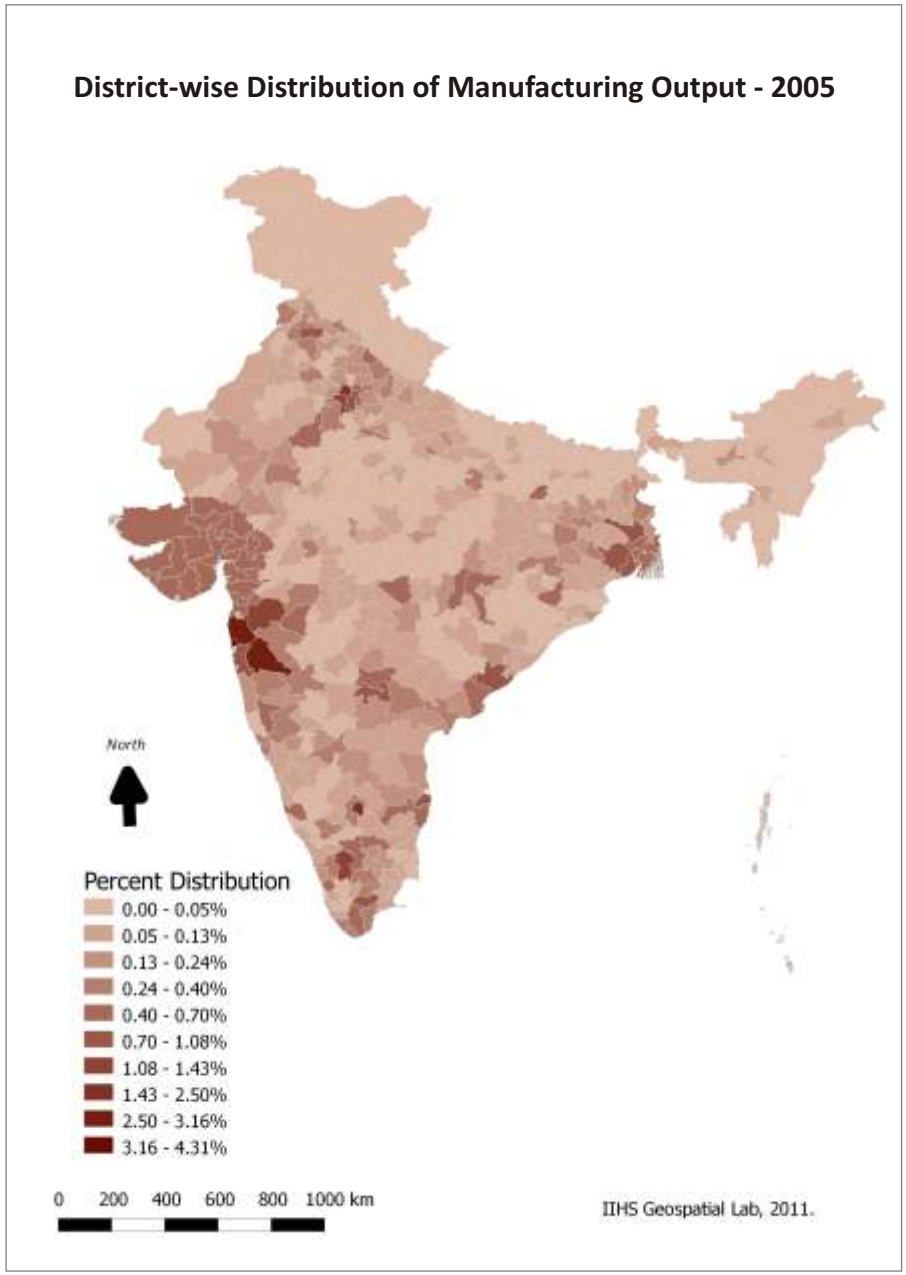


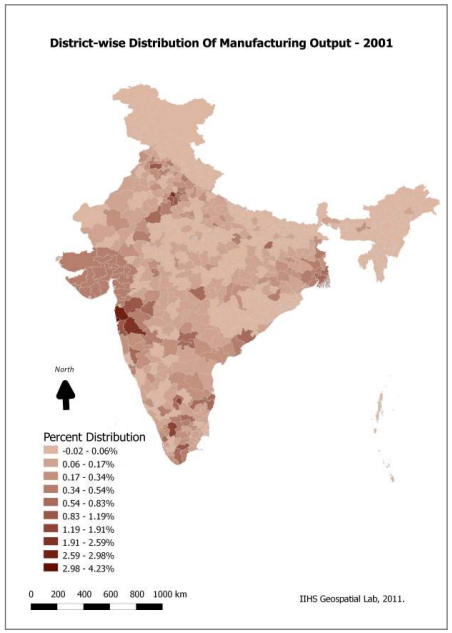


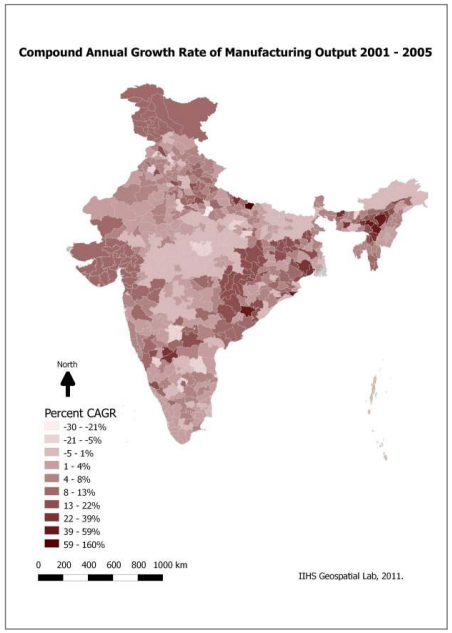
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Manufacturing Output : 2000-05



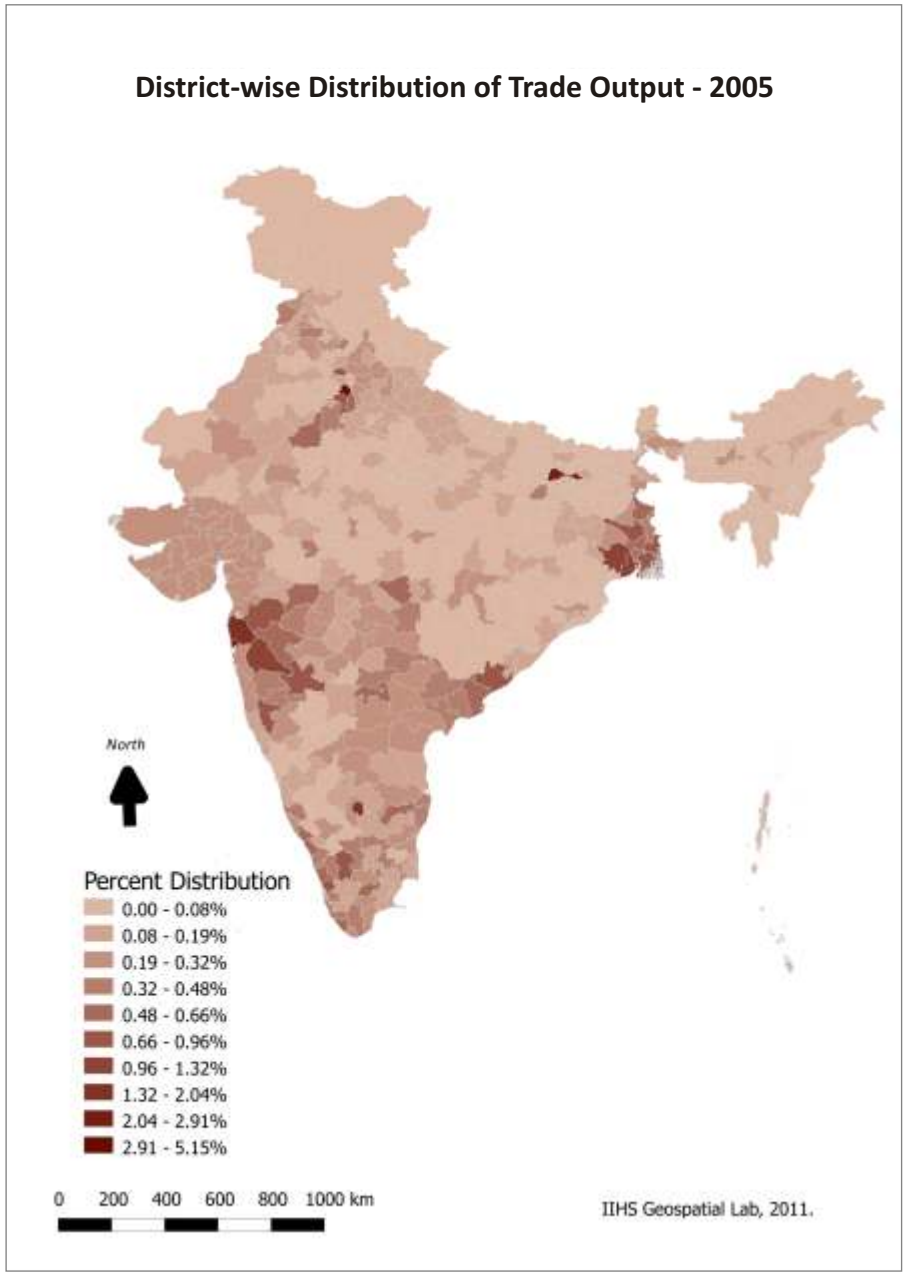


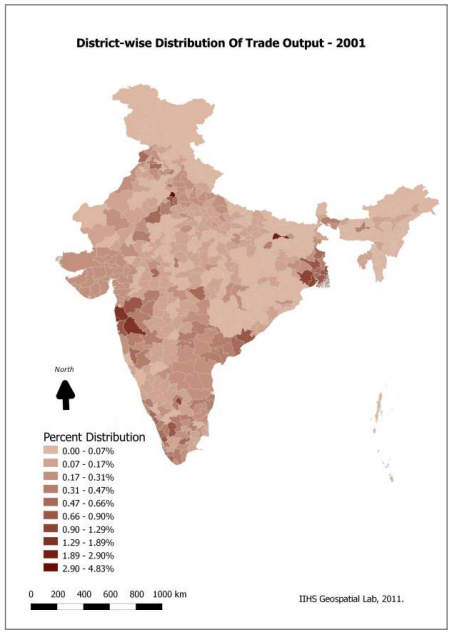


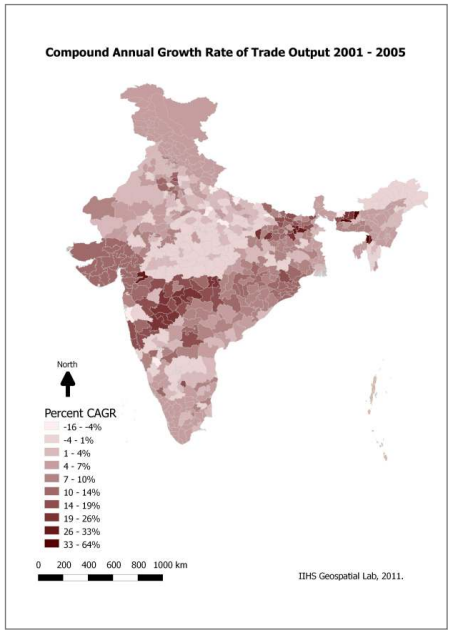
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Trade Output : 2000-05



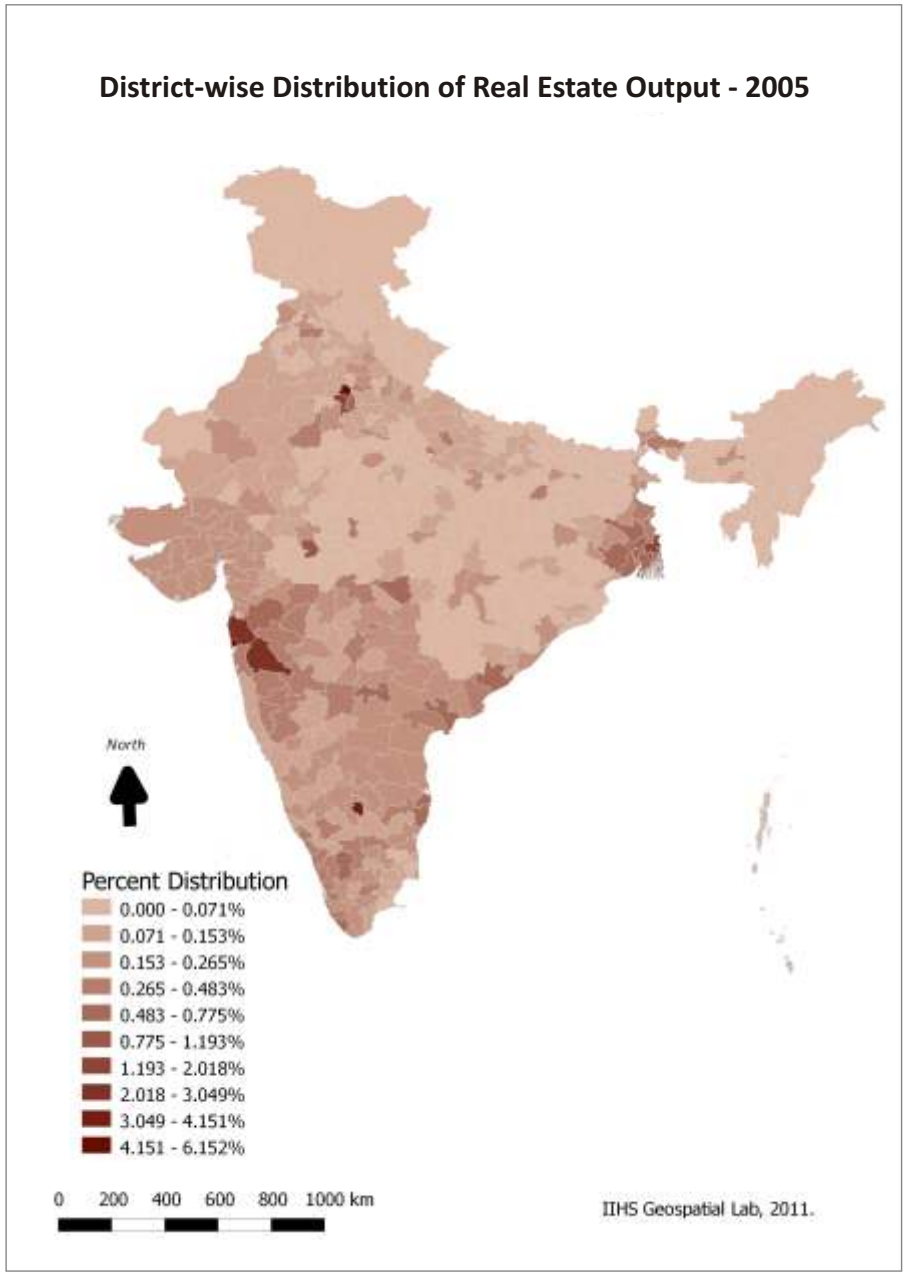


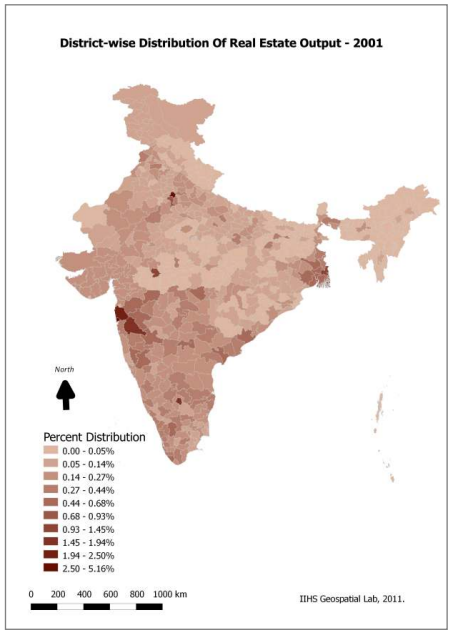


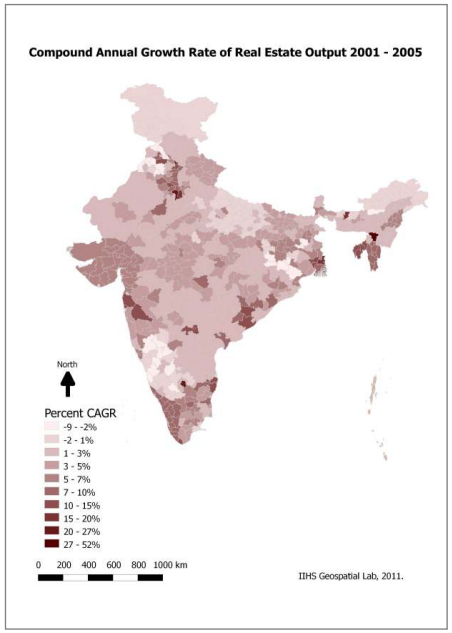
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Distribution and Growth Rate of Real Estate Output : 2000-05



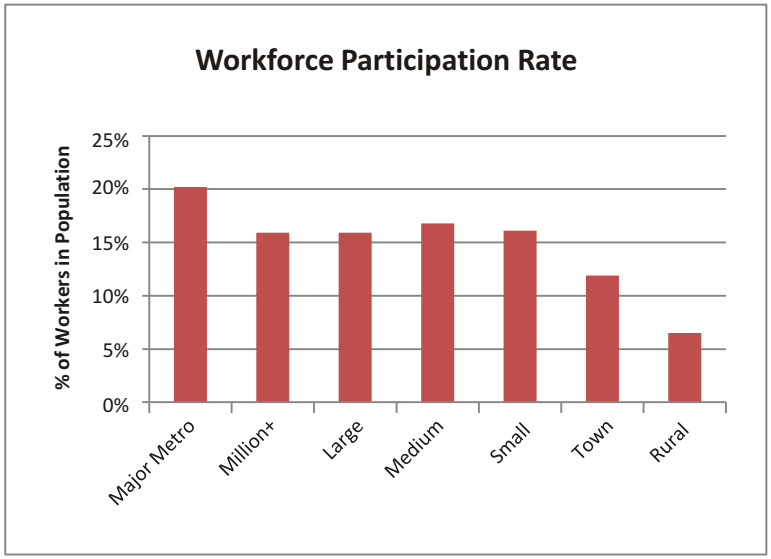


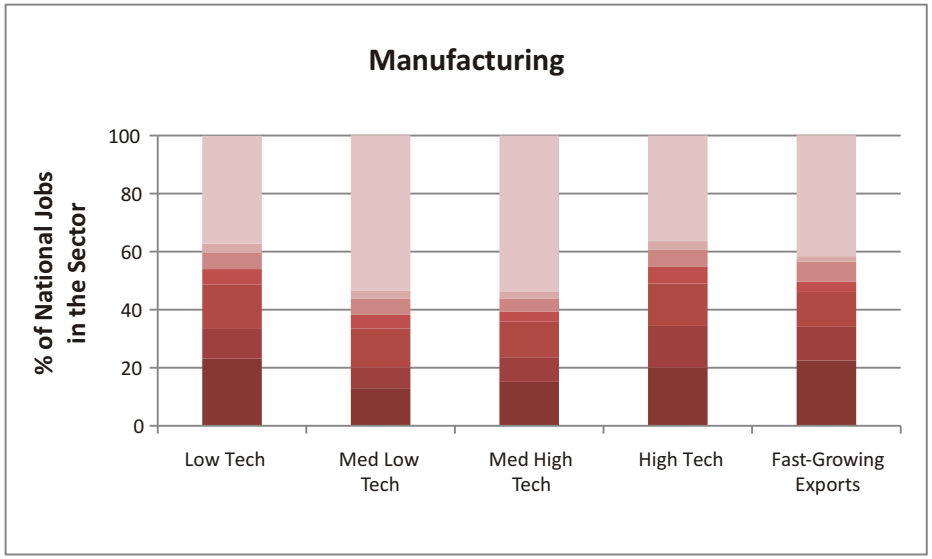


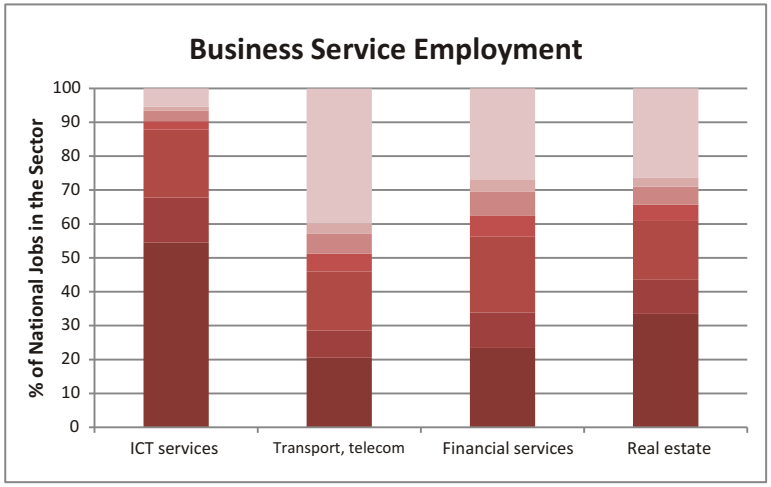
NOTE: Data for Gujarat, Jammu & Kashmir, Nagaland, and Tripura is not available at the district level. Therefore, the value assigned to each district in these four states is the average of the state GDP.

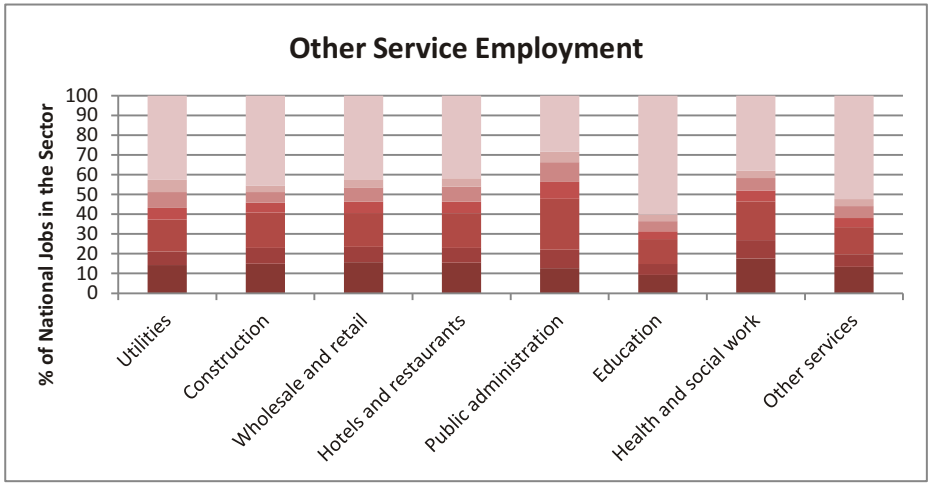
Source: IIHS Analysis based on District-level economic data from the Planning Commission website and the Central Statistical Organization.

