Sustainability in Indian Cities: A Developing Country Perspective

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11.1 Why Cities?

Large-scale urbanization is a phenomenon of the twentieth century. As per United Nations (2018a), in 1950, only three-fourths of a billion people in the world lived in urban areas, which constituted 29.6% of the inhabitants. The share of the urban population increased overtime and in 2008, it touched and went beyond 50%, i.e. for the first time in human history, majority of the population started living in urban areas (PRB 2008) (Fig. 11.1). At present, 4.2 billion people live in urban areas, which is 55% of the total population and by 2030, this will grow to approximately 5.2 billion i.e. 60% of the world's total population, and by 2050, to 6.7 billion, i.e. more than two-thirds of the total (United Nations 2018a).

The United Nations (2018a) estimate shows during 1950–2020, the population growth in urban area is at a compound annual growth rate (CAGR) of 2.6%, whereas the CAGR for the entire population is at 1.6%. In the next three decades, 2020–2050, the CAGR for urban area will be at 1.4%, whereas the total population is expected to grow at a rate of 0.76% (United Nations 2018a). The growth rate of population worldwide in rural areas started falling since 1970s and currently it is becoming negative (Fig. 11.2). However, the urban population will be on increasing growth rate and will taper around 2040.

The nature, impact and scale of the changes resulting from this urbanization process are more important than the statistics themselves. Firstly, urbanization is 'inevitable'. External factors and internal policies may briefly increase or decrease the pace of urbanization, but in the long run, there is hardly any change in the course of urbanization (Tannerfeldt and Ljung 2006). Secondly, the process of urbanization is neither balanced nor geographically uniform, but tends to cause 'polarization'. Industrialization, migration and economic globalization have driven the phenomenon of progressive concentration of population in urban agglomerations. This global phenomenon will ultimately lead to the single complex, diverse reality, i.e. world with densely populated 'crystallized cities' and each city crystal having not so densely populated clouds of sub-urban or rural areas linked to it physically, socially, and economically.

Though rapid urbanization is arguably the most complex and important socio-economic phenomenon of the last century, it is acknowledged that the impact of urbanization will continue to bring about major global and local changes well into the current century (Allen 2009). The impact of urbanization goes beyond urban boundary.

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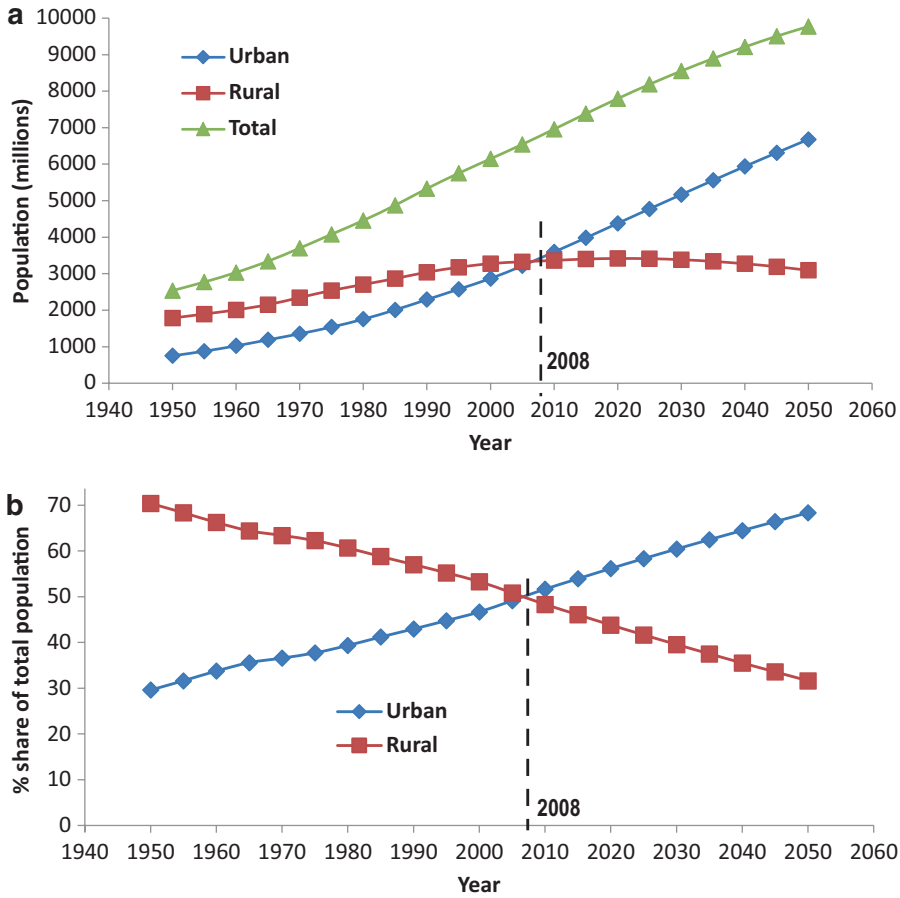Institute of Rural Management, Anand, Gujarat, India
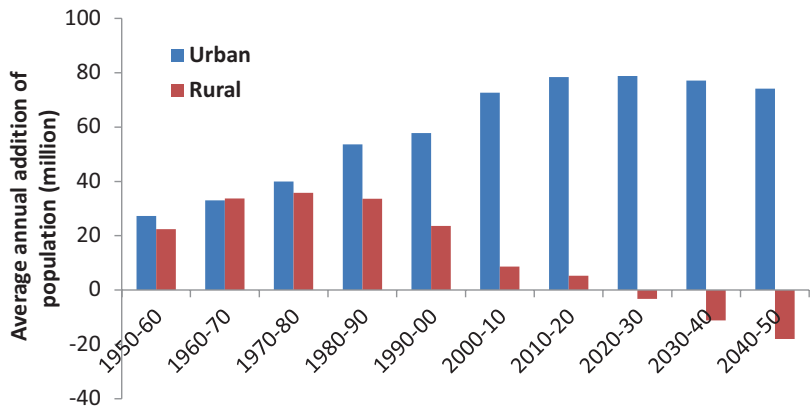e-mail: hippu@irma.ac.in

