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INDIA's Urbanisation Experiences

Rumi Aijaz

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Note from the Chair

It is intriguing, if not paradoxical, that despite having the second largest urban population in the world after China, through much of its history as an independent republic, Indian policy planning—indeed, the Indian public imagination—continues to be dominated by the rural and the maxim that the country and its soul resides in its villages. Only now, once the 2011 Census reported a greater addition to the number of people in urban areas (90.99 million) as compared to rural areas (90.97 million) in the previous decade, has the importance of the urban space become acknowledged. With this has come a significant increase in urban research as well as plans and schemes to improve the urban condition, both in existing settlements as also by planning new towns and cities. It may thus finally be possible to look at growing urbanisation not as a problem but an opportunity. The implications of such a cognitive shift will be momentous, demanding a radical reorientation not just in our plans and policies, or politics, but in our conception of a good life.

It is often not realised that independent India has added few new cities to the existing pool—Chandigarh, Gandhinagar, New Raipur come to mind. The growing urban population, a mix of natural growth and migration, has crowded existing towns and cities or larger villages growing into urban settlements, often in an unanticipated and unplanned manner. It is therefore hardly surprising that most urban settlements are experiencing great stress, be it related to housing, transportation or basic civic services. Or that, under pressure from existing residents, urban politics, particularly in large cities, is becoming less welcoming of new migrants, perceiving and treating them as a nuisance rather than recognising their contribution to wealth creation, skills and creativity.

In part this is because cities, particularly large cities, continue to be seen as sites of privilege which unfairly expropriate resources from an under-resourced and under-serviced countryside. And while it is undeniable that per capita investment on infrastructure and services is far higher in urban areas as compared to villages, it is equally true that per capita output and contribution to tax revenues is manifold higher in cities. The stark fact is that cities are the engines of growth and no country can advance by neglecting the urban space.

Equally poorly understood is the nature of our urban spaces—the people who live here, how they live, in what conditions and what they contribute, both to the city of residence and the nation. Rarely is it realised that the city is much more than its better-off, middle class residents occupying legal, formal housing, employed in formal sector jobs or engaging in modern trade and services. Well over half of every city in the country lives in informal, still to be regularised settlements and engages in activities that yield contributions which remain untallied in the official balance. Unfortunately, our town and city planning, governed as it is by a middle class imagination, does

not just neglect our poorer citizens but far too often criminalises them by seeking to demolish their settlements and place further restrictions on their income-generating activities.

To reiterate, what is needed is not merely a renewed focus on the urban, but a radically different orientation—one which accepts the centrality and legitimacy of those who labour to make our cities what they are. It demands a greater focus on public infrastructure which serves the majority—buses and mass transport rather than cars; a more equitable distribution of public goods and services like health, education and recreation; a focus on making cities safer by repopulating and revitalising public spaces; creating opportunities through labour for the working poor.

This brief monograph, a product of a year-long consultation jointly organised by ORF and GIZ, is a small contribution towards enriching the incipient debate on our urban experience, from demographic shifts to planning for smart cities. This publication highlights a few concerns, by no means exhausting the range. One hopes that this effort will continue, and as we start acquiring a better sense of the state of our cities, the problems, how we might begin addressing them and through what mechanisms, the discourse might change from decaying cities to vibrant cities.

Harsh Sethi
Adviser, ORF

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Introduction[i]

Over the years, enormous knowledge has been produced to help nations overcome problems of development in towns and cities. Based on this knowledge, better urban policies, laws and strategies have been formulated. The positive impact of sensible and efficient use of available knowledge and the application of novel ideas is visible, for example, in the high quality of citizen life in some parts of the world. But in many places, not much has changed at the local level despite implementation of major urban restructuring initiatives. Somehow, the agents responsible for bringing about a change have not been able to take the required steps.

In India, for example, urban centres display a variety of problems due to which inhabitants face tough living and working conditions. Although large cities are vibrant, prosperous and invite considerable investments, the administration is not wholeheartedly attending to the requirements of citizens. As for smaller sized urban centres, they do not show any significant dynamism or transformation. Inefficiencies in local-level management and governance are quite obvious, adversely affecting every sector.

India's case stands out particularly, as the growing urban population is set to redefine its image from a country considered till recently to be living in its villages to a country that will reside in its cities. According to the UN (2014), 50% of Indians, or 814 million people, will be living in urban areas by 2050. But quite distinctively, this transition is not only due to natural increase or rural to urban migration but also because of 'in-situ urbanisation' taking place in two ways: Reclassification of villages into towns with increasing populations and swallowing up of sub-urban villages by the expanding needs of towns and cities (Kornegay et al., 2013: 211-212; Pradhan, 2012). In this process, economic and demographic changes are being witnessed with people shifting from primary to secondary/tertiary sectors (Lahoti and Swaminathan, 2013). This urban transition, anticipated to usher India into a new growth trajectory, can pose threats—economic, social, environmental—if not managed well. To mitigate risks and build on prospects, there is a need to catalyse the economy and gear towards more inclusive and sustainable development.

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i Inputs received from Sustainable Urban Habitat (SUH) team, Indo-German Environment Partnership (IGEP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

A review of different urban development sectors and citizens' access to various facilities and entitlements better explains this situation at hand: Many poor people live in places which are completely unfit for human habitation, supply of drinking water and electricity is unreliable, level of cleanliness is abysmal; monsoons expose the condition of drainage; informal sector activities are poorly regulated; air and surface water pollution is increasing by the day; built and natural heritage is being lost; vital public transportation links are missing, traffic management is poor, vehicular parking in many residential and commercial areas has become a nightmare; educational and health institutions are failing to meet growing demands; safety and security of citizens are major concerns; and socio-economic inequalities are huge.

Clearly, the major risk that India is facing today is that of unplanned urbanisation. While the number of people residing in cities has been growing considerably, the physical and social infrastructure has not kept pace with this growth. As stated above, many cities across the country lack clean sanitation facilities, water supply and solid waste management. Pollution and environmental degradation have become synonymous with large metropolitan cities. It is apparent that to make urban growth more effective, cities have to improve their environment and consequently improve the quality of life that their citizens are entitled to.

Cities and towns are considered as engines of economic transformation. Many scholars argue that there is an urgent need to 'formalise' this growth. Recent policy initiatives to bring large number of people under the formal financial system or identification structures are articulating such intents. However, at the ground level the trend in employment reflects a different narrative. Rather than being increasingly absorbed into modern formal wage employment, India's urban workforce is in fact becoming increasingly informal. In 2010, nearly half of the urban workforce was self-employed, while wage employment became more informal. The share of urban areas' contribution to India's GDP is set to reach 70% with a concurrent, constant rise in informal employment across all economic sectors. This raises many concerns. The low level of education and skills are the prime reasons for the vulnerability of the workforce in this rapidly developing economy.

Furthermore, the 'missing link' of the secondary or manufacturing sector in India's economic structure has resulted in a rise of unskilled rural labourers joining the informal urban economy. It is also increasingly being debated if 'formalisation' only means legalisation or whether other mechanisms could also restrict the growth of informal employment. Ambiguities in defining 'formal,' 'legitimate,' 'informal' and 'illegal' and their constant usages requires further clarity.

It has been argued that such 'informalisation' has kept labour costs low and may be supplementing the formal economy to a great extent, but this has also manifested into urban poverty. This in turn has led to social exclusion and violence, and has created 'divided cities' (Karat, 2015). Almost 40-50% of the people in large Indian metropolitan cities reside in slums with degrading living conditions. Access to affordable housing options in cities is still a dream for 18.78 million people (likely to be many more). The skewed land and real estate market and outdated rent control acts have only added to the woes of the urban poor.

Although economists have been vouching for urbanisation, there is a political reluctance to acknowledge the same. This fact is observed from the under-represented urban population in national and state legislatures. The general elections of 2014 were conducted with urban and

rural constituencies distributed on the basis of the 2001 Census, which showed only 28% of India's population as urban. A political agreement was also reached whereby this proportion will continue until 2031—which means significant under-representation will also continue (Ahluwalia, 2014). There is a need to politically empower urban citizens through adequate and fair representation in electoral rolls and national parliament (ET Bureau, 2014; Sashidhar, 2013).

This political representation of urban citizens also needs to be supplemented with the empowerment of local governments and communities to galvanise demand for good governance. In order to catapult the urban transition into a positive trajectory, devolution of functional and financial duties and responsibilities to Urban Local Bodies (ULBs) is necessary. This will take forward the process of decentralisation that was set in motion by the Constitutional Amendment of 1992. If cities are to take centre stage, ULBs will need more autonomy and a group of municipal cadres, and will have to be held accountable for their actions.

Given the present state of affairs in urban areas and the expected population growth, a better roadmap and implementation and enforcement mechanism is urgently needed to overcome above-mentioned challenges. The blueprint will also need to pay attention to: The lack of will to initiate reforms; Centre-state-local relations; leadership; manpower capabilities; lack of citizen cooperation; interference by non-state actors in urban development; practical difficulties in implementing new ideas; lack of multi-sectoral approach to urban development; and formulation of new proposals without sufficient understanding of the local-level urban diversities and peculiarities.

The main purpose of this publication is to share information about (i) some of the major urban challenges facing India and (ii) directions the country could take to absorb and manage future growth. While there is no dearth of literature on these topics, an attempt has been made to offer a superior and up-to-date understanding of problems and possible interventions.

The information provided in the publication is based on secondary sources as well as the workshops cum discussions organised by the Observer Research Foundation (ORF) with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) during 2013-14 in New Delhi. India's leading scholars, practitioners and interest groups participated in the workshops and explained their ideas about urbanisation in India.

Five aspects responsible for achieving sustainable urbanisation have been described in this publication. Given below is a summary of issues analysed and lessons learned:

Trends in Urban Population

Population trends and projections indicate that India is expected to experience a greater degree of urbanisation in the coming years. This finding is based on census data which shows that for the first time since the country gained independence, the decadal change in absolute urban population has been more than in absolute rural population during 2001-11. To manage urban growth in a planned manner, it is necessary to understand the emerging spatial population patterns. Urban population and migration data of India is thus analysed at the national, state and town/city level. It is suggested that the emerging patterns should form the basis for carving out India's future urbanisation policies and strategies.

Implementation of Master Plans

Since the Third Five Year Plan, 'master plan' was defined as a statutory instrument for controlling, directing and promoting sound and rational development and redevelopment of an urban area with a view to achieving maximum economic as well as social benefits. So far the British town planning legislation has guided the process of master plans in India, which has mostly been 'top-down' and bureaucratic in nature. For quite some time now, master plans as a tool for developing cities has been criticised as being ineffective in terms of process, content, implementation and monitoring, as well as for projecting cities as two-dimensional spatial entities. Thus, master plans have failed to cater to the needs and address deficiencies of cities and to project them as growth centres. This chapter reiterates the fact that master plans still play an important role in shaping the future of towns and cities, and must therefore be oriented towards present-day social and economic conditions. They also need to be implemented efficiently.

The chapter is divided into five sections. Section one describes the scope of master plans and emphasises their significance. In section two, some of the most common problems faced in the master planning process are explained. A reference to recent advances in urban planning in India is made in section three. Section four offers lessons in urban planning from Brazil and South Africa. Towards the end, areas requiring urgent attention and reform are identified. It is concluded that better living conditions in urban areas can be achieved by preparing realistic master plans and ensuring that they are implemented without interference from state or non-state actors in totality and on time.

Housing for Slum Dwellers / Urban Poor

The positive impact of urbanisation is often lost in the evident deterioration of the physical environment and quality of life in cities. There is a widening gap between the supply and demand of shelter for different sections of the population, basic services as well as infrastructure. Increasing population, unemployment/informal employment and insignificant improvement in poverty levels have manifested in the growth of slums in urban areas. This chapter offers insights into the living conditions of slum dwellers/urban poor and the progress made by the government in providing decent housing. It also lists a set of barriers that are obstructing the expansion of this facility to many more needy persons.

The chapter begins with an analysis of data on slum population and households in India, their geographical distribution and the condition of slums based on a review of selected housing and amenities indicators. This is followed by a description of goals set by different institutions and the various methods adopted for slum improvement, including government's contribution and other innovations. The third section explains the barriers in provision of affordable housing. The final part offers imperatives for ensuring urban poor's access to better housing. The chapter concludes that there is a need to develop existing urban centres by taking into account housing and other requirements of the migrant population, and to build institutional capabilities in a professional manner.

Management of Solid Waste

Cities in India generate huge quantities of solid waste but its disposal is a serious problem. This chapter describes problems involved in management of solid waste and puts forward several suggestions to address the issue. The information is presented in five sections. The introductory section describes the significance of the problem. This is followed by an explanation of the most common waste management procedure and the difficulties experienced in collection, transportation and disposal. The third section presents the status of compliance with previous waste management rules and lists the newly revised rules. Against this backdrop, areas for reform highlighted by practitioners and scholars are described. The chapter concludes that unless necessary conditions are created and all existing barriers and resources are taken into account, any regulation, programme or strategy formulated for waste management cannot be implemented successfully.

Need for Smart New Cities

India's urban population is expected to reach 875 million by 2050. In order to absorb and manage future urban growth, the government must formulate a sound urban strategy. The last chapter highlights the fact that urbanisation driven by industrialisation can be good for the country, and if this is done by creating new cities in a smart, planned and systematic manner, many inequalities can be minimised. The chapter first explains the rationale for urbanisation, reviews urban policies and strategies of several countries and provides details on new city development in India. Reference is made to the ongoing work in Dholera (Gujarat). The concluding section describes aspects to be considered to successfully achieve the goal of building smart new cities in India. It is recommended that careful designing and effective implementation of future city plans are necessary; otherwise, enormous resources will go to waste and the newly built place would resemble a 'ghost city.'

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2

Trends in Urban Population and Policy Issues

Introduction

The foremost requirement for public policymaking is the availability of reliable, up-to-date, disaggregated population data, and an in-depth understanding of the characteristics and trends this data displays. This chapter analyses the urban population data of India on various indicators to understand the emerging spatial patterns of the following: Level of urbanisation; population growth projections; comparison with countries with sizeable urban populations; distribution in states and Union Territories (UTs); high growth regions; share of population in towns and cities; and migration trends. Some concerns about the criteria used for the measurement of urban populations are also raised.

Population Characteristics

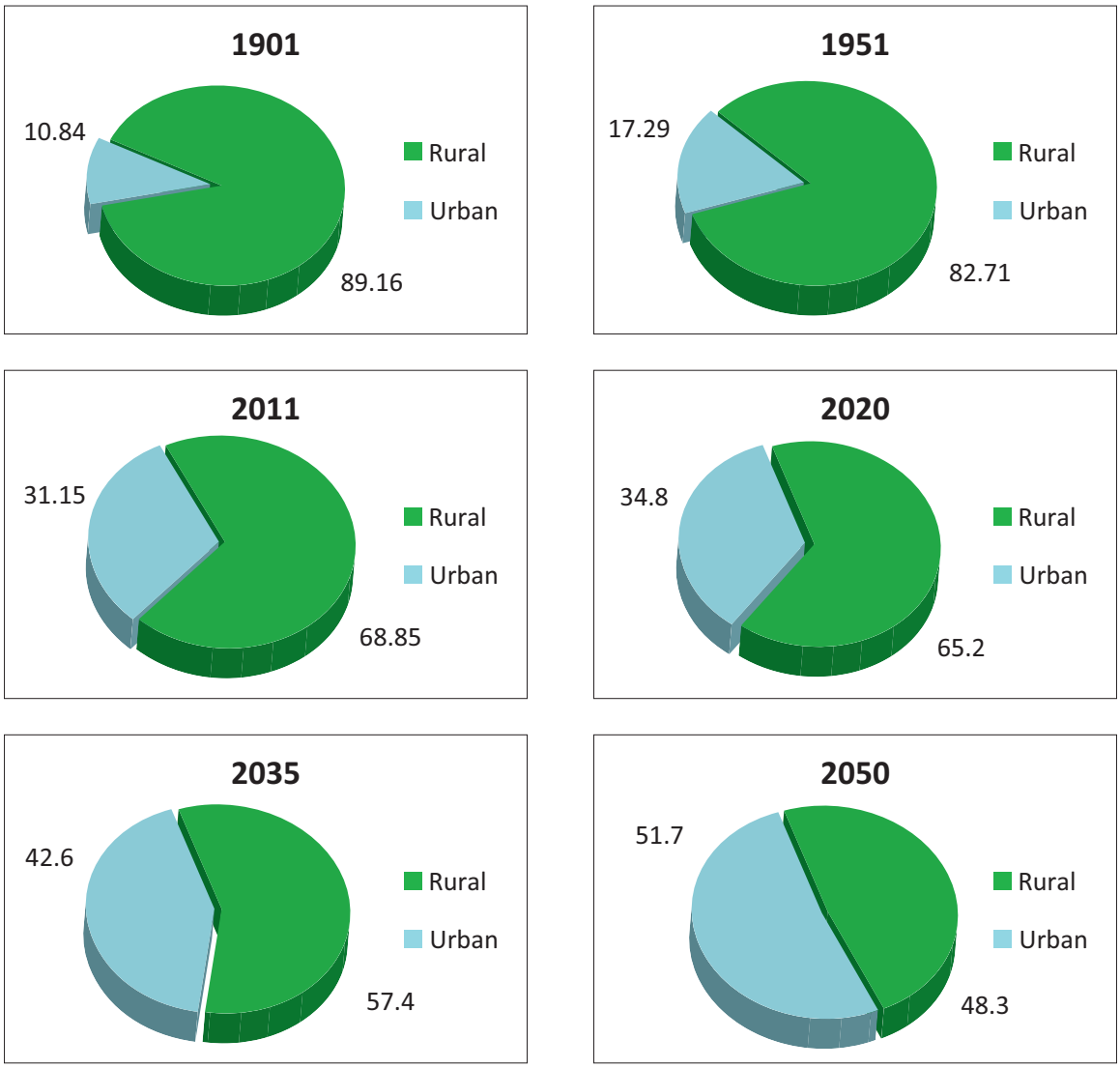
The total population of India in 2011 stood at 1.21 billion. 181.83 million people have been added during 2001-11. The number of people added during the previous decade (1991-2001) was slightly more (182.32 million), and accordingly, so were the decadal population growth rates, which have declined from 21.54% to 17.68%. Thus, there has been a slowing down in the growth of country's total population.

Of the total population, 833.46 million (or 68.85%) live in rural areas. Census 2011 has recorded existence of 640,930 rural areas/villages. The rural population also shows a declining trend. The decadal addition of people has come down from 113.80 million (1991-2001) to 90.97 million (2001-11), and decadal growth rates have fallen from 18.10 to 12.25%.

The remaining 377.11 million (or 31.15%) people live in urban areas. Unlike the rural population, the urban population is rising. The decadal addition of people increased from 68.51 million (1991-2001) to 90.99 million (2001-11). During this period, decadal growth rates rose from 31.48 to 31.80%. A noteworthy feature of India's urban population has been the greater addition in the number of people in urban areas (90.99 million) as compared to rural areas (90.97 million) in the last decade. It is for the first time that the decadal change in absolute urban population has been more than that seen in absolute rural population in the country.