Sectoral Employment by City Size : 2005







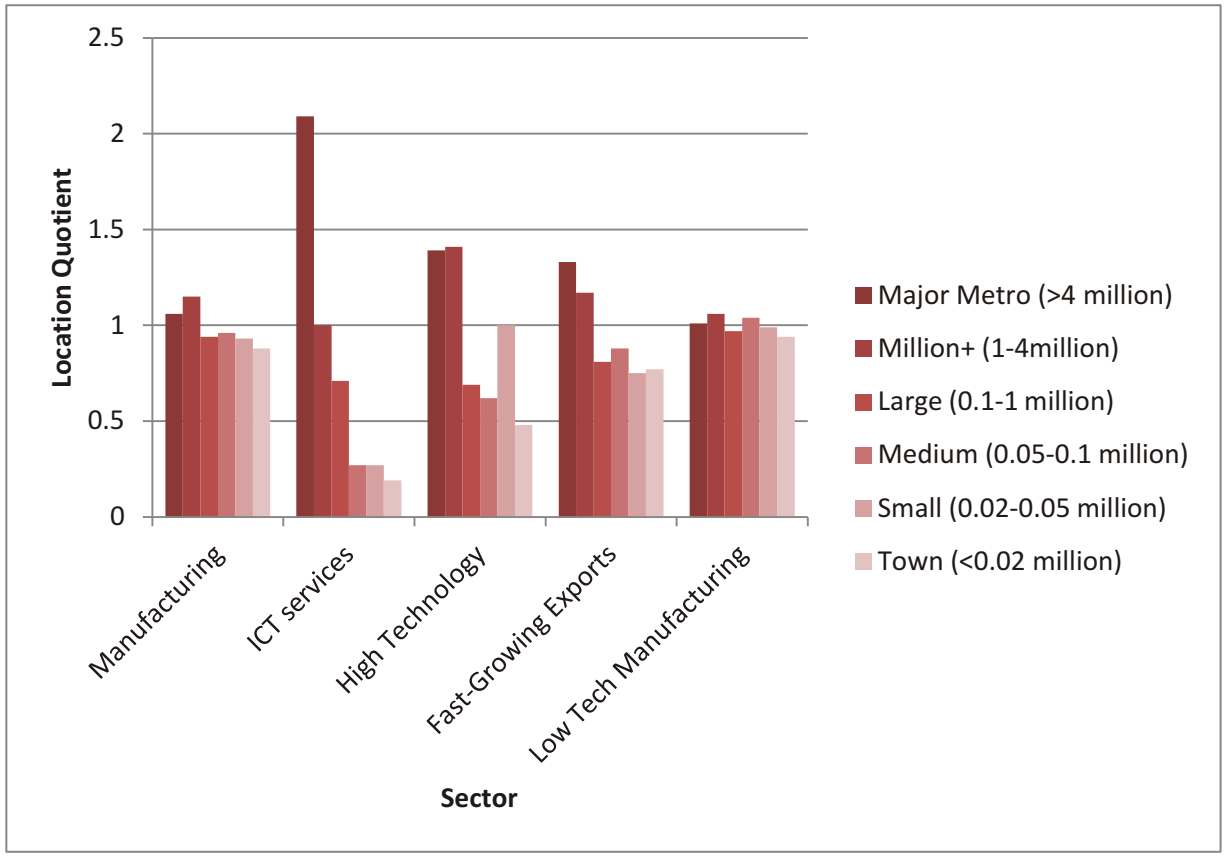


Medium (0.05-0.1million) Large (0.1-1 million) Million+ (1-4million) Major Metro (>4 million)

Source: World Bank (2011)
India Urbanisation Review. Mimeo

Sectoral Concentration in Employment

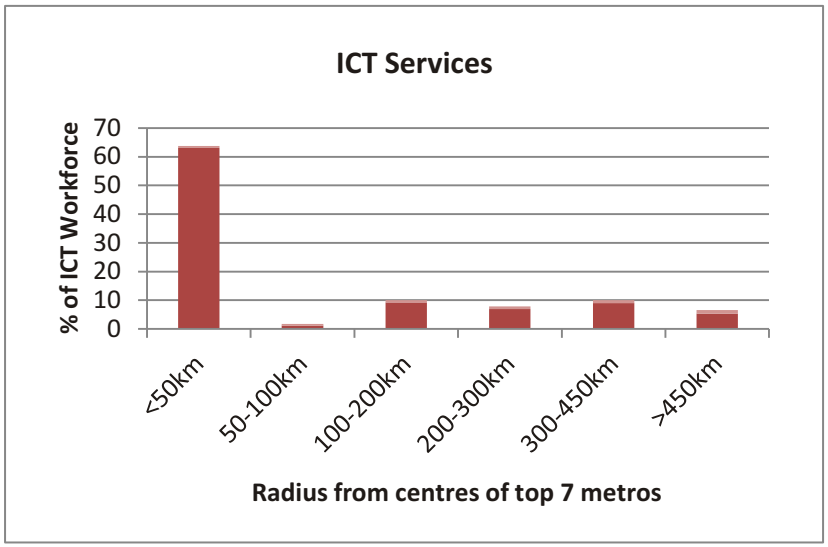
Spatial Clustering of "High Tech" Employment

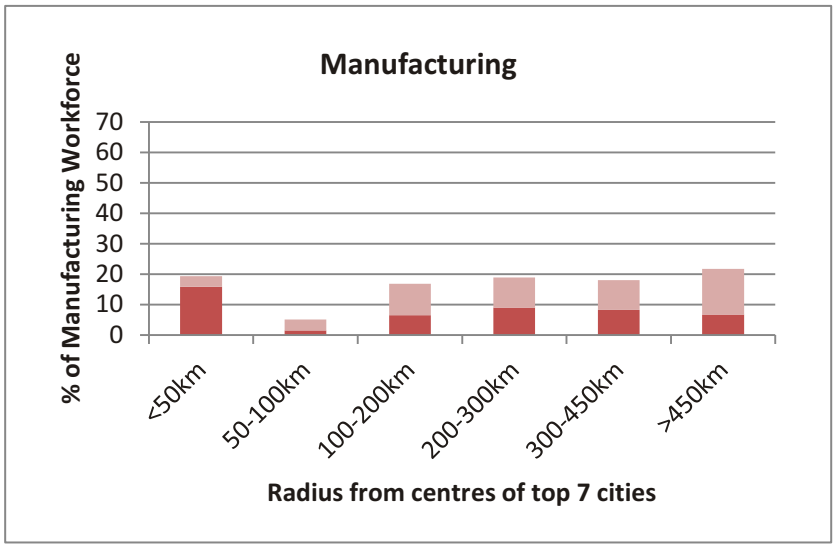


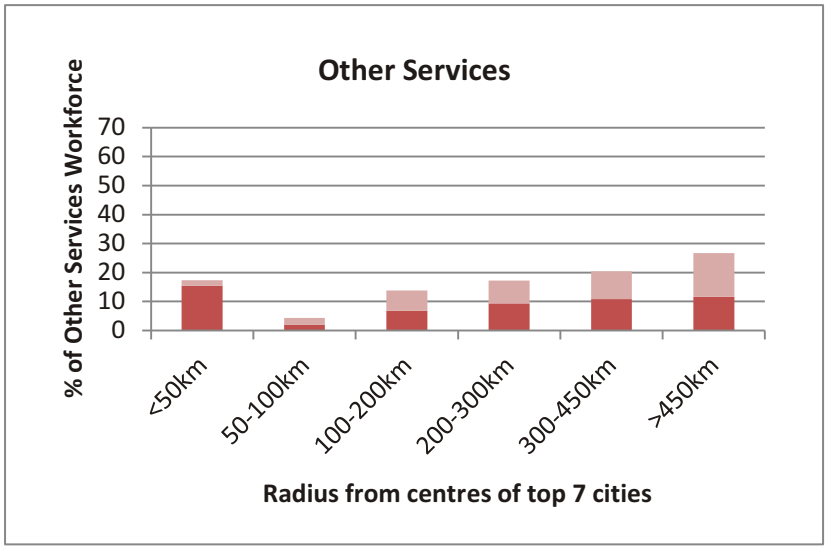
Location Quotient is the share of a sector (s) employment in that region (r) divided by the national share of employment (e) in that sector: $(e_{sr}/E_r)/(e_{sn}/E_N)$. Values greater than one signify a relative concentration of that sector's employment in a particular region.
"The clusters of columns on this graph show the variation in geographic concentration of employment in particular sectors. The clusters with relatively uniform height - low-technology manufacturing and manufacturing in general - represent evenly dispersed jobs. Other sectors, most notably ICT, have a significant portion of jobs clustered in the larger cities.

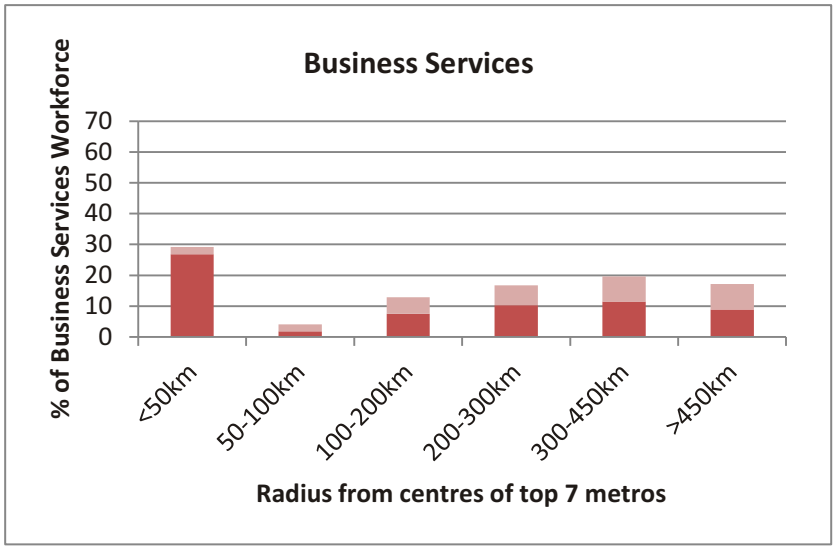
Source: World Bank (2011) India Urbanisation Review. Mimeo

Workforce and Employment around Major Metros : 1998-2005









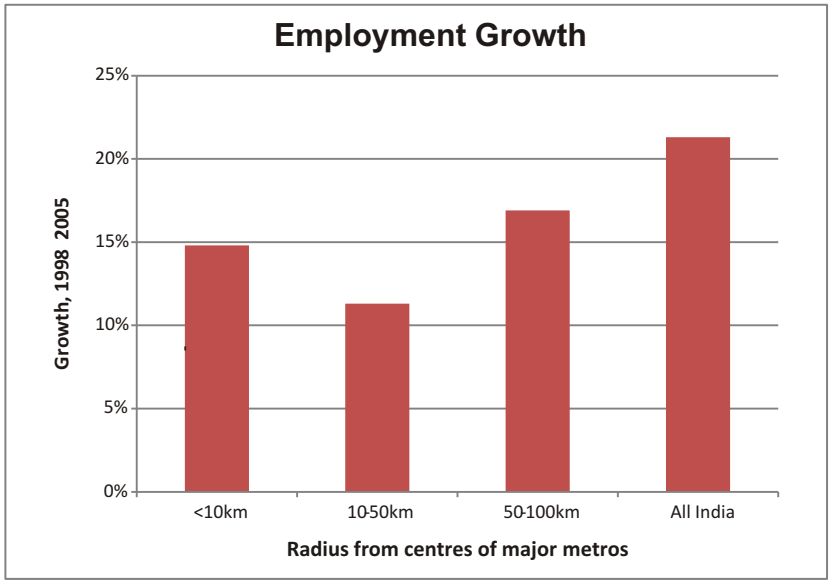
"Major Metros" are Mumbai, Delhi, Bangalore, Kolkata, Chennai, Hyderabad and Ahmedabad in this analysis.

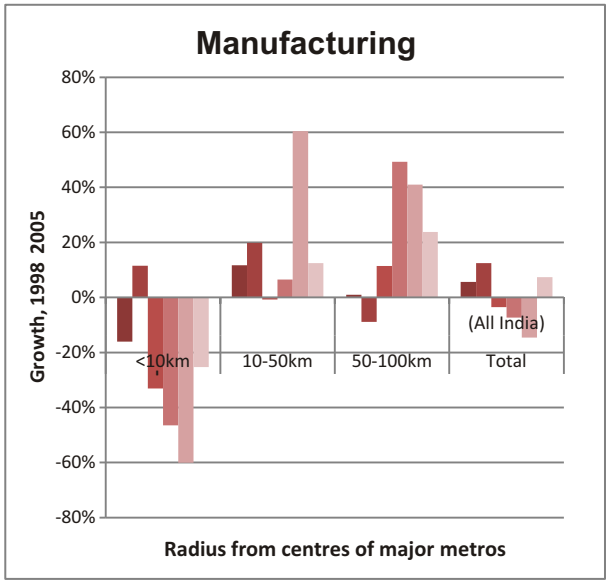
rural urban

Source: World Bank (2011)
India Urbanisation Review. Mimeo

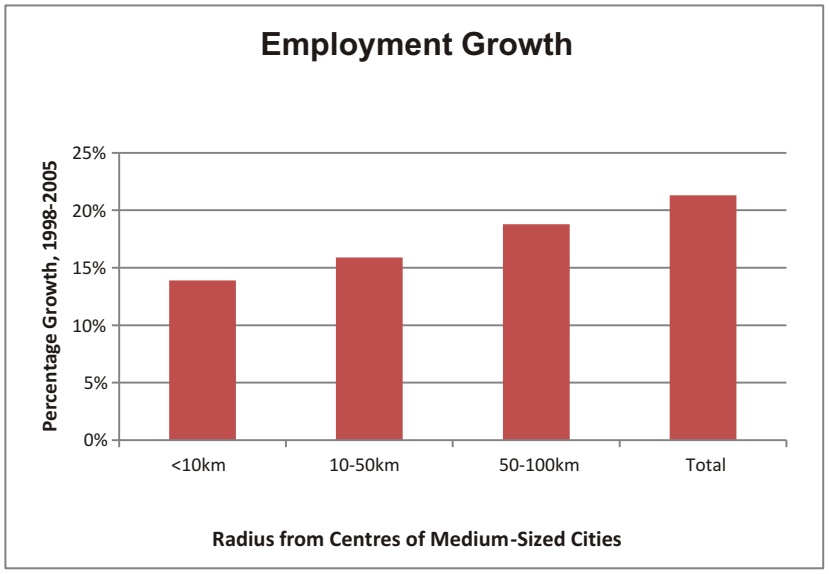
Geography of Employment Growth : 1998-2005

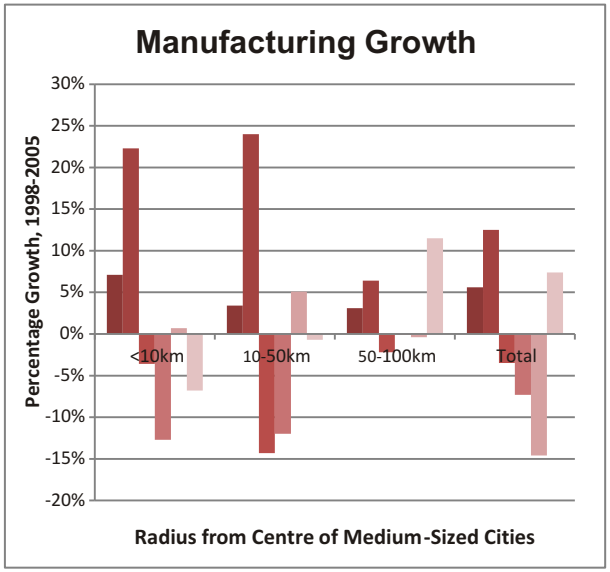
Major Metros





Million + Cities





- Manufacturing Overall
- Low-tech manufacturing
- Medium low-tech manufacturing
- Medium high-tech manufacturing
- High-tech manufacturing
- Fast growing export manufacturing

"Major Metros" are Mumbai, Delhi, Bangalore, Kolkata, Chennai, Hyderabad and Ahmedabad in this analysis. Medium-sized cities are cities of at least 1 million as of Census 2001. The ring buffer analysis excludes areas within 100km from seven largest cities.

Source: Analysis of data from Economic Census (1998 & 2005) in World Bank (2011). India Urbanisation Review. Mimeo

Migration

Migration

A commonly held perception is that explosive rural to urban migration is the primary cause for the state of India's cities. This is not borne out by the evidence. For the last 30 years, migration has contributed about a fifth of the population, natural urban population growth contributed about 60 percent, and the rest about equally split between new town formation because of reclassification and urban boundary expansion or sprawl.

This section estimates patterns of migration in India, focusing on 2011, in anticipation of the release of Census 2011 data. Besides giving an overview of the contribution of net rural to urban migration to the total increase in urban population, it also attempts to trace the patterns of people's movements between the states.

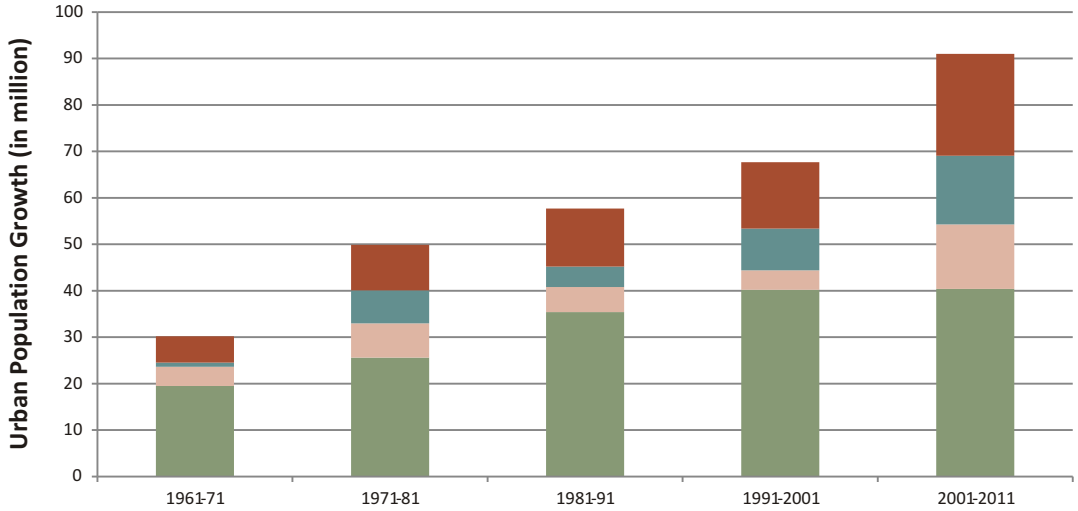
Using data from multiple sources, including recent results from Census and SRS 2011 and the NSS 64th Round, three interesting trends emerge. First, the net migration share in urban growth is up from 21 percent over the last decade to about 24 percent over 2001-11. Demographic dynamics, with dropping birth rates has led to a decline in natural population growth share in cities from 59 percent in 1991-2001 to 44 percent over the last decade. The remaining 32 percent is due to reclassification of Census towns and expansion of urban agglomerations. Census 2011 saw the largest rise in new Census Town creation in history pointing to the movements of large villages in the grey zone into an urban classification. The growth in urban area is corroborated with satellite data in the following section.

The maps explore spatial trends in inter-state migration over the 2001-2011 period, using proxy NSS data in advance of the release of the Census 2011 data. Not unsurprisingly, much of the migration (female+male; rural + urban) is concentrated around the demographically dominant states of northern India along with the increasing concentration of investment, economic activity, wealth and jobs around particular centres.

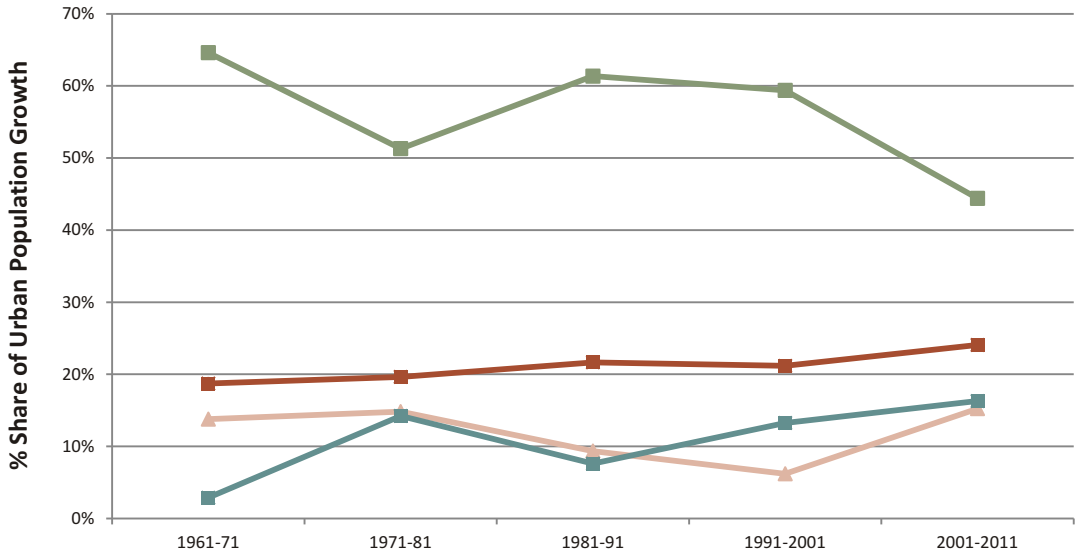
Uttar Pradesh leads the country as an interstate migration destination followed by Delhi, West Bengal, Tamil Nadu and Rajasthan. Delhi leads as a destination for net rural to urban migration (from UP, Bihar and Haryana) followed by Maharashtra, Uttar Pradesh, Haryana and Andhra Pradesh. While comparing total urban to urban migration, Delhi again leads other states as a destination followed closely by Uttar Pradesh, Maharashtra, West Bengal and Karnataka. Maharashtra, Gujarat, Andhra Pradesh and Karnataka also show significant migration into urban areas.

The diagram represents 20 streams of migration that make up half of the total migrants over the 2001-10 decade. The most significant total migration flows (urban & rural) are from Uttar Pradesh, Bihar, Kerala, Madhya Pradesh and Karnataka. Key destination states are Delhi, Tamil Nadu, Kerala, Haryana, UP and Bihar. Urban migration is much more diverse, but the lead source states still continue to be UP, Bihar, Tamil Nadu, Karnataka and Haryana. Key destination states include Delhi, Kerala, West Bengal, Maharashtra, Tamil Nadu and Andhra Pradesh.

Components of Urban Population Growth : 1961-2011



The major component of urban population growth is still natural growth. While approximately 40 million of the increase is due to natural growth, only about 22 million is due to net rural to urban migration.