Fig. 11.1 (**a**) Populations in the world: urban, rural, total: 1950–2050. (**b**) Share of urban and rural populations of the world: 1950–2050. (*Data source*: United Nations (2018a))

Fig. 11.2 Average annual additions to urban and rural population: 1950–2050

Because of the information flow, mass media, and communication and transportation the rural–urban divide has blurred and there are fewer and fewer places on the planet that are unaffected by the dynamics of cities (UNFPA 1999; Kenneth 2005). The ecological and sociological footprints of cities have spread over wider areas and cities will continue to have a significant impact on the global carrying capacity of the earth (UNFPA 1999; Montgomery et al. 2004; Allen 2009).

Urbanization and socio-economic development are closely linked. Countries with high GNP per capita are in most cases more urbanized (World Bank 2000). Urban economies in developing countries as well as in industrialized countries are related to economies of scale and agglomeration. They are characterized by proximity of labour, capital, technology—which are specialized and diversified; and by markets—which are large and networked (SIDA 1995). National economies are largely influenced by cities; two-thirds of the GDP of many countries is already generated in major urban centres, and 80% of future anticipated economic growth will be in cities. As per World Bank (2000), there is a weak but clear relationship between the degree of urbanization and the level of quality of life which citizens enjoy. Appropriate urban development does not only benefit cities but enhances rural development too; they are not alternative, but mutually reinforcing. Urban areas play an important role as providers of markets, services, and employment for rural surroundings (BMBF 2004; SIDA 2006).

In the paper entitled 'Why research on mega-urban regions matters!', Heinrichs (2005) has reasoned the socio-cultural significance of urbanization. The author argues that cities are the locus where social conflicts are played out and creative change takes place. They are laboratories of change that absorb local, national and global changes and impacts, which continuously combine and condense into new 'opportunities' and 'risks'. Cities influence global sustainable development because of their speed, scale and scope of global connectedness. Urban areas are engines of economic, scientific, and cultural development and centres of knowledge, information, and other social resources that foster democratic move-

ments (SIDA 2006). They provide the future with more choices (SIDA 2008). So, cities have more positives than negatives; and the problems surrounding cities are because of the failure of effective governance within cities rather than inherent characteristics of cities themselves (Williams et al. 1999; Jenks 2000).

11.2 Sustainability of Cities

Urbanization is understood as a shift from a predominantly rural to a predominantly urban society with major and irreversible changes in production and consumption and the way people interact with nature; and it is time to examine cities through 'sustainability' lens (Allen 2009). The ecological footprint of cities is far bigger than their actual territory.[1] Cities occupy just 3% of land area, but consume 70% of energy and are responsible for three-fourths of the carbon emissions (United Nations 2019). Such concentration of resources and its disparity across urban populace result in sustainability risks in all dimensions—economic, social, and ecological.

Sustainability of resources in urban area has multiple dividends—both economic and non-economic. Urban areas are fulcrums of economic activities and urbanization is considered both as a consequence of and as a requirement for economic development. Increasingly, urban growth is influencing and is being influenced by continued global economic integration and the struggle for countries—and cities—to be competitive in the global marketplace (Cohen 2004). Cities are also centres of modern living, where the participation of female labor force is greater and where indicators of general health and well-being, literacy, women's status, and social mobility are typically higher (Cohen 2006). However, urbanization must be judged not only from a perspective of prosperity, but also from the point of view of maintaining a natural balance. Urbanization is not necessarily bad, but the rapid change, as

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[1] 'Ecological footprint' is an accounting tool that enables us to estimate the resource consumption and waste assimilation requirements of defined human population or economy in terms of productive land area (Wackernagel and Rees 1996).

experienced by developing countries, brings a lot of socio-economic and environmental problems (SIDA 1995), which puts a question mark on their sustainability.

The Goal 11— 'Make cities and human settlements inclusive, safe, resilient and sustainable'— of Sustainable Development Goals addresses the above-mentioned concern. This goal is spelt out in terms of seven targets concerning, (1) safe and universal housing with basic services, (2) sustainable disabled-friendly transportation, (3) participatory urban planning and management, (4) safeguarding natural heritage, (5) protection and resilience against disaster, (6) waste management, and (7) access to green and public spaces (UNSC 2016). The SDG 11 has also additional targets relating to positive linkages between urban, peri-urban, and rural areas, climate adaptation and mobilization of local resources (UNSC 2016). All these targets are further expressed under 15 indicators as given in Table 11.1 (UNSC 2016).