India's population data is therefore showing a gradual demographic shift (Figure 2.1). During 2001-11, for example, the share of rural population in total population has gone down from

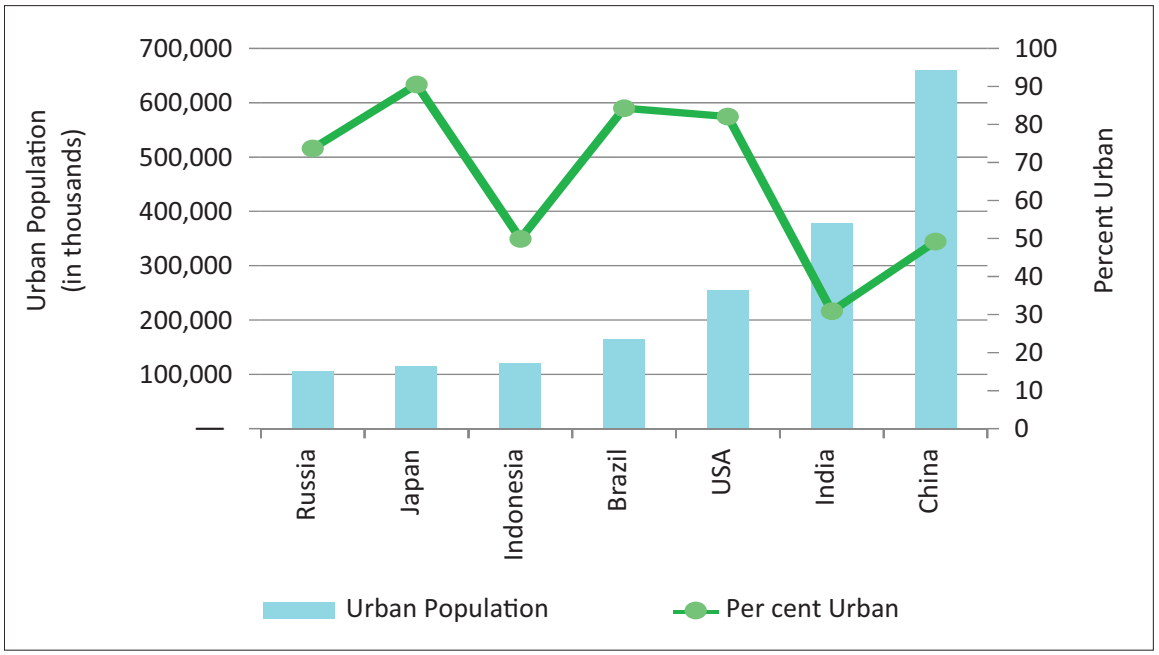
Figure 2.1: Percentage Share of Rural and Urban Populations in India's Total Population



Sources:
(i) For 1901, 1951, 2011 data – Office of the Registrar General and Census Commissioner, India.
(ii) For 2020, 2035, 2050 data – UN World Urbanisation Prospects: The 2011 Revision.

72.17% to 68.85%, and share of urban population has increased from 27.81 to 31.15%. These trends indicate that India is steadily urbanising. According to UN population projections, of all countries in the world, India is expected to experience the largest increase in urban population with 497 million persons being added to the existing urban population by 2050. This means that the current urban population of India will more than double to reach about 900 million by 2050 (UN, 2012).

Figure 2.2: Urban Population and Percentages of Some Countries, 2010



Source: Figure prepared on the basis of data obtained from UN World Urbanisation Prospects: The 2011 Revision.

When compared with sizes of urban population in other countries, India ranks second after China, which has about 660 million persons living in urban areas. Other countries with sizeable urban populations (of more than 100 million) are the USA, Brazil, Indonesia, Japan and Russia (Figure 2.2). However, the share of urban population in total population is much less in India (31%) when compared with these countries. While percentages are less in India, absolute numbers are huge.

The percentage of urban population to total population in 28 Indian states and seven UTs for the years 2001 and 2011 is shown in Figure 2.3.

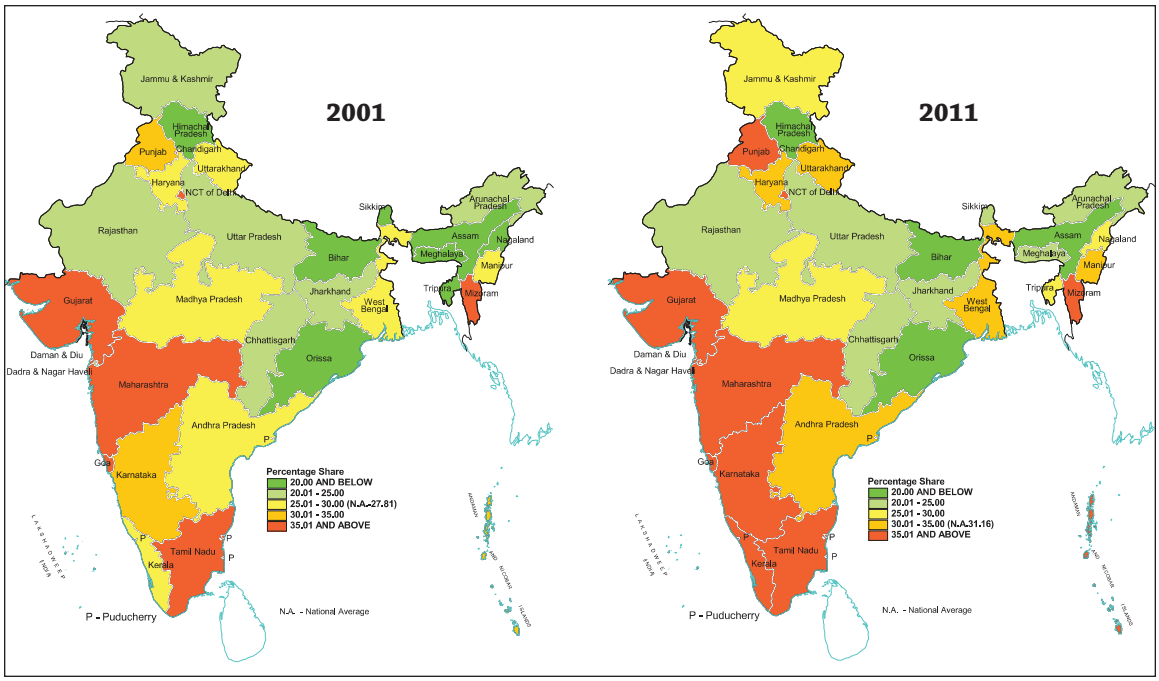
In 2011, among the UTs, high percentages were recorded in Delhi (97.50%), Chandigarh (97.25%), Lakshadweep (78.08%), Daman and Diu (75.16%) and Puducherry (68.31%).

Among the states, the percentage share of urban population was high in Goa (62.17%), Mizoram (51.51%), Tamil Nadu (48.45%), Kerala (47.72%), Maharashtra (45.23%) and Gujarat (42.58%).

Save some exceptions, the peninsular areas of India are more urbanised than the northern, central and eastern parts. One reason for this occurrence could be the development work done by the British administration in port towns before independence.

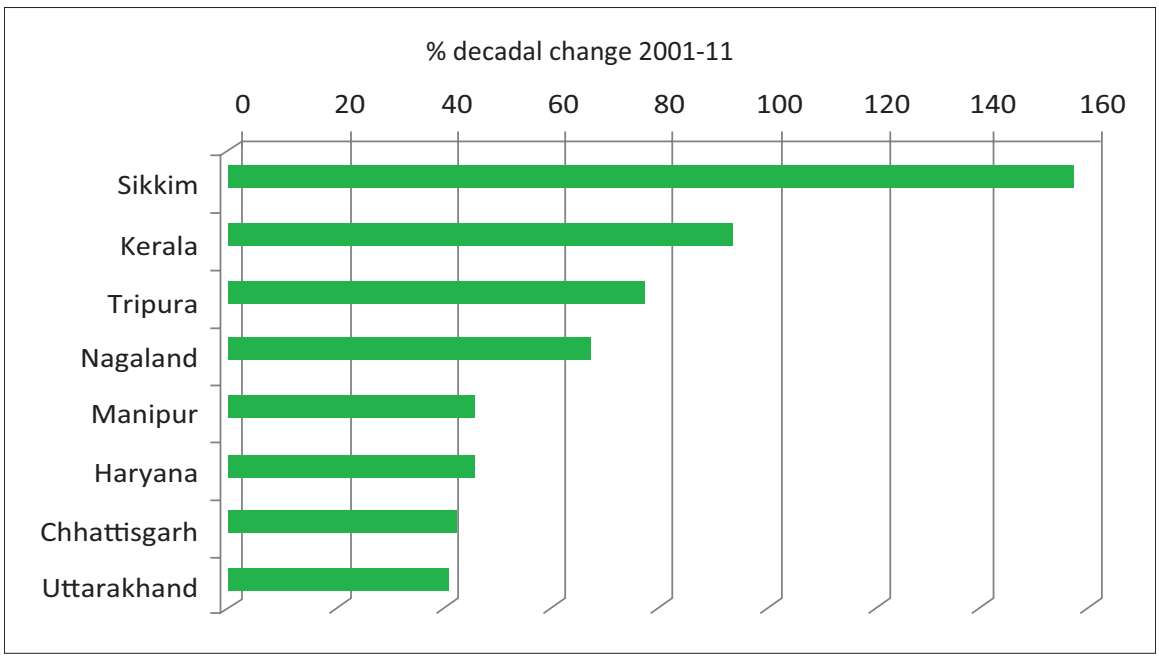
The states and UTs that have observed high decadal growth of urban population during 2001-11 are Daman and Diu (218.8%), Dadra and Nagar Haveli (218.2%), Sikkim (156.5%), Kerala (92.8%), Lakshadweep (86.6%), Tripura (76.2%) and Nagaland (66.6%). Figure 2.4 shows states that have recorded significant growth of urban population during 2001-11: Kerala and the four northeastern states of Sikkim, Tripura, Nagaland and Manipur have experienced the highest growths in urban population during this period.

Figure 2.3: Percentage of Urban Population in Indian States and Union Territories during 2001 and 2011



Source: Census of India (2011): Provisional Population Totals, Paper 2, Volume 1 of 2011, Rural-Urban Distribution, India, Series 1, p. iv.

Figure 2.4: Indian States Experiencing High Growth of Urban Population, 2001-11



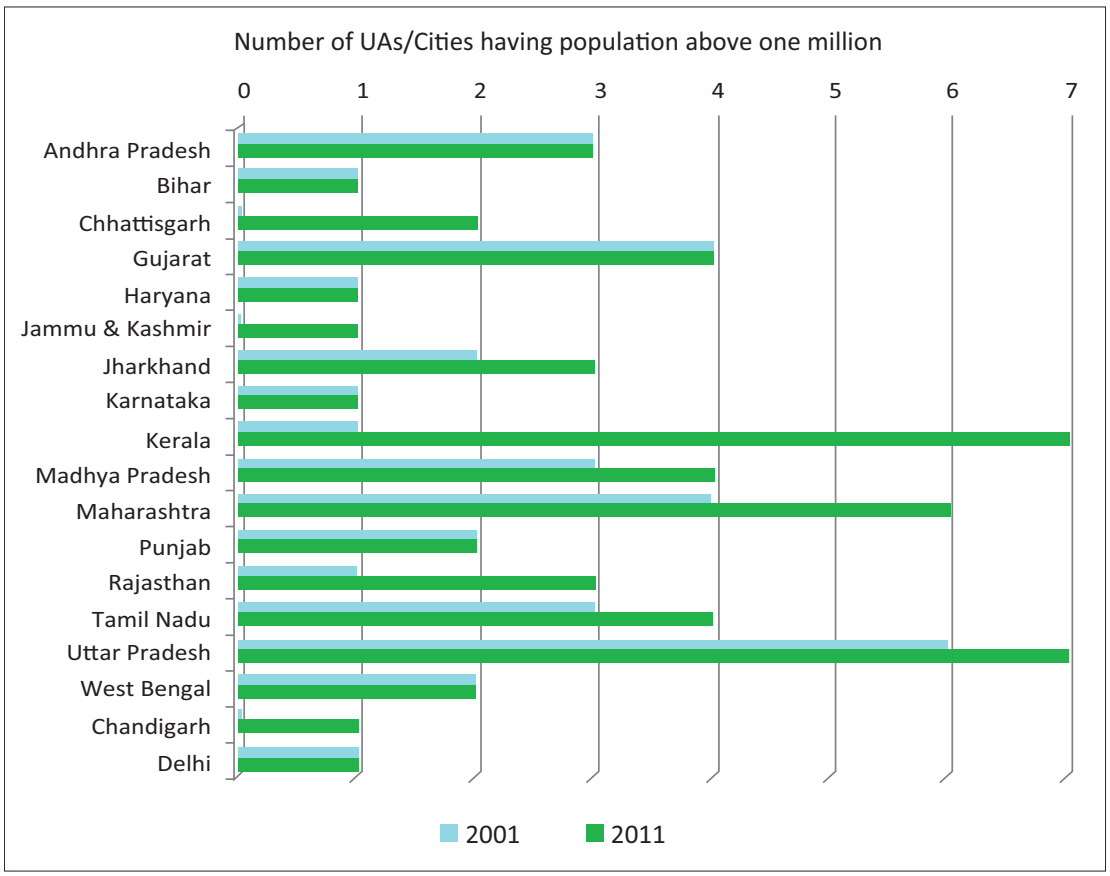
Source: Figure prepared on the basis of data obtained from Census of India (2011): Primary Census Abstract – Data Highlights, India, Series 1.

In terms of numbers, urban population in 2011 was high (above 20 million) in Maharashtra (50.82 million), Uttar Pradesh (44.50 million), Tamil Nadu (34.92 million), West Bengal (29.09 million), Andhra Pradesh (28.22 million), Gujarat (25.75 million), Karnataka (23.63 million) and Madhya Pradesh (20.07 million).

The census provides information on the number of urban areas. 2011 data shows that there are 7,933 towns, 475 Class I urban agglomerations (UAs)/cities (with at least 100,000 persons), and 981 out growths[1] in the country. Many towns are part of UAs and the rest are independent towns. About 70% of the country's total urban population lives in Class I UAs/cities. Of the 475 UAs/cities, 53 have a population of more than one million, which account for 42.6% of the country's total urban population. Among the 53 UAs/cities, three have a population of more than 10 million, namely Greater Mumbai UA (18.4 million), Delhi UA (16.8 million) and Kolkata UA (14.1 million). These are the three most populous cities of India.

The 53 UAs/cities with a population of more than one million are situated in 18 states/UTs (Figure 2.5). Kerala and Uttar Pradesh have the largest number (seven million plus UAs/cities

Figure 2.5: Number of Million Plus UAs/Cities in Indian States/UTs, 2001 and 2011



Source: Figure prepared on the basis of data obtained from Census of India.

[1] Out Growth is a viable unit such as a village or hamlet or an enumeration block that possesses urban features and is physically contiguous with the core town of the UA (Census of India, 2011).

each), followed by Maharashtra, which has six. Kerala stands out, because the number of cities has jumped from one to seven during 2001-11. It is worth noting that a million plus UAs/cities do not exist in any of the northeastern states or in Himachal Pradesh, Uttarakhand, Goa and Orissa.

Table 2.1 provides a list of UAs/cities that have recorded the highest and lowest population growths during 2001-11. The data shows that as many as five UAs/cities in Kerala, one in Maharashtra (Vasai Virar) and one in Uttar Pradesh (Ghaziabad) have recorded very high growth rates. UAs/cities registering the lowest growth rates include Kolkata, Kanpur and Greater Mumbai.

Table 2.1: UAs/Cities Experiencing Highest and Lowest Population Growths, 2001-11

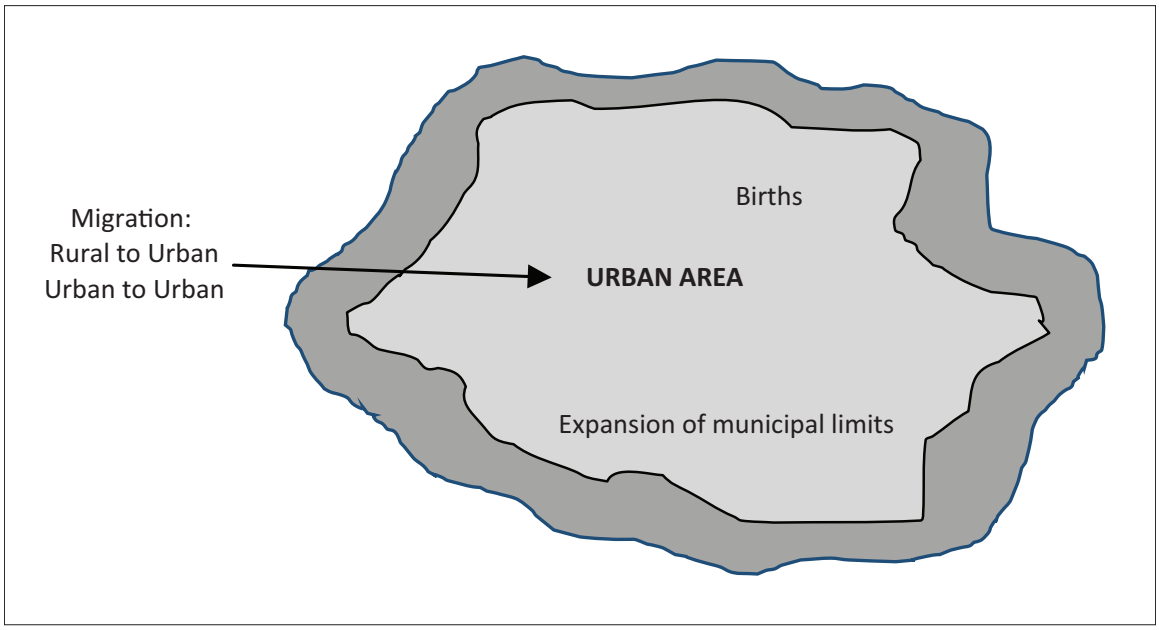
UAs/Cities	State	High Growth Rate 2001-11 (%)	UAs/ Cities	State	Low Growth Rate 2001-11 (%)
Malappuram UA	Kerala	896.80	Kolkata UA	West Bengal	6.87
Thrissur UA	Kerala	461.85	Kanpur UA	Uttar Pradesh	7.53
Vasai Virar City	Maharashtra	316.34	Greater Mumbai UA	Maharashtra	12.05
Kannur UA	Kerala	229.76	Dhanbad UA	Jharkhand	12.20
Kollam UA	Kerala	192.04	Durg-Bhilainagar UA	Chhattisgarh	14.68
Ghaziabad UA	Uttar Pradesh	143.58	Ludhiana City	Punjab	15.40
Kozhikode UA	Kerala	130.68	Jabalpur UA	Madhya Pradesh	15.44

Source: Census of India.

At the city level, certain trends are visible. For example, in Chennai, the population patterns have been changing. In 1971, the core areas were less populated than the peripheries of the town. Gradually, core areas became populated mainly due to implementation of housing projects (multi-storey buildings) by the government. This also resulted in the shrinking of green areas in the core region. In Bengaluru, too, the urban area has been expanding. It is about 1,750 sq. kms., almost three times what it was in 2001. In the National Capital Territory (NCT) of Delhi, the urban growth rates have fallen from about 52% during 1991-2001 to 27% during 2001-11, with neighbouring districts in adjoining states experiencing very high growth. Thus, population growth is stabilising and saturating within NCT of Delhi and the satellite cities are now the real growth centres. Such trends are also observed in many other large cities. Exceptions are Bengaluru, Ahmedabad and Pune, where the central region is growing more than the peripheral areas.

A number of factors are responsible for growth of urban population, such as natural increase (births), rural to urban and urban to urban migration, changes in municipal boundaries and formation of new urban centres/census towns (Figure 2.6).

Figure 2.6: Components of Urban Population Growth



In India, rural to urban migrants account for a sizeable urban population. People living in rural areas (villages) face numerous problems with respect to their livelihood and access to basic services, such as proper housing, education, health, water, sanitation, roads and electricity. Although rural farmers grow food and other agro products for the nation, they do not get sufficient monetary returns and live a deplorable life. Although there is national concern about rural development, the impact of government policies is marginally felt at the village level.

Rural to urban migration is therefore a response to stagnant growth and development in rural areas, as well as to the lure of diverse economic opportunities available in rapidly urbanising cities. Since income generating activities are unable to support the rural population, villagers often migrate to towns and cities. Such movement is associated with the level of economic and social development of a place. Employment, education and marriage are important reasons for rural to urban migration in India.

Census of India data on migration is available for the period 1991-2001. During these 10 years, of the total 97.6 million internal migrants (with duration of residence of 0-9 years at the place of enumeration) in the country, about 20.6 million persons (21.1%) moved from rural to urban areas, and 6.3 million persons (6.4%) moved from urban to rural areas (Table 2.2). Thus, 14.3 million was the net addition to urban population due to rural to urban migration. This works out to 6.6% of India's urban population in 1991.