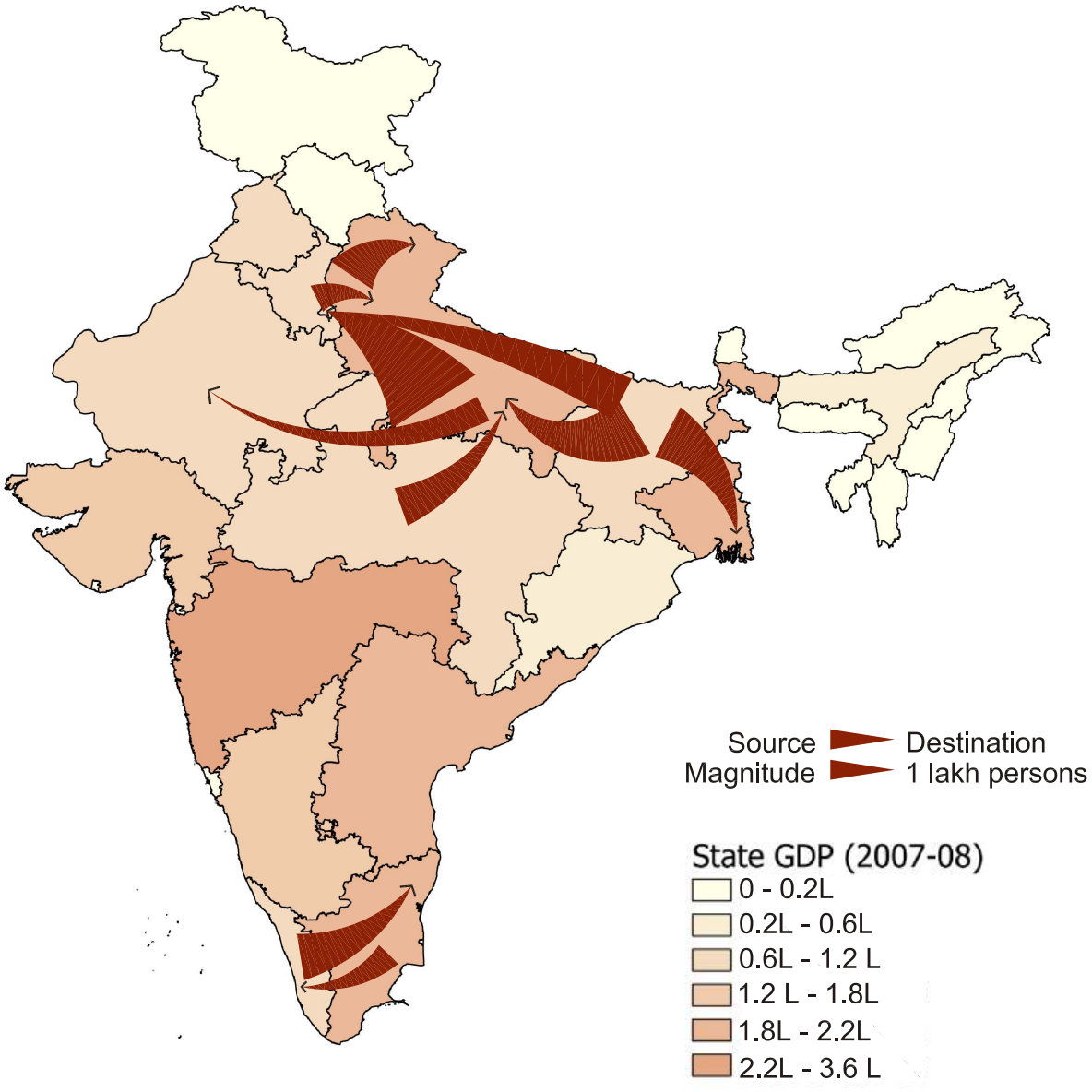


Tracing the rates of change of the components of urban growth from 1961 to 2011, the rate of natural growth has declined from 59.4% in 1991-01 to 44.4% in 2001-11, whereas the rate of net rural to urban migration has marginally increased from 21.2% in 1991-01 to 24.1% in 2001-11.

- Net Rural to Urban migration
- Expansion in urban area / agglomeration
- New towns less declassified towns
- Natural Growth

Source: IIHS Analysis based on Census of India, 2011; NSS 64th Round; Sivaramakrishnan, Kundu and Singh (2005) SRS, Vol.45 No.1, 2011

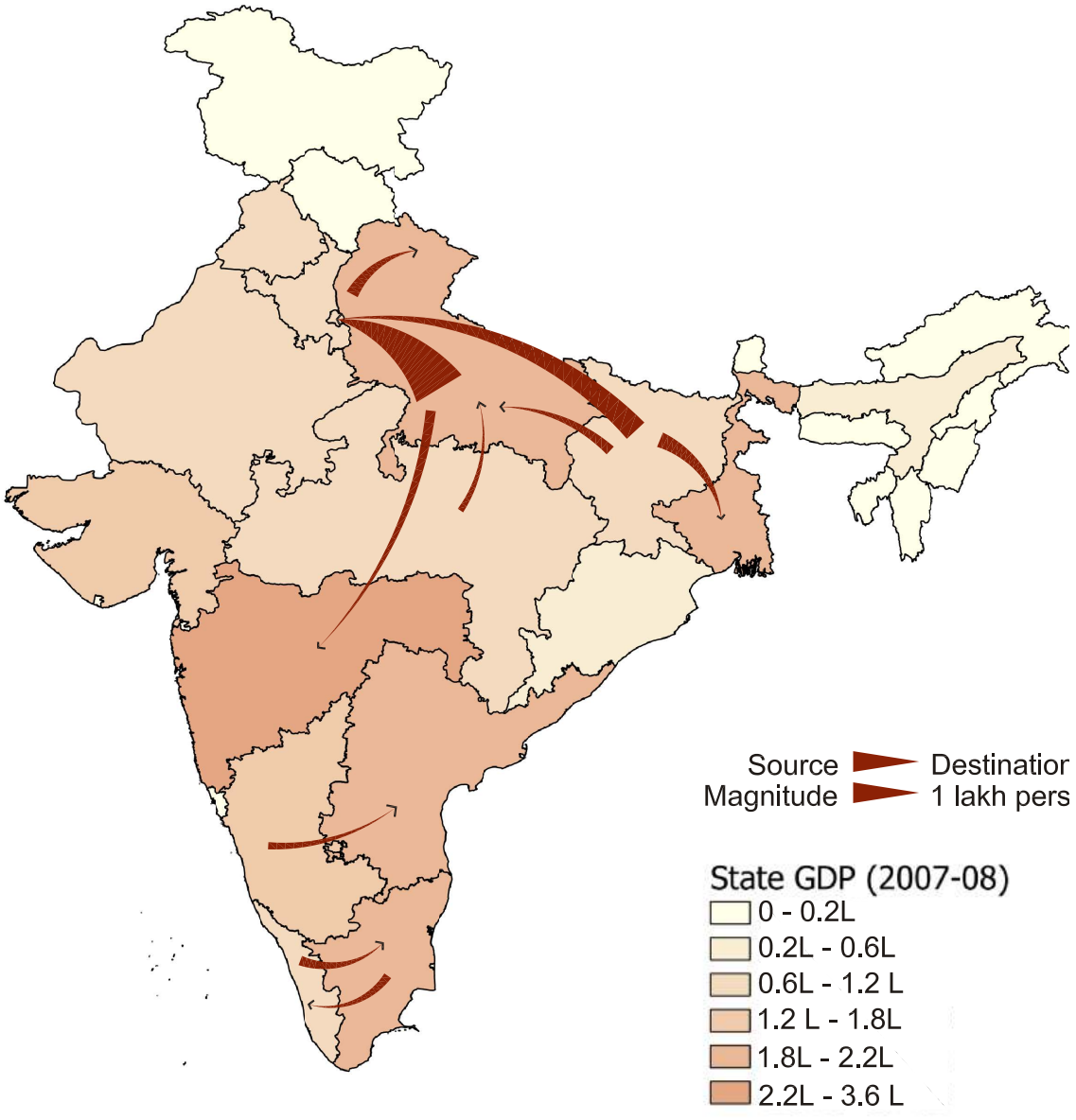
Estimated Major Inter-State Migration Streams : 2001-2011



The 10 largest flows of inter-state migration (including rural and urban migration) are in the north (UP, MP, Haryana and Delhi) and east (Bihar and West Bengal) with significant flows between Tamil Nadu and Kerala.

Source: IIHS Analysis based on the data from Census of India 2001, 2011, and NSS 64th Round

Estimated Major Net Rural to Urban Inter-State Migration : 2001-2011

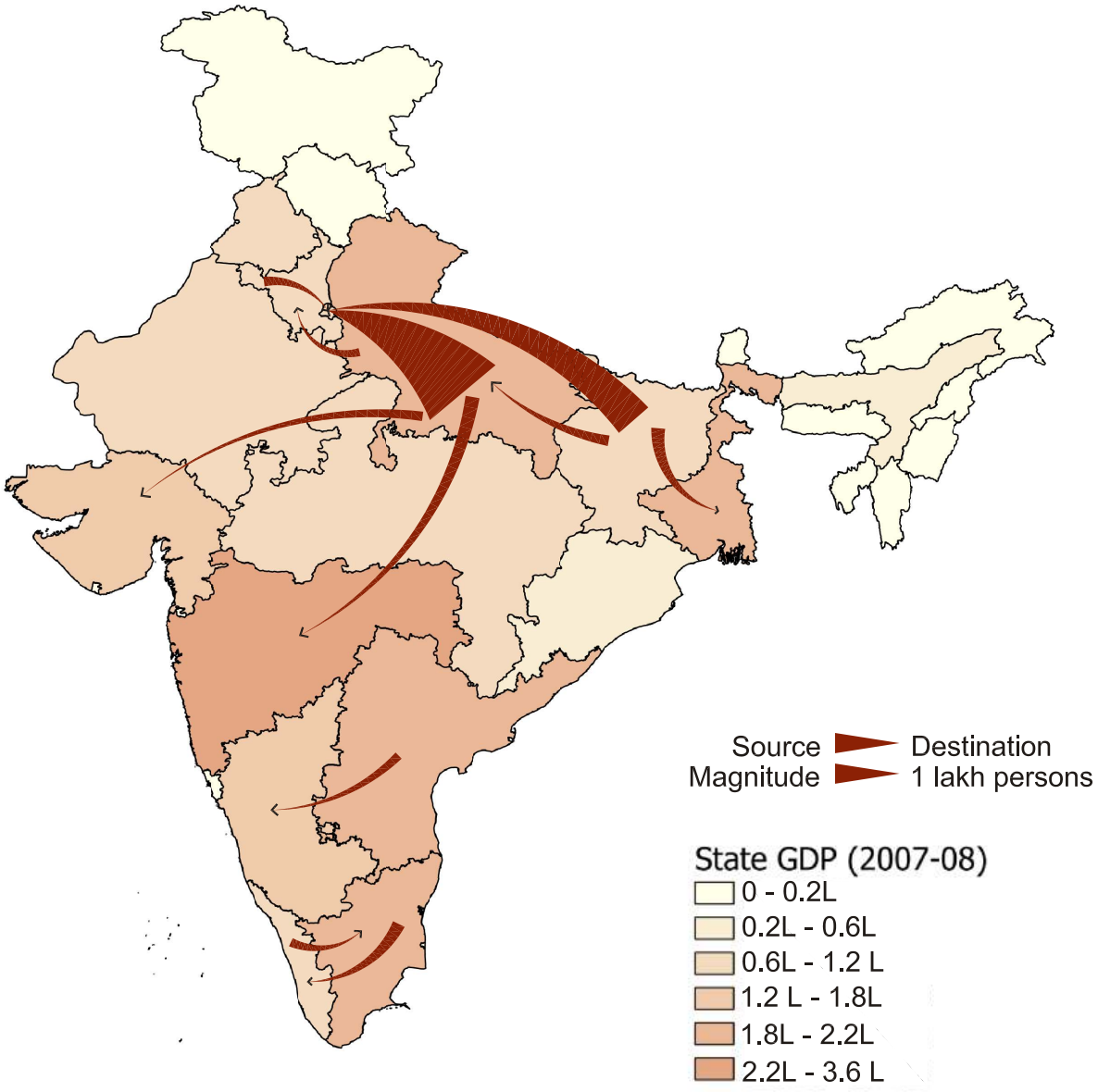


Much of the major movement is between the states in the north and eastern India, except for movement between Tamil Nadu and Kerala, and Andhra Pradesh and Karnataka. The top 10 movement streams are estimated to be as follows:

- UP to Delhi
- Bihar to Delhi
- UP to Maharashtra
- Bihar to West Bengal
- Tamil Nadu to Kerala
- Bihar to UP
- Haryana to Delhi
- UP to Gujarat
- Kerala to Tamil Nadu
- Andhra to Karnataka

Source: IIHS Analysis based on the data from Census of India 2001, 2011, and NSS 64th Round

Estimated Major Net Urban to Urban Inter-State Migration : 2001-2011



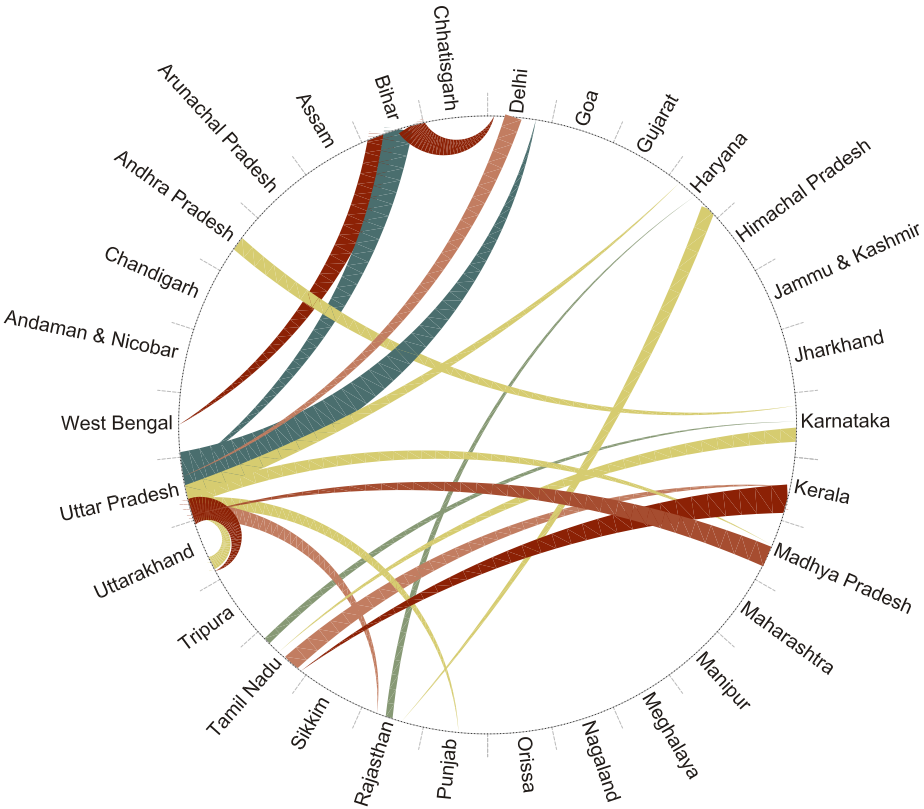
The top 10 largest flows between urban areas are estimated to be as below:

- UP to Delhi
- Bihar to Delhi
- Bihar to West Bengal
- UP to Uttarakhand
- Bihar to UP
- UP to Maharashtra
- Kerala to Tamil Nadu
- Tamil Nadu to Kerala
- AP to Karnataka
- MP to UP

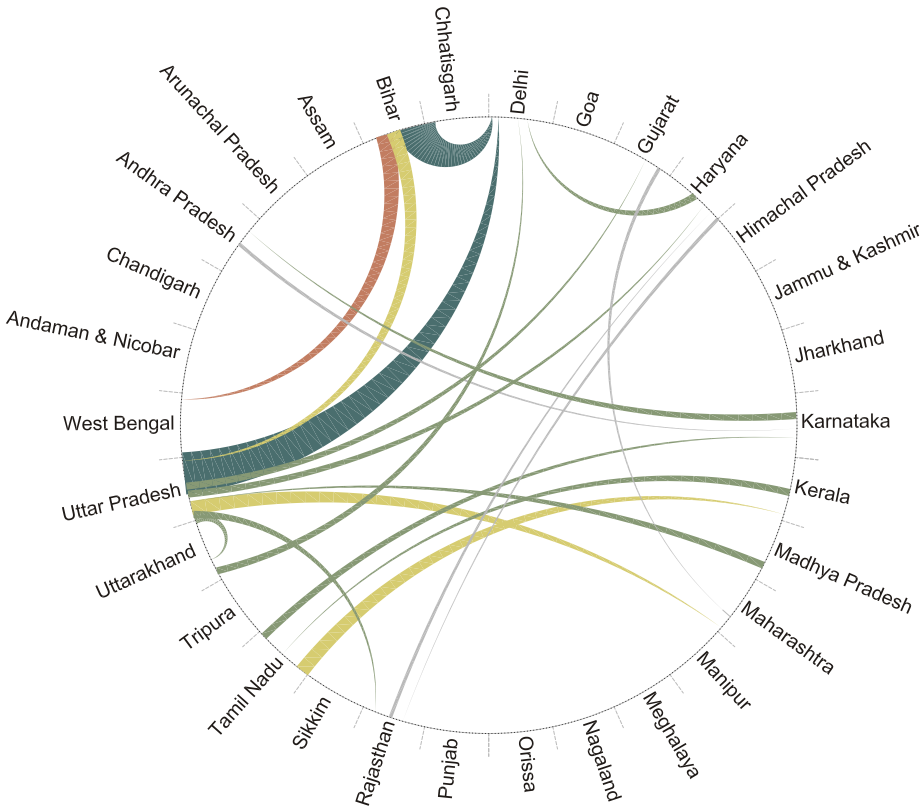
Source: IIHS Analysis based on the data from Census of India 2001, 2011, and NSS 64th Round

Top Migration Streams

Estimated top 50% of Total Migration



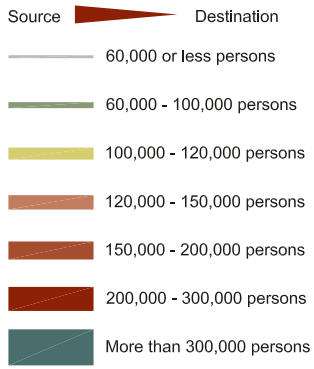
Estimated top 50% of Migration into Urban areas



The above circo diagrams represent migration streams between states, with thick end representing the source state and narrow end representing the destination state.

The first circo represents the streams of migration that amount to 50% of the total migration occurring within the country. It is to be noted that merely 20 such streams constitute this majority migration, of which most movement is from Uttar Pradesh, Bihar, Kerala, Madhya Pradesh and Karnataka.

The second circo represents the top 50% migration streams in urban areas. While Delhi , Maharashtra, Uttar Pradesh , West Bengal, Karnataka and Haryana are the top destination states, Uttar Pradesh, Bihar, Tamil Nadu, Kerala and Andhra Pradesh are the largest sources of such migration.



Source: IIHS Analysis based on Census of India, 2001and 2011 NSS 64th Round

Urban Poverty & Livelihoods

Urban Poverty & Livelihoods

This section presents data on the persistence of poverty and inequality in urban areas, read particularly through the lenses of slums and unemployment. Some points to note: First, although the proportion of the poor in the total population is falling both in urban and rural areas, the absolute number of urban poor is increasing. The extent to which this is due to movements of existing urban residents into poverty versus in-migration is not clear. Migration may be the first step toward higher incomes and movement out of poverty. In other words, while the overall number of urban poor maybe increasing; it need not imply that the families are not moving out of poverty. However, if migration is not an important factor, then rising numbers of the urban poor point to declining incomes, assets and consumption and asset shocks.

Second, poverty's relationship with the current settlement structure is important. Concentrations of poverty are associated with 'slums' leading to the assumption that large million plus cities with visible slums have higher concentrations of poverty. Million plus cities are indeed home to 40 percent of the slum population. However, the majority of the poor are, in fact, concentrated in medium and small towns – 80 percent of the urban poor reside in cities with populations less than one million. These findings have critical implications for current national policies on urban renewal and reform, particularly those targeting urban poverty.

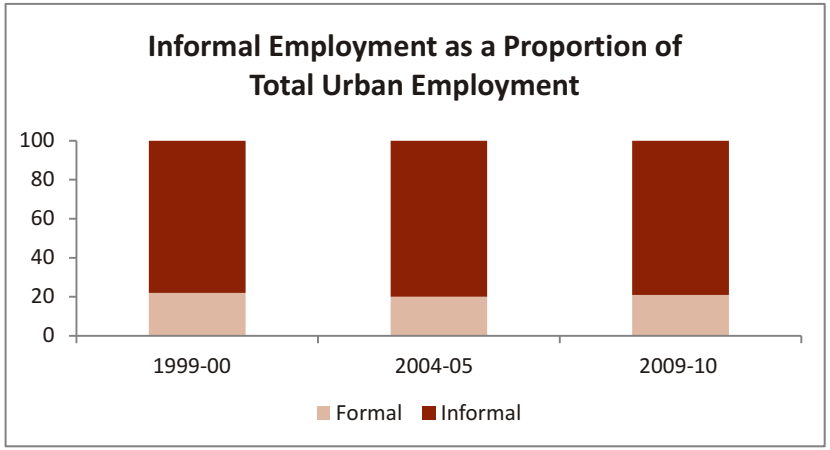
Third, cities are sites of opportunity – for some. As in the case of greater inequality in consumption expenditure over the 2000s, wealth distribution in urban areas demonstrate greater inequality than wealth distribution in rural areas. Traditional caste hierarchies of rural India appear to be reproducing themselves in urban India, contrary to popular perception. In urban India, the Hindu forward castes continue to enjoy higher 'incomes' at all levels of wealth distribution compared to SCs, STs, OBCs and non-Hindus.

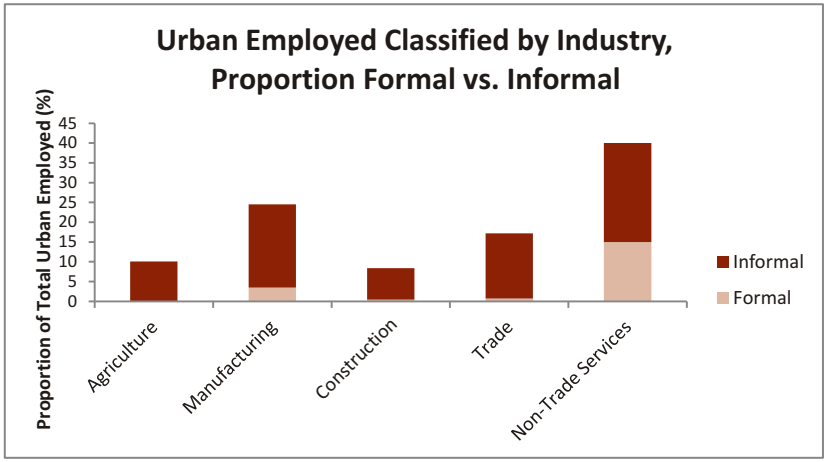
In terms of employment, the extent of informality in urban employment is high at around 70 percent. It has remained largely unchanged over the course of the past decade. Almost 60 percent of total urban employed are wage workers, and 67 percent of this category are informal wage workers. The remaining are largely the urban self-employed, which include own account workers, employers, and contributing family workers. Only a small proportion of the self-employed (about 5 percent) are employers, while the majority (74 percent) are own-account workers. The composition of urban informal employment is similar, with about 50 percent being wage workers, 40 percent working as own-account workers, and the remaining working as employers and contributing or unpaid family workers. The proportion of wage workers in informal employment has increased since 1999-2000.

Classified by industry, the largest category for urban employment is non-trade services, which includes transport, domestic workers and waste pickers. Non-trade services also have the lowest proportion of informality. If economic restructuring continues and output concentrates in sectors where informal employment is relatively low, we might see a shift in the share of output and employment in the future, further skewing the urban livelihood profile and highlighting the need for a broad-based urban social safety net.