11.3 Cause of Continuous Cities

The world has urbanized even faster than originally predicted by 1972 Malthusian report, *Limits of Growth* (Davis 2004). Urbanization has two primary components, viz. the natural increase and net migration. The age structure of the urban population explains the boom in natural increase. Urbanites, being predominantly young, are in reproductive age with a wish to have children, which contribute to higher natural increases (Devas and Rakodi 1993; SIDA 1995; Kamete

Table 11.1 Indicators of goal 11

Sl. no.	Indicators
1	Proportion of urban population living in slums, informal settlements or inadequate housing
2	Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
3	Ratio of land consumption rate to population growth rate
4	Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
5	Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage, level of government (national, regional and local/ municipal), type of expenditure, and type of private funding
6	Number of deaths, missing persons and persons affected by disaster per 100,000 people
7	Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services
8	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities
9	Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
10	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
11	Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
12	Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
13	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
14	Number of countries with national and local disaster risk reduction strategies
15	Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials

et al. 2001).[2] Migration is identified to be an important cause of urban population growth, particularly in the early stages of urbanization. Much of urban migration is driven by rural populations' desire to avail the advantages that urban areas offer on the one hand and to escape from the disadvantages of rural society on the other hand. The World Bank (1995) maintains that people in rural areas, being drained by poverty and natural disasters, make a rational choice to move to urban areas, as urban areas provide much better livelihood opportunity, fewer social restrictions and an expectation of a better life that has largely been met. In urbanization literature, these factors are classified as standard 'push-pull' factors (see Table 11.2).

The 'push' factors are poverty-stricken rural economy (which primarily depends on low-yielding subsistence agriculture), lack of livelihood options (minimal or no presence of industry and service sectors), natural disasters like floods and draughts and social restrictions (to the disadvantaged caste, creed or gender). The 'pull' factors are greater access to livelihood opportunities (portfolio diversification), education, health care, energy options, and services such as entertainment. The pull factors also include perceived higher wage, greater infrastructure, and general attraction towards faster and economically more vibrant life and lifestyle. In general, the urban poor have fewer opportunities than the urban

Table 11.2 Push and pull factors in rural–urban migration

Push factors	Pull factors
Poverty	Prosperity and wealth
De-pesantization (agrarian crisis)	Livelihood portfolio diversification
Natural disaster, resource scarcity	Infrastructure, market
Social restrictions (caste, gender)	Education, health care and other services

non-poor, but still they are better off than rural populations.

11.4 Developed–Developing Divide

Both in terms of rate and extent of urbanization and cause and implication of it, there is a marked difference between developed and developing economies. However, the phenomenon of large-scale urbanization and growth of mega and million-plus cities is global in nature, and more so in the developing world. In the last 60 years, there has been an accelerated movement of people towards cities in developing countries and the trend will continue in future decades. The increasing number of megacities in developing countries is a testimony to this.[3] In 1950, there was only one megacity, i.e. New York. In 1975, there were 4, and in 2000, they were 18. In 2018, there are 33 such cities of which 27 are located in developing countries (United Nations 2018b). It is important to note that a substantial portion of future population growth will not be in huge agglomerations since they have saturated and will be in smaller cities and towns, where the challenge to accommodate so many people is not small though (World Bank 2000; UN-Habitat 2003). Jenks (2000) reports most aggressive growth to be occurring in the million plus cities, i.e. cities with population 1–10 million. There were 86 million-plus cities in 1950 that grew nearly to 400 by the turn of the century (United Nations 2002), and by 2018, there are 548 of them, and by 2030, there will be more than 700 such cities (United Nations 2018b).

Global Urban Observatory (2003) has noted that 95% of the build-up of humanity during 2000–2030 will occur in the urban areas of developing countries. The rapidness of urbanization in developing region is evident from the fact that in 2000, for every one person living in cities in developed countries, there are two in the cities of

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[2]Natural growth accounts for nearly 60% of urban growth globally (Devas and Rakodi 1993).

[3]Cities with more than ten million inhabitants are called megacities (United Nations 2018b).
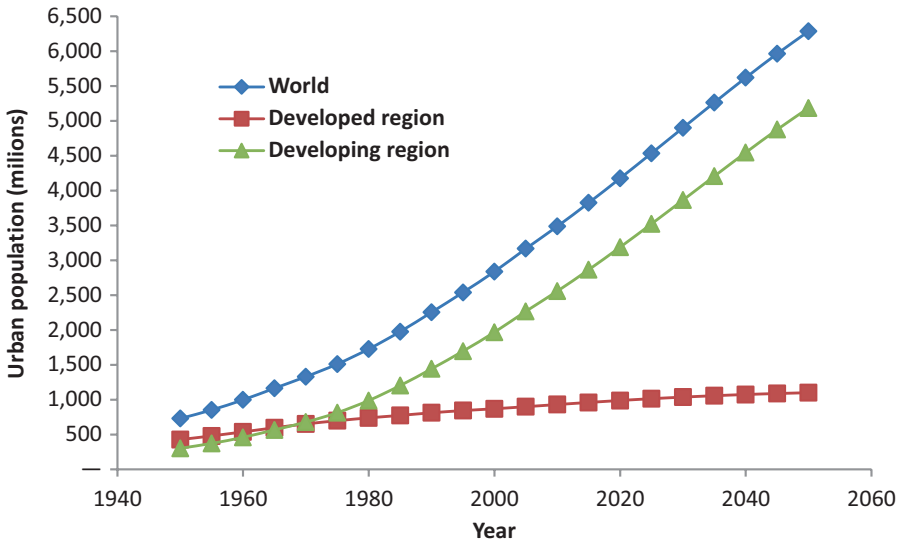
Fig. 11.3 Urban population in developed and developing regions: 1950–2050

the developing world. Within 30 years, this proportion is predicted to rise to 1:4 (Jenks 2000). As 120,000 people in developing countries move to cities every day (Cities Alliance 2008), urban areas have become centres of high resource consumption. Urban populations consume much more food, energy, and durable goods than their rural counterparts (Parikh and Gokran 1991). Cities have been seen as the cause of environmental degradation and resource depletion, casting an ecological footprint across the globe, far beyond their immediate regions (Girardet 1996; Wackernagel et al. 1997). The greater demand for the resources in urban areas is largely driven by high income and consumption of the rich class. So, at a country level, there has been a polarization of resources between urban and rural areas.