Further details on rural to urban migration within and between states are provided in Table 2.3. Of the total 97.6 million internal migrants in the country based on last residence during 1991-2001, 80 million (83%) migrated from one part of the state or district to another within the same state. Of the total intra-state migrants, the rural to urban stream constituted 17.6%. With respect to inter-state migrants it is observed that the share of rural to urban migration

Table 2.2: Number and Proportion of Migrants in India by Rural-Urban Status, 1991-2001

Migration Stream	Number of Migrants	% of Total Migrants
Rural to urban migration	20,595,231	21.1
Urban to rural migration	6,266,503	6.4
Total migration (including rural to rural, rural to urban, urban to rural, urban to urban, unclassified migrants)	97,560,320	100.0

Source: Census of India, 2001.

was higher (37.9%), which indicates that the choice of town for a migrant is not limited to those within the state.

Table 2.3: Intra-state and Inter-state Rural to Urban Migration in India, 1991-2001

Migration Stream	Number			Proportion		
	Persons	Males	Females	Persons	Males	Females
Intra-state Migrants						
Rural to Urban	14,222,276	6,503,461	7,718,815	17.6	27.1	13.6
Total Migrants	80,733,441	23,998,283	56,735,158	100.0	100.0	100.0
Inter-state Migrants						
Rural to Urban	6,372,955	3,803,737	2,569,218	37.9	44.7	30.9
Total Migrants	16,826,879	8,512,161	8,314,718	100.0	100.0	100.0

Source: Census of India, 2001.
Note: Total migrants consist of urban to urban, rural to urban, rural to rural, urban to rural, unclassified migrants.

Table 2.4 shows rural to urban migration in the top 10 states by last residence during 1991-2001. The northeastern states of Mizoram, Meghalaya, Nagaland and Arunachal Pradesh have reported the highest share of migrants.

Recent data on migration for the period 2007-08 is available from sample surveys conducted by the National Sample Survey Office. The sample comprises a total of 125,578 households, of which 79,091 are rural households and the remaining 46,487 are urban households. Here are, briefly, the findings of the survey:

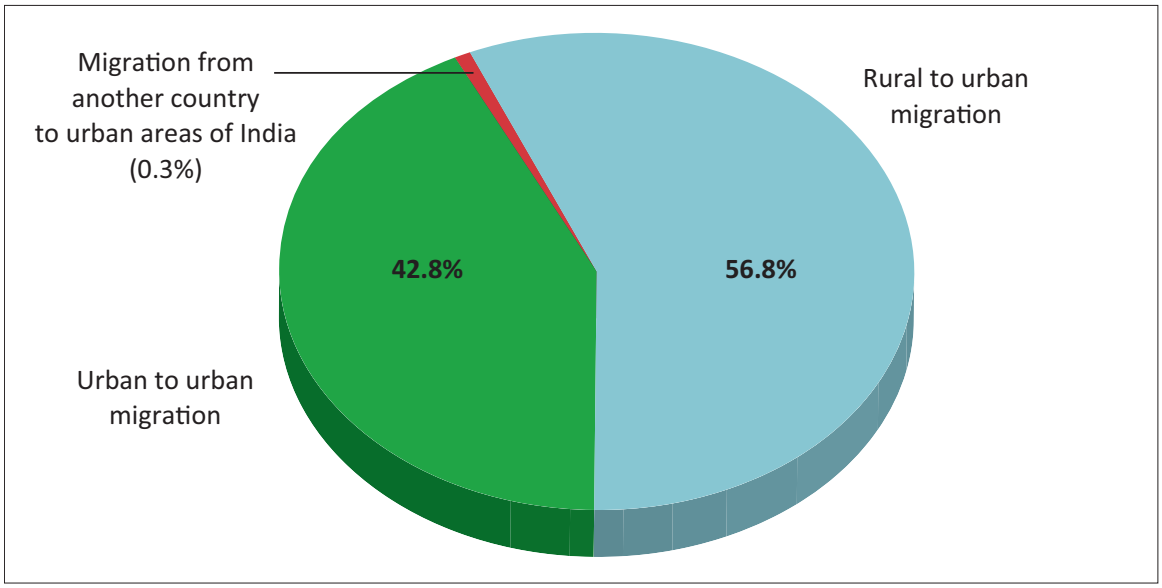
- Nearly 57% of urban migrant households migrated from rural areas (Figure 2.7).
- Rural to urban migration stream shared nearly 20% of the total internal migrants.
- Nearly 60% of urban male migrants and 59% of urban female migrants had migrated from rural areas.

Table 2.4: Intra-state Rural to Urban Migration in Top 10 States of India, 1991-2001

State	Number of Migrants	% of Migrants
Mizoram	32,555	39.1
Meghalaya	10,823	27.4
Nagaland	13,782	26.8
Arunachal Pradesh	31,984	26.1
Gujarat	1,420,541	25.9
Tamil Nadu	852,824	23.3
Haryana	339,483	21.9
Maharashtra	2,653,862	21.2
Karnataka	1,033,723	21.2
Jammu & Kashmir	79,163	21.1

Source: Census of India, 2001.

Figure 2.7: Migration to Urban Areas of India, 2007-2008



Source: National Sample Survey Office, 2010.

There are numerous adverse consequences of rural to urban migration. Migration of people to cities in large numbers has created pressure on the existing social and physical infrastructure and services, such as housing, roads, public transport, schools, heathcare centres, drinking

water, sanitation and electricity. Thus, intra-city inequalities are quite common. Moreover, due to overexploitation of natural resources, cities are facing the acute problem of depletion of groundwater, air pollution and environmental degradation. Such conditions call for better planning and administration of urban areas.

Definition of Urban Area

Governments of various countries in the world offer different definitions of 'urban area.' In India, for example, 'an urban area' is defined by the Office of the Registrar General and Census Commissioner in the following two ways:

- All statutory places with an urban local government are called 'Statutory Towns.' This is one definition of urban area.

  It is argued that this is a political definition, not very well defined, and empowers a political executive to declare any place under the Municipal Act as an urban area regardless of whether it satisfies certain criteria.

- The second is a normative definition, based on certain norms, i.e., a place may be declared as urban if it satisfies the following three criteria simultaneously:
  i A minimum population of 5,000;
  ii At least 75% of male working population engaged in non-agricultural pursuits; and
  iii A density of population of at least 400 per sq. km. (1,000 per sq. mile)

  Any place which satisfies these three criteria simultaneously is called, for the purposes of the census alone, a 'Census Town.' Settlements that do not satisfy these criteria are treated as 'rural' by the census office.

  Population data for urban areas released by the census office are based on both statutory as well as census towns.

The second definition is not often accepted by many state governments—they accept it when it suits them but do not do so when it does not suit them—and therefore, while such places may be designated as census towns by the census office, in official records these are treated as villages governed by rural local governments.

There are examples of many places (declared as census towns by the census office) in the country with a huge population size, but which are treated as rural areas/villages by the state governments because of various reasons. In contrast, there are places (declared under the Municipal Act as statutory towns) which have been acknowledged as urban despite the fact that their population is below 5,000.

It is felt that since all Central government interventions and financing for the development of settlements are based on their town or village status, settlements are conveniently converted into towns or villages by the state governments irrespective of the local area characteristics these

settlements display. Thus, depending upon the incentives, in one census, villages are converted into towns and in the next census, when more incentives are given to rural areas, hundreds of towns become villages at the stroke of a pen.

It is also argued that unless census towns (identified by the census office) are given statutory status by the state governments and are governed by an urban local government, problems of development and governance visible in these places will not be solved. Settlements displaying urban characteristics require an urban governance approach.

In view of the above-mentioned problems, there is a need for a normative basis for defining a town and a village, rather than the existing political definition. Perhaps certain characteristics an urban settlement is expected to have should form the basis of the definition, such as population size, density, work pattern, level of infrastructure and services, housing stock and living conditions.

Studies carried out in the past further indicate that India may be more urban than what the census data shows. It is critical to adopt an appropriate method and definition to measure urban concentration in a consistent and systematic way. Uchida and Nelson (2008), for example, have proposed an alternative measure of urban concentration, the agglomeration index, which is based on three factors—population density, population of a large urban centre and travel time to that large urban centre. Urban areas can be easily identified and delineated by using this measure (Box 2.1).

Box 2.1: Procedure to Calculate the Agglomeration Index

1. Specify a threshold value to each of the three criteria: minimum population density, maximum travel time and minimum population size that define large cities.
2. Locate the center of defined large cities from the Global Rural-Urban Mapping Project (GRUMP) human settlements database.
3. Determine the border surrounding that large city center based on the maximum travel time. This boundary is computed from a cost-distance model that estimates travel time to the city over a cost surface. This surface has a spatial resolution of approximately 1 km. and is derived from GIS data on: (i) the transport network, (ii) off road surfaces derived from land cover data and (iii) slope and estimates of the average travel speeds for each permutation of these data.
4. Create (i) population and (ii) population density grids at 1 km. spatial resolution for the year 2000. This is based on the average of two global gridded population data sources, GRUMP LandScan.
5. Aggregate the population of all the grid cells that satisfy all three thresholds. The result is analogous to urban population. The proportion of this number to that country's total population is the agglomeration index.

Source: Uchida and Nelson, 2008.

The census office in India follows the two categories of towns—statutory and census towns. By applying the census definition of urban area, the census office has recorded a total of 7,933 towns in India, of which 4,041 are statutory towns and an almost equal number (3,892) are census towns (Table 2.5). About 14% of India's total urban population lives in census towns. There has been a phenomenal growth in the number of census towns as well as in the population living in these towns during 2001-11. This could be a reason for the unusual growth of urban population in some Indian states such as Kerala, where the number of census towns has grown from 99 to 461.

Table 2.5: Number and Population of Statutory and Census Towns in India, 2001 and 2011

Type of town	Number of towns		Addition in number of towns	Population of towns (in millions)		Absolute change in population (in millions)	% to total urban population of India		% change in population
	2001	2011	2001-11	2001	2011	2001-11	2001	2011	2001-11
Statutory	3,799	4,041	242	265	323	58	93	86	(-) 7
Census	1,362	3,892	2,530	21	54	33	07	14	(+) 7
Total	5,161	7,933	2,772	286	377	91	100	100	--

Source: Chandramouli, 2013.

Proposed Policy Directions

The population trends presented in this chapter indicate that India's urban population is expected to grow significantly in the coming years. Unless governments at various levels (national, state, local) adequately realise the significance of this demographic phenomenon and prepare themselves for managing future population growth in urban areas, the goals of higher growth and equity will not be achieved.

Along with rural development, living conditions in existing urban areas must be improved through better planning and administration. Creation of new urban settlements/cities based on key sustainable development concepts should also be explored. This policy could attend to the problem of high concentration of people in existing centres and help in better distribution of the urban population. Migrants to urban areas would have the option of relocating to newly created centres.

It is often said that the level of urbanisation in India is underestimated. A rational approach based on suitable norms and method should therefore be developed and followed for declaring settlements as rural or urban. Accurate assessment of the size of urban population is necessary, since it is an important planning requirement.

There are many settlements which display urban characteristics but are treated as rural by the state governments for various reasons. Settlements displaying urban characteristics (such as census towns) could be given an urban status and governed by an appropriate and empowered municipality. Alternatively, rural local governments in census towns should be trained to function more effectively.

Census towns and cities that have experienced rapid population growth during 2001-11 should be mapped to understand the emerging spatial growth patterns. These patterns should form the basis for carving out India's future urbanisation policies and strategies.

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3

Effective Implementation of Master Plans

Introduction

In historical times when urban centres began to experience growth of population and economic activities, there was no statutory instrument in place to ensure the absorption of this new growth in a planned manner. This led to haphazard urban expansion and deterioration in living conditions. The concept of 'master plan' was subsequently introduced globally, with the objective of guiding and regulating the future growth and development pattern of each town and city.

The plan document aims to ensure optimal utilisation of urban space and efficient distribution pattern of human activities—residential, commercial, industrial, transport and service networks, open and green spaces, other infrastructure, etc. Prepared by the government's town planning department/urban development authority on the basis of Urban Development Plan Formulation and Implementation (UDPFI) Guidelines, the draft master plan contains information on existing urban area and population characteristics, and describes the present state of urban sectors, such as land use, urban design, housing, trade and commerce, industry, mobility, infrastructure and services, heritage, environment, energy, and safety and security. This forms the basis for laying down a long-term (20-25 years) vision for development[2] based on population and demand projections, and demarcation of the local planning area. Sector-specific policy guidelines/ proposals and development control restrictions are formulated for controlled and systematic development of the urban area. Information about proposed land uses—residential, commercial, industrial, recreational, transport networks, open and green spaces, other infrastructure and services networks (water, sewerage, electricity, solid waste, drains, etc.)—are shown on a map using different colours.

Thereafter, the draft plan is made available in the public domain to invite objections from the public on any information provided in the draft. Based on the feedback, the state government modifies and/or approves the master plan. The final master plan is then published in an official gazette and implemented by the concerned town/city level department. For the purpose of implementation, the broad policy directions for future development outlined in the plan are translated into sector-specific action plans/programmes/projects/schemes.

2 For example, in the Ludhiana Master Plan (for the period 2007-2025), the vision is to develop Ludhiana as a financial, commercially and industrially vibrant and eco-friendly city.

In addition to these traditional urban planning practices, a series of parallel reform measures designed by the government are also implemented in order to address contemporary urban challenges and requirements of the growing population, as well as to support the master plan implementation process.

A visit to any existing urban centre situated in India usually shows occurrence of a rather haphazard and irregular form of development. It is evident that planning efforts have been outpaced by uncontrolled growth. In no way do these centres represent examples of planned, equitable and sustainable development. Thus, while the master plan offers a planned vision of the future town/city, achievement of this vision is not proving to be an easy task.

The purpose of this chapter is to emphasise that master plans play an important role in shaping the future of towns and cities in India, and therefore, must be designed and implemented efficiently. A comparative review of master planning experiences in India, Brazil and South Africa is offered to explain the difficulties involved in the preparation of good master plans and their effective implementation. Areas requiring urgent attention and reform are identified in the end.

Difficulties Faced in the Master Plan Approach

The master plan approach is often criticised in India because the purpose for which it has been introduced has rarely been achieved. The Planning Commission (2012-17: 327-8) lists problems such as lack of coordination in implementation of projects/activities, little linkage to any financial and operating strategy, frozen land use pattern and building byelaws, exclusion of peri-urban areas, and inadequate citizen participation in plan preparation and endorsement. In the following paragraphs, some of the most common problems being experienced in the master plan process are briefly described (Table 3.1).

Table 3.1: Problems in the Planning Process

Planning Process	Problems
Preparation of draft master plan	Non-availability of up-to-date and reliable data; inaccurate population projections; missing links in the planning process; lack of information on plan implementation strategies; lack of information on financial strategy; absence of vital documents (Urban Development Act, building byelaws, land records), lack of clarity on time frame for completion of planning process
Modification of draft master plan based on public feedback	Lack of citizen participation and follow-up action on the feedback received
Notification of final master plan	Delays in plan approval/notification
Implementation of master plan	Weak financial, managerial and technical capacity of implementing agencies; difficulties in land acquisition; violation of master plan provisions and building regulations; commercial interests
Monitoring of master plan	Absence of a separate monitoring mechanism for implementation

Source: Information obtained from various publications (see reference section).

Inaccurate population projections: Recommendations for future development of the urban centre are given in the master plan. These are based on the population size the urban centre is expected to record at a future point in time. Data on future population (or population projections) is needed to give realistic proposals. For example, correct proposals on drinking water, housing or sanitation can be given only when planners have an idea of the number of people to be provided with the infrastructure or service in the future. Thus, urban planners engaged in preparation of the master plan calculate the future population of the urban area using various methods, such as arithmetic/geometric progression and incremental increase. On many previous occasions, the projected population has not matched the actual population recorded in the urban centre. This happens because changes in urban population are sometimes inconsistent and do not follow any set pattern, as several factors are at play. The result of such a mismatch means that schemes and projects implemented as per the master plan proposals often fail to cater to the requirements of the population.

Missing links in the planning process: There are several areas that have not been sufficiently dealt with in the master plan. For example, there is no mention of attending to the future requirements of census towns that house huge populations. Urban density patterns are not linked with proper transportation planning.

Lack of information on plan implementation strategies: Master plans can be implemented successfully when information on strategies for implementation is provided to the implementing agencies. In most cases, this has not happened.

Lack of information on financial strategy: Provision of new infrastructure and services proposed in the master plan depends upon availability of sufficient funds. Unfortunately, master plans do not provide adequate details on the cost of the new planning or the sources which will provision funds: Physical planning in master plans is currently proposed without any reference to financial planning.

Absence of vital documents: At times when plans are prepared for an urban centre, urban limits are expanded. In such situations, an act is needed to declare the area to be included as urban. But even till date, there are many states in India for which legislative documents have not been prepared by respective governments. For example, in the case of Bihar, there was neither any urban development act nor any building byelaws (with the exception of Patna). These documents have been recently prepared, after which the master plan was formulated. In Jammu, non-availability of land records has created difficulties in plan preparation.

Lack of citizen participation: Master plans are prepared for the welfare of all urban residents. Their needs and requirements can be best addressed if their opinions are sought at the time of plan preparation. Although a notice is issued for inviting suggestions from the public, adequate citizen participation in plan preparation and implementation seems to be lacking. As a result, many sections of the society (especially the poor) do not benefit from the new developments in any significant manner.

Weak financial, managerial and technical capacity of implementing agencies: Many agencies responsible for implementing projects do not possess sufficient financial and managerial capacities. This is a notable problem in municipalities which are heavily dependent on the Central and state government. Non-availability of sufficient funds and lack of expertise implies poor implementation of the master plan.

It is interesting to note that in Kalyan-Dombivli, a twin city and a municipal corporation located in the Indian state of Maharashtra, the concept of Floor Area Ratio bank has been proposed to raise money for building infrastructure: Building byelaws and finance would work hand in hand. Similar innovative ways to generate resources need to be identified at other places in the country.

Difficulties in land acquisition: Vacant land is needed for development of various infrastructure and services proposed in the master plan. Due to a lack of cooperation from persons who own/occupy the land, its acquisition by the government agency becomes difficult. Other problems observed include some landowners offering bribes in exchange for altering land use proposals. Such irregularities lead to delays in the implementation of master plan proposals.

A case in point is Guwahati, which is experiencing numerous problems. For example, the natural gradient for rainwater movement is being blocked by encroachments and illegal construction. When it rains, many places are submerged under water. Although there is a plan to acquire this encroached land, the court has so far denied permission to do so.

Gujarat offers a better model of land pooling,[3] where owners contribute 30-40% of their land, which is then readjusted. This has facilitated assembly and development of urban land without resorting to compulsory land acquisition, and has paved the way for easier implementation of the plan.

Violation of master plan provisions and building regulations: Sometimes construction work (residential, commercial) is carried out by private builders irrespective of what has been proposed in the master plan. On other occasions, land is occupied by the poor sections of society who carry out informal sector activities and establish unauthorised colonies and slums. Such activities are not managed well by the concerned government department and because land needed for new construction has either been exploited by influential persons or occupied by the weaker sections, it becomes difficult to carry out the vision of planned and orderly development as proposed in the master plan. This is an important factor responsible for the haphazard development of urban centres witnessed today.

At many places, building regulations have been changed. For instance, in Bihar, there are several incidents of 'bungalow-apartment': Many bungalows have been converted into apartments by the builders and there are no open spaces or places to park vehicles. In Ahmedabad, balconies in many buildings had to be broken.

In Gurgaon, the development plan rules provide that private developers can purchase land from the public for the purpose of development. These developments have, however, been carried

3 The concept of land pooling is described in Chapter Four.

out in a disorganised manner and contrary to the provisions of the development plan. Today, the city is a mixture of spectacular buildings and poor basic civic infrastructure.

Commercial interests: There are many influential persons who dictate terms. Because of this, planning and implementation are sometimes not in sync. This problem has been observed in the case of Noida's master plan, which is now being implemented. Earlier, during the plan preparation stage, many influential persons came together and succeeded in getting the Noida-Greater Noida expressway aligned closer along their properties in a bid to increase land values of their properties. This problem was overcome with great difficulty. Planners also face pressure to increase the percentage of land earmarked for commercial use and to increase the Floor Area Ratio. Thus, the master plan process is at times adversely affected by pressure from powerful actors.