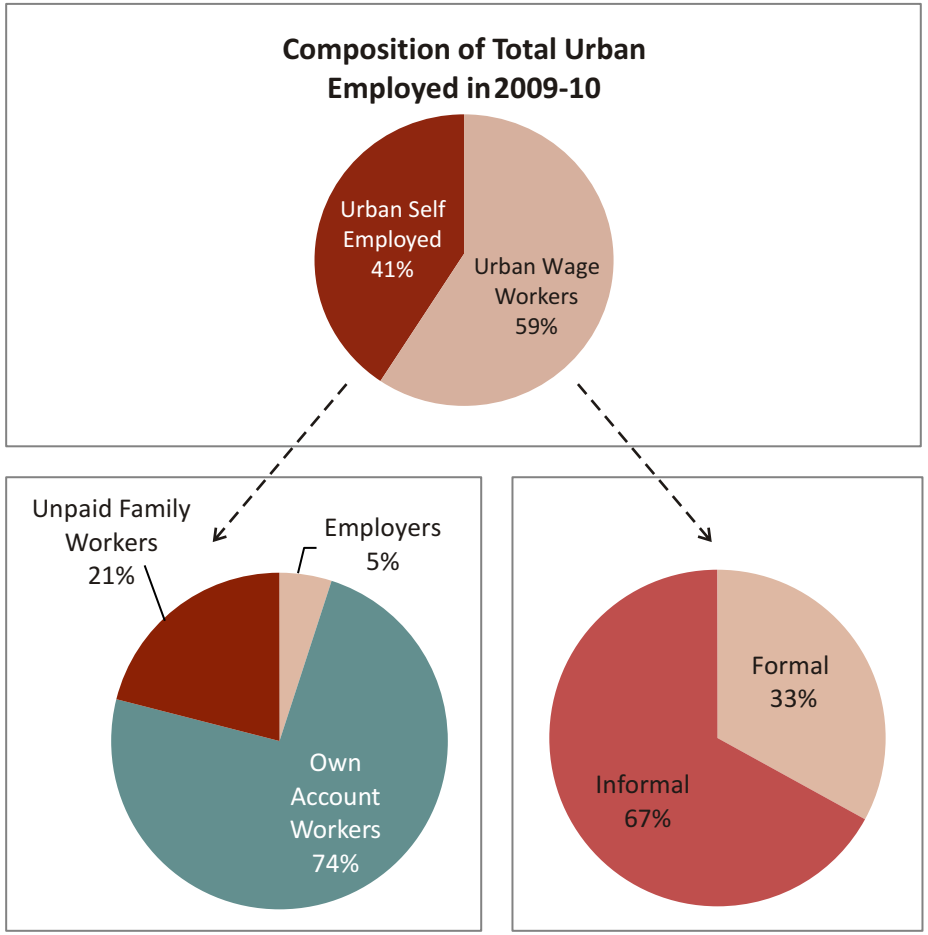
Urban Informality and Job Types: 1999-2009

Most urban employment is informal, a situation that has remained stable over the past decade.





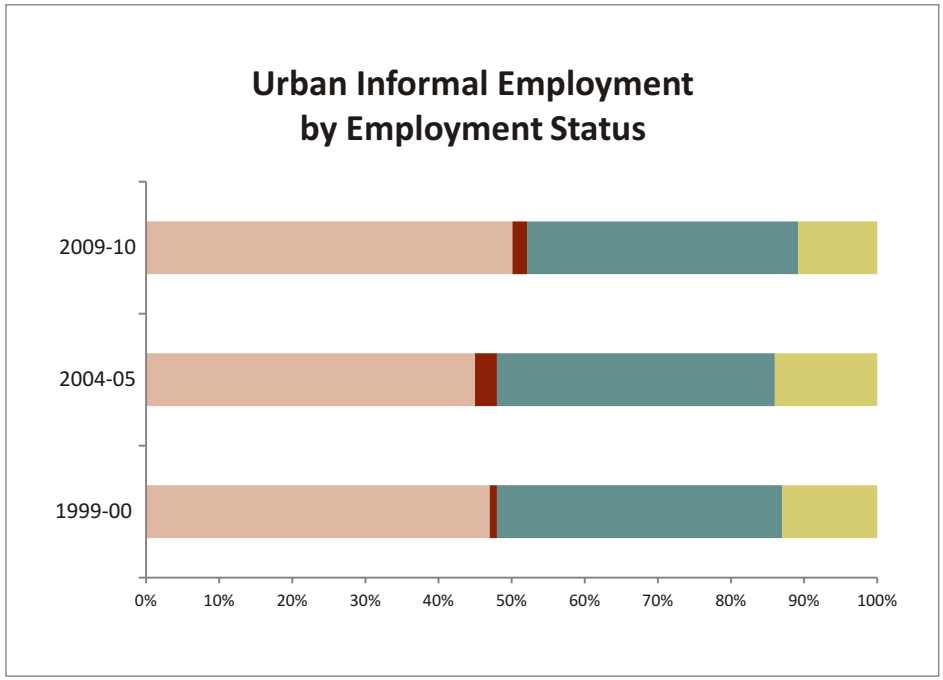
Non-trade services is a varied category, combining transport, domestic workers and waste pickers. Almost all domestic workers and waste pickers are informally employed, implying that much of the formal employment in this industry is in transport.

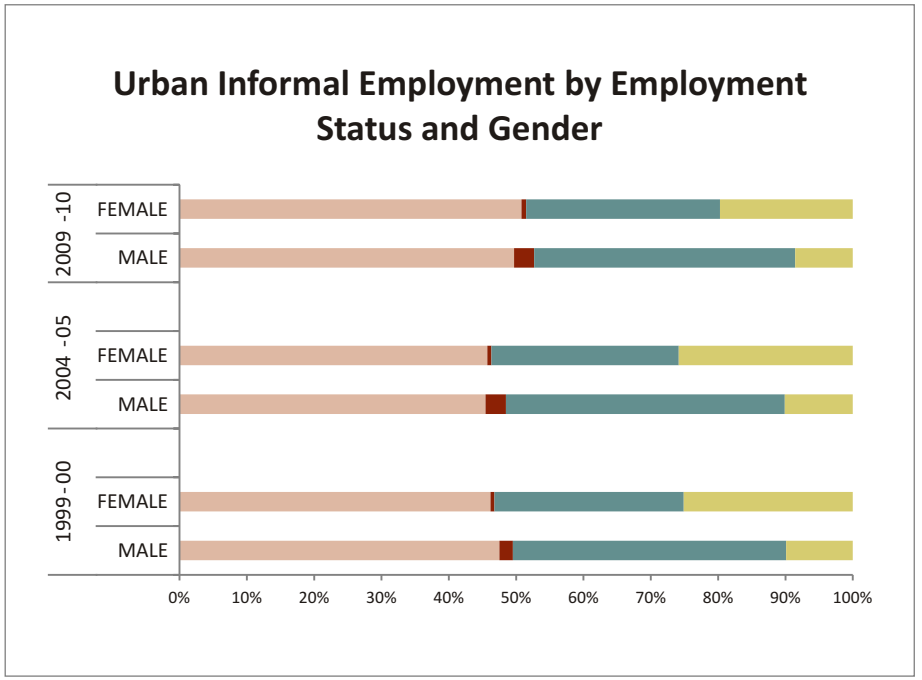


Among the urban self-employed, 74% are own account workers (who do not hire others) and 21% are unpaid contributing family workers -- self-employment in small single-person businesses play a significant role.

Source: Chen and Raveendran (2011) based on NSS 66th Round

Urban Informal Employment Classified by Type of Work



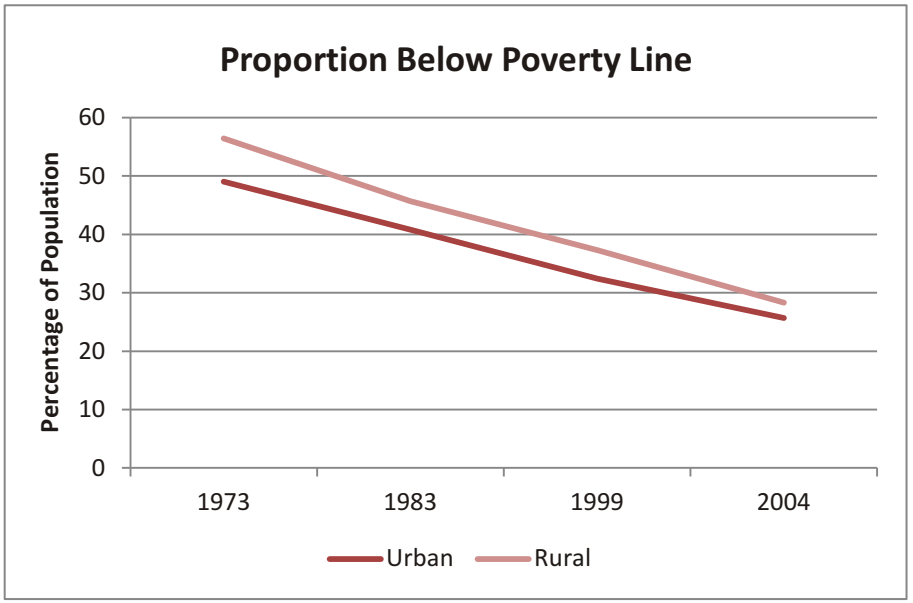


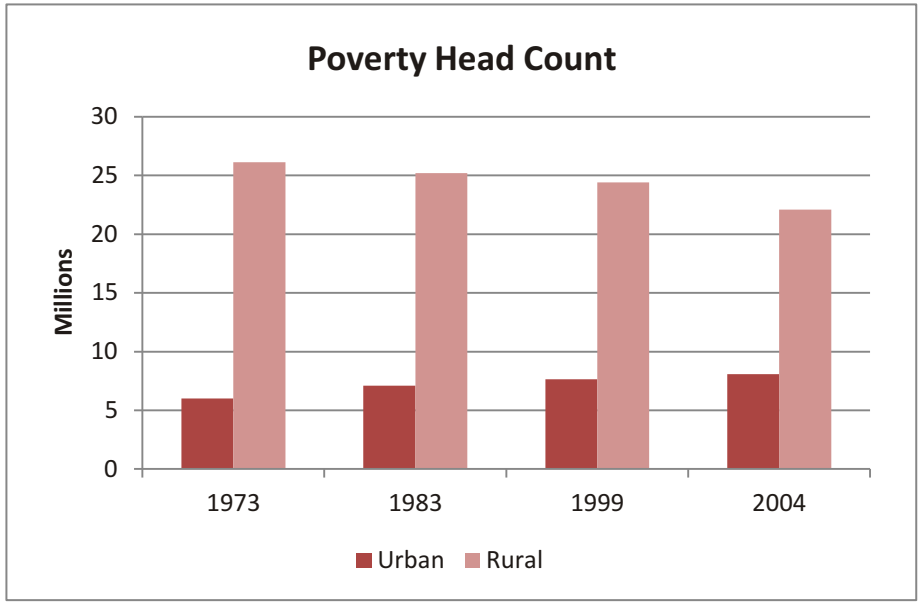
Wage Workers Employers Own Account Workers Unpaid Family Workers

Within informal employment, only half are wage workers, a structure that has remained fairly stable over time. The self-employed are largely own-account workers. Male and female work forces have similar proportions of wage. Differences are apparent among self-employed, where the share of employment for unpaid family workers is higher for women than men.

Source: Chen and Raveendran (2011) based on NSS 66th Round

Urban and Rural Poverty Trends: 1973-2004

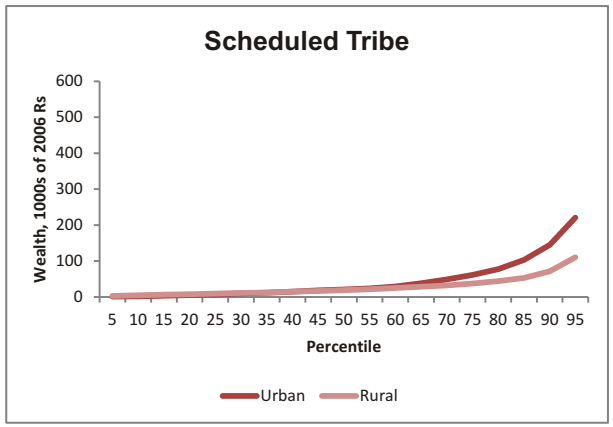


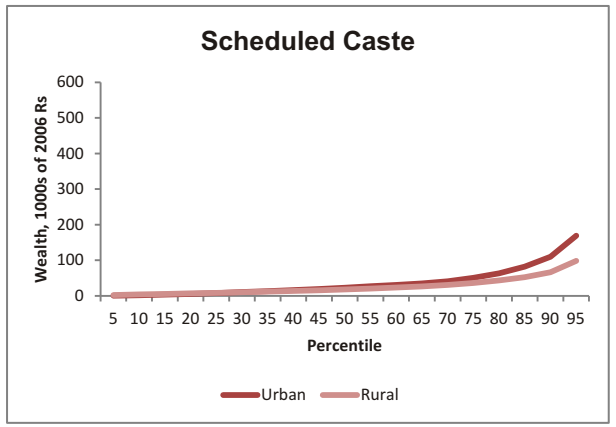


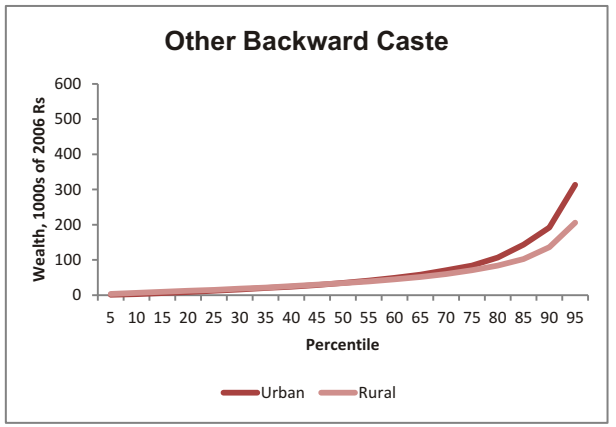
This chart shows that the poverty headcount ratio is declining in both urban and rural areas. However, the number of urban poor is rising while the number of rural poor is declining. Poverty head count data is from the Planning Commission, Eleventh Plan, Volume III, and is based on poverty lines for 2004-05. Poverty lines in 2004-05 were Rs. 356 monthly per capita consumption expenditure for rural areas and Rs. 539 for urban areas.

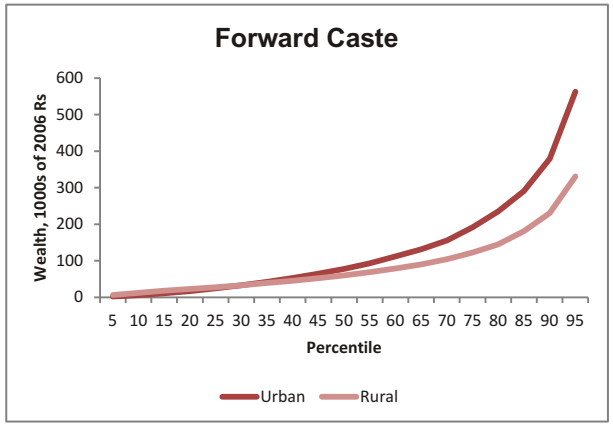
Source: Government of India, Planning Commission (2008)

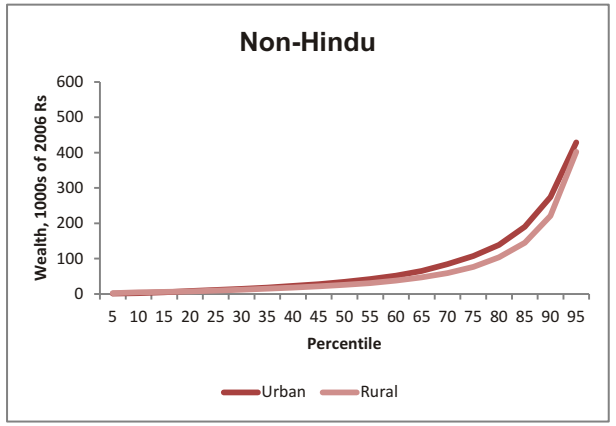
Caste-wise Rural and Urban Distribution of Wealth : 2002









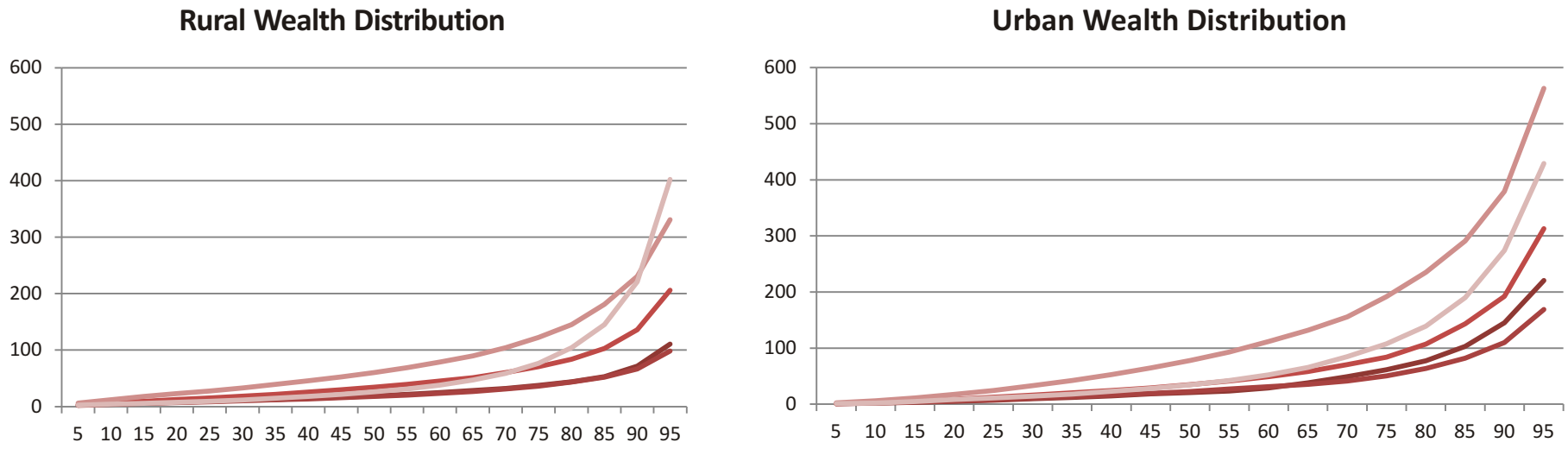


If rural and urban individuals for a particular caste group were lined up from poorest to richest (100th percentile), the lines on these charts represent the level of wealth for each individual in line.

The series highlights the distinct ways in which rural and urban income distributions for a particular caste group vary.

Source: Zacharias and Vakulabharanam (2011) based on All-India Debt and Investment Survey, 2002-3.

Caste-wise Rural and Urban Distribution of Wealth : 2002



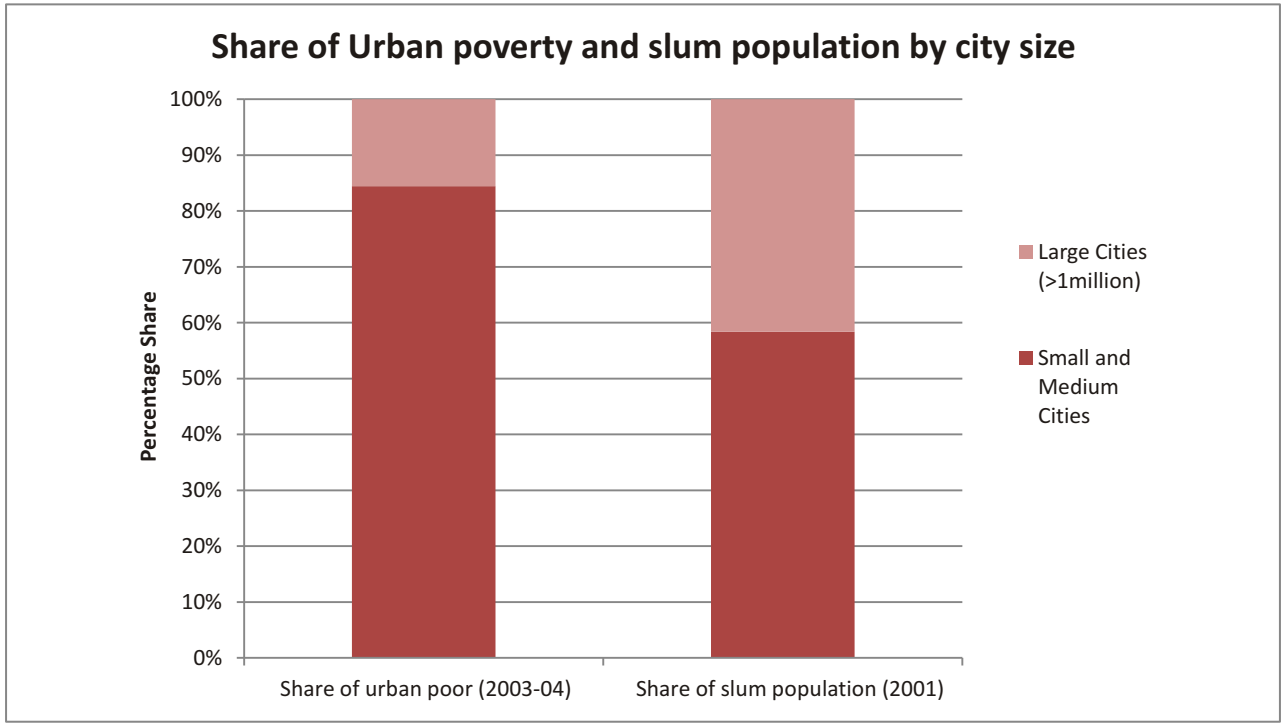
If rural and urban individuals for a particular caste group were lined up from poorest to richest (100th percentile), the lines on these charts represent the level of wealth for each individual in line.

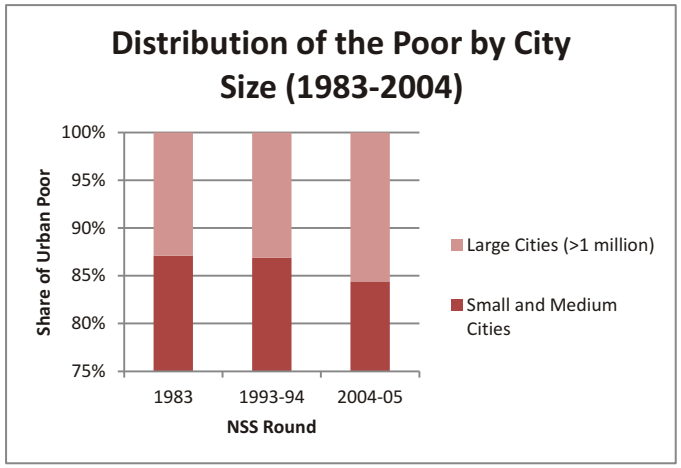
The two graphs display differing scales of wealth, but similar rankings of caste groups.

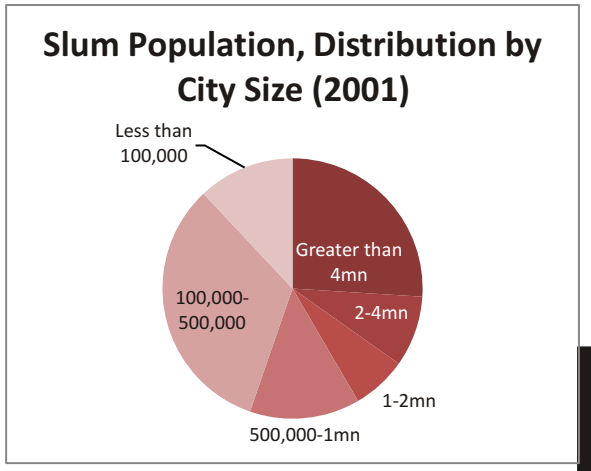
- SC
- ST
- OBC
- FC
- NH

Source: Zacharias and Vakulabharanam (2011) based on All-India Debt and Investment Survey, 2002-3.