Region-wise,[4] developed countries were highly urbanized by the 1950s and the pace of urban growth slowed down in these countries. The developing countries, on the other hand, were just beginning an accelerating urbanization process during the same time. From Fig. 11.3, it

is apparent that all most all the future growth in world urban population will be due to population growth in the urban areas of developing countries, averaging 2.57% per year during 2010–2050. In contrast, the urban population of the more developed regions is expected to increase very slowly, from 0.93 billion in 2010 to 1.10 billion in 2050 (United Nations 2009).
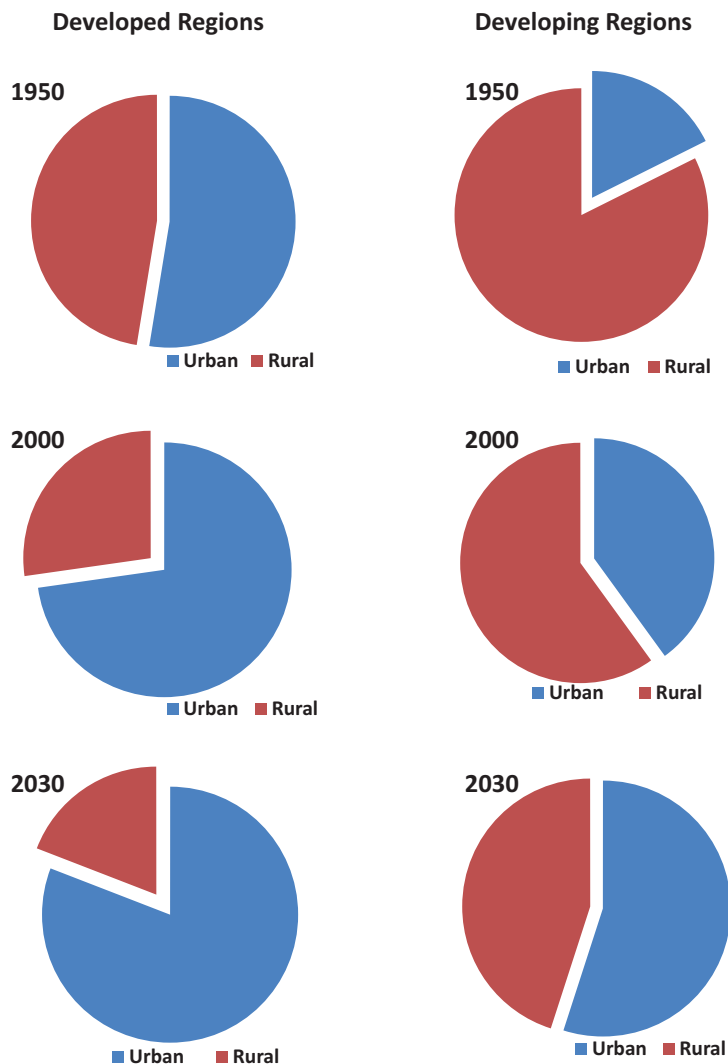
Studying the urban share of population for developed and developing regions in 1950, 2000 and 2030 (projected) one can see that the share of urban–rural population in developed regions in 1950 almost resembles that of less developed region for 2030 (Fig. 11.4).[5] Less developed regions face a time lag of approximately 80 years with respect to the developed world in the urbanization process.

The push and pull factors, described in the previous section, acted in different intensities in developed and developing countries. Urbanization in developed countries followed European model that is characterized by law of advancing human-

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[4]The regional division follows United Nations (2009) classification. The 'Developed region' comprises Europe, Northern America, Australia/New Zealand and Japan. 'Developing region' is the rest of the world.

[5]This categorization of developed and less developed does not mean that cities in one region are all alike. There are similarities, as well as significant differences, in cities across this divide (Jenks 2000). However, this oversimplification is useful in macro-sense.

Fig. 11.4 Snapshots of urban–rural population shares of developed and developing regions: 1950, 2000 and 2030

Developed Regions

1950

Urban ■ Rural

2000

Urban ■ Rural

2030

Urban ■ Rural

Developing Regions

1950

Urban ■ Rural

2000

Urban ■ Rural

2030

Urban ■ Rural

ity through advancing technology wherein 'pull' factors of urban areas were more significant. This urbanization is explained through people migrating to urban areas to get absorbed into a growing urban economy. But, the second-generation urbanization, which followed in developing region, has occurred with very limited, stagnant or negative urban economic growth. The urbanization in sub-Saharan Africa, Latin America, the Middle East, and parts of Asia are examples of such kind. This urbanization process, which is at times referred to as 'over-urbanization' (Gugler 1982; Simon 1995), is largely explained by

'push' factors like de-peasantization and lack of livelihood options and services in rural areas.[6] Hence, there is an accelerating movement of surplus rural labour to urban slums even as cities ceased to be job machines (Davis 2004). This is interpreted as transfer of poverty from rural to urban areas, termed as 'urbanization of poverty' in literature. In this context, urban areas acted as a refuge from an impoverished and restricted

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[6]Relationship between urbanization and industrialization is weak for developing countries (Burgess 2000).

rural life, which has turned economically unsustainable (Jenks 2000).