Another example is Hyderabad, where during the master plan preparation stage, some influential persons were interested in including rural lands in municipal limits so as to make profit. The issue was greatly debated and after much effort the planners were successful in controlling this problem.

Recent Advances in Urban Planning

Previously, master plans were prepared only by the government. But in the last 10-15 years professional private planners have been actively involved in this work. New technologies are also being used. Some recent plans contain revenue and georeference maps, satellite images and enormous databases.

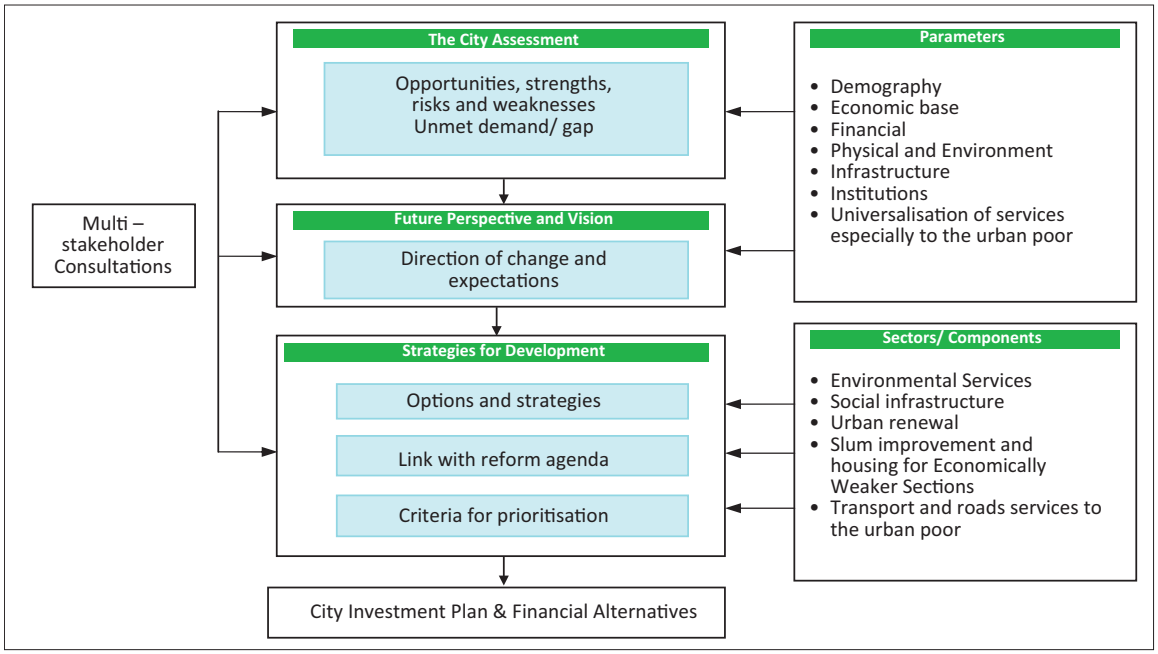
Indeed, the best practices in master planning are being used to design new cities along the Delhi-Mumbai Industrial Corridor. Leading international agencies[4] have been involved in the plan preparation and have proposed a range of sustainable development concepts, such as polycentric structures with multiple central business districts and industrial zones, integration of existing villages in the new city, and IT-based city operation and governance platform.

An alternative method has been the preparation of City Development Plans (CDPs) for cities identified for renewal under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). CDP preparation was, in fact, one of the compulsory requirements for obtaining financial assistance under the Mission. Accordingly, CDPs were formulated for the JNNURM cities.

Like the master plan, a situation analysis of various urban sectors and recommendations for their improvement form part of the CDP. Additionally, information on urban governance, project identification, capital investment and financial operating plan is provided. Thus, the CDP attempts to address the shortcomings in the master plan. The investment plan and financing strategy in the CDP indicate the cost involved in providing various infrastructure and services, and provide information on alternate sources of financing. Involvement of communities through public consultations in plan preparation is a mandatory requirement in preparing a CDP under

4 Namely Halcrow (UK), Jurong (Singapore), Kuiper Compagnons (Holland), Lea Associates South Asia, AECOM (Hong Kong).

Figure 3.1: CDP Formulation Process



Source: Ministry of Urban Development, 2005.

JNNURM (Figure 3.1). However, due to a non-statutory status, CDP implementation has not been encouraging. CDPs are also criticised as having been prepared in a hurry by select non-state actors.

Lessons from Brazil and South Africa

Brazil's urban policy has experienced relevant changes after re-democratisation in 1988. Having seen rapid urbanisation from the 1950s into the 1980s, municipalities in Brazil became federal entities, along with states and the Union, with both larger obligations and larger funds. Central to the new urban legislation approved in 2003 was the demand for municipalities over 20,000 inhabitants to produce their own master plans. An appraisal of the current status of urban legislation and policy as also the effectiveness of the planning process in Brazil indicates that although most of the results of this changed urban policy have yet to be achieved, some accomplishments are visible: (a) increase in informed debate; (b) social participation; (c) inclusion of environmental issues within urban policy; (d) low income housing zoning; and (e) improved accessibility and mobility. Areas needing improvement are: (a) low technical capacity of municipalities; (b) regulation of urban policy instruments; (c) enforcement of better taxation systems; and (d) improving governance of large urban areas.

In South Africa, the nature of democratisation process has been highly elite-driven. This was also compounded by the adoption of macro-economic strategy, which was essentially neo-liberal in nature. Adoption of neo-liberalism was largely internally driven. The new government accepted accelerated strategies for restructuring the economy, which led to tariff liberalisation, import

liberalisation and financial deregulation. However, issues of dealing with townships and how to deal with informal settlements were put on the backburner.

Past problems (such as apartheid) have created a very fragmented, divided, exclusive and unresponsive urban development regime. There is a coalition of private entities, bankers, miners, etc., which drives how urban development takes place in many ways. Thus, the biggest problem being faced today in South Africa is the informalisation from above in terms of elite capture and control of institutions. This informalisation is like a pendulum (the French call it 'bypassed urbanism') that swings and creates, on the one hand, places of wealth like the globally connected cities totally disjoined from reality, and on the other, places of poverty.

The normative perspective in public administration and public policy is not about engaging with the world as it is, but engaging with the world as one would like it to be. The wealthy are buying out of the system and thus destroying any kind of social fabric and accelerating alienation. In recent literature on economic democracy, there is emphasis on how to work within the system and to use the system to not necessarily change it but to democratise the allocation of resources.

Given the challenges faced by societies around the world, the relationship between policy and process has to be understood. In this respect, some thought should be given to how developmental objectives can be defined in ways which are not simply about money but also about what is the co-evolution of the process between public policy and private sector decision-making. This would involve, for example, how the private sector is to be embedded in a particular institution, what the strategic relationship with other social forces is and how the social forces are organised.

The second function of a meaningful implementation is to clearly demarcate what is desirable and what is feasible. Serious discussion is needed in terms of how to coordinate different interest groups, what the moral and political calculus of wins and losses is and how the calculus is done within the state. It must be recognised that administrative capacity is about resource management and ability to steer through political institutional systems.

Conclusion

The problem of haphazard growth and development taking place in Indian towns and cities is to a large extent due to difficulties experienced in applying an appropriate urban planning technique.

The master plan is an important tool created for ensuring planned development of urban centres. But there are fundamental flaws in the preparation and implementation of this document. Although the plans are prepared to carry out specific purposes, the level/record of implementation is not very encouraging, and thus many plan proposals become irrelevant. Further, statistics show that master plans have not been prepared at all for many urban centres. Therefore, preparing master plans, improving their quality and reforming the urban planning process are important challenges for the Centre and state governments.

Some reforms carried out in the past have added to the confusion. Transfer of the urban planning function, including town planning, to the municipalities under the Twelfth Schedule (Article 243-W) of the Constitution (74th Amendment) Act in 1992 and preparation of CDPs under JNNURM after 2005 have created a scenario wherein the number of stakeholders in the urban planning process has increased but the policy measures appear to be disconnected from

one another. The objective of orderly, equitable and sustainable development is thus far from achieved. Advanced master planning using best practices observed with respect to new city development may offer hope of better living conditions in future.

Numerous areas of concern in the Indian context have been highlighted. Additionally, brief experiences from Brazil and South Africa have been presented, which help in understanding the nature of the problem, particularly the adverse influence of non-state actors in the urban planning process. All these issues need to—and can be—strategically managed. In addition, more thinking and action are needed on the following aspects:

- Future vision of urban centre;
- Capacities of persons and institutions engaged in plan preparation and implementation;
- Guidelines available for plan preparation, implementation and monitoring;
- Methodology for collecting views on draft plan from a representative society and incorporating their views;
- Plan implementation and enforcement strategies/mechanisms; adherence to timelines; planning to match pace of development;
- Resources (funds, land) needed for urban development; and
- Reservation of land for poor; provision of serviced land at affordable prices.

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4

Affordable and Liveable Housing for Slum Dwellers and the Urban Poor

Introduction

Indian cities and urban agglomerations are home to millions of people. Many have migrated along with their families from different parts of the country in hopes of leading a better life. But a significant proportion of the migrant population is employed in low-paying informal sector activities, is poor or belongs to the low income group. Their weak economic condition and lack of government support come in the way of living a decent life. This fact is noteworthy in the urban housing sector.

Today, in large urban centres of India, the economically weaker sections (EWS) of the society and the low income groups (LIG) can be found living in slums[5] and poorly constructed illegal colonies. There are many reasons responsible for the occurrence of these spaces, including: (i) high degree of urbanisation; (ii) huge shortage of houses; (iii) soaring prices of newly constructed houses; (iv) inadequate provision of low-cost houses and housing loans by the government; (v) weak monitoring/protection of vacant lands; and (vi) carelessness in enforcing building regulations by government agencies.

Thus, while people in India freely enter and reside in towns and cities, and are entitled to all services and facilities under the law, it is the eventual economic condition that determines their living. While migrants belonging to the middle and high income groups live in planned and authorised areas of cities, a large number of migrants belonging to the LIG find vacant public and private lands (including lands located near railway lines, airport, large open drains and surface water bodies) to live in, which are ideal places to reside since nobody collects property tax, fee or rent for occupying these areas.

Poor migrant families build small living quarters, usually about the size of a very small room with low roofs using temporary or makeshift building materials. In these living spaces/slums, security of tenure, household density, quality of construction, safety of women and children, availability of basic civic amenities (roads, public transport, drinking water, sanitation, drainage,

5 In India, as per Section 3 of the Slum Area Improvement and Clearance Act, 1956, slums have been defined as mainly those residential areas where dwellings are in any respect unfit for human habitation by reasons of dilapidation, overcrowding, faulty designs of buildings, narrowness or faulty arrangement of streets, lack of ventilation, light or sanitation facilities or any combination of these factors which are detrimental to safety, health and morals (Census of India). In addition to this Central Legislation, several states have independent acts where slums are defined. Slums, in India, are classified as 'notified,' 'recognised' and 'identified.'

electricity, fair price shop, health and education institutions, etc.) and environmental conditions are matters of great concern.

While on the one hand, the poor sections of society contribute enormously towards the building and functioning of urban centres by way of providing some very basic services, on the other, despite many efforts, their living and livelihood concerns are not being successfully addressed.

This chapter offers insights into the number and geographical distribution of slum households in India, living conditions of slum-dwellers, progress made by the government in the provision of decent housing to the slum dwellers/urban poor, and lists the barriers that obstruct extending this facility to many more needy persons. The chapter ends with steps required to ensure the urban poor's access to better housing.

Slum Population and Households

India recorded a slum population of 65.49 million in 2011 according to the data released by the Office of the Registrar General and Census Commissioner (Table 4.1). A decadal comparison shows that India's slum population has increased by 25% during 2001-11. At the all-India level, one can say that about 5% of India's total population and 17% of India's total urban population lives in slums. Due to a rising population, slum households, numbering 13.92 million in 2011, have also grown by 37% during 2001-11. The data further shows that in the period 2001-11, while the share of slum population in India's total population has increased, its share in India's total urban population has come down.

Table 4.1: Urban and Slum Populations in India

Indicator	2001	2011
Total population of India (in billion)	1.02	1.21
Urban population of India (in million)	286.1	377.1
Urban to total population (%)	27.81	31.16
Decadal growth of urban population (%)	31.51	31.80
Number of statutory and census towns	5,161	7,933
Number of UAs/cities (population > 100,000)	384	475
Number of UAs/cities (population > 1 million)	35	53
Total slum population of India (in million)	52.37	65.49
Absolute change in slum population, 2001-11 (in million)	-	13.12
Decadal growth of slum population, 2001-11 (%)	-	25.1
Slum population to India's total population (%)	5.09	5.41
Slum population to India's total urban population (%)	18.3	17.4
Number of slum households in India (in million)	10.15	13.92
Absolute change in number of slum households, 2001-11 (in million)	-	3.77
Decadal growth of slum households, 2001-11 (%)	-	37.1
Number of Indian towns reporting slums	1,743	2,613

Source: Office of the Registrar General and Census Commissioner, India, 2011.

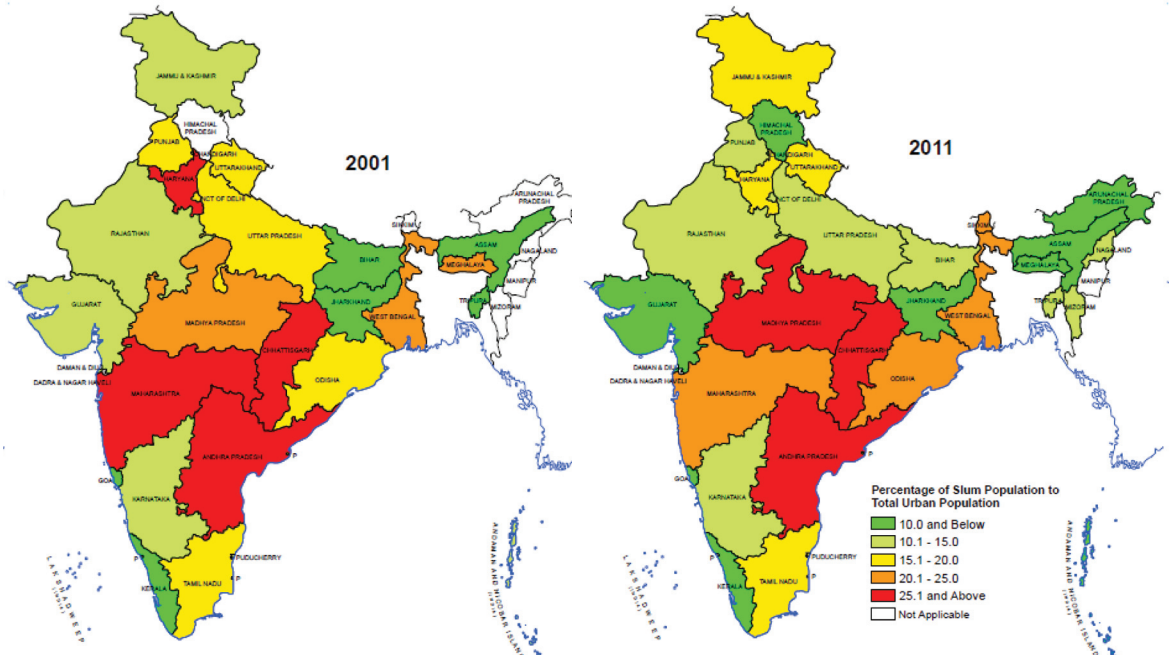
Geographical Distribution of Slums

2011 data shows existence of slum populations in urban areas of most Indian states and Union Territories (Table 4.2 and Figure 4.1). Exceptions are Manipur, Daman and Diu, Dadra and Nagar Haveli, and Lakshadweep, where no slums have been reported. The percentage of slum population is less than 10% in Himachal Pradesh, Gujarat, Jharkhand, Kerala, Goa, Chandigarh and most northeastern states. Proportions are fairly high in Andhra Pradesh (36%), Chhattisgarh (32%) and Madhya Pradesh (28%).

A trend observed is that the number of Indian states with slum population has grown between 2001 and 2011. Figure 4.1 clearly shows that slums have emerged in the states of Himachal Pradesh, Sikkim, Arunachal Pradesh, Nagaland and Mizoram. These states did not report slums in 2001. In fact, the northeastern states of Sikkim (21%), Nagaland and Mizoram (14% each) have recorded a fairly high proportion of slum population.

At the city level, Greater Visakhapatnam (44%),[6] Jabalpur (43%), Greater Mumbai (41%), Vijayawada and Meerut (40% each) have recorded over 40% slum households (Table 4.3). Information provided in the table further shows that Maharashtra (10) and Uttar Pradesh (7) have the largest number of cities with slum households, followed by Gujarat and Madhya Pradesh (4 each).

Figure 4.1: State Share of Slum Population in Total Urban Population of State, 2001 and 2011



Source: Ibid.

6 Total number of slums: 251; Slum population: 2.60 lakhs; Number of families: 60,000; Literacy rate in slums: 51.48%; Individual water connections provided: 6,822 (Website of Greater Visakhapatnam Municipal Corporation, 2014).

Table 4.2: Slum Population in States and Union Territories of India, 2011

Percentage of Slum Population to Total Urban Population of State	States / Union Territories
Less than 10	Meghalaya, Chandigarh, Himachal Pradesh, Gujarat, Arunachal Pradesh, Jharkhand, Assam, Goa, Kerala
10 – 15	Tripura, Nagaland, Punjab, Uttar Pradesh, Mizoram, Karnataka, Rajasthan, NCT of Delhi, Bihar, Andaman and Nicobar Islands
15 – 20	Jammu and Kashmir, Haryana, Puducherry, Tamil Nadu, Uttarakhand
20 – 25	Maharashtra, Odisha, West Bengal, Sikkim
25 and above	Andhra Pradesh, Chhattisgarh, Madhya Pradesh
States not reporting slums	Manipur, Daman and Diu, Dadra and Nagar Haveli, Lakshadweep

Source: Ibid.

Table 4.3: Slum Households in Indian Cities, 2011

Percentage of Slum Households	Cities
Less than 10	Greater Bangalore, Haora, Allahabad, Ranchi, Kalyan-Dombivli, Pimpri Chinchwad, Patna, Vadodara, Ahmadabad, Vasai-Virar, Dhanbad
10 – 20	Ghaziabad, Navi Mumbai, Aurangabad, Thane, Faridabad, Kanpur, Ludhiana, Delhi, Rajkot, Nashik, Lucknow, Coimbatore, Jaipur, Surat
20 – 30	Agra, Kolkata, Gwalior, Indore, Srinagar, Chennai, Amritsar, Bhopal, Madurai, Varanasi, Jodhpur, Pune
30 – 40	Raipur, Nagpur, Greater Hyderabad, Kota
40 and above	Greater Visakhapatnam, Jabalpur, Greater Mumbai, Vijayawada, Meerut

Source: Ibid.

Condition of Slums

The condition of slums and slum dwellers in India can be gauged by the building material used to construct houses, the ownership status, the number of rooms per house and amenities available to slum dwellers (Table 4.4).

The all-India data on slum households shows that:

- 16% of households live in semi-permanent type of house, and 5.3% live in temporary structures.
- 26.3% of households live in rented houses.
- 44.8% of households have only one room, and 4.4% have no exclusive room.

Table 4.4: Housing Stock in Slums and Amenities available to Slum Households, 2011

Housing Stock Indicators		Status (%)	Amenities Indicators		Status (%)
Households by type of occupied census house	- Permanent - Semi-permanent - Temporary	77.7 16.0 5.3	Households by main source of drinking water	- Tap water - Hand pump - Within premises - Outside premises	74.0 12.7 56.7 43.3
Households by ownership status	- Owned - Rented	70.2 26.3	Households by sanitation	- Latrine facilities (within premises) - Public latrine - Open - Bathing facility - Closed drainage - Open and no drainage	66.0 15.1 18.9 81.0 36.9 63.1
Households by number of dwelling rooms	- No exclusive room - 1 room - 2 rooms - 3 rooms - 4+ rooms	4.4 44.8 29.5 12.3 8.9	Households by main source of lighting	- Electricity - Kerosene - Any other - No lighting	90.5 8.2 0.7 0.5

Source: Ibid.