City size-wise Urban Poor and Slums







Source: Data on poverty from Lanjouw and Murgai (2011), based on NSS data and urban population as of 2001 Census. Data on slums from Mathur (2009) based on Census 2001 data.

Social Safety Nets

Safety Nets

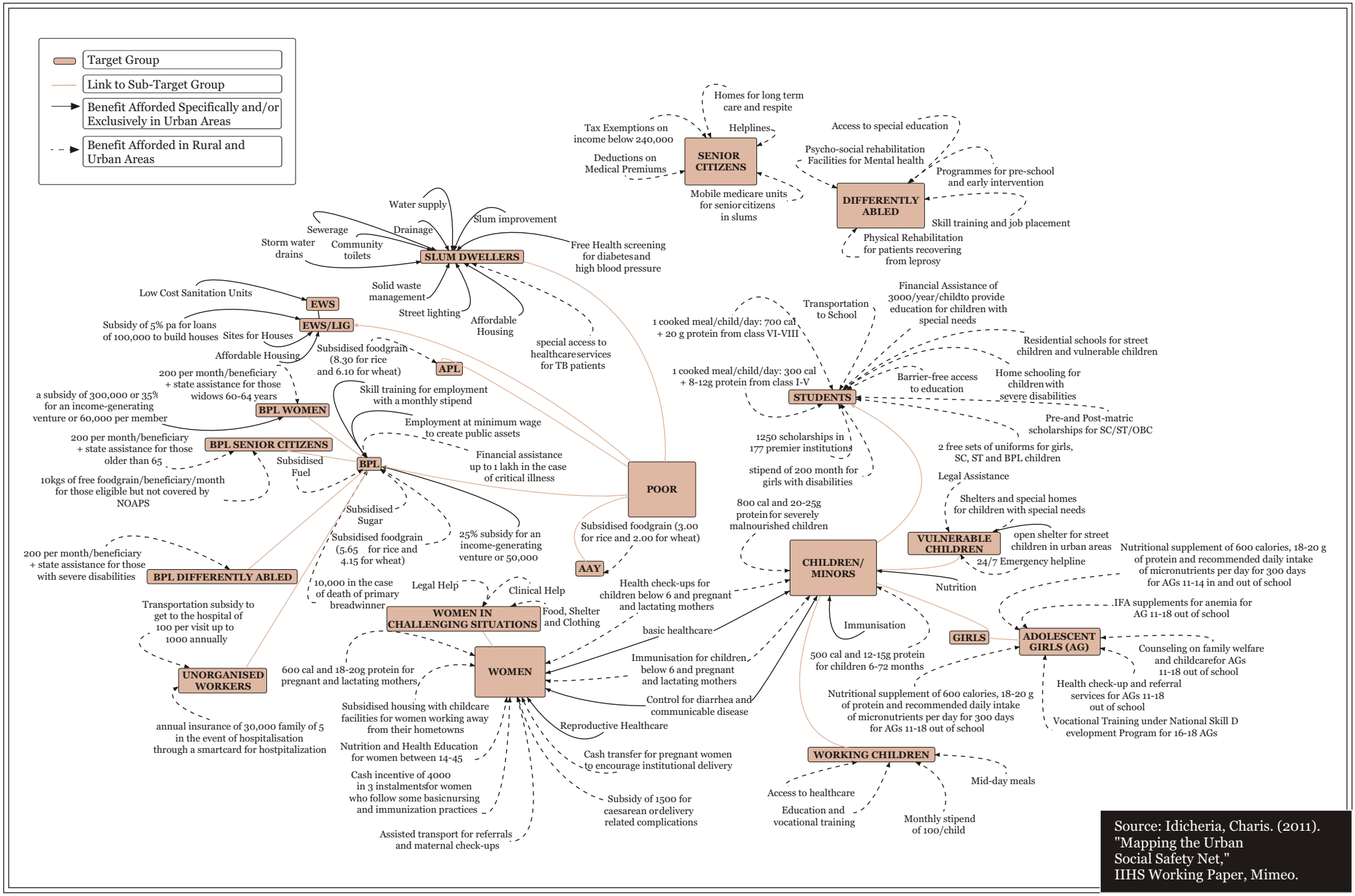
India has a weak and fragmented urban social safety net, in spite of changes in poverty, inequality and informality over the 2000s.

Multiple actors and programmes are involved in creating and maintaining the various pieces of the urban social safety nets that exist in India. This section maps the broad delegation of roles, priorities and target groups across ministries and programmes. The complexity of the roles and connections between institutions obscures clear analysis on entitlements and delivery mechanisms. This section illustrates that the urban social safety net is in reality a complex and fragmented system, which has included urban India as more of an afterthought rather than a specific space for intervention. It is hence marked by ambiguous budgetary allocations and almost no way to measure or track developmental outcomes.

The first map on urban social safety nets highlights most programmes and schemes for identified 'target groups'. It attempts to portray the current confounded and imagination on how to address the acknowledged needs of these target groups. The second indicates multiplicity and overlap of programmes and schemes that seek to address these needs by target groups. The third then clusters some overarching operational themes and the programmes that seek to address them. The last map depicts the number of Central ministries that intervene in each operational theme through the various schemes and programmes they fund.

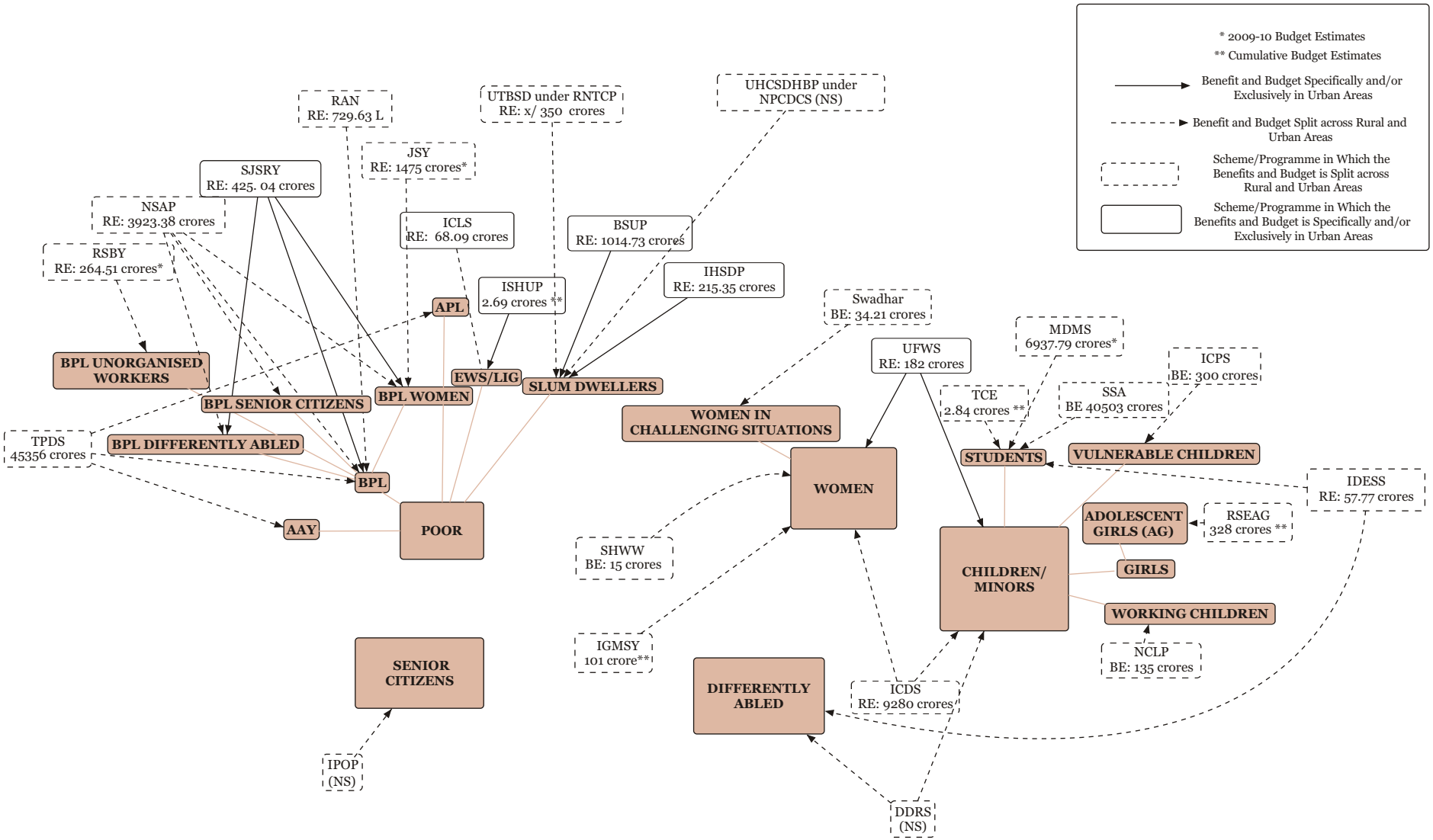
The figures here are based on research that a typical urban citizen could undertake: consultation of primary sources (e.g. agency websites), interviews with officials as available, and learning from secondary sources. They remain incomplete because publicly available reporting structures, particularly for programmes that are operational in both rural and urban areas, do not clearly convey the intended number of beneficiaries in urban areas and the allocation of resources intended for them. Thus, while the letter of these interventions broadly articulates urban inclusion, the implementation and reporting mechanism points more to their absence in urban areas.

Mapping the Urban Social Safety Net: Intended Benefits for Target Groups



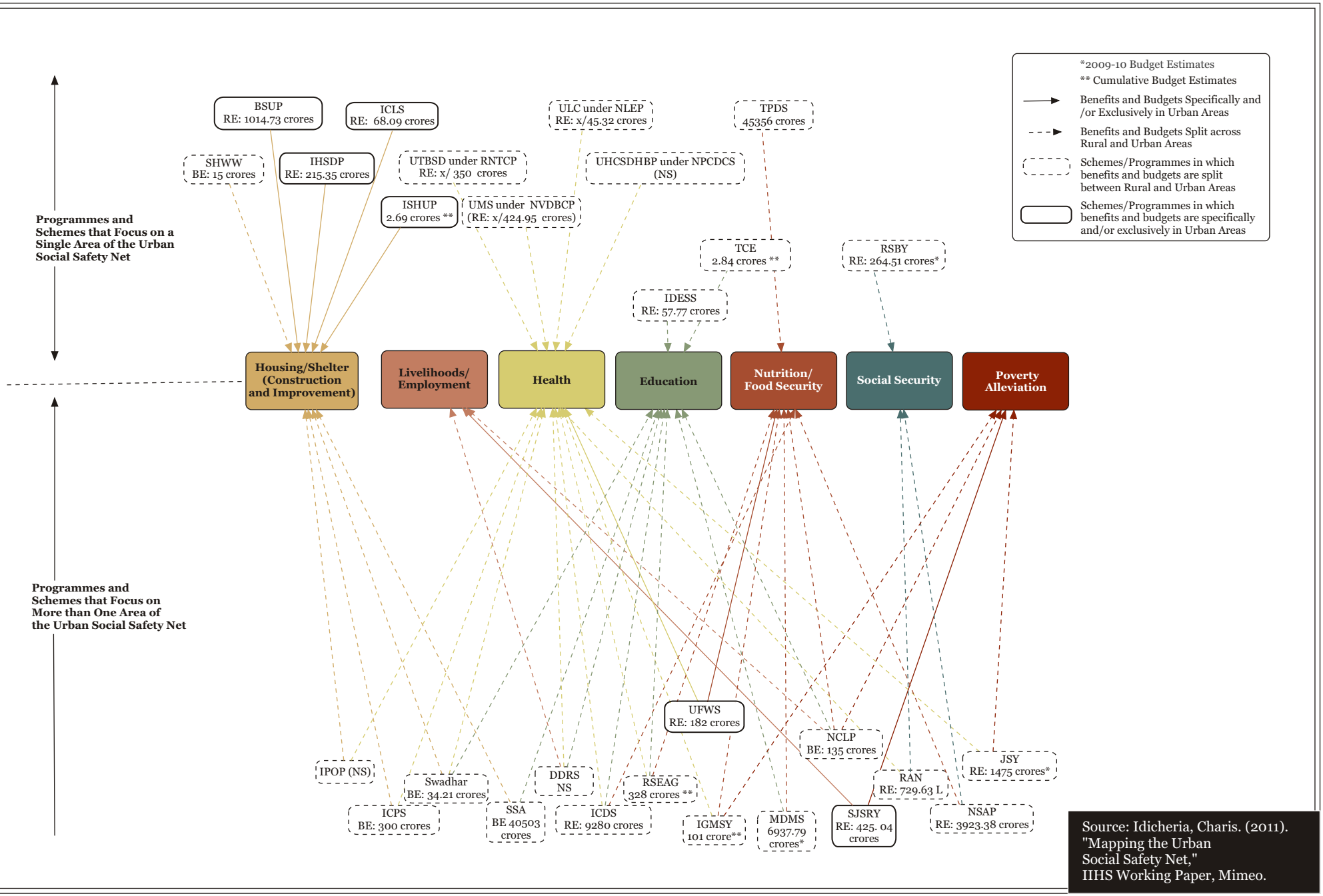
Source: Idicheria, Charis. (2011). "Mapping the Urban Social Safety Net," IIHS Working Paper, Mimeo.

Mapping the Urban Social Safety Net: Programmes for Intended Target Groups



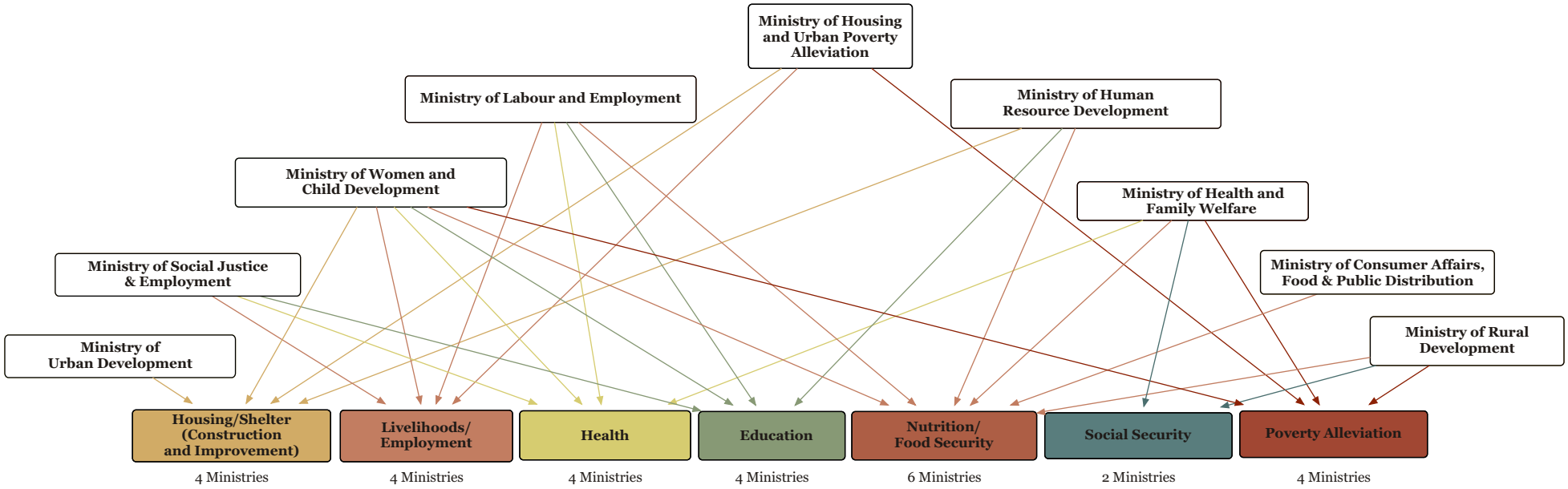
Source: Idicheria, Charis. (2011). "Mapping the Urban Social Safety Net," IIHS Working Paper, Mimeo.

Mapping the Urban Social Safety Net: Programmes and their Operational Themes



Source: Idicheria, Charis. (2011). "Mapping the Urban Social Safety Net," IIHS Working Paper, Mimeo.

Mapping the Urban Social Safety Net: Ministries and their Operational Themes



Source: Idicheria, Charis. (2011). "Mapping the Urban Social Safety Net," IIHS Working Paper, Mimeo.

Urban Infrastructure & Services

Urban Infrastructure & Services

India's urban infrastructure and services are the basic foundations for settlements' economic, social, cultural, and environmental dynamics. Improving them is more than a matter of investment targets and per capita access; these are strategic investments in the structure, functionality, liveability, and sustainability of India's cities.

Much of urban India's infrastructure is in relatively poor shape, especially in the non-metropolitan cities. The JNNURM has started changing that for a fraction of the cities in the country, but the investment and absorption deficits are so large that is becoming difficult even to catch-up with the expanding informality and growth in city sizes.

The following pages present some selected highlights of research and data analysis from the last decade on India's urban infrastructure and services. Unfortunately, there are few comprehensive sources on urban infrastructure and services across sectors – the patchwork here is as much by necessity as choice.

On each page, we mention some of the relevant service level benchmarks provided by the Ministry of Urban Development in 2008, which have been incorporated as progress benchmarks in the Thirteenth Finance Commission Report and as the basis for calculating investment needs in the HPEC (2011) Report on Indian Urban Infrastructure and Services. These can be and are debated in terms of feasibility and desirability, but they are the de facto policy standard.

The figures on access to the services, taken from analysis of Census 2001 data in the World Bank's (draft) India Urbanisation Review presents a striking contrast to these norms. The graphs also highlight significant discrepancies between cities of different sizes in terms of both providing and accessing basic infrastructure and services. The location of more competitive or "higher tech" employment – highlighted in the section Economic Geography - is understandably correlated with better infrastructure.

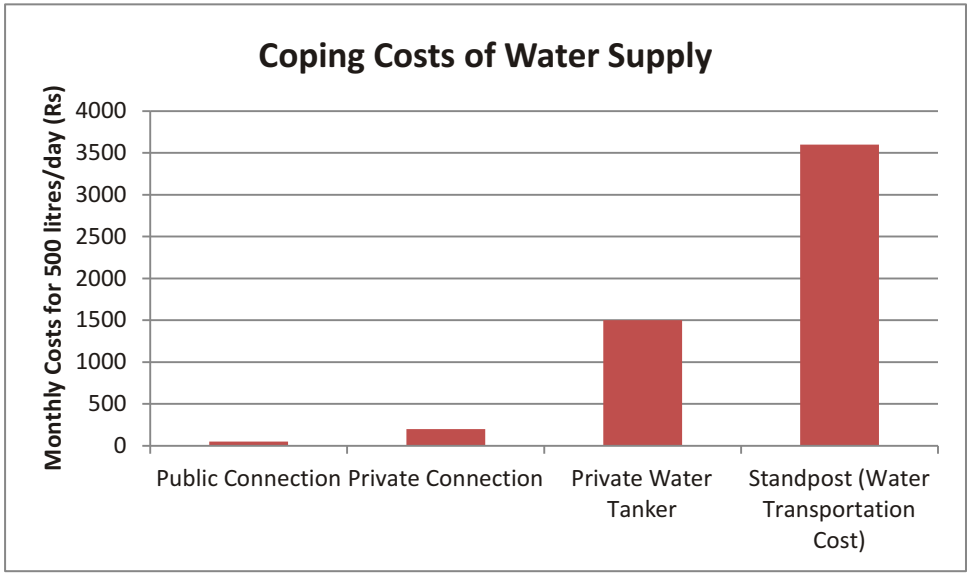
The pages are also meant to initiate a discussion on the consequences of incomplete infrastructure and services. Unreliable electricity provision, for example, affects businesses' prospects, especially for smaller enterprises that may not be able to afford backup power. When one considers that much of urban employment is in the informal sector, and often self-employed sole-proprietor enterprises, the figures on cost to business are obviously an underestimate. Use of backup generators is also environmentally unsustainable. Similarly, the page on transport highlights the ongoing shift away from public transport via bus toward road-based private transport. Current investment patterns in urban infrastructure, discussed in the section on Urban Investment, appear to reinforce this environmentally challenging trend.

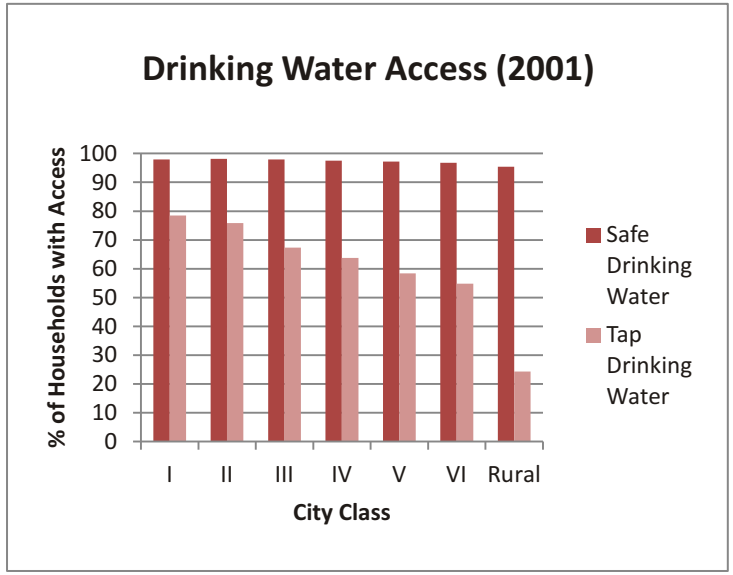
Finally, we present some hints of the ways of how the current infrastructure gaps are filled through "informal privatisation": use of borewells and generators, for example, as well as reliance on waste-pickers and other informal and small scale entrepreneurs for solid waste management. With much of the discussion about private provision of urban infrastructure focused on PPPs and larger-scale private finance, we felt that it was worthwhile to expand the discussion to other aspects of non-public provision.

The final page represents urban infrastructure provision as it may look from a citizen's (or other monitor's) perspective. The chart outlines some of the different agencies that are involved in providing the 18 constitutionally mandated functions of ULBs, showing that both the number and density of service providers is disparate between these large cities. The list, generated by the Public Record Of Operations and Finance (PROOF) initiative at Janaagraha Centre for Citizenship and Democracy, is meant to highlight some of the fragmentation of responsibilities and finance and is not necessarily comprehensive in covering every single urban service provider in these cities.

Urban Water Supply

No Indian city has 24 x 7 water supply. Duration of water supply ranges from 1-6 hours.