11.5   Indian Urban Surge

India is the second most populous country in the world after China and with more than 17% of the world population and 2.3% land area, it is second to Bangladesh in population density among large countries of the world (UNSD 2010).[7,8] India's population growth has been accompanied by a gradual shift over time from a largely rural agrarian dwelling population to one that lives in urban non-agricultural centres (MGI 2010). The growth rate difference in urban population and total population justifies the same (Table 11.3, Fig. 11.5). The annual compound growth rates (ACGR) of the total population during 1951–2011 is 2.0%, whereas the corresponding figures for urban and rural population are 3.0% and 1.7%, respectively. The urbanization rate in 1951 is slightly above 17%, which has increased to more than 30% in 2011.

Table 11.4 gives the number of towns and percentage of urban population by size class of city during 1901–2001.The million-plus cities within the Class I cities, though only 35 in number accounts for 38.6% of the population. The share of population in different city sizes is plotted in Fig. 11.6, which shows continuous concentration of population and activities in large cities (Kundu 1983; Datta 2006). MGI (2010) estimates that by 2030, India's urban population will rise to 590 million, which is twice the population size of the United States today. As per the same estimates, India will have 68 million plus cities by 2030, whereas entire Europe has 35 such cities today. Seventy per cent of the new employment would be generated in cities and the urban economy will see an upsurge in urban middle-class population from 22 to 91 million.

The rapid urbanization comes with tough challenges to conquer. In the past, India has witnessed how rapid urbanization has led to massive growth of slum followed by misery, poverty, unemployment, exploitation, inequalities, and overall degradation in the quality of urban life (Datta 2006).[9] Also, like other developing countries, India is a party to urbanization primarily instrumented by 'rural push' rather than 'urban pull' and transfer of poverty from rural to urban areas (Mukherji 1993; Kundu et al. 2001; Datta 2006). India's cities are critical for inclusive growth; hence, provision of better quality life to city dwellers is an important challenge sustainable urban development policy of the country will face. City's sustainability must consider both global and local perspectives. Sustainable urban forms will only be achievable if they are underpinned by a policy background which commits to global sustainability goals, but leaves room for local formation and implementation of solutions (Williams et al. 2000).

11.6   India's City Sustainability Challenges: *A Developing Country Syndrome*

11.6.1 Incomplete Realization of Merits of Urbanization

Urbanization is a compaction or densification process, which will result in reductions in travel distances and thus vehicle emissions, and that the high densities can create greater viability for service provision, public transport, waste disposal, health care and education, among other things

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[7]Large countries mean countries having area of 100,000 km^2 or more.

[8]It is interesting to note that India's population by 2009 itself was more than one sixth of the world and is more than 1.5 times of that of entire Europe (World Bank 2011). India is the most populous country in the world after China, but before 2030, it will cross China and get the distinction, which it will almost certainly never lose (Haub and Sharma 2006).

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[9]India's urbanization has been criticized in literature for concentration of population in a few large cities without a corresponding increase in their economic base, and has been termed as 'pseudo urbanization' (Breese 1969) or 'dysfunctional urbanization' (Raza and Kundu 1978) or 'involuted urbanization' (Mukherji 1993).

**Table 11.3** Population and urbanization in India: 1951–2011

Year	Total population (crore)	Population growth rate[a] (%)	Urban population (million)	Urbanization rate[b] (%)	Urban population growth rate[a] (%)
1951	36.1	NA	6.2	17.29	NA
1961	43.9	1.98	7.9	17.97	2.37
1971	54.8	2.24	10.9	19.91	3.29
1981	68.3	2.23	15.9	23.34	3.87
1991	84.6	2.16	21.8	25.71	3.16
2001	102.9	1.97	28.6	27.82	2.77
2011[c]	120.4	1.58	36.3	30.13	2.40

Source: Census of India (2001)
[a]Growth rate is calculated as Annual Compound Growth Rate (ACGR). ACGR for 1961–1971 is given against 1971 year
[b]Urbanization rate is defined as the ratio of urban population to total population
[c]Population data for 2011 is from PRB (2007). ACGR for urban population during 2001–2011 is 2.4% (HPEC 2011)
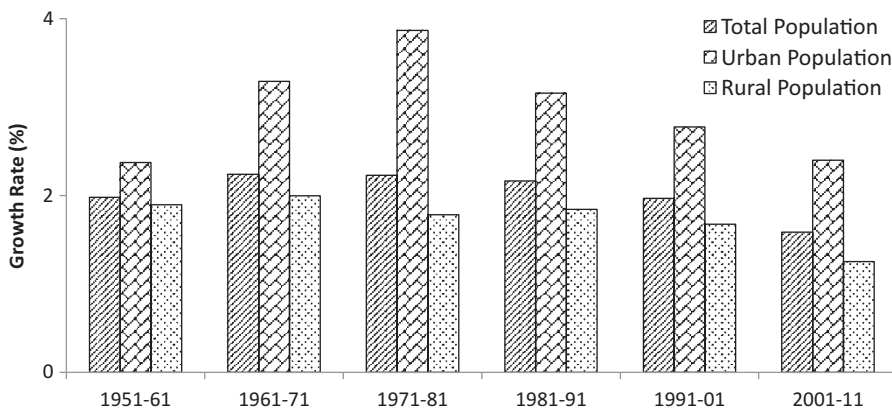