- 43.3% of households do not have any main source of drinking water within premises, and according to the census office, the dwellers have to travel about 100 metres or more to collect drinking water.
- 34% of households do not have toilets within premises and people either use public latrines or defecate in the open.
- 19% of households have no bathing facility.
- 63.1% do not have closed drainage connectivity.
- 0.5% of households have no electricity.

It can clearly be inferred from the above information that slum dwellers are facing a number of problems, namely unsafe housing, fear of eviction/insecurity of tenure, high-density rooms, loss of time and income in obtaining drinking water, lack of toilet facilities within premises (implying lack of privacy, especially for women and girls), health and hygiene problems, and insufficient lighting in houses.

Institutional Goals and Systems for Slum Improvement

The Government of India's Ministry of Housing and Urban Poverty Alleviation (MHUPA) in consultation with the erstwhile Planning Commission of India[7] has formulated national housing policies, legislations and programmes for the welfare of slum dwellers.

7 The present government of India has established NITI Aayog (National Institution for Transforming India) to replace the Planning Commission.

Since land, housing and urban development are state subjects as per the Constitution of India, state-specific policies and legislation in synchronisation with national policies and legislation are also formulated. At the state and local level, housing boards, development authorities, statutory housing corporations and slum improvement agencies are responsible for both implementing national/state policies, laws, schemes, and providing and maintaining housing, infrastructure and services in slums (Table 4.5 and Figure 4.2). Housing projects are also implemented by cooperative societies and real estate developers.

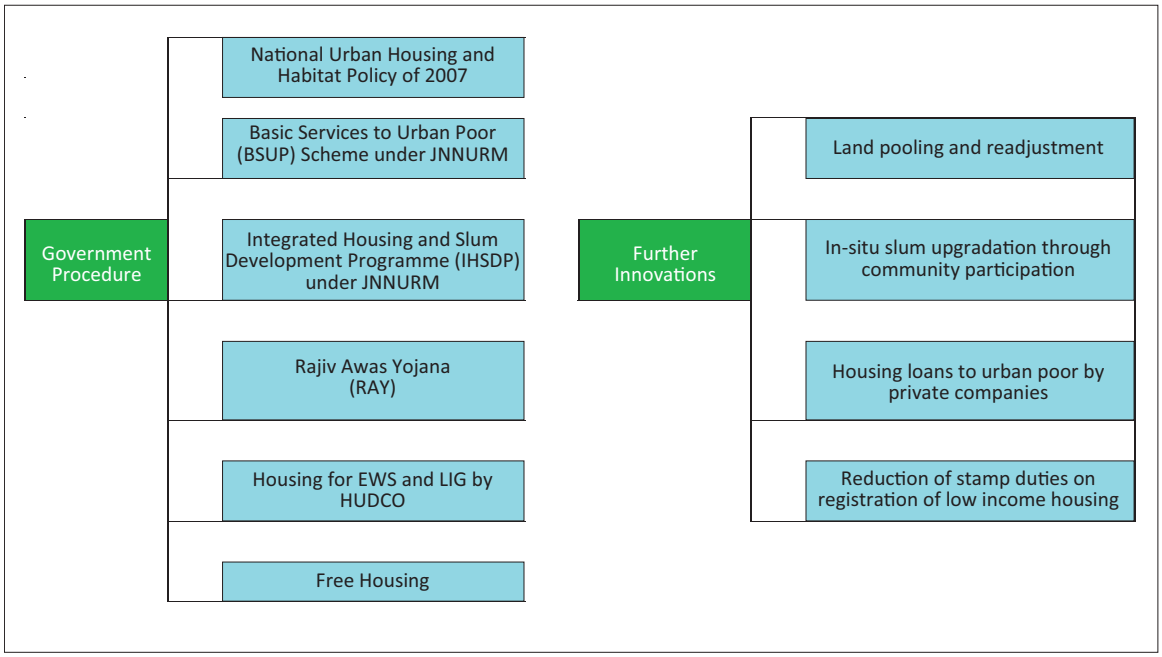
Table 4.5: Government Organisations, Policies and Restructuring Programmes for Slums in India

Component	Description
Planning Commission (Housing and Urban Affairs Division)	The erstwhile body looked after the programmes under Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation; was closely associated with the formulation of policies; supervised the activities of government institutes engaged in urban development.
Ministry of Housing and Urban Poverty Alleviation (MHUPA)	Formulates policies, sponsors and supports programmes, coordinates the activities of various Central ministries, state governments and other nodal authorities, and monitors the programmes concerning all aspects of urban employment, poverty and housing in the country.
Housing and Urban Development Corporation (HUDCO) Limited	Provides long-term finance for construction of houses for residential purposes; helps in meeting the housing requirement of urban poor
Policies	– National Urban Housing and Habitat Policy (2007) – State-specific policies
Legislations	– The Slum Areas (Improvement and Clearance) Act, 1956 – Constitution (seventy-fourth) Amendment Act, 1992 – State and city-specific slum acts
Missions, programmes and schemes	– Jawaharlal Nehru National Urban Renewal Mission (JNNURM): includes four sub-components, namely (i) Urban infrastructure and governance (UIG); (ii) Basic services to the urban poor (BSUP); (iii) Urban infrastructure development scheme for small and medium towns (UIDSSMT); (iv) Integrated housing and slum development programme (IHSDP) – *Rajiv Awas Yojana* (affordable housing scheme for slum-free India) – City-specific programmes
Examples of state/city-level housing/slum improvement agencies	– Andhra Pradesh, Gujarat, Chandigarh: Housing Board – Greater Visakhapatnam, Vijayawada, Kolkata: Municipal Corporation – Greater Mumbai, Pune: Slum Rehabilitation Authority – Delhi: Delhi Urban Shelter Improvement Board

Source: Planning Commission, MHUPA, city-level agency websites.

The National Urban Housing and Habitat Policy of 2007 aims to promote sustainable development of habitat in the country; encourages specially designed slum improvement programmes, land pooling and sharing arrangements; offers scope for release of transferable development rights and additional floor area ratio (FAR) for accelerating private investment in provision of shelter to poor; encourages involvement of non-government and community-

Figure 4.2: Government Procedure and Innovations for Slum Improvement



Source: Figure prepared on the basis of survey of literature and presentations made at the ORF-GIZ Urban Workshop on 25 July 2013 at ORF Delhi.

based organisations and self-help groups; gives primacy to provision of shelter to poor at present locations or near work places; discourages unnecessary relocation; lays emphasis on earmarking land for EWS/LIG in new housing projects (MHUPA, 2007).

To ensure planned development of urban areas in the country, the Indian government had designed and implemented the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Launched in December 2005, JNNURM outlined the following pro-poor reforms: Internal earmarking within local body budgets for basic services to the urban poor; provision of basic services to the urban poor, including security of tenure at affordable prices, improved housing, water supply and sanitation; delivery of universal services such as education, health and social security; and earmarking at least 20-25% of developed land in all housing projects (both public and private agencies) for EWS and LIG categories with a system of cross-subsidisation.

Under the Mission, two pro-poor schemes—Basic Services to the Urban Poor (BSUP) and Integrated Housing and Slum Development Programme (IHSDP)—have been implemented. Both schemes necessitate 15% of the central allocation to be earmarked for minority communities. Meanwhile, another national scheme for eradicating slums and facilitating affordable housing for slum dwellers, Rajiv Awas Yojana (RAY), was launched in 2011. The scheme has been designed on the basis of experience gained from BSUP and IHSDP. BSUP and IHSDP are sometimes referred to as pilot projects for RAY. All three national-level schemes are currently in operation. In addition, a credit risk guarantee fund with an initial corpus of INR 1,000 crore has been notified and launched to provide a guarantee to lending agencies for loans

up to INR 5 lakh given to EWS/LIG persons without any third party guarantee or collateral security (MHUPA, 2012-13: 38).

For the construction of dwelling units/houses and provision of basic services to the urban poor and minorities under BSUP, funds/grants are released by the Central government and a contribution is to be made by the state and local agencies as well as the beneficiaries (Table 4.6).[8] To be eligible for central funding, the state/local agency must prepare city development plans and detailed project reports, and implement various urban governance and management reforms.

Table 4.6: BSUP Financing Pattern

Category of Cities	Grant	
	Central Share (%)	State/ULB/Parastatal Share, including Beneficiary Contribution (%)
Cities with 4 million plus population as per 2001 Census	50	50
Cities with million plus but less than 4 million population as per 2001 Census	50	50
Cities/towns in northeastern states and Jammu & Kashmir	90	10
Other Cities	80	20

Source: MHUPA, 2012-13: 26.

As a result of these efforts, there have been positive achievements in the supply of serviced land, shelter and infrastructure. For example, under BSUP and IHSDP schemes,[9] 1.6 million dwelling units were approved for construction, of which 39% have been constructed. Of the total constructed units, 60% have been occupied by the urban poor (CAGI, 2012: 41). The implementation of BSUP project by Municipal Corporation of Thane (Maharashtra) is seen as a success story, as it has brought about improvement in the living conditions of urban poor. Similarly under RAY, of the sanctioned 42,488 dwelling units, 62 have been completed and 12,749 are in progress (MHUPA, 2013).

HUDCO's contribution: The Housing and Urban Development Corporation (HUDCO), a public sector institution established by the Indian government in 1970, lends long-term finance for housing and urban development. As many as 15.47 million dwelling units have been supported until June 2013, of which the rural and urban breakup is 9.22 million and 6.25 million respectively. Of the total 15.47 million houses supported by HUDCO, almost 95% have been developed for EWS and LIG. In HUDCO's entire operations, money is always given to the urban poor at a substantially

8 A minimum 12% beneficiary contribution is stipulated under BSUP and IHSDP. In the case of SC/ST/BC/OBC/PH and other weaker sections, it is 10% (MHUPA, 2012-13: 27).

9 Under BSUP, houses with infrastructure facilities have been built in Chandigarh, Chennai, Coimbatore, Delhi, Howrah, Mysore, Nagpur, Thane and Visakhapatnam. IHSDP example includes Bilaspur (MHUPA, 2012-13).

lower interest rate of 8% and with a longer repayment period in a bid to ensure affordability and repayment capacity. In its lending operations, HUDCO does not charge application fees from EWS and LIG, and gives up to 90% of the cost of the unit as loan to the poor. As a techno-financing institution, HUDCO also helps the EWS in designing a complex, and focuses on technology that allows the use of cost-effective building materials.

Free housing: In Uttar Pradesh, the government launched the Manyawar Shri Kanshiram Ji Shahri Garib Awas Yojana (a housing programme for urban poor) in 2008 under which free houses have been given to people who cannot afford to pay for them. Such schemes are typical of the kind of response governments have preferred to solve the problem of housing the LIG. The Andhra Pradesh government's housing scheme (Rajiv Gruha Kalpa) for the low income population provides for free land, but the beneficiaries have to contribute 10%, while the rest of the amount has to be arranged in the form of bank loans.[10]

Land pooling and readjustment: The land pooling/readjustment technique has been used in some places, which are undergoing transformation of land use (from rural/agricultural to urban), to generate land for housing the poor at affordable prices (Sandhu, 2004). As per this method, small rural land parcels are acquired from farmers and assembled into a large land parcel, infrastructure and services are provided on the acquired land by selling some of the plots, and smaller sized plots within the developed, reconstituted/reshaped area are returned to original land owners and/or used for other purposes. The method is seen as a means of increasing equity in land distribution and providing access to land for low income housing ('Land Pooling,' Urbepedia).

Huge tracts of land, for example, were acquired from the farmers for the development of Navi Mumbai city. Instead of giving the farmers cash compensation and asking them to go elsewhere, the scheme provided for return of 12.5% of the developed land to the farmers in the same location. In this manner, the farmers have benefitted in various ways, as the value of their land became much higher.

In Gujarat, farmers have given away their land for inclusion in a common pool in return for a readjusted parcel of land. The Urban Development Authority in Visakhapatnam acquired land from farmers and returned them as developed plots. Recently, Chhattisgarh state government has introduced eight different land pooling schemes in the city of Raipur.

Further, the Ministry of Urban Development has approved the land pooling policy proposed by the Delhi Development Authority (DDA) in the Delhi Master Plan for 2021. As per the policy, about 200 villages situated in peripheral/fringe areas of Delhi and spread over 70,000 acres are earmarked for land pooling. This involves owners (farmers, developers) handing over their land to the DDA for pooling, which would then be developed by DDA in a planned manner. Based on the amount of land pooled in, the owners will get back 40-60% of fully developed land. This move is also seen as an opportunity to create about one million new housing units with 15% of total FAR reserved for the economically weaker sections.

10 Flats were constructed by Andhra Pradesh Housing Board at a cost of INR 1 lakh per unit.

In order to successfully pursue such approaches, it must be ensured that developed land is given back to the farmers so that they are not uprooted from their places of living/working, and to ensure they get a fair deal. At the same time, some of this land must be made available for housing the low income population.

In-situ slum upgradation: In Pune, the Municipal Corporation has involved civil society organisations for in-situ slum upgradation. The work began with biometric and socio-economic surveys. Data collected helped in assessing the number of beneficiaries as well as the housing and fund requirements. Instead of demolishing the entire slum area for rebuilding, or relocating the slum population to another area, the land illegally occupied by the dwellers was regularised. The existing *kuccha* houses were upgraded using suitable designs and basic civic amenities—water, sanitation, lighting—were provided. The beneficiary contribution is 10% of the project cost (DARPG, 2012). Following this approach, the poor continued to stay at their original place of residence and were not pushed to the outskirts of the city.

Private sector contribution: Some private companies are engaged in providing affordable houses. Examples include the Value and Budget Housing Corporation (VBHC) Pvt. Ltd., Monitor Group, TATA Group and DBS. Many companies have tied up with private housing finance agencies and have formulated innovative methods to ensure the urban poor's access to an affordable home.

There are about 35 housing finance companies in India that solely cater to the lower and middle income (LMI) segment. Aadhar Housing Finance Private Limited, for example, operates in seven backward states of India (Uttar Pradesh, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Orissa and West Bengal). It has 24 branches covering more than 100 locations. 90% of the company's demand for housing loans comes from people who are earning less than $400 per month. These individuals—shopkeepers, tailors, hospital workers, contractual staff in banks, tool room technicians in private companies, medical representatives in pharmaceutical companies, peons in government schools—are low income, self-earning or salaried persons to whom loans have been given for self-construction of a house on a piece of land that they already own, or for incremental reconstruction as family needs grow with time.

Those working in the informal sector have no banking habits, insurance coverage, family savings or loan history. These are challenges for a finance company in terms of how to assess their income or paying capacity, whether they have an intention to pay, do they have the capability and savings to build the house, etc. Due to these reasons, many housing finance companies do not support many such customers. But in the case of Aadhar, the loan officers/credit assessment officers visit their customers to assess their economic condition. During some visits, officers have noted that although they were informal sector customers, their salary credits were regular, they had a bank account, a stable job and owned a piece of land. Aadhar guides such customers in construction, and arranges services of local architects who make house blueprints at nominal rates. It also does a full legal check of the customer's property so that no demolition takes place after the housing unit is built.

The basis of Aadhar's method of financing is primarily customer education. In the case of low and middle income populations, customers usually lack financial awareness. Since cash flows are not regular, the segment is informal and customers are only bothered about the monthly

expenses they will be able to meet. This means that they are never able to chalk out a plan for saving, and thus cannot build their own house. Therefore, Aadhar first of all focuses on increasing financial awareness by helping customers outline a saving plan. Customers are advised to have a regular banking cycle by opening a savings bank account. If customers do not have savings and repayment awareness, they will not be in a position to furnish equated monthly instalments.

In the last two and a half years, Aadhar has been able to build a strong customer base of 5,300 families, or 25,000 individuals: 80% of Aadhar's customers earn below $550 per month; 26% are self-employed; 40% pay their instalments electronically, i.e., more than 2,000 customers pay through Electronic Clearing System; 30% prefer self-construction; and 86% prefer individual houses as against apartments.

Lessons from Shanghai: The local government in Shanghai began massive housing construction for its urban poor from 1987 onwards. It also created a housing accumulation fund to ensure that workers save some money to purchase a house or an apartment. A study of four communities in the Gucun Community of Social Housing on five facilities, namely commercial, cultural, educational, health and transport, revealed the presence of the following problems: The location of large-scale communities of social housing has been in urban peripheries; facilities that were planned have not been implemented on time; the existing facilities do not cover the entire community; community commercial centres are not accessible to the urban poor due to a lack of transport services; and there are insufficient facilities for senior citizens. While India can learn from the housing accumulation fund practice followed in Chinese cities, it has to be ensured that people relocated to newly created residential areas do not face problems as observed in the case of Shanghai.

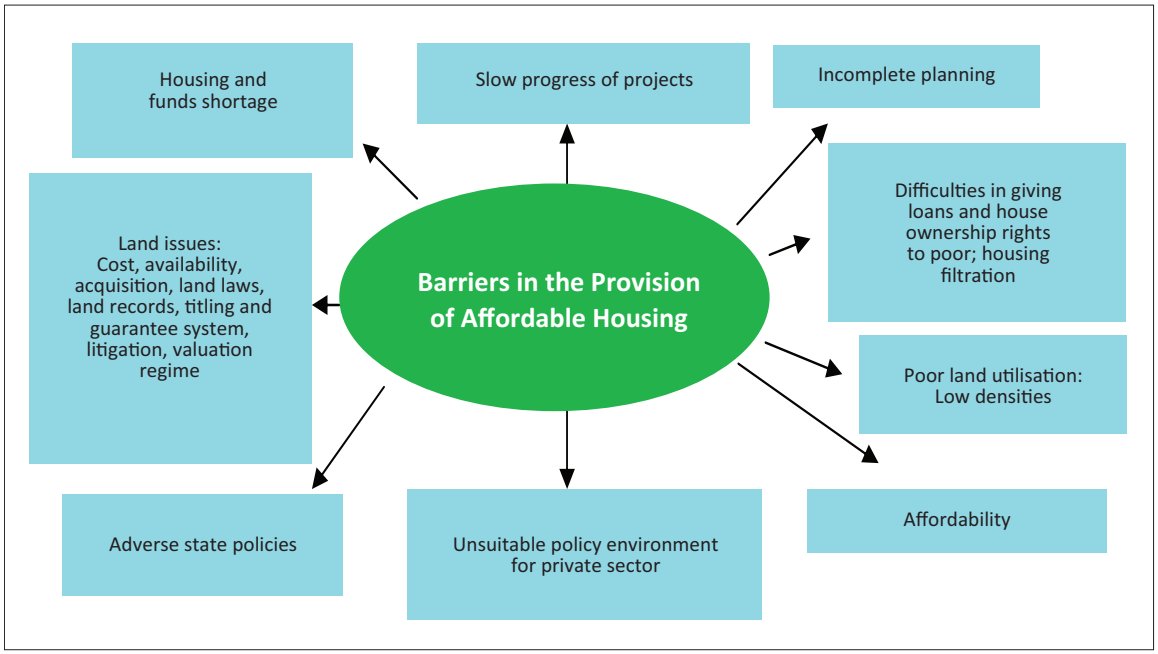
Barriers in Provision of Affordable Housing

As mentioned earlier, the Indian government has taken several steps to provide affordable housing to the urban poor. However, there exist some barriers. These are illustrated in Figure 4.3 and described below.

Housing and fund shortage: There is a huge urban housing deficit of about 18.78 million dwelling units in India (Figure 4.4). Of the total deficit, 95% pertains to the EWS and LIG category (as per the Technical Group constituted by MHUPA). The fund requirement for building these units is about $187 billion. However, the amount of capital with the government is limited, and consideration is being given to tap the insurance market, the pension funds, etc., so that the fund flow in the system increases, which in turn helps decrease interest rates.