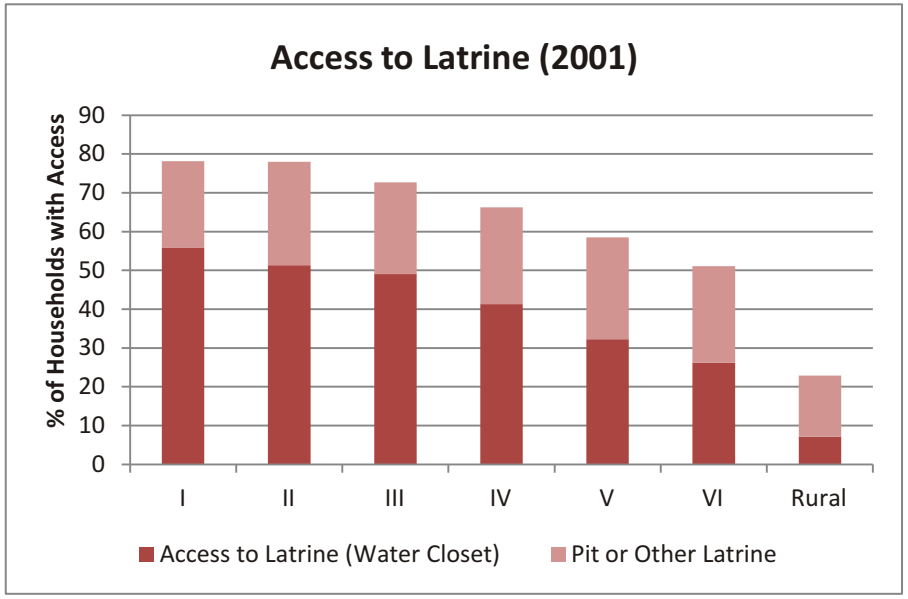
Access varies substantially by city size, with the most significant gaps in smaller cities.

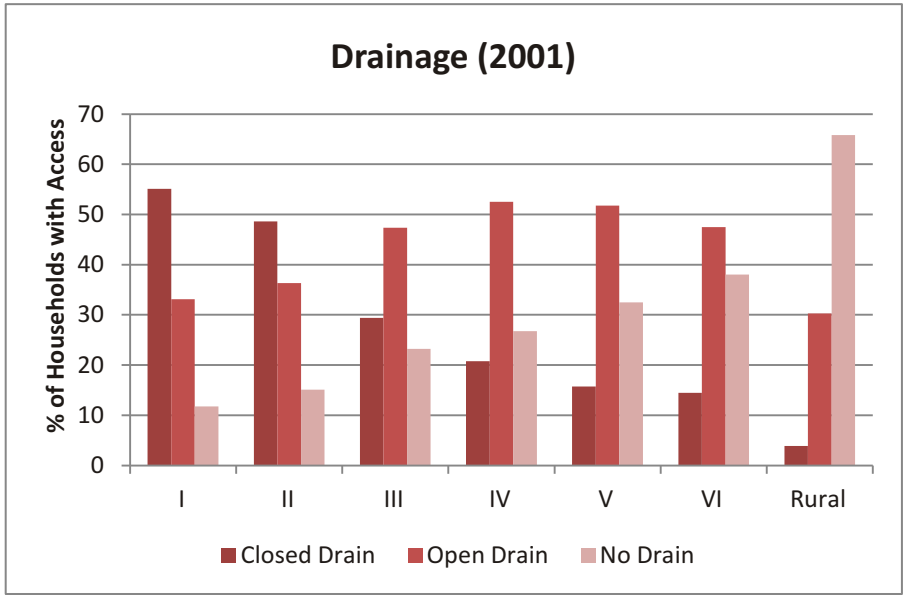
Ministry of Urban Development Service – Level Benchmarks (2008)		
Access: 100% individual piped water supply for all households including informal settlements.	*Reliability:* 24 x 7 water supply for all cities.	*Supply:* Per capita consumption of 135 liters per capita per day

Sources: Access: World Bank (2011) India Urbanisation Review (mimeo) based on Census 2011, Text: HPEC (2011), Coping Costs: Raghupathi (2003)

Sanitation & Drainage

Improved access to latrines and drainage is one matter, but large and dense cities require networks to collect, manage and recycle/treat waste- which are often missing, fractured or dysfunctional. Though Sanitation and Drainage are managed as separate departments in many cities, they are components of a complex interlinked urban waste management system.





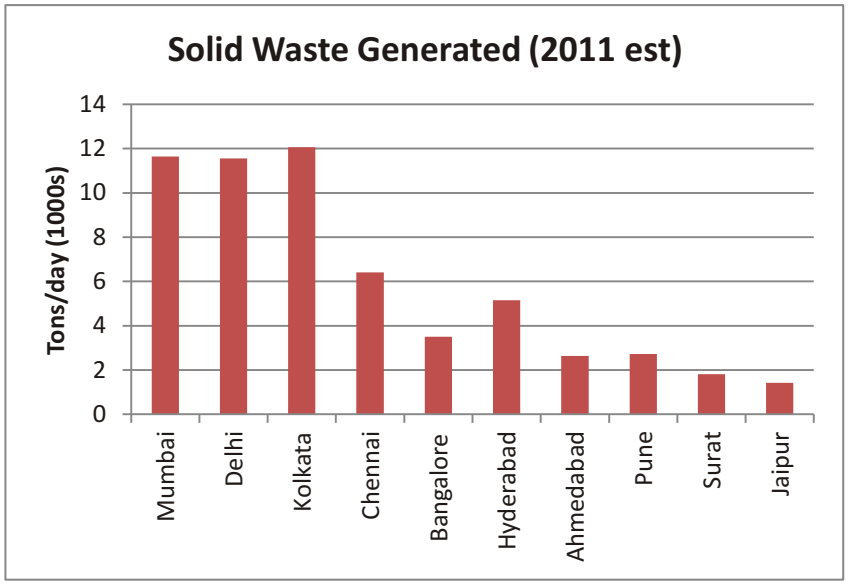
"Access" in the chart above includes shared and community toilets as well as private latrines. As of 2010, more than 30% of urban households' only access to a latrine was through shared or community toilets. Nearly 20% of non-notified slums and 10% of notified slums had no access to a latrine – Sacosan (2011).

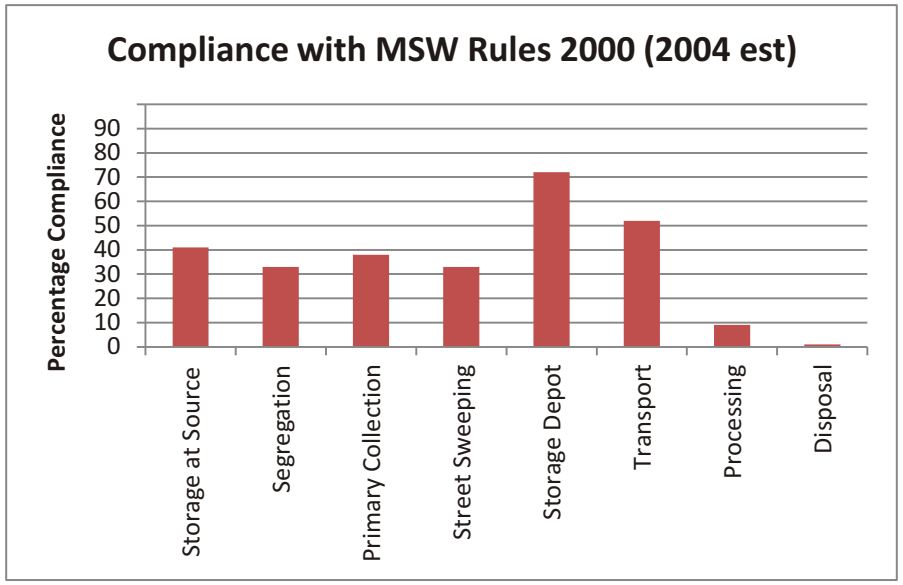
Nearly 94% of India's cities do not have even a partial sewerage network and less than 20% of the road network is covered by storm water drains. (HPEC,2010) Only 13.5% of waste water is treated. (Sacosan, 2011)

Ministry of Urban Development Service – Level Benchmarks (2008)		
Underground Sewerage systems for all cities.	100% collection and treatment of waste-water	Storm water drains for 100% of the road length on both sides of the road for all cities.

Sources: Access: World Bank (2011) India Urbanisation Review (mimeo) based on Census 2011, Text: As Noted

Solid Waste Management





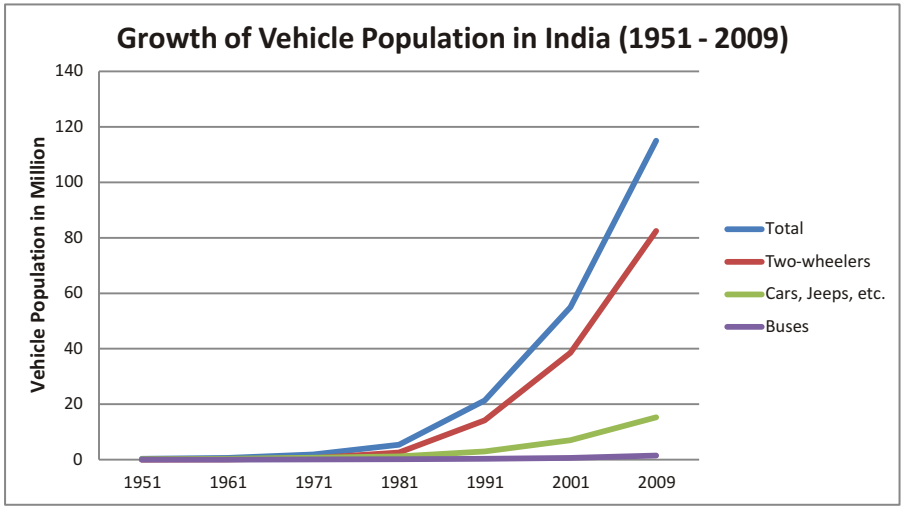
Filling the Gaps: The Role of Waste-Pickers

There are at least 15 lakh waste-pickers and itinerant waste buyers in India – Bangalore BBMP has 15,000. (AIW, 2009) These workers make a substantial contribution to solid waste management as well as environmental sustainability. Their work saves nearly a million tonnes of CO_2 equivalent, in Delhi, and manages 59% of the waste in certain pockets, saving the city over Rs. 12 lakhs in labour cost alone. (Chintan, 2009) In Pune, waste pickers recover recyclable materials amounting to 22% of municipal solid waste, saving the city 12 crores per annum in waste handling costs. (Chikarmane et al, 2001)

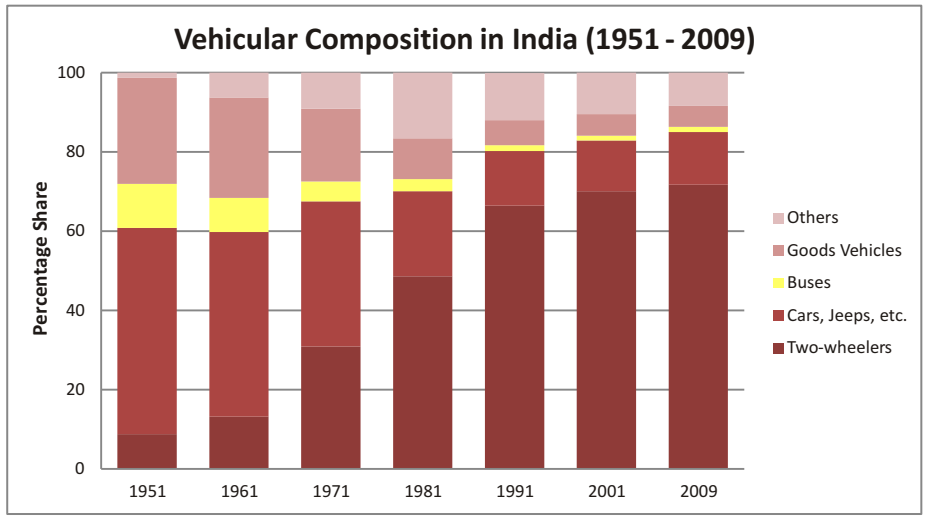
Ministry of Urban Development Service – Level Benchmark (2008)
100% of Municipal Solid Waste collected, transported, and treated for all cities as per MSW 2000 Rules

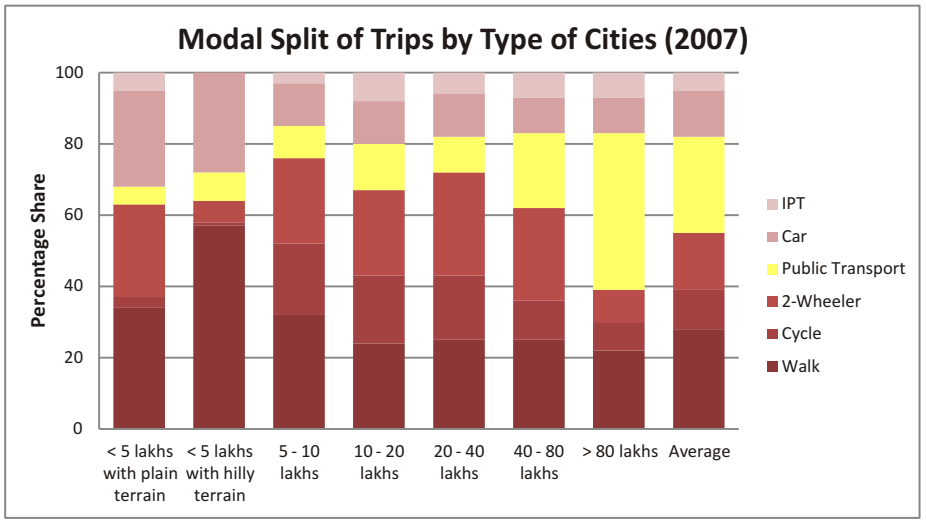
Source: See end note

Urban Transport



Cars and two wheelers make up 85% of vehicles on India's roads, but account for only 29% of trips and are a significant cause of congestion. There has been an exponential growth of two wheelers over the last three decades. The number of buses, which account for 90% of public transport has remained almost constant. Public transport accounts for 49% trips in lower middle income countries and 40% in upper middle income countries while its share is 27% in India. Lack of effective public transportation has further forced people to use personal vehicles. Though a large percentage of urban residents still walk or cycle, an 'epidemic' of traffic accidents puts them at high risk.

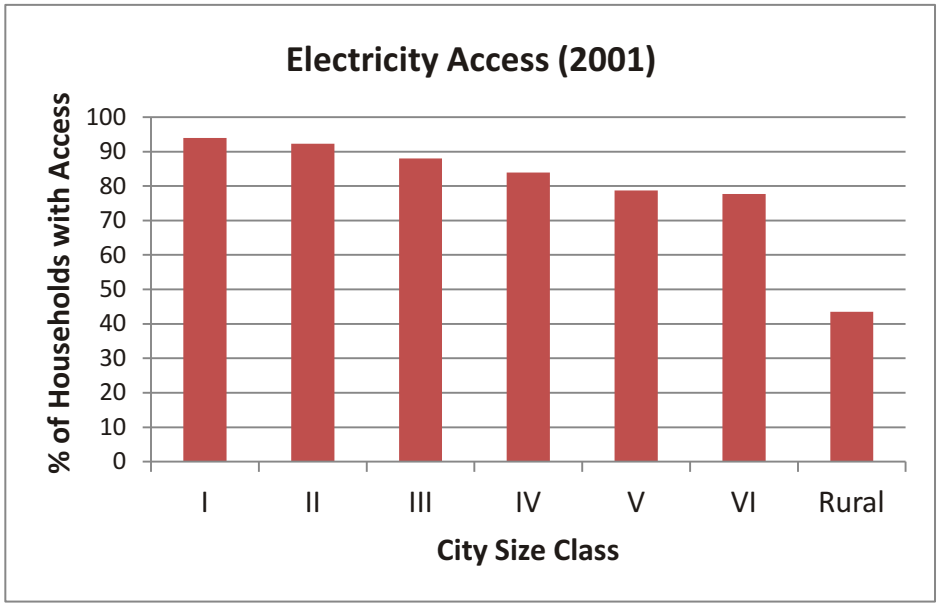




Ministry of Urban Development Service-Level Benchmark (2008)
Rail and Road-based mass rapid transit system (MRTS) for Class 1A and 1B cities, and city bus services for other cities.

Source: IIHS Analysis from various sources, see Endnotes

Power



Electricity and the Business Climate

Firms Reporting Lack of Access to Reliable Electricity as a "Major Constraint": **32%**

Firms owning or sharing a generator: **41.4%**

Amongst generator owners, share of electricity from a generator: **9.8%**

Value Lost Due to Electricity Outages **6.6%** of annual sales.

World Bank Enterprise Surveys, 2006.

There are no Ministry of Urban Development Service Level Benchmark for electricity.

Source: Access: World Bank (2011) India Urbanisation Review (mimeo) based on Census 2001 data.

Service Providers: Responsibility Mapping for Select Cities

Select Cities		Agencies Responsible for Service Delivery	18 ULB Functions as Outlined in Schedule XII of The Constitution (Seventy-Fourth Amendment) Act,1992.																	
			1. Urban Planning Including Town Planning	2. Regulation of Land-use and Construction of Buildings	3. Planning for Economic and Social Development	4. Roads and Bridges	5. Water Supply for Domestic, Industrial and Commercial Purposes	6. Public Health, Sanitation Conservation and Solid Waste Management	7. Fire Services	8. Urban Forestry, Protection of the Environment and Promotion of Ecological Aspects	9. Safeguarding the Interests of Weaker Sections of Society, Including Mentally and Physically Challenged	10. Slum Improvement and Upgradation	11. Urban Poverty Alleviation	12. Provision of Urban Amenities and Facilities Such as Parks, Gardens, Playgrounds	13. Promotion of Cultural, Educational and Aesthetic Aspects	14. Burials and Burial Grounds; Cremations, Cremation grounds and Electric Crematoriums	15. Cattle Pounds; Prevention of Cruelty to Animals	16. Vital statistics including registration of births and deaths.	17. Public Amenities Including Street Lighting, Parking Lots, Bus stops and Public Conveniences	18. Regulation of Slaughter Houses and Tanneries
	Delhi	DDA	X	X	X	X							X	X						
		DIMTS				X														
		DRTA				X														
		DJB					X			X										
		DPCC								X										
		CPCB								X										
		CGWB								X										
		DFS							X											
		MCD	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X
	Mumbai	MMRDA	X	X		X				X		X		X					X	
		MCGM		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X
		BEST																	X	
		MFS							X											
		UDD		X																
		MSRDC				X														
		MSEDC																	X	
	Chennai	CMDA	X	X		X								X					X	
		CoC	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X
		CMWSSB					X													
		TNFRS							X											
	Kolkata	KMDA	X	X		X						X								
		KMC		X	X	X		X		X	X	X	X	X	X	X	X	X	X	X
		KMWSA					X													
		WBFS							X											
		AP Disaster Response							X											
		and Fire Department																		
	Hyderabad	HMDA	X	X		X				X				X					X	
		GHMC	X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X
		HMWSSB					X													
	Bangalore	BDA	X	X		X								X					X	
		BBMP		X	X	X		X		X	X	X	X	X	X	X	X	X	X	X
		BWSSB					X													
		BMRDA	X			X														
		KSFES							X											
	Pune	PDA	X	X																
		PMC		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Ahmedabad	AUDA	X	X		X		X						X					X	
		AMC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Source: Analysis by PROOF team (Janaagraha Centre for Citizenship and Democracy)

Urban Finance

Urban Finance

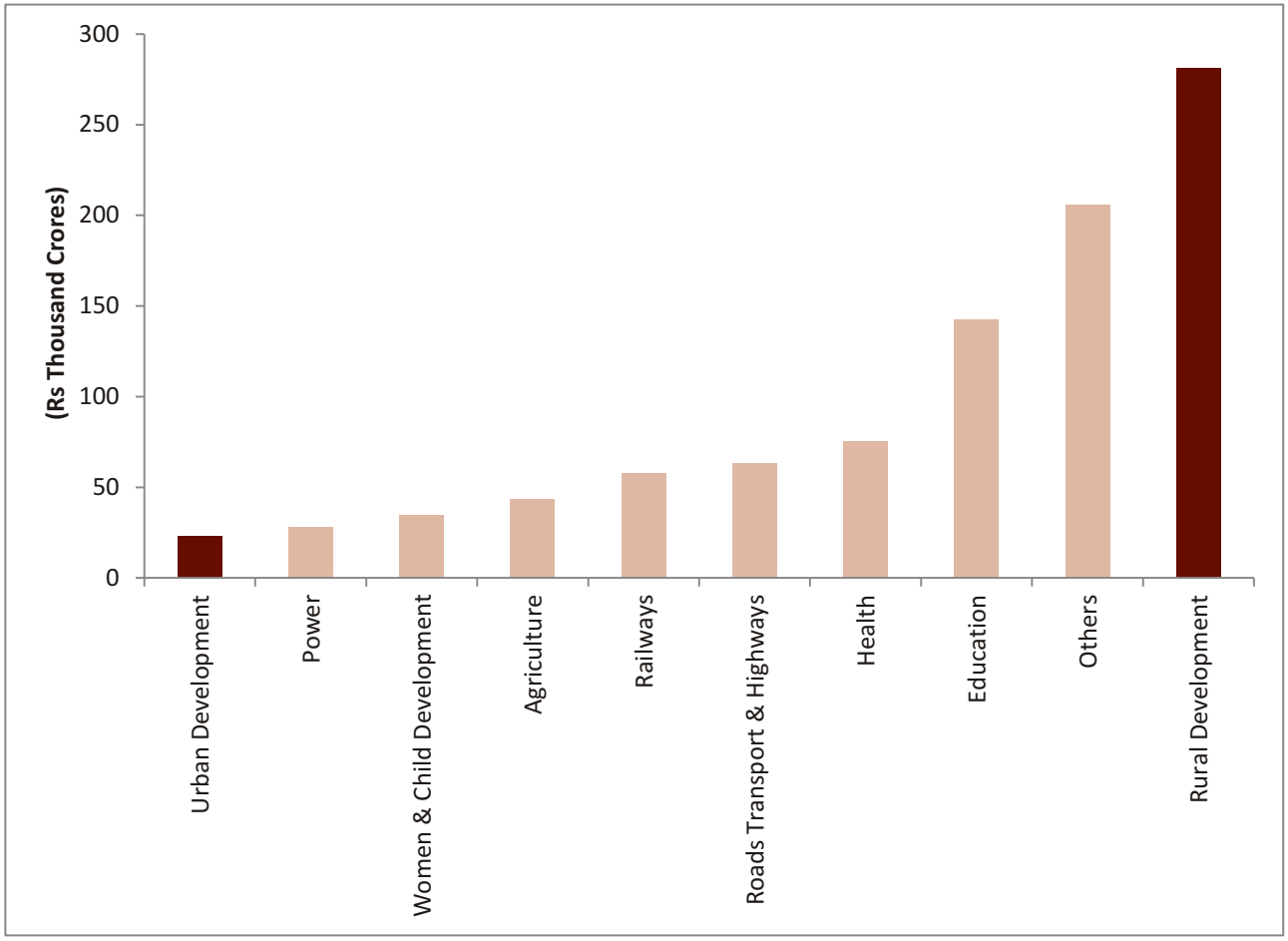
This section examines various aspects of urban investment: allocation & expenditure, revenue collection and finally JnNURM, placing them in the context of observed needs for infrastructure when possible.

The first chart, drawn from various Five Year Plan documents, places urban investment in perspective. It has, historically, been small, even if one considers the fact that some portion of the allocations to social services, transport and communication, and other sectors would go to urban areas in addition to the allocation specifically designed for "urban investment."

This fact raises not only political economy questions about the past, but also important considerations about how any expansion of investment would be handled in the current institutional set up. We use the investment requirements outlined in the High Powered Expert Committee (2011) to illustrate some of the structural changes anticipated in the role of local governments' own revenues as well as the sectoral allocation of urban investment.