Fig. 11.5 Growth rate in population (total, urban, and rural) in India: 1951–2011

Table 11.4 Number and population proportion in cities by size class: 1901–2011

Year	No. of towns/cities by size class[a]						Percentage of urban population by size class					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
1901	24	43	130	391	744	479	26.0	11.3	15.6	20.8	20.1	6.1
1911	23	40	135	364	707	485	27.5	10.5	16.4	19.7	19.3	6.6
1921	29	45	145	370	734	571	29.7	10.4	15.9	18.3	18.7	7.0
1931	35	56	183	434	800	509	31.2	11.7	16.8	18.0	17.1	5.2
1941	49	74	242	498	920	407	38.2	11.4	16.4	15.8	15.1	3.1
1951	76	91	327	608	1124	569	44.6	10.0	15.7	13.6	13.0	3.1
1961	102	129	437	719	711	172	51.4	11.2	16.9	12.8	6.9	0.8
1971	148	173	558	827	623	147	57.2	10.9	16.0	10.9	4.5	0.4
1981	218	270	743	1059	758	253	60.4	11.6	14.3	9.5	3.6	0.5
1991	300	345	947	1167	740	197	65.2	11.0	13.2	7.8	2.6	0.3
2001	393	401	1151	1344	888	191	68.7	9.7	12.2	6.8	2.4	0.2
2011	468	474	1373	1686	1784	424	70.2	8.5	11.1	6.4	3.4	0.5

Source: Nallathiga et al. (2018)
[a]Population range for the size class of the cities is as follows: Class I: >1,00,000, Class II: 50,000–1,00,000, Class III: 20,000–50,000, Class IV: 10,000–20,000, Class V: 5000–10,000, Class VI: <5000

Fig. 11.6 Growth of cities by size class: 1901–2011. (*Source*: Nallathiga et al. (2018))
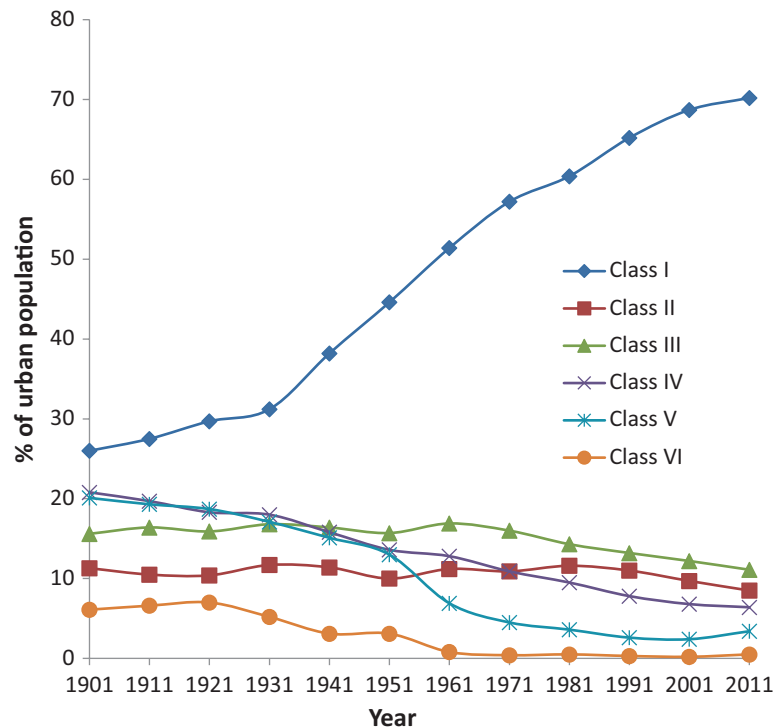
(Burgess 2000). However, the merits of urbanization are more realized in case of developed economies. Less developed economies like India experience high demographic growth, low-levels of economic development, high income inequalities, small urban budgets, and shortages of environmental infrastructure, shelter, and basic services. For these, the merits of urbanization are not fully realized and often they result in counterproductive unsustainable risks in terms of housing and sanitation crisis (in informal settlements or slums), infrastructure overload, overcrowding, congestion, air pollution, environmental degradation, health hazards, and lack of public and green space.

11.6.2 Genesis of Slums

The genesis of slums is an outcome where the push factor dominates in the process of urbanization. In many developing economies like India, because of the unsustainable rural economy, surplus labor is pushed out to look for avenues in cities. These people settle themselves in pave-ments or informal dwellings (slums) and earn and live at a subsistence level. An estimated 70% of the urban population in the least developed countries lives in slums without proper shelter, water, sanitation, electricity, transport and other infrastructure and services (SIDA 2006). In India, the latest census shows that there is 22.4% of the urban population living in slums and in absolute terms, there is a 25% rise in the slum population between 2001 and 2011 (GoI 2019).