Slow progress in completion of housing projects: Construction of dwelling units for the urban poor under IHSDP and BSUP schemes is progressing at a slow pace due to: Non-availability of litigation-free land; delays in release of funds from Centre to state governments; irregularities in conducting surveys of slums to identify beneficiaries and to gauge their willingness to relocate; and occupation profile. Further, the CAGI (2012: 41-57) audit report notes that the ceiling cost

Figure 4.3: Barriers in Provision of Affordable Housing



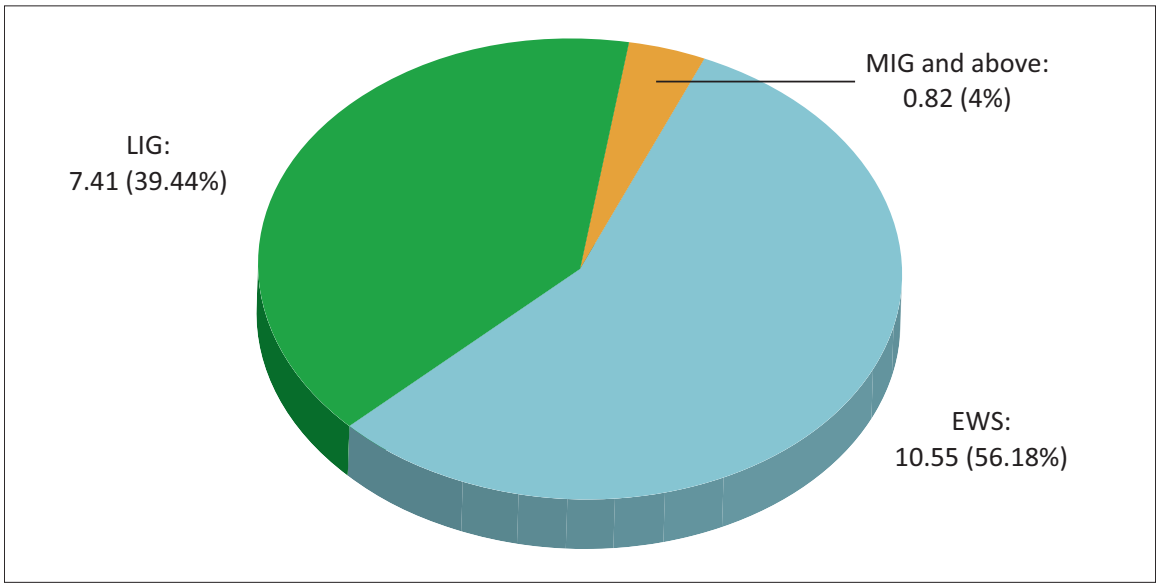
Source: Chart prepared on the basis of survey of literature and presentations made at the ORF-GIZ Urban Workshop on 25 July 2013 at ORF Delhi.

of INR 80,000 per dwelling unit as Central government share under IHSDP has upset many local governments, considering the spurt in input cost.

Incomplete planning: Everybody wants to live in a place where land is serviced (i.e., basic infrastructure is available), people can earn some livelihood and children can go to school. There are examples where housing has been provided by the government, but the people have not actually moved in, thereby leading to a huge financial loss. The houses remain unoccupied due to a number of reasons. First, they are located far away in the peripheral areas of the city and there is no public transportation that people can use to commute daily to their work places, which are often in the city centre. Provision of bus services to the relocated residents would help in ensuring greater occupancy of newly constructed houses.

Second, at some places, the quality of construction has not met the norms and the supporting infrastructure and living conditions (approach roads, toilets, sanitation, water, power supply/energy) are not suitable (CAGI, 2012: 47, 50). In Hyderabad, Ahmedguda and other municipalities of Andhra Pradesh, for example, a number of problems were noted with respect to the performance of the Rajiv Gruha Kalpa scheme: "Many allottees are reluctant to stay in the flats due to lack of civic infrastructure and other facilities; some allottees have even sold their flats; allottees are unwilling to pay escalated costs to State government; flats are located close to dump yard and there is no road connectivity, water pipeline; houses are far from the city" (The Times of India, 2013).

Figure 4.4: Housing Shortage among Economic Categories, 2012 (million)



Source: MHUPA, 2012-13.

Land issues: The cost of land, its availability and acquisition are matters of great concern because they have an impact on the progress of projects.

If the costs involved in construction of housing are broken down, land costs are most significant, whereas all other costs, such as cost of infrastructure and cost of housing unit, are not as important. Yet land costs are many-a-times excluded when affordable housing projects are being designed.

In some cases, all proposed dwelling units have not been constructed because land was made available only partly. Sometimes, the land identified was already occupied by others and therefore not available (CAGI, 2012: 45).

The process of land acquisition, too, is not free from inadequacies. Vacant land is needed for the construction of houses for the poor; since land is owned by various stakeholders and individuals, it has to be first acquired. In New Okhla Industrial Development Authority (NOIDA) area (an urban settlement situated close to Delhi), land has been acquired by the NOIDA authority for a public purpose. Thereafter, the land has been auctioned to private real estate developers who essentially operate as profit-making companies. Thus, the state itself is responsible for pushing up the prices of land. Furthermore, there is no provision of reserving the minimum 5-10% of the housing for the poor.

Difficulties in giving loans and house ownership rights to the poor: The government faces difficulty in providing loans which are needed by the LIG because the poor do not have proof of income, required for obtaining the loan. Moreover, since they do not have a regular income, the amount earned varies from month to month. A credible and more practicable system could be implemented, such as encouraging low income workers to form a cooperative, which could be given the entire

loan, and which would manage, among its members, the repayment.

As for house ownership rights, in some Indian states such as Himachal Pradesh, granting them is not permissible under the law. Rental housing options are therefore being explored, and the Rental Housing Task Force constituted by the MHUPA is reviewing existing rent laws.

In places where houses have been provided to EWS/LIG, it is observed that at times the beneficiaries have sold the house and shifted to another place. This issue needs to be addressed.

Adverse state policies: A large number of state governments (such as Punjab and Maharashtra) have enunciated state township policies that encourage corporate real estate developers to acquire land from farmers. Thus, land is given by the government itself to the developers for development of huge townships. Unfortunately, there is insufficient reservation for the urban poor. State policy is itself encouraging more higher-priced instead of low income housing.

For providing public housing, there are a large number of authorities, such as development authorities and state-level housing boards. However, many of these are adopting a public-private-partnership approach, which means that real estate developers are ultimately providing housing to the high income population.

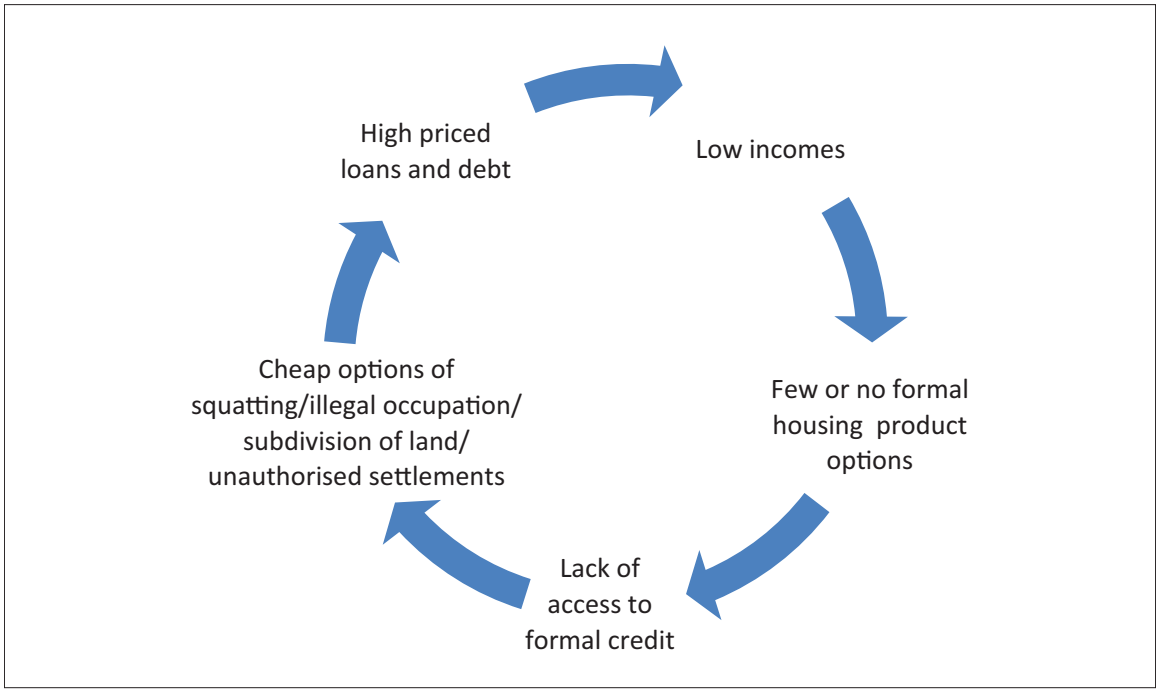
At times, slum dwellers are evicted by force from their place of stay without due legal notice and without any provision of alternate accommodation. The evicted families are not provided new houses at relocated places because they do not possess required documents such as an identity card. This problem is observed in many Indian cities, including the national capital, and it leads to families, including women and children, becoming homeless. Such acts, a complete violation of basic human rights, occur often to make way for new constructions, such as expansion of transport networks and creation of shopping malls, sports facilities and housing for the rich.

Unsuitable policy environment for the private sector: It has been made mandatory for private industry players to provide low income housing through a policy of reservation. MHUPA has issued directions to all state governments specifying that at least 20% of the total housing that is provided by the private industry in every housing project should be reserved for the LIG. But reservation of land for the poor does not happen at many places, and consequently, the supply of housing has been drastically limited. Inadequate incentives for the private sector, few statutory provisions to make it mandatory for private players to compulsorily provide affordable housing, and vested interests (profit) of private industry players are some of the reasons responsible for low cooperation received from the private sector.

Affordability: Affordability, in the context of housing, may be defined as the ability and willingness of a person to pay for a house of a certain size. According to the definition of an affordable house for EWS and LIG, the size of the house should be between 300 and 500 square feet super built-up area, at costs that permit repayment of home loans in monthly instalments not exceeding 30-40% of the buyer's gross monthly income (MHUPA).

The paradox in urban India is that only a small number of people have very high affordability, while a large number of people have very low affordability. Persons earning low incomes are generally employed in informal sector activities, which means there is no proof of income (such

Figure 4.5: The Vicious Cycle of Low Income Housing



Source: Rao, 2013.

as a salary slip), they do not file tax returns, their savings are insignificant and they do not have enough access to formal credit. This makes it difficult for them to keep up with today's market-based financing system, which requires monthly repayment. A better assessment of the relationship between monthly income, equated monthly instalment and price of house is therefore needed. At present, the housing market is catering to those who can afford to pay. Market supply, therefore, toes the line of affordability, and the urban poor have few or no housing options. Thus, many persons are found living in slums and unauthorised constructions. According to some scholars, the urban poor are trapped in a 'vicious cycle of low income housing' (Figure 4.5).

Conclusion: Imperatives for Ensuring Urban Poor's Access to Housing

Provision of housing to the poor living in urban centres of India is an important responsibility of the government and for this purpose, a number of programmes have been implemented. At many places in the country, new dwelling units/houses have been constructed with marginal beneficiary contribution, and the poor have been successfully relocated. In-situ upgradation, a preferred option of slum dwellers, has also occurred in a limited manner.

A situation analysis reveals that the pace of change, in terms of bringing about a holistic improvement in the living conditions of the poor, is too slow. The data on growth of slum

population and the adverse living conditions in slums/relocated places are an indication of the challenge that lies before the government. It is estimated that India's slum population will be 104 million by 2017 (or 9% of the total projected national population of 1.28 billion).

The present circumstances call for paying immediate attention to the following, if India is to achieve the goal of 'housing for all':

- Plan and develop existing urban centres by taking into account the requirements (viz., housing, basic needs and livelihood) of the persons engaged in informal activities and the migrant population.
- Develop better understanding of the requirements of institutions responsible for meeting needs of the urban poor, build their capabilities and ensure participation, accountability, rule of law and transparency in governance.
- Learn from success stories, in terms of governance strategies adopted to address concerns of the urban poor.
- Declare localities displaying slum-like characteristics (that have been identified and recognised as slums by the census office) as 'notified slums' and provide basic facilities in such areas. Reportedly, census authorities have only counted slums in 4,041 statutory towns, while leaving out 3,892 census towns, where a large number of slum dwellers live. Thus, there is concern about underestimation of as much as 50 million slum dwellers. Non-recognition of slum population in census towns, and of slums due to definitional issues, implies depriving them of policy initiatives.
- Formulate and implement realistic benchmarks/norms and standards for slum rehabilitation; complete all development work before allotment of houses to the poor; involve and support committed non-government organisations for improving service (viz., education, health, sanitation, drinking water, etc.) delivery.
- Build a substantial affordable rental housing stock and facilitate the development of rental management associations.
- Provide night shelters with basic needs to the homeless population as an interim arrangement.
- Provide affordable and liveable houses to the poor, carry out in-situ slum rehabilitation ensuring access to all basic needs such as drinking water, sanitation, electricity, health and education. Ensure that: New or original places of stay meet desirable living standards; there is security of tenure; public transport services are available on a regular basis and at subsidised rates in relocated areas.
- Include all cost components, including land costs, at the time of designing affordable housing projects.
- Implement better land laws that address concerns relating to acquisition, land records, titling and guarantee system, and litigations.
- Carry out a mapping of all land records showing boundaries, numbers and names of owners using geographic information system technology.
- Encourage high-intensity land utilisation.
- Modernise the land registry offices as well as the land valuation regime in the light of changing prices in the market; reduce stamp duty.

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5

Improving Accountability in Management of Solid Waste

Introduction

One of the negative effects of development is generation of huge quantities of solid waste. In the past, when societies were mostly engaged in agro-based activities, the type of waste produced was environment-friendly and the quantities were less. Its reuse and disposal were hardly concerns. While this is still true in many rural areas, the situation has changed with time in places that have undergone a transformation. Rapid industrialisation, technological advancements, globalisation, urbanisation and consumerism have created a scenario of incessant demand for goods fed by mass production. Due to increasing choices and higher purchasing power, people nowadays buy and consume more commodities, and in that process generate enormous quantities of waste that is heterogeneous and hazardous. This trend is prominently observed in densely populated urban centres of both developed and developing nations.

According to estimates, across the globe, "cities currently generate roughly 1.3 billion tonnes of solid waste per year (or 1.2 kg. per person per day); with current urbanisation trends, this figure will grow to 2.2 billion tonnes per year by 2025—an increase of 70 per cent" (Hoornweg et al., 2012). Local-level data shows that the top five cities generating the most waste currently, in the range of 12,000-20,000 tonnes per day, are Sao Paulo, Hong Kong, Buenos Aires, Cairo and Mexico. In India, some large cities generate waste up to 9,000 tonnes every day. There are of course huge disparities in waste generation between cities and among the lower and higher income groups within a city. But while the quantity of waste generated in Indian cities is much less compared to other cities in the world, its mismanagement creates a large number of problems.

Solid waste needs to be completely, safely and economically disposed of. This is correctly happening in a few places in the country, where city governments are following certain practices to manage waste efficiently, and the citizens/waste generators are abiding by the rules. Unfortunately, the same cannot be said for many other places. There are serious concerns about how waste is being handled by both generators and managers, and the adverse impacts of improper waste management, particularly on the health of poor sections of the society and the environment (greenhouse gas emissions, air and water pollution, local flooding).

This chapter describes problems involved in the management of solid waste in urban areas of India and puts forward several suggestions to address the issue. Explained below are standard waste management practices used by state and non-state actors, with areas requiring reform highlighted.

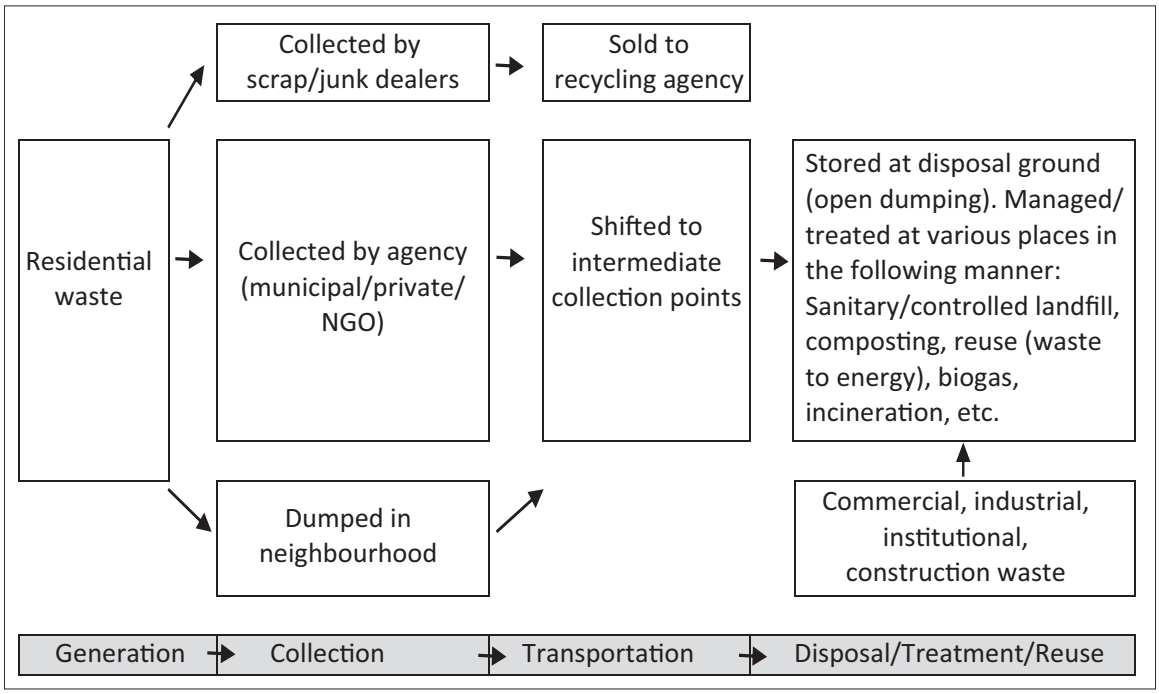
Waste Management Procedure and Problems

At the local level, the municipality is responsible for the governance of an urban area. As per the Municipal Act, one of the obligatory functions of a municipality is to provide the services of "cleansing... public places, removal and disposal of waste." To do so, municipalities generally constitute a public health/sanitation wing/sub-committee comprising sanitary workers (such as sanitary inspectors, supervisors, sweepers). Equipment and vehicles needed for waste collection and transportation (such as wheelbarrows, trucks and tractor trolleys) are bought to perform the tasks. Municipal budgets show that a large amount of money is spent on waste management. At times, this work is given on contract to private enterprises.

There are wide variations in the sanitation levels of towns and cities. At most places, sanitary conditions are unsuitable, and the mechanisms put in place by the municipality have been unable to manage the waste in an efficient manner. A CPCB report (2012) points out that there is "hardly any urban centre complying with the Municipal Solid Waste (Management and Handling) Rules, 2000 in totality." Innovative approaches—municipal reforms, public awareness campaigns, sanitation drives, new technologies, sub-contracts, public-private-community partnerships, etc.—have therefore been adopted to address municipal solid waste-related problems in a few places.

The most common procedure with respect to handling of household waste and some problems faced in its collection, transportation and disposal are briefly described here. Waste generated in residential areas is cleared by the residents in the following three ways (Figure 5.1):

Figure 5.1: Stages of Handling Solid Waste



Source: Figure prepared on the basis of current practices followed in urban areas.

a) Waste given to scrap dealers: All recyclable items such as paper, bottles, metal objects, electronics and furniture are given to scrap/junk dealers *(kabariwallahs)* at a price. These items are thereafter sold by the junk dealers to recycling agencies.

b) Waste given to collection agency: Kitchen waste, product wrappers, plastic bags, etc. are either given to the municipal sanitary workers/local private operators, or workers engaged by non-government organisations. Not much attention is paid by residents towards segregation/sorting of such waste at source. The collection agency charges a nominal fee/charge for providing this service at the doorstep/public place, and transfers the amalgamated waste to intermediate collection points located in various parts of the urban centre. At the intermediate points, the waste collected from an area/locality is stored in depots *(dhalaos)*/containers/dustbins, or simply dumped along the roads. Further, waste generated in commercial (markets, restaurants, offices) and institutional (health, education) establishments is sometimes dumped in the depots. Here, the environmental conditions are extremely unhygienic, and informal waste/rag pickers (poor men, women and children) can be seen rummaging through unassorted waste with bare hands. Any collected pieces of scrap are then sold or re-used by them.