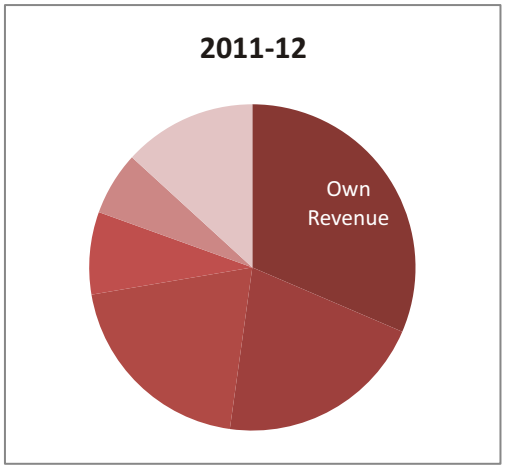
Lastly, urban investment is evaluated on the basis of the flagship central government programme JnNURM. In this analysis, larger cities are shown to receive higher per capita investments, notwithstanding the minimal per capita investment for urban infrastructure in comparison to rural infrastructure.

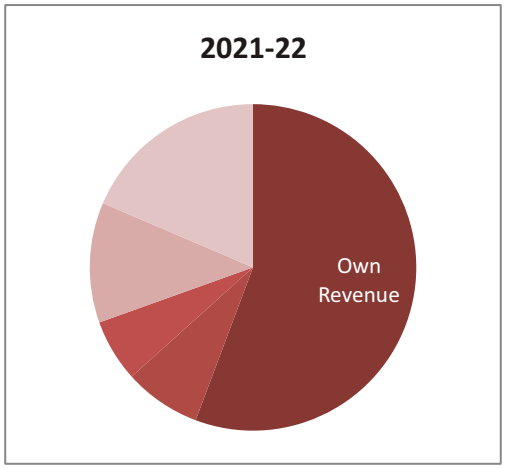
Investment Allocation in the 11th Plan

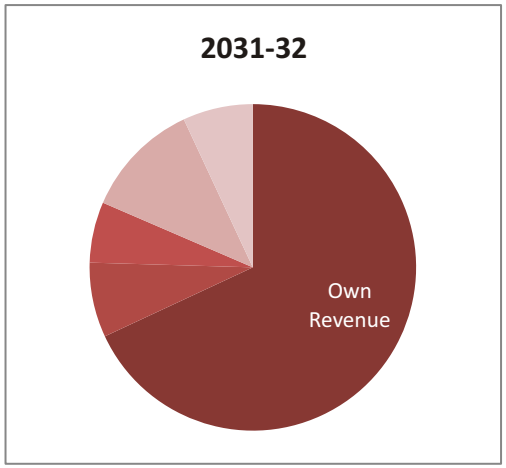


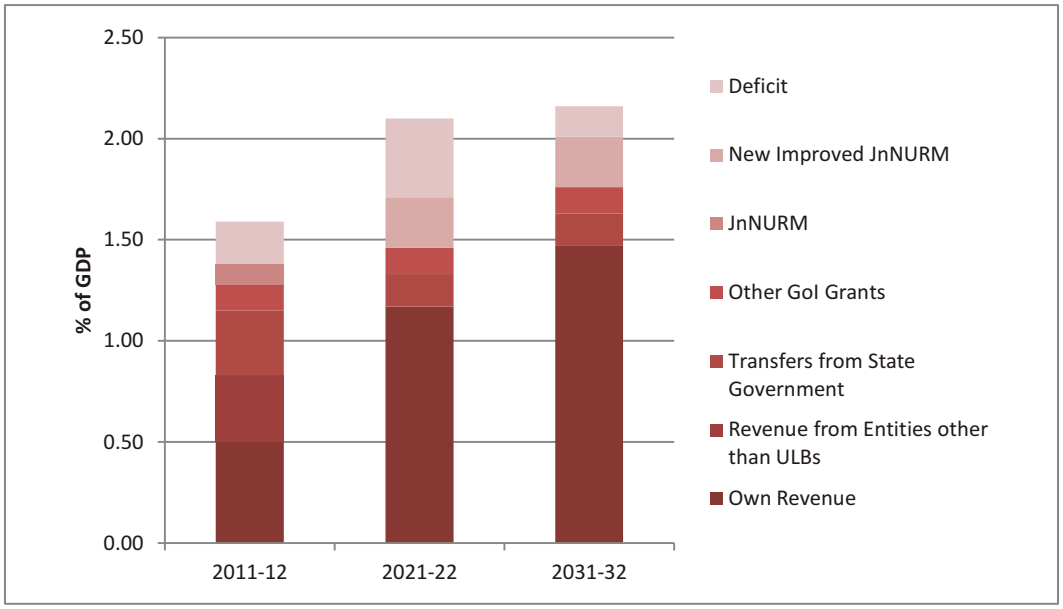
Source: Government of India, Planning Commission- "Issues for Approach to the 12th Five Year Plan", 21 April, 2011

Financing Urban Expenditure









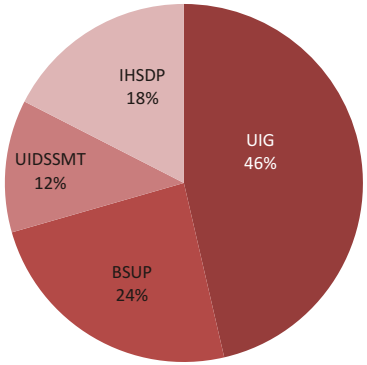
This graph summarises the investment requirements for urban infrastructure and services over the coming decade, as estimated by the HPEC. The HPEC had also projected a potential distribution of the financing burden across levels of government and public and private sectors. ULB's own revenues are expected to finance the bulk of investment by 2031.

Source: High Powered Expert Committee for Estimating the Investment Requirements for Urban Infrastructure Services (2011)

Jawaharlal Nehru Urban Renewal Mission: Allocations by City Size

Jawaharlal Nehru National Urban Renewal Mission (JnNURM) launched in 2005, comprises of four sub-missions: Urban Infrastructure and Governance (UIG) and Basic Services for the Urban Poor (BSUP) for 65 Mission Cities, and Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) and Integrated Housing and Slum Development Programme (IHSDP) for 640 towns and cities.

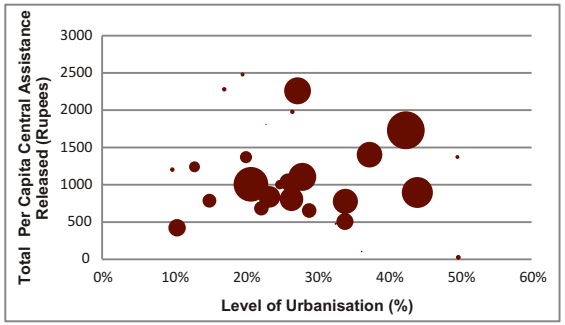
Committed Central Assistance by Scheme



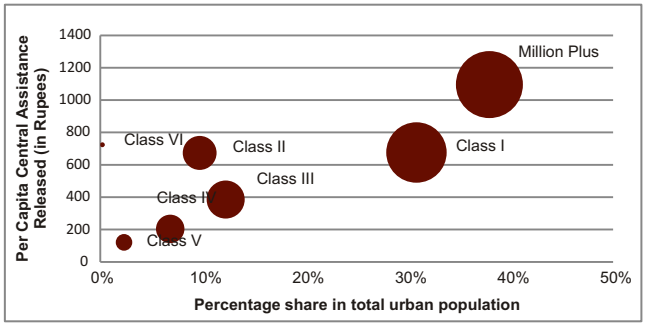
75% of the assistance is committed to 65 mission cities under UIG and BSUP; 25% is for the rest 640 towns under IHSDP and UIDSSMT.

Per capita investment is not correlated with the level of urbanisation in a state but there is a relationship between allocations and city size. On an average, bigger cities have had a higher per capita investment. Also, the percentage of urban population covered under these two schemes decreases with class size. However, smaller cities tend to have bigger service deficits.

Per Capita Central Assistance Released under UIG and UIDSSMT by State

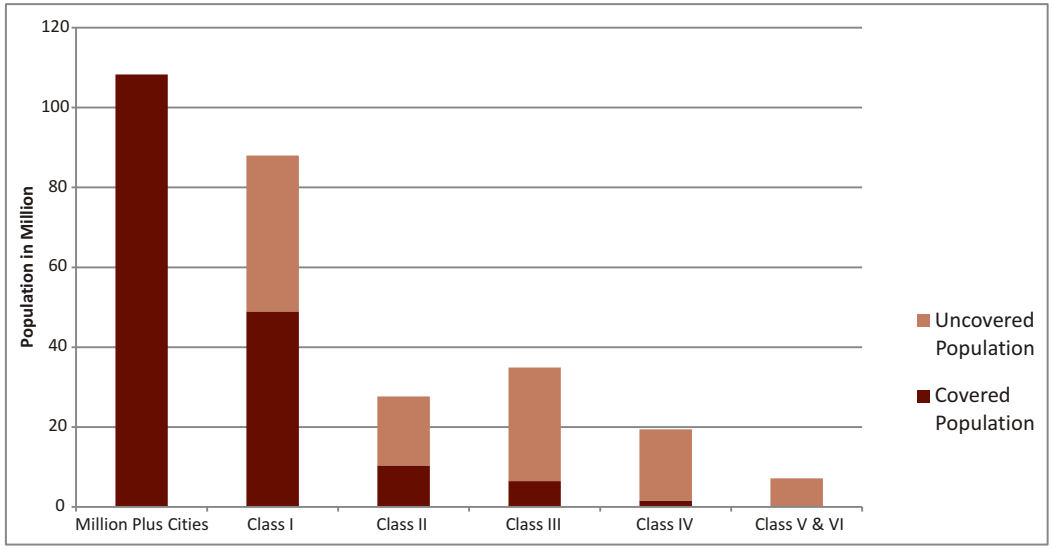


Population Covered under UIG and UIDSSMT by City-Size



The above graphs show the relationship between the per capita funding and states' urbanisation levels as well as per capita funding and the share of particular size-classes of cities in the total urban population. The size of the bubble represents the total urban population in the state/ particular class.

Population Covered under UIG and UIDSSMT by City-Size



The above graph shows the relationship between the population of the cities covered under UIG and UIDSSMT as a percentage of the total population in that class.

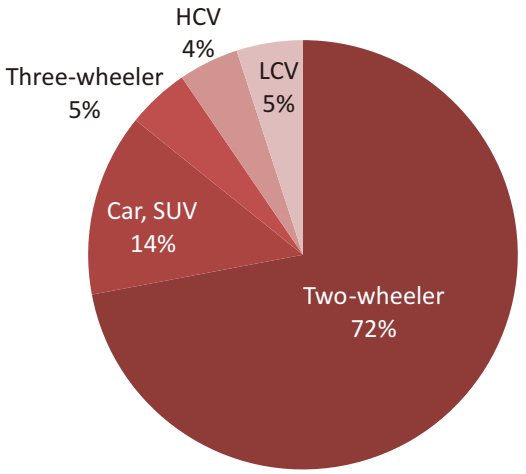
Source: IIHS Analysis based on data from www.jnnurm.nic.in; last accessed on Oct. 20, 2011. Population and services data from Census of India 2001.

Jawaharlal Nehru Urban Renewal Mission: Transport Sector Snapshot

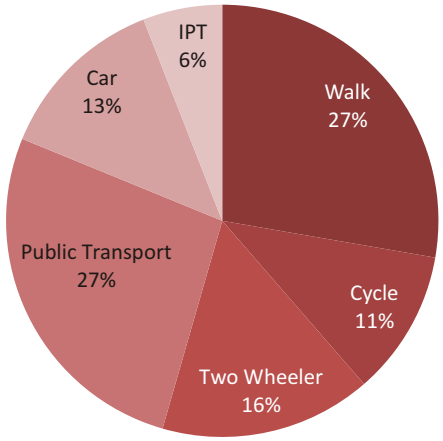
We focus here on the pattern of JnNURM investment in transport as an example of some of the challenges of defining priorities for urban investment within the JnNURM structure. Transport infrastructure is an essential foundation for mobility, which in turn shapes land use, labour markets, economic opportunity, and the environmental sustainability of India's cities.

The chart here display the intra-sector allocation of funding for transport – in total, 11 per cent of JnNURM investment. One point to note is the contrast between funding for roads, flyovers, and parking - infrastructure for vehicles on the roads - in contrast to funding for public transport and the absence of funding for pedestrian or other non-motorized transport.

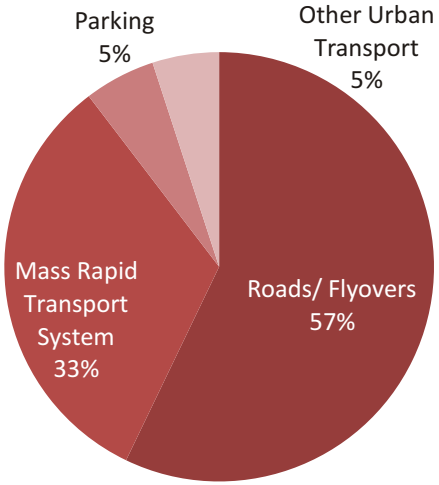
Distribution of Transportation Projects under JnNURM



Modal Split of Trips in Urban Areas of India (2008)



Motorised Vehicular Composition in India (2008)

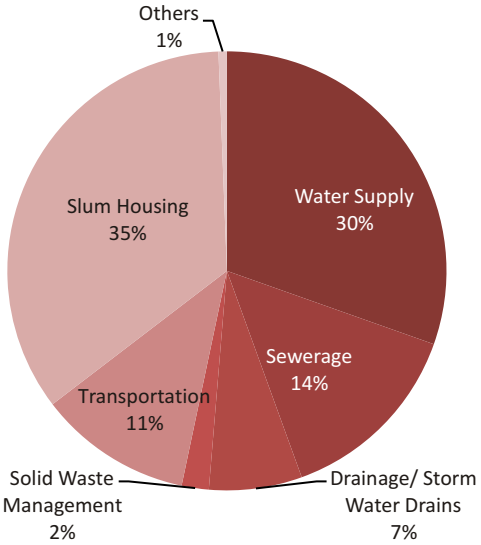


The charts on the left provide some insight into the possibilities for enhancing mobility without increasing vehicular traffic: cars and two-wheelers constitute nearly 86 per cent of the vehicles on the road, while accounting for only 29 per cent of trips.

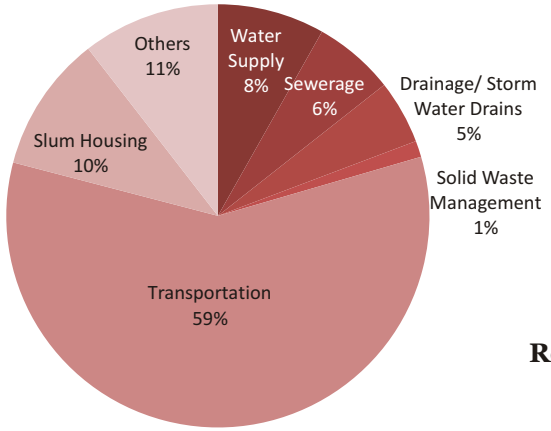
Source: IIHS Analysis based on data from www.jnnurm.nic.in; last accessed on Oct. 20, 2011. MoUD and Wilbur Smith Report on Study on Traffic and Transportation Policies and Strategies in Urban Areas in India, 2008.

Urban Investment: Sectoral Shifts?

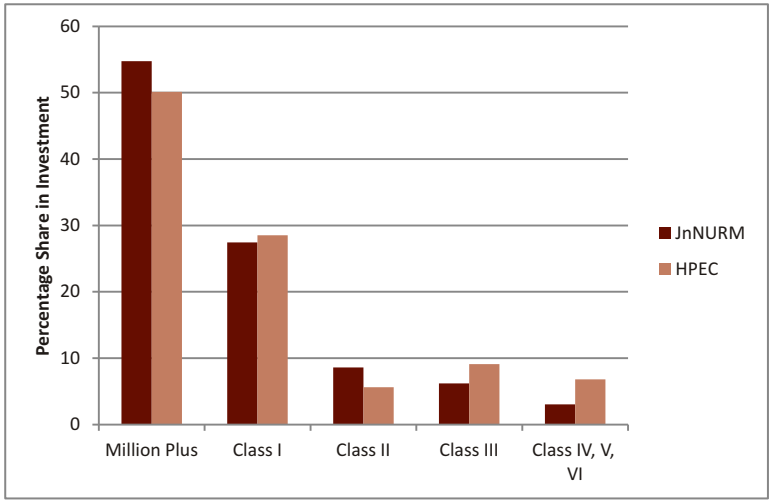
Sector-wise Central Assistance Released under JnNURM (2006-11)



Sector-wise Urban Infrastructure Requirement proposed by HPEC (2012-31)



Relative Share of Central Assistance Released under JnNURM (2006-11) vs. Proposed by HPEC (2012-31) by City-Size



The High Powered Expert Committee (HPEC) for estimating the investment requirements for urban infrastructure services proposed almost 35 times increase in overall investment in urban areas as compared to investments made under JnNURM.

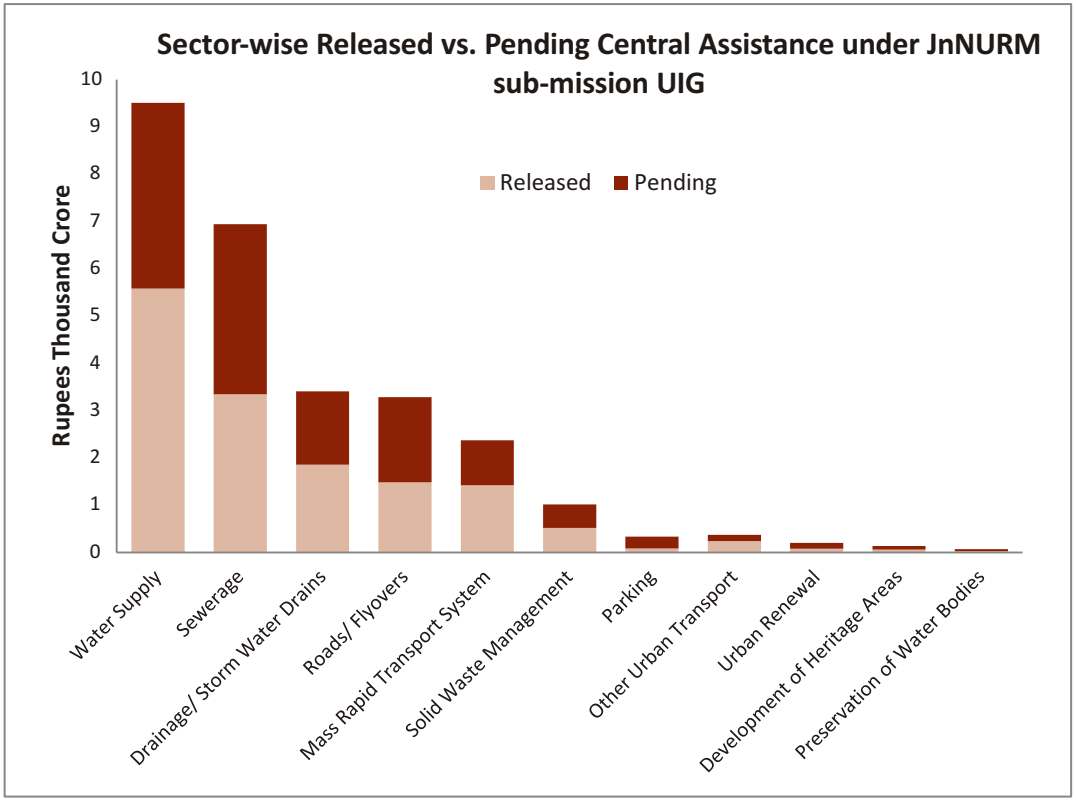
A shift in the proposed sectoral composition can be seen with almost 60 per cent of the investment to be made in the transportation sector. The focus of the transport projects, however, remains on the roads.

The HPEC recommendations seem to continue to allocate substantial funding to the larger cities.

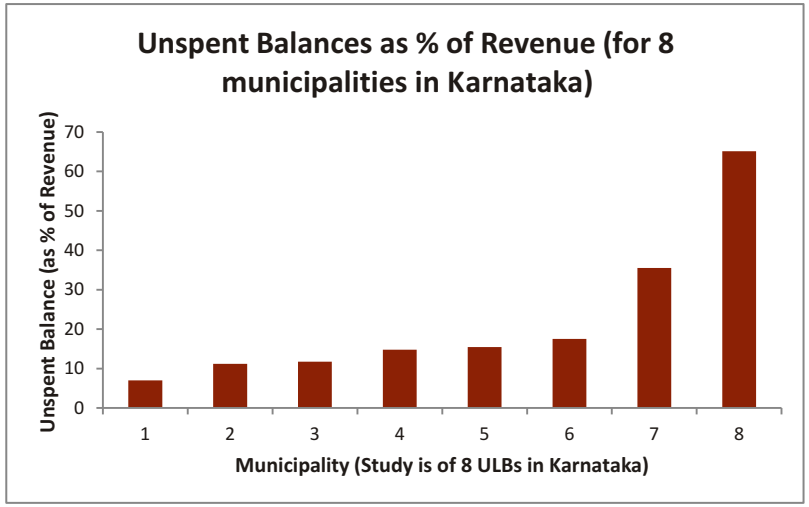
Source: IIHS Analysis based on data from www.jnnurm.nic.in; last accessed on Oct. 20, 2011, HPEC Report on Indian Urban Infrastructure and Services 2011, Census of India 2001.

From Allocations to Infrastructure

These charts demonstrate the challenges in financing infrastructure – even when funds are available or allocated, it is not always the case that they can be disbursed and spent. The following charts present evidence from national and local levels to illustrate two types of bottlenecks.



At the national level, there is a significant discrepancy between central money allocated (the height of the column) versus disbursed (released) under JnNURM sub-mission UIG. Funds are "pending" when the central government has not released them to cities, possibly because they haven't spent other released funds.



At the local level, it is clear that municipalities often face difficulties in spending revenues even after these have come into their accounts. Half of the Karnataka municipalities depicted here - left unnamed in order to focus attention on the overall point rather than particular ULBs - have left more than 15% of their revenues unspent. The underlying data suggest that ULBs often have trouble with sudden increases in revenues – unspent balances are much higher for years when revenues peak.

Source: JnNURM website and Centre for Budget and Policy Studies (CBPS)

End Notes

Page 7 | Urban India 2031

Population projections have been made for each city by fitting a quadratic curve for its population growth over the past ten Census periods (using population data from the Census of India 1901-2011), and estimating its population for the next twenty years by extending the curve till 2031.

Page 9, 10, 11 | Top Ten Cities of India

Population data from Census of India (2011), land cover estimated by IIHS Geospatial Lab, and output data estimated from district-level economic output data from the Planning Commission (accessed at http://planningcommission.nic.in/plans/stateplan/index.php?state=ssphdbody.htm on 25 October 2011). Data for the states of Gujarat, Goa, Jammu and Kashmir, Nagaland and Tripura was not available, therefore calculations for these states are based on state-level output data from the Central Statistical Organization (accessed at: http://mospi.nic.in/Mospi_New/upload/SDPmain.htm on 3 November 2011). Similarly, data for Delhi, Chandigarh, and Puducherry was also obtained from the latter source. Output for a particular city is obtained from the output of the district by assuming that the economic output of the city is proportional to its population share in the district. It is assumed that if the city accounts for x% of the population share in a district, it produces 2x% of the output of that district.