11.6.3 Demand Outstripping the Supply

Densification is preferred in the developed world because higher densities in cities will lead to cheaper infrastructure costs and absorption of spare capacity. However, the same is not true for cities in developing countries like India, as there is no spare capacity and the existing capacity is being overused. Demand overtaking supply in cities can be exemplified taking Mumbai's case. Mumbai's suburban trains are world's most over-crowded (Railway Gazette 2010), and run at least

three times more than the rated capacity during peak hours (CEE–WR 2011). Also, high scarcity coupled with high demand for land in Mumbai makes its rent for commercial office the highest in the world (Burgess 2000).[10]

11.6.4 Polarization Within

In India, like many developing economies, there exists a kind of polarization in resource use other than the rural–urban divide. This polarization is within the urban areas. This is attributed to over-urbanization or urbanization of poverty as explained in Sect. 11.4. Urban areas of developing world are characterized by extreme differences in income and living conditions across population groups and often have high rates of poverty and low rates of service delivery for the poorest. At the other end, affluent lifestyles and profligate use of land by the rich class result in a disproportionate use of resources and urban forms that are often unsustainable (Jenks et al. 1996). The urban rich of developing countries consume as much as, if not more than, those in developed countries as they ape their lifestyles (Richardson et al. 2000). Thus, there are resource polarizations at two levels: one, between urban and rural areas and the other, between the rich and the poor within urban areas.

11.6.5 Informality of Economy

The structural characteristics of urban economy for India like many developing countries are different from those of developed ones. It is characterized by high share of employment and output from informal sector, small-scale workshops dispersed throughout the low-income settlements and street businesses (Burgess 2000). These characteristics have helped to address the high unemployment issue, but these have also created major social and environmental externalities including congestion, waste disposal, fire and health risks, and other unsustainable trends.

11.7 A Strategy for a Sustainable City Solution

Most of the India's urban problems are pegged to the fact that roughly one in four persons is residing in informal settlements. These settlements are characterized by unsafe housing and inadequate infrastructure in terms of water, sanitation, electricity, and internal roads. So, these are the areas which are subjected to poor transportation facility. Also, the slum dwellers are the ones who became victims of weather extremities because of lack of capacity—financial, technological, and resource-wise. Being unplanned, the waste management in slums remains a huge challenge. Also, slum areas being one of the highly dense areas in terms of population,[11] are devoid of open and green spaces. So, slum population concerns five of the seven targets (excepting the one on participatory urban planning and management and other on safeguarding natural heritage) of SDG 11.

A strategy of sustainable city solution in India can be to find a solution for the housing issues of slum dwellers. Once this issue is addressed, issues of internal roads, disaster preparedness, waste management, and public and green spaces can be addressed. Let us understand the issue of housing (or lack of it) in the first place. Let us discus this issue in the context of any Class I city of India, *say* Mumbai.

Let us assume that a private builder has constructed a housing society having 100 odd flats for higher-middle-class families in one decent residential localities of Mumbai. The families inhabiting this building do not stay in isolation with city. Rather, they get integrated to the city life through different agents. These agents are

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[10]The increase in rent may have causalities other than supply demand mismatch. However, reasons for real estate price rise are out of the scope of this study.

[11]For instance, the density of a central neighbourhood of Dharavi slum, i.e. Chamda Bazar is 336,643 people/km^2 and this compares with 29,500/km^2 for Mumbai as a whole, which is the most densely populated city in the world, and 55,077/km^2 for Kwun Tong, the most densely populated area of Hong Kong (Vasudevan 2009).

none other than the watchmen, the gardeners, the housemaids, the cooks, the drivers, the newspaper delivery men, the milk men, the garbage collectors, etc. Without them, a life in a housing society can never be imagined. They provide the requisite support services that smooth the otherwise difficult city life. And the list of these people go beyond the immediate visible. In includes the person who made a duplicate key when one family accidentally forgot the key in the room and locked the door from outside. In also includes the small boy who sets the choke right when a highly qualified engineer of the housing society could not make out the reason for his two wheelers failing to start and hence dragged the vehicle to the other side of the road. No doubt, the housing society gets valuable services from these people. So, the next question comes—where all these many people live?

The answer to this question is that they stay on footpaths, under the bridge, at railway platforms, or in slums. Though their services are very valuable, they are underpaid. Because of availability of excess labor, that too unorganized, and as these service providers are replaceable, they cannot demand high price. In short, the families in the housing society do not pay enough to these service providers for them to have a standard of life anywhere close to themselves. So, possibility of one of these service providers as one of the neighbours in the same housing society does not arise. Their income is at a sustenance level where they cannot afford even a house at a fraction of the cost of the housing societies for which they work. So, there is no surprise they end up in slums.

So, now the more important question is: who takes responsibility of providing affordable housing to these service providers—the government, the builder, or the families who got their valuable services and underpaid them? The answer is all—each stakeholder has its distinct role to provide affordable housing to the under privileged. The role of the builders is primary in this regard. It is well known; builders provide houses for middle-class, higher-middle-class, rich, and ultra-rich people and make considerable profits. Hence, it must be made mandatory for every builder that, for certain share of commercial houses, they are

to construct social housing and sell them at an affordable price. This is in similar lines to the concept of Corporate Social Responsibility (CSR).[12] Like corporates, the real estate giants, in the present situation of high disparity in housing condition in society, need to contribute towards building a future, which is more just and equitable. The role of government is very critical. First and foremost, it has to make the required law for the real estate sector for construction of low-cost housing and enforce the same on all builders and facilitate space for the same. The role of the larger society is to debate and discuss the issue to create an ambience, which will persuade government to enact laws in favour the urban poor. The proposed model for city housing is given in Fig. 11.7.