   The remaining non-recyclable/mixed-up waste is loaded on municipal/privately operated trucks/tractors or bullock carts and transported to the disposal grounds. Sometimes there are delays in removal of waste by the collection agency from the intermediate points, and therefore in some cities such as Hyderabad, GPS technology is being used to track the movement of agency vehicles and thus ensure efficiency in waste collection. During transportation, waste often spills out on roads as the vehicles are uncovered. Furthermore, most landfills/disposal sites are already at or nearing full capacity and do not have space to accommodate more waste. It has been observed that a lot of space at the disposal ground is occupied by construction waste. Inadequate and ecologically unsound infrastructure facilities used for waste disposal also propagate foul smells and poor environmental conditions, which contribute to air and water pollution. It is often emphasised that open disposal grounds are potential sources of greenhouse gas emissions that can influence global warming and climate change significantly. Conditions are also ripe for the generation of leachate[11] when rain flows through heaps of waste and dissolves toxic metals and other contaminants that can find pathways to migrate to surface and groundwater. Since dependence on groundwater for drinking and crop cultivation is increasing, its contamination is a great challenge, more so given that remediation is too costly and complicated.

c) Waste dumped in the neighbourhood: There are several places within an urban centre which are not covered by waste collection services. This is usually due to non-payment of conservancy charges by the households, illegal status of the locality (unauthorised colony, slum) or inability of the waste collection agency to cover the entire urban area due to financial, manpower

11 Leachate is a liquid that extracts solutes from other matter as it passes through it. The substance is most commonly born in areas with large amounts of refuse, like landfills. It can be dangerous because of the many hazardous substances these areas contain, and can transfer contaminants to people, plants and animals (Scott Environmental Group).

and infrastructure shortages. At such places, people dump waste almost anywhere near their area, such as road sides, open drains, vacant plots, water pools, open places and parks. Such practices lead to choking of open drains and spoil the environment. The civic agency conducts cleanliness drives from time to time to remove this waste.

Rules for Waste Management

The Government of India has taken several steps for promoting efficiency in management of waste in urban areas of the country. Two notable national-level policy measures are:

a) Manual on Municipal Solid Waste, 2000: It provides operational guidelines and assists the personnel involved in managing solid waste generated in towns and cities of the country. It is prepared by the Central Public Health and Environmental Engineering Organisation (CPHEEO), which is the technical wing of the Ministry of Urban Development;
b) Municipal Solid Waste (Management and Handling) Rules, 2000: The rules are to be applied to every municipality responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid waste. These are formulated by the Central Pollution Control Board (CPCB), which is the technical wing of the Ministry of Environment and Forests.

A review (CPCB, 2012; EBTC, 2011) of the overall status of compliance with the rules shows the following:

- Most urban centres do not have a proper action plan for implementing rules.
- Of the total waste generated in the country, 70% is collected.
- House-to-house collection and segregation is not being done properly.
- There is a large gap in waste collection and processing.
- Most municipalities have no sanitary landfill facility and therefore dump waste.

In view of the unfavourable implementation experiences and local conditions, the rules have been revised (See Box 5.1) vide notification issued by the Ministry of Environment and Forests in 2013.

Areas for Reform

Many practitioners and scholars studying the waste management sector realise that the problem is far more complex than is commonly understood and therefore, rigorous measures are needed. The following are some suggestions to overcome the present day challenges in waste management:

Exposure to waste management methods: Educational institutions at various levels should design and introduce courses on solid waste management and train students in handling waste. This will make them more responsible citizens and help the government in the long run by way of receiving better cooperation from waste generators.

Box 5.1: Municipal Solid Waste (Management and Handling) Rules, 2013

The waste collection, segregation, storage, transportation, and the processing and disposal facilities to be set up by the municipal authority on their own or through an agency or an operator of a facility, shall fulfil the following specifications and standards namely:

a) the safe collection and segregation of municipal solid waste into biodegradable and non-biodegradable components;
b) the horticultural and construction or demolition or debris or dairy waste shall be separately collected and disposed of in accordance with the bye laws and not to be mixed with municipal solid waste;
c) the municipal authority shall identify storage spaces such as materials recovery facility, as appropriate, for segregation of municipal solid waste and the storage facilities to be set up by municipal authorities shall be so designed that the municipal solid waste stored are not exposed to open atmosphere and shall be user-friendly;
d) the storage facilities or 'bins' shall have 'easy to operate' design for handling and transportation of municipal solid waste. Bins for storage of biodegradable waste shall be painted green, those for storage of recyclable waste shall be painted white and those for storage of other waste shall be painted black;
e) manual handling of municipal solid waste shall be prohibited: provided that in case unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers;
f) the landfill site may provide an appropriate facility for removing any recyclable material;
g) the land filling of mixed waste shall be avoided unless it is found unsuitable for waste processing;
h) the landfill shall only be permitted for non-usable, non-recyclable, non-biodegradable, non-reactive inert waste and other waste such as residues of waste processing facilities as well as pre-processing rejects from waste processing facilities and the like nature provided that effort shall be done by the municipal authority or operators to utilise inert waste for making bricks, pavement blocks, construction blocks, non-recyclable plastics and other incinerable waste for co-incineration in cement kilns or any high temperature furnaces or manufacture of door panels, and the like nature so that the burden on landfill is reduced and the landfill sites shall meet certain specifications;
i) to ensure that compost or any other end product shall comply with certain specified standards and also ensure that no damage is caused to the environment during this process;
j) to create awareness among all stakeholders about their responsibilities;
k) to ensure that the generator of municipal solid waste avoids littering, delivers the municipal solid waste to authorised agency or waste pickers as notified by the Municipal Authority and open burning of municipal solid waste is not permitted;
l) the biomedical waste, industrial hazardous waste and e-waste shall not be mixed with municipal solid waste and such waste shall follow the rules separately specified for the purpose.

Source: Ministry of Environment and Forests, 2013.

Also, many people do not know how to reduce, segregate, store and dispose of waste. Therefore, people have to be made aware through education and awareness programmes. For this to happen, many organisations will have to come forward to assist in conducting orientation programmes.

Segregation and storage at household level: To some extent, segregation is being done by informal waste pickers at public places in the neighbourhood where the household waste is dumped. But at the household level (or source), people are not interested in segregating waste because they know that once the segregated waste goes out of their homes, there are no arrangements for

channelising the segregated waste for reuse, which means that ultimately it will all get mixed up. Therefore, the necessary infrastructure has to be put in place to achieve the goal of segregation.

Community-level practices/role of informal sector workers and scrap dealers: At the local level, between the household and waste bin, a number of innovative practices are seen. For example, informal waste pickers collect waste from households and transfer it to the community bin.[12] Some of this waste is segregated by them and the recyclable items are taken to scrap dealers. In return they receive money. A large number of waste pickers are entirely dependent on this profession for their livelihood.

The role and contribution of informal sector workers (waste pickers and scrap dealers) in waste management is well recognised, but not much attention is being paid by the government towards their welfare and protection. Their work is not legally recognised by the government, which means that these workers face difficulties and constant harassment by authorities, despite the fact that they are supporting municipalities in a large way by providing those services which municipalities are failing to provide and are also helping in reducing greenhouse gas emissions by recycling waste materials (Chintan, 2009).

However, if an intervention is made at this level for improving efficiency, such as involvement of private sector workers, these practices are disturbed and the livelihood of waste pickers is negatively affected. There is also the possibility of conflicts between waste pickers and private workers, currently being reported in a number of places in the country. Therefore, a cooperative model needs to be developed and put in place through the assimilation of informal waste pickers and recyclers in the system.

Dustbins and placement: It is essential that right-sized and segregated dustbins are available at public places for the convenience of citizens. In most places, there are an insufficient number of dustbins and waste can be seen strewn all around the bin. This makes it difficult for people to go near the bin to dispose of waste. The presence of birds and animals at such points is quite common due to which waste gets scattered all around the area. Further, not only are segregated bins rarely available, at many places in the urban centre, dustbins are not available at all, which means that people throw waste almost anywhere in public spaces. Even at the intermediate points along roadsides where waste is to be kept/stored for collection by municipal workers, dustbins/containers are usually not provided. Therefore, waste collected from source is kept in the open along roadsides, which is a nuisance for the public. All such intermediate waste collections points should be identified and provided with appropriately-sized covered bins.

Integrated infrastructure: Waste generated is of different types—plastic, biomedical, electronic, battery, etc. Some of this waste is hazardous. For handling each type safely, there is often a demand for creating separate collection centres. Considering the difficulties involved in land acquisition and its scarcity in urban areas, each collection centre should be designed in such a way that there are provisions for safe handling of various types of waste within a collection centre.

12 According to the All India Kabadi Mazdoor Mahasangh (AIKMM), in Delhi about 350,000 unorganised workers are engaged in the informal process of waste management.

Collection timing: Collection of waste on a regular basis is important. But there are inefficiencies in the collection of waste by agency workers from dustbins installed at public places and from intermediate collection points. Delays in waste collection lead to its accumulation.

Transportation: A well-designed transportation system according to the road size and distance to be travelled is equally important. In many places, lanes are narrow and therefore smaller-sized vehicles are suitable. Another issue is the huge quantum of waste transported from the intermediate points. The volume could be reduced by providing an inbuilt shredder in the collection vehicle. However, the shredder can be used only when waste has been segregated appropriately.

Minimisation: The quantity of waste reaching the disposal grounds can be reduced in many other ways, such as by recycling; producing refuse-derived fuel, landfill gas, biogas; through incineration, composting (biological decomposition of organic waste), vermi/windrow/mechanical composting, pyrolysis (thermal decomposition of organic material), biomethanation (microbiological conversion of organic material to biogas); and utilising waste for different purposes—road construction, using up to plinth level in housing, creating a garden with rock structures, etc. Another measure could be making households aware of options for reducing the quantity of waste generated.

Leachate containment: At composting plants and sanitary landfills, it should be ensured that there is no migration of leachate to the groundwater. Thus, a good leachate drainage system must be created below the surface where waste is dumped for containment of leachate migration. The drainage system should have a porous medium and there has to be a good gradient so that all leachate generated reaches the drainage system. A filter can be used to drain out all the leachate which can then be collected in sinks. Below the leachate collection system, sub-grade, compacted clay, geo-synthetic layers can be created which do not allow migration of leachate into groundwater. Such facilities can be created below new sanitary landfill sites, and to some extent below existing sites.

Technology: Use of appropriate technology is necessary. It should be made clear where, which type and when the technology is to be utilised considering factors such as quantity, composition, calorific value, geographical location, etc.

Several private companies are developing new waste management technologies but most of these cannot be practically applied in India. For example, there are proposals to install incinerators, each of which costs as much as INR 2.5 billion. Apart from the increase in environmental cost with release of numerous toxins through use of these incinerators, the price tag further escalate when the cost of regulating such technologies is added: It is estimated that the cost of regulating these technologies is equal to the aggregated cost of setting them up. While in Europe, there has been considerable investment made in regulation over the last fifty years, not much thought has been given to regulation in India, aside from the lack of financial means for this purpose. Therefore, if such technologies are put in place, these will fail. Technologies must consequently be thought of in terms of success.

Bankable recycling units: Enormous capital investment is required to establish waste recycling projects. Huge operation and maintenance costs are also involved. Therefore, there is a need to design recycling units that are bankable, i.e., units, once operational, are able to sustain themselves by generating sufficient revenue from the recycling services they provide. Presently, there are no bankable units in cities which are engaged in recycling. The units that do exist need to be upgraded.

Disposal site: The waste should be disposed of after treatment in an environmentally safe and engineered sanitary landfill. However, difficulties are being faced in constructing such facilities due to lack of funds and non-availability of open spaces. Land use plans should clearly earmark and reserve environmentally suitable spaces for disposal of various types of waste.

Markets for compost: Linkages should be created for the sale of compost produced in composting plants.

Regulating industrial waste: Despite rules for regulation of industrial waste, large companies are not investing in setting up collection systems, nor is necessary action being taken against these for violating the rules. In the US, for example, industries have to set up collection systems under the law which is being followed.

Municipal capability: The blame for mishandling waste often goes to municipalities. However, sufficient efforts are not made at understanding their financial, managerial and infrastructure capacities, and to provide them support in the areas of planning, governance, partnerships, project selection, technology, etc.

Role of non-state actors: Informal waste pickers and civil society organisations should be facilitated in waste management. At many places, when such groups attempt to manage neighbourhoods or introduce composting, municipalities do not allow them to do so and argue that all waste is their property. Some studies (ETBS, 2011) observe that the private sector is unable to participate due to a number of barriers, such as weak financial condition of municipalities, multiplicity of agencies, lack of regulatory framework, and few bankable and financially sustainable projects.

Centre-local coordination: Municipalities have to handle different types of waste, such as biomedical, electronic and plastic. The confusion arises when municipalities try to coordinate with different regulatory agencies (i.e., Central government ministries of urban development, environment and forests, new and renewable energy, etc.) for setting up waste management systems. This calls for better Centre-local coordination.

Conclusion

Most urban centres in India are inefficient in managing solid waste. The discussion in this chapter clearly indicates that the problem exists because the strategy followed by the government for handling waste is deficient in several ways. For instance, it does not sufficiently take into account existing barriers and resources. In this regard, not enough steps are being taken to build awareness

about reducing, segregating and disposing waste among the generators, i.e. citizens; facilities available for waste disposal at the neighbourhood level are inadequate; there are irregularities in transporting waste from intermediate collection points; disposal sites are not technologically equipped to handle the huge quantities efficiently; the role played by informal sector workers and recyclers in waste management is being ignored; and the capabilities of municipalities are not being adequately strengthened. Unless such aspects are taken care of, any regulation, programme or strategy formulated for waste management cannot be implemented successfully, and the environmental conditions in urban areas will further deteriorate. This also implies that the accountability of various stakeholders in waste management cannot be improved upon because the necessary conditions have not been created for them to operate in a responsible manner.

Some nations are extremely concerned because they realise that, if neglected, waste management could be a very costly affair. The quantum of funds spent by local governments in India on the sanitation sector and expenses incurred by poor people on maintaining their health are an indication. Therefore, effective systems and governance mechanisms need to be put into place to handle waste in an efficient manner. Waste has to be seen as an opportunity and the effort should be to reduce waste and promote re-use, recycling and recovery through use of appropriate technology.

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6

Urbanisation and the Need for Smart New Cities

Introduction

It is widely understood that rural areas in India are unable to sustain the village population, providing impetus for rural-urban migration. Rural migrants are relocating themselves in and around urban areas with the aim of finding work opportunities and leading a better life. This trend of migration is an indication of the fact that rural economy and development are lagging behind in the country.

In addition to rural to urban migration and other components of urban population growth (such as births and expansion of municipal limits), citizens are also moving between urban centres. Due to these two population movements—rural-urban and urban-urban—some urban centres are witnessing a very high concentration of population. For example, the number of urban agglomerations/cities in the country with a population of more than a million rose to 53 in 2011 from 35 in 2001.

Currently at a little more than 31%, the proportion of India's population that is urban is significantly behind those of many other countries, some of which are more than 80% urban. But it is estimated that the proportions will grow gradually in the coming years. According to the UN World Urbanisation Prospects: The 2011 Revision, from 378 million (2010), India's urban population will be 605 million (or 40% urban) by 2030 and 875 million (or 52% urban) by 2050.

If these population forecasts are to be believed, India must prepare itself for absorbing and managing future urban growth. The launch of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in December 2005 was an important step in this direction. Under the Mission, the national government offered financial and technical support to various state governments and Union Territories with the aim of improving living conditions in existing urban areas. Also, numerous mandatory as well as optional reforms (to strengthen urban governance) and infrastructure projects were proposed, some of which have been implemented.

Are these reform measures appropriately designed for improving existing urban settlements in India? Would these be able to handle the pressures of migration, growing urban populations and their demands, unemployment, poverty and numerous other socio-economic and environmental problems the whole country is facing? What challenges were experienced in the successful implementation of the JNNURM reforms agenda? Along with ongoing efforts, should a systematic road map be prepared for the creation of brand new smart cities at appropriate locations in the country? What should be India's urbanisation strategy? All these questions are worth investigating.

India will continue experiencing a steady increase in its youth population. If, for some reason, this demographic potential is not well managed or sufficiently absorbed in the economy, it would be a critical opportunity lost and could translate into social and spatial inequalities, civil unrest, violence, crime, insurgency, etc. Very recently, big social upheavals have occurred in a number of countries, in part due to governments' failure to understand the aspirations of their populations.

Furthermore, increasing population density in existing urban settlements in the future could mean a further deterioration in living conditions, in case the governing institutions are unable to handle increasing pressures and needs. For instance, 2011 Census data shows that the slum population in India has increased by 25% during 2001-11, and some cities have recorded over 40% slum households.

India must consider such adversities in any future planning and development exercises. The cost of not doing so will be enormous, as it will severely retard India's growth and development process.

It is often suggested that urbanisation driven by industrialisation can be good for a nation, and if this is done by creating new cities in a smart, planned and systematic manner, many of the challenges and inequalities can be minimised. These thoughts are based on the philosophy that the urban phenomenon has propelled the growth of several national economies and lifted vast segments of the population above poverty line. Cities are usually referred to as centres of growth, innovation and creativity, where competition takes place for resources and investment. Their importance can be understood from the size of employment and GDP generated. Mumbai, whose GDP is more than the total of 18 other Indian states, is a case in point. Does this imply that the future of India's growth process and response to the challenge of job creation for its growing youth population lies in the dynamism and vibrancy created in cities?

One of the pre-requisites for job creation in India is a GDP growth of 8-9% per annum over a period of three decades or more. This may not happen unless the manufacturing sector grows at a rate of 15-16% per annum. If adequate importance is given to the expansion and diversification of the manufacturing sector as has been given to the service sector in the past, it could help in meeting future employment needs. The services sector does not create as many jobs as manufacturing does. Also, no country in the world has grown on the back of agricultural sector for long periods, since the sector can sustain a growth of only 3-4%.

The popular view that India's villages will be economically viable and self-independent matches with that of the Chinese Communist Party that initially argued for a peasant-led revolution. The two countries were at the same level of growth until 1975. Thereafter, the Chinese government changed its strategy and pursued manufacturing-led growth. This resulted in a growth of about 8% per annum.

This only strengthens the argument that along with ongoing rural and agricultural development efforts, India must focus on the creation of new cities that offer a strong manufacturing base.

This chapter highlights the need and significance of new city development in India. Based on a review of ongoing work in the city of Dholera (Gujarat), attention is drawn to the challenges being faced in this endeavour. Towards the end, information is provided on aspects to be considered to successfully achieve the goal of building smart new cities in India.

Urban Policies and Strategies: Some Global Lessons

Urbanisation strategy: By end of 2011, China had 690.79 million residents living in 657 cities[13] and 19,683 designated towns, with a concentration of population along the eastern coastal areas. According to various projections, the country is expected to experience further urbanisation in the coming years, with levels rising from 50-51% in 2011[14] to about 70-71% by 2030.

After 1978, China's urban policy was designed to control the expansion of large cities and encourage development of small and medium cities and towns in order to stimulate rural economic development. A system of household registration (namely hukou) was applied to control growth of urban population and check migration. Accordingly, in the last 30 years, nearly 20,000 small cities and towns mushroomed.

However, growth did not trickle down to surrounding areas as envisaged due to bottlenecks in infrastructure, management, finance and communication. Also, despite the use of the hukou system, citizens continued to migrate to urban areas. In 2010, huge regional development imbalances, and regional income and consumption disparities, among cities were noted. The 'emergence of villages in cities,' or the ghettoisation of villagers in cities, is another problem that has been observed.

Figure 6.1: The Strategic Urbanisation Structure of Two Horizontal Axes and Three Vertical Axes in the Twelfth Five Year Plan for National Economic and Social Development

Source: Kochhar, 2013, obtained from China's Cities Development, 2012: 4.