Page 25 to 32 | District Domestic Product

District-level data on economic output, disaggregated by industry, obtained from the Planning Commission website (accessed at http://planningcommission.nic.in/plans/stateplan/index.php?state=ssphdbody.htm on 25 October 2011). District-level data for Gujarat, Goa, Jammu & Kashmir, Nagaland and Tripura is not available, and therefore calculations for these states are based on state-level output data from the Central Statistical Organization (accessed at: http://mospi.nic.in/Mospi_New/upload/SDPmain.htm on 3 November 2011). District outputs in these states have been estimated as follows: data for state-level economic output was obtained from the CSO, and output was assumed to be distributed evenly across all the districts of the state. Similarly, data for Delhi, Chandigarh, and Puducherry was also obtained from the latter source.

Page 39 | Migration - Components of Urban Population Growth

The methodology used to disaggregate urban population growth into four components- natural growth, increase due to reclassification, increase in the size of urban agglomeration, and net rural to urban migration- has been borrowed from the 'Handbook on Urbanisation' by Sivaramakrishnan, Kundu and Singh (2005). The components for the decade 2001-11 have been calculated in the following manner:

Natural Growth: The natural growth rate for urban areas in each state from SRS, Vol.45 No.1, 2011 have been used to arrive at the national component of natural growth.

Increase due to reclassification of towns : Using the following information released by the Census of India, 2011, estimation is made of the population in these additional towns using the minimum limit of 5,000 persons in each of these (According to the definition of urban by Census of India - All statutory places with a municipality, corporation, cantonment board or notified town area committee. A place satisfying the following three criteria simultaneously: a minimum population of 5,000; at least 75 per cent of male working population engaged

in non-agricultural pursuits; and a density of population of at least 400 per sq. km.) These additional towns may have more people than the minimum standard defined which will result in an increase of this component.

	2011 Census	2001 Census	Additions
Statutory Towns	4,041	3,799	242
Census Towns	3,894	1,362	2,532
Urban Agglomeration	475	384	91
Out Growths	981	962	19

Net Rural to Urban Migration : IIHS Analysis is based on the migration rates presented in the NSS 64th round for the year 2007-08. Population was extrapolated for the year 2007-08 using Census of India's population data from 2001 and 2011. The interstate migration rates have been borrowed from Table 24, NSS 64th Round (2007-08).

Increase in the size of urban agglomerations : This is the residual of the total increase in urban population as presented in the Census of India 2011 data.

Pages 40, 41, 42 | Maps for Estimated Migration (2001-11)

IIHS Analysis is based on the inter-state migration rates presented in Table 24 of the NSS 64th round for the year 2007-08. Population was extrapolated for this year using Census of India's population data from 2001 and 2011. Data from Reserve Bank of India, 2007-08 has been used for mapping the state GDP.

Page 46,47 | Urban Informality and Job types

Chen, M., and Raveedran, G., Urban Employment in India. Recent Trends and Patterns, November 2011.

Page 48 | Urban and Rural Poverty trends

Government of India, Planning Commission (2008). Eleventh Five-Year Plan, Volume III. New Delhi: Oxford University Press. Pgs 79-80.

Page 49,50 | Caste-wise Rural & Urban Distribution of Wealth

For details of computation of wealth, see Zacharias, A., & Vakulabharanam, V. Caste Stratification and Wealth Inequality in India, World Development (2011), doi:10.1016/j.worlddev.2011.04.026, Table 3.

Page 51 | City Size-wise Urban Poor & Slums

This chart is based on city size as of the 2001 census. It groups cities into different size classes in order to compare analysis from the two reports. Although Mathur reports slum population for the six city size classes in the census, Lanjouw and Murgai note that 2004-5 NSS data

do not permit detailed differentiation. Lanjouw, P. and R. Murgai (2011). Perspectives on Poverty in India: Stylized Facts from Survey Data. Washington, D.C: World Bank and Mathur, O.P. (2009). “Slum-Free Cities: A New Deal for the Urban Poor,” NIPFP.

Page 54 | Intended Benefits for Target Groups

This infographic depicts intended benefits for target groups in urban India. Programs were selected if they reported urban intervention in either the 2010-11 annual ministry report or on the website of the respective ministry. If urban intervention was unclear or unlisted, the programme was not included. Programmes were also only chosen if their budgets indicated that at least a pilot had been launched. Intended benefits are those that the ministry positions as a functional or admissible component in each programme. This map does not indicate whether or not beneficiaries are receiving these benefits or the extent of coverage but merely highlights a scenario of intent in the tenets of programmes in urban India. AAY: Antyodaya Anna Yojana APL: Above Poverty Line BPL: Below Poverty Line EWS: Economically Weaker Sections LIG: Lower Income Group SC: Scheduled Castes ST: Schedules Tribes

Page 55 | Programmes for Intended Target Groups

This infographic depicts programs for target groups in urban India. Programs were selected if they reported urban intervention in either the 2010-11 annual ministry report or on the website of the respective ministry. If urban intervention was unclear or unlisted, the programme was not included. Programmes were also only chosen if their budgets indicated that at least a pilot had been launched. Intended benefits are those that the ministry positions as a functional or admissible component in each programme. This map does not indicate whether or not beneficiaries are receiving these benefits or the extent of coverage but merely highlights a scenario of intent in the tenets of programmes in urban India. Moreover, many programmes indicate a single budget for urban and rural operations. All RE estimates are till December 2010 unless otherwise specified. Where information on RE was not available, BE for 2010-11 were used. For budgets that did not report whether the financial progress was an RE or BE figure, the reported outlay for 2010- 11 are indicated. Finally, cumulative figures as well as expenditure from 2009-10 were used if none of the figures above were available. The abbreviations for the schemes are below:

BSUP: Basic Services to the Urban Poor

DDRS: Deendayal Disabled Rehabilitation Scheme

ICDS: Integrated Child Development Services

ICLS: Integrated Low Cost Sanitation Scheme

ICPS: Integrated Child Protection Scheme

IDESS: Inclusive Education for Disabled at Secondary Stage

IGMSY: Indira Gandhi Matritva Sahyog Yojana

IPOP: Integrated Programme for Older Persons

ISHUP: Interest Subsidy Scheme for Housing Urban Poor

JSY: Janani Suraksha Yojana

MDMS: Mid-Day Meal Scheme

NCLP: National Child Labour Project

NPCCDCS: National Programme for Control of Cancer, Diabetes, CVD and Stroke

NS: Not Specified

NSAP: National Social Assistance Programme

RAN: Rashtriya Arogya Nidhi

RNTBCP: Revised National TB Control Programme

RSBY: Rashtriya Swasthya Bima Yojana

RSEAG: Rajiv Gandhi Scheme for Empowerment of

Adolescent Girls

SHWW: Scheme of Hostel for Working Women

SJSRY: Swarna Jayanti Shahri Rozgar YojanaSSA: Sarva Shikha Abhiyan

TCE: Top Class Education

TPDS: Targeted Public Distribution System

UFWS: Urban Family Welfare Services

UHCSDHBP: Urban Health Check-up Scheme for Diabetes and High Blood Pressure

UTBSD: Urban TB for Slum Dwellers

Page 61 | Urban Sewerage & Drainage

"Sacosan (2011)" refers to Government of India (2011). Enhanced Quality of Life Through Sustained Sanitation. Paper developed by Ministry of Rural Development Department of Drinking Water and Sanitation and Ministry of Urban Development for the IV Annual South Asia Conference on Sanitation, Colombo, Sri Lanka. HPEC 2011 refers to the Report on India Urban Infrastructure and Services of the Government of India High Powered Expert Committee chaired by Dr. Isher Ahluwalia.

Page 62 | Solid Waste Management

Data on the number of waste-pickers come from The Alliance of India Waste-Pickers, which defines waste-pickers as "self employed workers in the informal economy who earn their livelihood from the collection and sale of recyclable scrap from urban solid waste for recycling. They collect discarded materials that have zero value and convert it into a tradable commodity through their labour in extracting/collection, sorting, grading and carrying/transporting." Other sources used in the text box are: Chintan Environmental Research and Action Group (2009)"Cooling Agents – An Analysis of Greenhouse Gas Mitigation by the Informal Recycling Sector in India," mimeo. Chikarmane, Poornima, Deshpande, Medha, and Lakshmi Narayan, (2001) "Report on Scrap Collectors, Scrap Traders and recycling Enterprises in Pune," mimeo

The data on waste generation for the top 10 metros comes from as database collected by Ranjith Annepu of Columbia University's Earth Engineering Centre, using the CPCB-NEERI study "Assessment Of Status Of Municipal Solid Waste Management In Metro Cities And State Capitals," and a database published by Ministry of New and Renewable Energy for the "National Master Plan for Development of Waste-to-Energy in India." The figures and some explanatory notes on methodology are available at http://swmindia.blogspot.com/. Per capita data are based on 2011 Census population figures.

Page 63 | Transportation

Analysis is based on data from Road Transport Year Book of MoRTH, 2011; MoUD and Wilbur Smith Report on Study on Traffic and Transportation Policies and Strategies in Urban Areas in India, 2008; HPEC(2011). Report on India Urban Infrastructure and Services of the Government of India High Powered Expert Committee chaired by Dr. Isher Ahluwalia.

Page 64 | Power

The World Bank Enterprise surveys comprise a mixed sample of 4,234 urban and rural firms, but the focus is on non-agricultural business activities and the country samples are therefore clustered around urban areas.

Page 65 | Service Providers

This chart depicts the service providers that are responsible for the 18 ULB functions detailed in the 74th Amendment Act, 1992. The chart draws from data generated by the PROOF team at Janaagraha for select cities. The abbreviations used are as follows:

AMC: Ahmedabad Municipal Corporation

AMTS: Ahmedabad Municipal Transport Services

APSRTC: Andhra Pradesh State Road Transportation Corporation

AUDA: Ahmedabad Urban Development Authority

BBMP: Bruhat Bengaluru Mahanagara Palike

BDA: Bangalore Development Authority

BES&T: The Brihanmumbai Electric Supply & Transport Undertaking

BWSSB: Bangalore Water Supply and Sewerage Board

CC: Corporation of Chennai

CGWB: Central Ground Water Board

CMDA: Chennai Metropolitan Development Authority

CPCB: Central Pollution Control Board

DDA: Delhi Development Authority

DJB: Delhi Jal Board

DMTS: Delhi Integrated Multi Modal Transit System Ltd

DPCC: Delhi Pollution Control Commity

DRTA: Delhi Road Transport Authority

GHMC: Greater Hyderabad Municipal Corporation

HMDA: Hyderabad Metropolitan Development Authority

HMWS & SB: Hyderabad Metro Water Supply and Sewerage Board

KMC: Kolkata Municipal Corporation

KMDA: Kolkata Metropolitan Development Authority

KMWSA: Kolkata Metropolitan Water & Sanitation Authority

MCD: Municipal Corporation of Delhi

MCGM: Municipal Corporation of Greater Mumbai

MMRDA: Mumbai Metropolitan Region Development Authority

MOEF: Ministry of Environment and Forest Act

MSEDC: Maharashtra State Electricity Distribution Co. Ltd

NDMC: New Delhi Municipal Council

PDA: Pune Metropolitan Development Authority

PMC: Pune Municipal Corporation

UDA: Urban Development Authority

UDD: Urban Development Department

Page 68 | Investment Allocation in the 11th Plan - Chapter Details for Plan Allocations

The consolidation of sectoral allocations for each of the five year plans have been extracted from the Planning Commission website. These appear within chapters of the plan document. The chapter details for each of the plans is as listed below. For the 11th Five Year Plan, under chapter 3 titled 'Financing the Plan', Annexure 3.1 Sectoral Allocations of Public Sector Resources - Tenth Plan Realizations and Eleventh Plan Projections has been considered.

The consolidation of sectoral allocations for each of the five year plans have been extracted from the Planning Commission website. These appear within chapters of the plan document. The chapter details for each of the plans is as listed below. For the 11th Five Year Plan, under chapter 3 titled 'Financing the Plan', Annexure 3.1 Sectoral Allocations of Public Sector Resources - Tenth Plan Realizations and Eleventh Plan Projections has been considered.

For the 10th Five Year Plan, under chapter 3 titled 'Public Sector Plan: Resources and Allocations', Annexure 3A (Pg 87)-Sectoral Allocations of Public Sector's Resources - Ninth Plan Realizations and Tenth Plan Projections has been considered.

For the 9th Five Year Plan, under chapter 3 titled 'Public Sector Plan: Resources and Allocations', Annexure 3.2 Public Sector Outlay by Major Heads of Development in the Ninth Plan (1997-2002) has been considered.

For the 8th Five Year Plan, under chapter 5 titled 'Financing the Plan', Table 3.17 Public Sector Outlay by Major Heads of Development - Eighth Plan (1992-97) has been considered.

For the 7th Plan, under Chapter 3 titled 'Objectives, Strategies and Pattern of Growth in Seventh Plan', Table 3.4 (a) Public Sector Outlays - Seventh Plan has been considered.

For the 6th Five Year Plan, under chapter 4 titled 'Public Sector Outlays', Annexure 4.3 Sixth Five Year Plan - Public Sector Outlays has been considered.

For the 5th Five Year Plan, under chapter 5 titled 'Plans Outlays and Programmes of Development', Table: Fifth Five Year Plan Outlay (1974-79) has been considered.

For the 4th Five Year Plan, under chapter 3 titled 'Plan in Outline', Table 1 Fourth Plan Outlay and Investment Public and Private Sectors has been considered.

For the 3rd Five Year Plan, under chapter 3 titled 'Third Plan in Outline', Table 2 Financial provisions has been considered.

For the 2nd Five Year Plan, under chapter 3 titled 'The Plan in Outline', Table: Distribution of Plan Outlay by Major Heads of Development has been considered.

For the 1st Five Year Plan, under chapter 4 titled 'The Five Year Plan in Outline', Section on Priorities and the Pattern of Outlay, Distribution of Expenditure in the Development Programme of the public sector has been considered.

Details on consolidation of plan allocations

For the 1st Five Year Plan, Rs. 51.99 crores under 'Others' was consolidated to 'General Services'. 'Irrigation and Power' was a category under only the 1st Plan, a new major head 'Irrigation and Flood Control' replaced this as of the 2nd Plan. Hence, the 1st Plan amount under Irrigation/Power was labeled as 'Irrigation & Flood Control'. Rs. 85 crores under 'Rehabilitation' was consolidated under 'Social Services' category, since 'Rehabilitation' falls under this larger major head in the subsequent plans. Also, in case of the 2nd Five Year Plan, Rs.99 crores under 'Others' was added to 'General Services'.

For the 3rd Five Year Plan, Rs.200 crores under 'Inventories' was added to 'General Services'. Rs. 264 crores under 'Village & Small Industries' was added to 'Rural Development'.

In regard to the 4th Five Year Plan, amounts under 'Health', 'Family Planning', 'Water Supply & Sanitation', 'Welfare of backward classes', 'Labor welfare & Craftsmen Training' were consolidated under the major head 'Social Services'. Rs. 822 crores under 'Education' was also consolidated with 'Social Services'. This was done because all this individual categories fall under the larger 'Social Services' head in the subsequent plans. Rs. 293 crores under 'Village & Small Industries' was added to 'Rural Development'. Rs. 192 crores under 'Others' was added to 'General Services' major head.

For the 5th Five Year Plan, Rs. 450 crores allocated to 'Hill & Trbal areas' and 'NEC schemes' was consolidated under 'Special Area Programmes' major head. Rs. 1284 crores under 'Education' was added to 'Social Services' major head. Rs. 326.73 crores under 'Sectoral distribution not reported' was classified under 'General Services' major head.

For all Five Year Plans from the 6th to the 11th, 'Transport and Communications' were a single major head under the 5th Plan and were reported separately after the 6th Plan. For purposes of simplification, these two categories were consolidated under all Plans. Likewise, 'General Services' and 'General Economic Services' were a single category until atleast the 8th Plan and was labeled as 'Others' until the 7th Plan. Hence, for purposes of simplification, these two categories were consolidated as a single major head across all Plans.

Page 69 | Financing Urban Expenditure - HPEC finance

Figure summarizes the series of charts on page xxvii of the Government of India High Powered Expert Committee for Estimating the Investment Requirements for Urban Infrastructure Services (2011).

Page 70 | JnNURM

Per capita central assistance was calculated by dividing total central assistance released by total urban population of the state/particular city size. Population data of Census 2001 is used since 2011 data for all 705 cities and towns is not released as yet.

Page 73 | The Challenges of Expenditure

The data on revenues and expenditures are drawn from a CBPS study covering 8 small and medium size cities in Karnataka. Unspent balances are calculated here excluding the opening balances to have clearer picture of unspent balances from revenues that year. The unspent balances shown in this chart are calculated as the average unspent balance as a proportion of revenue for the three years covered in the study (2005-06, 2006-07, and 2007-08).

Abbreviations

AMC: Ahmedabad Municipal Corporation
AMTS: Ahmedabad Municipal Transport Services
APSRTC: Andhra Pradesh State Road Transportation Corporation
AUDA: Ahmedabad Urban Development Authority
BBMP: Bruhat Bengaluru Mahanagara Palike
BDA: Bangalore Development Authority
BES&T: The Brihanmumbai Electric Supply & Transport Undertaking
BSUP: Basic Services to the Urban Poor
BWSSB: Bangalore Water Supply and Sewerage Board
CC: Corporation of Chennai
CGWB: Central Ground Water Board
CMDA: Chennai Metropolitan Development Authority
CPCB: Central Pollution Control Board
DDA: Delhi Development Authority
DDRS: Deendayal Disabled Rehabilitation Scheme
DJB: Delhi Jal Board
DMTS: Delhi Integrated Multi Modal Transit System Ltd
DPCC: Delhi Pollution Control Commity
DRTA: Delhi Road Transport Authority
GHMC: Greater Hyderabad Municipal Corporation
HCV: Heavy-weight Carriage Vehicle
HMDA: Hyderabad Metropolitan Development Authority
HMWS & SB: Hyderabad Metro Water Supply and Sewerage Board
HPEC: High Powered Expert Committee
ICDS: Integrated Child Development Services
ICLS: Integrated Low Cost Sanitation Scheme
IFMR: Institute for Financial Management and Research
IGMSY: Indira Gandhi Matritva Sahyog Yojana
IHSDP: Integrated Housing and Slum Development Programme
IIHS: Indian Institute for Human Settlements
IPOP: Integrated Programme for Older Persons
IPT: Intermediate Public Transport
ISHUP: Interest Subsidy Scheme for Housing Urban Poor
IUC: India Urban Conference, 2011
JnNURM: Jawaharlal Nehru National Urban Renewal Mission
JSY: Janani Suraksha Yojana
KMC: Kolkata Municipal Corporation
KMDA: Kolkata Metropolitan Development Authority
KMWSA: Kolkata Metropolitan Water & Sanitation Authority
LCV : Light-weight Carriage Vehicle
M Corp. : Municipal Corporation
MCD: Municipal Corporation of Delhi
MCGM: Municipal Corporation of Greater Mumbai
MDMS: Mid-Day Meal Scheme
MMRDA: Mumbai Metropolitan Region Development Authority
MOEF: Ministry of Environment and Forest Act
MoUD: Ministry of Urban Development
MSEDC: Maharashtra State Electricity Distribution Co. Ltd
NCLP: National Child Labour Project
NDMC: New Delhi Municipal Council
NPCCDCS: National Programme for Control of Cancer, Diabetes, Cardiovascular disease and Stroke
NPP: Nagar Palika Parishad

NS: Not Specified

NSAP: National Social Assistance Programme

NSS: National Sample Survey

PDA: Pune Metropolitan Development Authority

PMC: Pune Municipal Corporation

PROOF: Public Record of Operations and Finance

RAN: Rashtriya Arogya Nidhi

RNTBCP: Revised National TB Control Programme

RSBY: Rashtriya Swasthya Bima Yojana

RSEAG: Rajiv Gandhi Scheme for Empowerment of Adolescent Girls

RU: Rural-Urban

SHWW: Scheme of Hostel for Working Women

SRS: Sample Registration System

SJSRY: Swarna Jayanti Shahri Rozgar Yojana

SSA: Sarva Shikha Abhiyan

TCE: Top Class Education

TPDS: Targeted Public Distribution System

UA : Urban Agglomeration

UDA: Urban Development Authority

UDD: Urban Development Department

UFWS: Urban Family Welfare Services

UHCSDHBP: Urban Health Check-up Scheme for Diabetes and High Blood Pressure

UIDSSMT: Urban Infrastructure Development Scheme for small and Medium Towns

UIG: Urban Infrastructure and Governance

UTBSD: Urban TB for Slum Dwellers

URBAN INDIA 2011: EVIDENCE

We would like to thank the several contributing authors in particular: Professor Martha Chen of Harvard University and Dr. Govindan Raveendran for generously sharing their analysis of 1999-2009 NSS data on urban employment; Somik Lall and the World Bank team working on the India UrbanisationReviewt for sharing their results on India's economic geography and in particular the distribution of employment. Jyotsna Jha and Madhusudan B.V. of the Centre for Budgetary and Policy Studies, Bangalore provided intriguing data on Municipal Finance.

IUC AUTHOR AND PRODUCTION TEAM

Aromar Revi, IIHS
Charis Idicheria, IIHS
Garima Jain, IIHS
Geetika Anand, IIHS
Dr. H.S. Sudhira, IIHS
Dr. Jessica Seddon, IIHS
Kavita Wankhade, IIHS
M.K. Rashmi, IIHS
Priyadarshini Shetty, IIHS
Revati Dhoble, CDF, IFMR
Shashikala Gowda, IIHS
Shriya Anand, IIHS
Srikant Viswanathan, Janaagraha
Sujatha Srinivasan, CDF, IFMR

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The Indian Institute for Human Settlements (IIHS) is a national education institution committed to the equitable, sustainable and efficient transformation of Indian settlements. IIHS is India's first prospective independently funded and managed National University for Innovation that focuses on its ongoing urban and development transformation. It is a first-of-its-kind, practice and innovation-oriented knowledge institution that seeks to bridge the conventional excellence, scale and inclusion divides. More information about IIHS is available on www.iihs.co.in

JANAAGRAHA CENTRE FOR CITIZENSHIP AND DEMOCRACY

Janaagraha Centre for Citizenship and Democracy (JCCD) is an established non-profit organization that works to improve urban India's quality of life, as measured by two indicators: quality of citizenship and quality of infrastructure and services. Janaagraha's work spans advocacy with the Union, to empower urban local bodies (ULB's), and engagement at the grassroots, to deepen democracy. The Janaagraha Applied Research Program (J-ARP), which is anchoring the conference on behalf of JCCD, is a core program whose mission is to generate primary data/ evidence in collaboration with academia, both for internal consumption (for grassroots and advocacy initiatives) and for external publication. More information about JCCD is available on www.janaagraha.org

YALE UNIVERSITY, SOUTH ASIAN STUDIES COUNCIL

The South Asian Studies Council at Yale University is committed to promoting a comprehensive understanding of historical and contemporary South Asia, encompassing Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. As part of the MacMillan Center for International and Area Studies at Yale University, the Council seeks to foster lively intellectual exchange from a wide range of disciplinary perspectives by integrating teaching and research on traditional South Asia with contemporary study of the region. More information about The South Asian Studies Council is available on www.yale.edu/macmillan/southasia

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