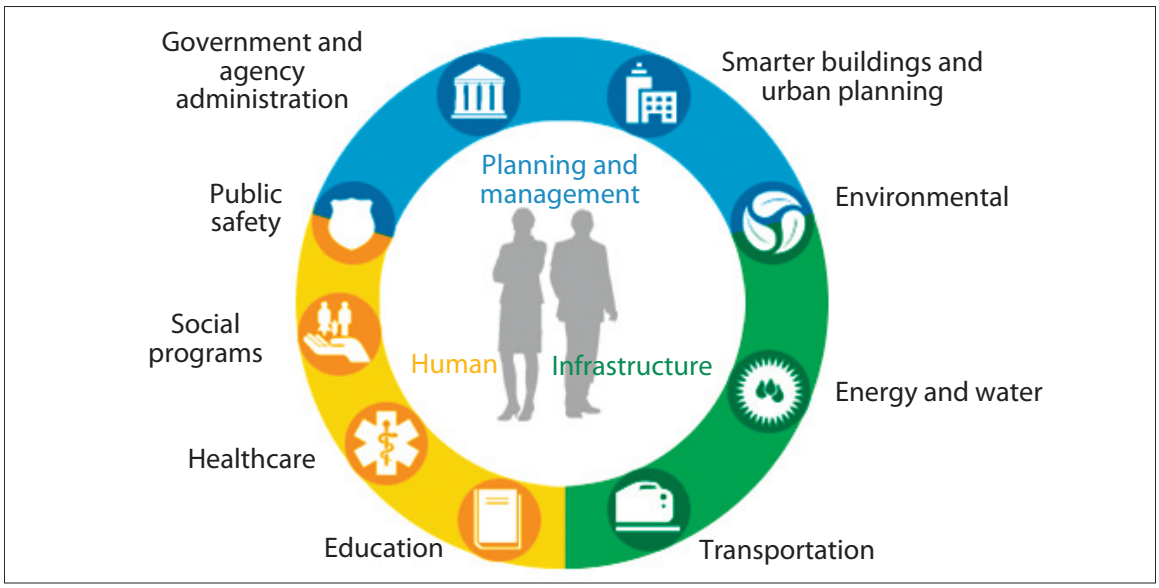
13 This number includes four municipalities directly under the Central government, 15 sub-provincial cities, 268 prefecture-level cities and 370 county-level cities.

14 The actual urbanisation rate in China is widely debated. According to some scholars, if population in cities without urban residency (hukou) is excluded, the rate comes down to 33%.

The urban policy was accordingly revised to encourage the development of large and super-large cities, satellite towns around cities to spread growth, and the expansion of industries in the sub-urban regions. For this purpose, an urban cluster development approach has been designed, which involves creating an urban agglomeration at the core, with other urbanised areas and cities in the neighbourhood to form a balanced urban hierarchy. Figure 6.1 shows the spatial pattern described in the Twelfth Five Year Plan, which includes two horizontal axes, three vertical axes and multiple urban poles.

Digital technology: In current times, it is possible to create central command rooms and manage all utilities (water, power, public safety, etc.) using digital technology. Companies such as IBM, CISCO and the SK Group are offering technologies to create and manage smart, connected, ubiquitous cities. According to IBM, "a city is an interconnected system of systems and is made of three important components—infrastructure, operations and people (Figure 6.2). By collecting and analysing the extensive data generated every second of every day, tools such as IBM Intelligent Operations Center coordinate and share data in a single view creating the big picture for the decision makers." There are examples of global cities using such technologies. In Bucheon, Korea, intelligent video analytics are being used to provide real-time information to drivers, conduct traffic surveillance and improve city roads. Use of technology for ensuring public safety is observed in Lancaster, UK, where data from the sheriff's department and emergency response systems is integrated and mapped geographically to forecast areas of the city that are most likely to require policing over the forthcoming month. India, being a late starter, can leapfrog digital divides pertaining to city management using digital technology.

Figure 6.2: City Components – Infrastructure, Operations, People



Source: IBM, http://www.ibm.com/smarterplanet/us/en/smarter_cities/overview.

Infrastructure and service management: A number of cities are giving importance to recycling resources, and India can learn useful lessons. For example, in Kitakyushu (Japan), almost everything is recycled (food, construction material, cars, mobile phones, etc.); Singapore offers an excellent case in water management; Yokohama (Japan) has shown how waste can be reduced through people's participation and awareness generation; and Curitiba (Brazil) has successfully created car-free zones and expanded the reach of public transport through innovative land use planning.

Public transportation: When the West urbanised, sprawling cities were created because land, gas and water were cheaply available. This led to a private automobile culture. In Atlanta (US) for example, 98.2% of the people use cars to travel. On the other hand in Barcelona (Spain), about 65% of the people use public transportation and another 18% either cycle or walk. The CO_2 emission and the ecological footprint in Atlanta is therefore almost eight times more than Barcelona. It will be almost impossible for Atlanta to reverse this process of urbanisation because urban development has already occurred. For this reason, the actual form of urbanisation is very critical, which can be designed only when new cities are being planned. If a mistake is made, it cannot be reversed. Consequently, it is extremely important to design an urban blueprint around public transportation with an aim of efficiently managing resources.

Planning New Cities in India using 'Smart' Concepts

The Centre and some states are exploring options for creating smart new cities.[15]

At some places in the country, work is already underway. Important examples include World City near Jaipur in Rajasthan, Gujarat International Finance Tec-City (GIFT) near Gandhinagar, Lavasa (near Pune) and Magarpatta (a sub-city in Pune) in Maharashtra, and a number of cities/investment regions identified for development along the Delhi-Mumbai Industrial Corridor (Figure 6.3), as well as along other major corridors such as the Yamuna Expressway.

In the planning and development of these new cities, several innovative and smart concepts are being adopted. For example, with respect to the 24 cities proposed for development along the Delhi-Mumbai Industrial Corridor (DMIC),[16] a special purpose vehicle (SPV), namely the

15 "The idea of the Smart City is relatively new and evolving. The evolution of the smart city concept is shaped by a complex mix of technologies, social and economic factors, governance arrangements, and policy and business drivers" (European Parliament, 2014). According to one definition, a city may be called 'smart' "when investments in human and social capital and traditional and modern communication infrastructure (such as ICT) fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance" (Schaffers et al., 2011).

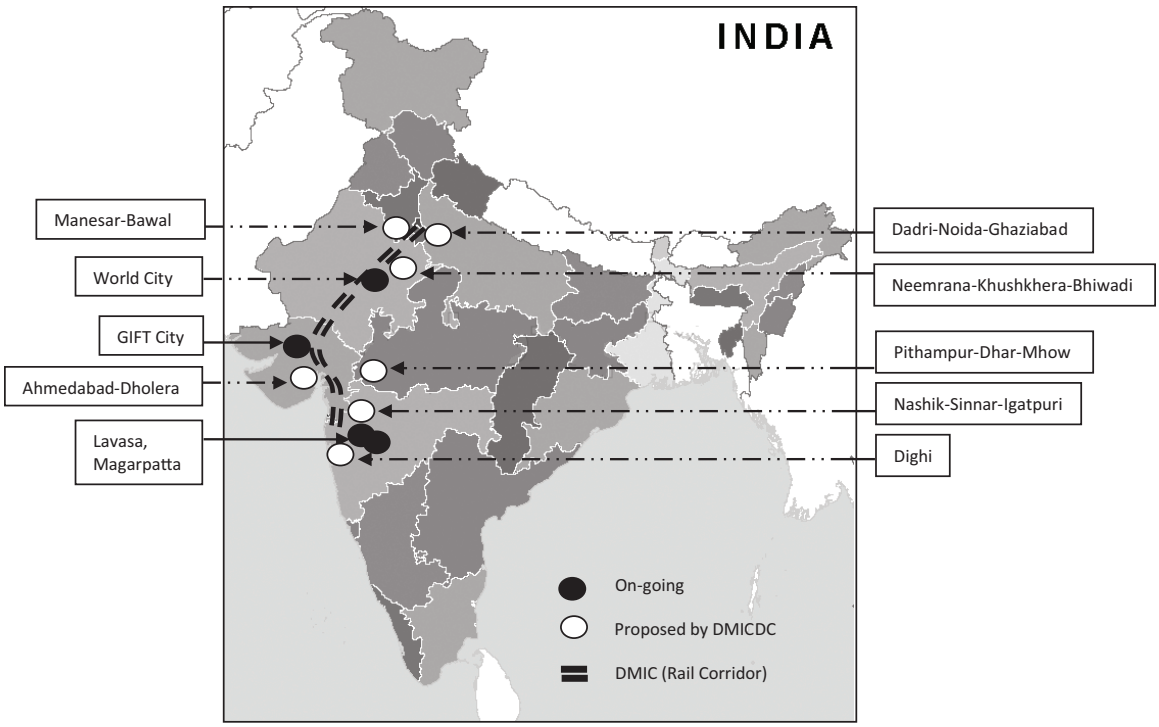
16 The $100 billion DMIC project, conceptualised in partnership and collaboration with the Government of Japan and expected to be completed in four phases by 2040, provides for construction of a 1,483 km. dedicated freight rail corridor between Dadri (near Delhi and NOIDA—New Okhla Industrial Development Authority) and Mumbai to ease movement of container goods, and to expand the manufacturing and services base. Presently, it takes 13-14 days for goods to reach JNPT port in Navi Mumbai, as the existing road highways on which the lorries travel are often choked. Upon completion of work on the dedicated corridor, goods will reach the western coast of India within 12 hours. The initiative has given a unique opportunity to build 24 new smart cities (seven new industrial cities will be built in the first phase) and industrial hubs along the corridor in six Indian states (Gujarat, Haryana, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh) using advanced technologies, and the cities will be socially equitable, ecologically and economically sustainable. Thus, an attempt is being made to create sustainable, smart cities on the back of transit-oriented development. In this initiative, manufacturing will be the economic driver for new and improved urbanisation.

Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) Limited, comprising government and private entities, has been created for undertaking project development services.[17] The master plan is being prepared by international consultants who are bringing forward and incorporating best practices in planning. Local communities have been involved in the plan preparation process. This is being followed by routine work, such as plan notification, obtaining environmental clearance and land acquisition.

IT-based city operation and governance is an important component for which platforms will be built. Use of IT will help in monitoring various city aspects (city surveillance) and problems (a car parked on a road for a long time, a water pipe bursting, etc.) from a command and control centre, and in taking timely action. Construction of houses for workers to eliminate the problem of slums is part of the plan. Other features and initiatives include: Maintaining roads as per global standards; studying services and skills required by people; abandoning the lowest bidder (L1) concept and working with the best companies; ring-fencing the city SPV; and legal protection against tampering of plans.

Instead of relying entirely on the government, some of the finest companies, such as AECOM

Figure 6.3: Emergence of New Urban Centres/Investment Regions in India



Source: Information compiled from various sources.

17 Since building basic/base/trunk infrastructure is not a commercially viable option for the industry/private sector, the SPV will build systems of water, sewer, flood control, drainage, power, ICT network, roads, etc. This will prevent unnecessary digging for laying down cables and networks during vertical development, as the basic infrastructure would already be in place. All the planning, development and municipal functions would lie with the SPV. Once the basic infrastructure is laid down, private industry will be invited to invest in building vertical infrastructure.

and CX2M, have been engaged in reviewing, monitoring and controlling the detailed engineering work and executing projects. This approach may hold the key to the successful creation of next generation infrastructure in cities.

In the master plan prepared for Dholera city, it has been recommended that existing villages be integrated into new cities; polycentric structures with multiple central business districts and industrial zones be created; and there be mixed use of land. To reduce commuting needs, neighbourhoods should be distributed around high access mass transit corridors and workers housing should be located near industrial zones. Skill training and development programmes need to be conducted for the native population interested in shifting from the agriculture to manufacturing sector.

Provisions have also been made for: Development of a hierarchy of arterial and other roads; encouraging cycling and pedestrian modes over private modes; recycling and reuse of water and solid waste; energy sufficiency through use of renewables; conservation of better agricultural land; and protection of sensitive natural environment.

Other major projects on the agenda are development of: Logistics hubs (for value added packaging, efficient movement of trucks and automobiles), economic corridors, knowledge cities, industrial parks, mass rapid transit systems, railway stations, gas-based power plants, desalination plants, model solar projects, logistics databank (to integrate movement of containers across different agencies), exhibition-cum-convention centres, aerotropolis, etc.

Dholera City Plan, Gujarat

Dholera, which is presently home to 26,000 inhabitants, is a compact city being designed along the DMIC corridor for a target resident population of two million. The project is expected to be completed by 2040. The master plan, for a developable area of 540 sq. km., has been prepared by involving an international consultant[18] and on the basis of 180 rounds of consultations with village communities, who have become partners in the development process. It offers a mixed use of land with sufficient spaces allocated for agriculture, industry, residence, greenery and infrastructure networks. One objective of the project is to generate jobs for 0.8 million persons. For this purpose, as many as eight priority industrial sectors have been identified for development—general manufacturing, IT, electronics, automobile, agro and food processing, heavy engineering, metals and pharmaceuticals. Training in various specialised areas will be provided to the native population.

Conclusion: Aspects to be Considered in Creating Smart New Cities

Previously, urban planning efforts in India focused on land use zoning, specialised uses of land, low densities and huge open spaces. Given this approach and due to carelessness in urban governance, numerous problems surfaced—incomplete planning, social and economic inequalities, infrastructure and service inequities, encroachments, haphazard growth of informal

18 Consortium led by M/s Halcrow Group of UK.

sector activities, segregated spaces, high demand for mobility, traffic mismanagement, loss of economies of scale, scarcity of energy resources, etc. Many cities developed in the past, such as Chandigarh, are now experiencing problems (e.g., growth of slums in peripheral areas). Such problems and the needs[19] of the local population must be taken into account at the time of designing new cities.

India's Twelfth Five Year Plan (2012-17) has proposed strategic densification of cities and new towns on growth corridors as a planning strategy. However, it is felt that the country does not have a well-defined urban strategy. Sometimes, the matter of census towns comes up, or new cities are planned in isolation. In the early 1980s, the first National Commission on Urbanisation was appointed by the Government of India to examine the country's urbanisation scenario and give recommendations for alleviating urban problems. Since then, no second commission has been constituted. The current trend is that the national government takes some initiative (for example, JNNURM or DMIC) and the states willingly or unwillingly decide to tag along. On their own, states are neither giving sufficient priority to urban issues nor succeeding in finding the resources to either develop the existing towns or to plan new ones and organise them in a manner that they emerge as model cities or towns. The two exceptions are the states of Kerala and Karnataka, where an urban strategy is being pursued. The formation of a second commission may not solve all problems but could help in highlighting priorities, directions and issues.

There is a movement of population towards census towns where a substantial part of the next generation activity is likely to take place. According to census data, such towns have grown from 1,362 in 2001 to 3,892 in 2011. Towns such as Boisar (near Tarapur) house huge populations and display an urban character. But they are governed by panchayats (rural local governments) and there is a serious governance deficit. The emergence of this expanding category of 'census towns' needs to be adequately recognised and taken into account in India's planning for urbanisation.

If India's urban population is going to reach 875 million by 2050, there is an overriding need to rejuvenate existing towns and cities and create new greenfield cities. For this to happen, a major paradigm shift towards inclusive and sustainable urbanisation is needed.

As brought out in this chapter, the emergence of new cities in various parts of India could be a dominant feature in the coming years. A trend has already begun and activity is picking up. Careful designing and effective implementation of city plans could reap enormous benefits for the country and its population. As mentioned earlier, it could address problems of unemployment, low economic growth, inequities, sub-human living conditions, as well as reduce the movement of population to existing urban centres.

The following aspects need to be considered to successfully achieve the goal of creating smart new cities in India:

Conservation of natural resources: Urbanisation is accompanied by unprecedented consumption of natural resources. Although cities account for only 3% of earth's land surface, they house about 50% of the human population, consume about 75% of natural resources and account for two-

19 Such as education and health institutions, banks, venues for social and religious activities, parks and parking.

third of energy and greenhouse gas emissions. New cities should be designed in such a way that natural resources are conserved as much as possible.

Amending environmental clearance guidelines: There is a need to amend environmental clearance guidelines to make these suitable for new industrial township development.

Connectivity with existing centres: New cities should be well connected with existing urban centres.

Compact city and mixed land use: Future cities in India should be compact and not spread out, as has been the case in the West. High-density compact cities help in conservation of resources such as water and energy. The concept of mixed land use has to be adopted; otherwise, many problems faced today will begin to appear in future cities.

Early notification of master plans: There are currently delays in getting plans notified, as these have to pass through several departments in a state.

Reforming land acquisition procedures: Many states do not have appropriate laws to meet project demands, which complicates land acquisition. Delays in acquiring land imply rise in project costs. Inadequate compensation to land owners is the other problem. Adoption of a fair and transparent land acquisition method has been useful in some places, whereby land owners are given a house and advised to live on the first floor and to use the ground floor for commercial purposes.

Creation of employment opportunities: A wide variety of employment opportunities must be created in new cities. This is necessary to attract population. If this is not done, enormous resources will go to waste and the newly built space would resemble a 'ghost city,' as has happened in some countries.

Creating city backbone and reducing lending interest rates: For new city development, the government must first create the backbone by building basic infrastructure. Thereafter, the private sector must be invited to build other infrastructure that requires huge investments. DMIDC, for example, has created a corpus of INR 185 billion for creating and putting in place the necessary infrastructure in cities, and an additional funding of INR 4.5 billion has been sought from Japan to support connectivity to the identified cities. One particular challenge in this endeavour is of long-term lending. Infrastructure projects of this nature can only be taken forward when long-term lending of about 18-20 years is available at reasonable rates. This requires bringing down interest rates, which are presently quite high. This approach has not been followed in the development of new areas in Gurgaon, where huge multiplexes, malls and high-rise buildings have been built but basic infrastructure (roads, drainage, power, sewerage) is sub-standard. Private real estate developers have been allowed to operate at their own will and whim to create said backbone.

Monetisation of land: Land monetisation/upsides of rising land values need to be captured through SPVs. When trunk infrastructure is created, land values go up. These values have to be captured for urban development. Given that India needs huge resources for urban development, monetisation of land values is a way in which to make available more funds and, in turn, build more cities. In the case of Gurgaon and Greater NOIDA (New Okhla Industrial Development Authority), the upsides of rising land values have unfortunately been captured by certain influential groups.

Public transport for all: A large number of people in cities depend on public transport facilities. They spend about 20-25% of their income on transportation alone. City planning should be done in such a way that adequate public transport facilities are available to all sections of society.

Knowledge base of planners: Currently, town planners are merely engaged in sanctioning plans and working more as regulators. In getting a good plan approved for carrying out new urban development, difficulties are faced in convincing town planners. Their knowledge about plan preparation needs to be expanded and they must be exposed to concepts such as smart, compact, vertical and transit-oriented development.

Ring-fencing the special purpose vehicles: It is necessary for state governments to understand that SPVs need to be ring-fenced through very strong shareholder agreements and state support agreements with the state government; planning, development and municipal functions should be housed in that one SPV.

Abandoning the L1 concept: The Indian government must be able to analyse, examine and select bidders on the basis of not the lowest one (L1) concept but on the basis of lifecycle costs of technology.

Better urban governance: Better governance mechanisms, practices and specialists will be needed to run and manage future cities.

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THIS PUBLICATION PROVIDES INFORMATION ON KEY URBAN CHALLENGES FACING INDIA, AND DIRECTIONS THE COUNTRY COULD TAKE TO ABSORB AND MANAGE FUTURE GROWTH. FIVE ASPECTS RESPONSIBLE FOR ACHIEVING SUSTAINABLE URBANISATION ARE REVIEWED: URBAN POPULATION TRENDS, IMPLEMENTATION OF MASTER PLANS, HOUSING FOR THE URBAN POOR, SOLID WASTE MANAGEMENT AND THE NEED FOR SMART CITIES. THE ANALYSIS IS BASED ON A REVIEW OF SECONDARY SOURCES AS WELL AS THE WORKSHOPS CUM DISCUSSIONS ORGANISED BY THE OBSERVER RESEARCH FOUNDATION (ORF) WITH THE SUPPORT OF DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ) DURING 2013-14 IN NEW DELHI. INDIA'S LEADING SCHOLARS, PRACTITIONERS AND INTEREST GROUPS PARTICIPATED IN THE WORKSHOPS AND DISCUSSED IDEAS ABOUT HOW FUTURE URBAN POLICIES AND STRATEGIES SHOULD BE SHAPED.