The communication infrastructure is the very next thing which has a direct relation to housing. People, who cannot afford houses in the heart of city, move to the periphery where the housing is affordable. But these houses are preferred only when the communication network is strong between the centre and periphery. So, the low-cost housing can be built at the periphery, with a public transport system that is very fast and efficient.

Working people hostels in big cities added to the above framework can make us get rid of slums. It is usually one person of the family who migrate to city first looking for a livelihood option. These hostels can be either government or private run, which will have dormitories which only act as an ad hoc arrangement made for migrants till they settle with city life and bring their family to stay in one of the low-cost housings described above. In this new housing model, slum is replaced by 'hostels and low-cost buildings'. This will solve all infrastructure and sanitation related issues.

However, most of the efforts to improve the situation might get offset with continuous popu-

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[12] The World Business Council for Sustainable Development (1999) defines CSR as 'the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the work force and their families as well as of the local community and society at large'.
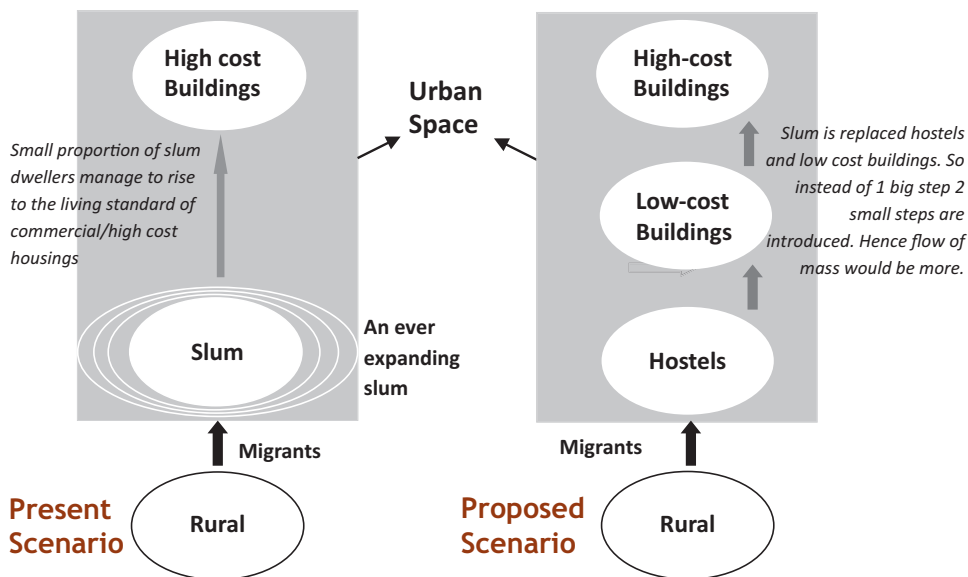
Fig. 11.7 A model to build 'city without slums'

lation rise. India's population has quadrupled since independence and the ever-increasing population remains the underlining cause behind issues behind congestion, strains in housing, infrastructure, and unsustainable risks for any resource and service. Therefore, effective family planning programme will go a long way in ensuring sustainability of both urban and rural society.

11.8   Concluding Remarks

India's urbanization is at crossroads. Like other developing countries, rapid growth of cities is seriously outstripping their capacity to provide adequate services to the citizens. In order to improve sustainability of urban areas, it is worthwhile to understand the cause and pattern of urbanization and their implications on quality of life. This study shows how the level, rate, and consequences of urbanization are different for developed and developing region of the world. Being 'rural push' driven, urbanization in developing region throws multitude of challenges in terms of growing informal sector and settlements, infrastructural and environmental overloads, and high incidence of poverty and inequality. India's

urbanization, which shows progressive concentration of population towards large cities, faces similar challenges. Urbanization is inevitable and is a positive sign for growth, but in order to tap its merit, cities need to be well managed. As Cohen (2006) ascertained, if well managed, cities can offer important opportunities for economic and social development.

This study has proposed a housing model to achieve most of the targets of SDG 11, which advocates for inclusive, safe, resilient and sustainable cities. The study proposes a step-wise housing scenario for the city where working people hostel is the first shelter for a rural migrant followed by low-cost housing, which are located at the periphery of the city, but connected with the core with efficient, affordable, rapid, and environment-friendly transport system. A corporate social responsibility model can be invoked by the government for the builders to mandate low-cost housing, which can get cross-subsidized by the residents of high-cost housing. The civil society can facilitate an ecosystem for the implementation of such a system. 'A city without slum' is realizable with different stakeholders—government, builders, non-slum dwellers, and civil society. Chalking out their roles and movement towards slum-free society cou-

pled with effective family planning programme is instrumental in achieving almost all of the targets of sustainable development goal meant for urban areas.

References

Allen A (2009) "Sustainable cities or sustainable urbanization", palette—the grand challenge of sustainable cities. UCL's J Sustain Cities (Summer Issue):3.18–3.20

BMBF (Federal Ministry of Education & Research) (2004) The urban transition: research for the sustainable development of the megacities of tomorrow. Division 622, Global Change. BMBF, Germany

Breese G (1969) Urbanisation in newly developing countries. Prentice Hall, New Delhi

Burgess R (2000) The compact city debate—a global perspective. In: Jenks M, Burgess R (eds) Compact cities—sustainable urban forms for developing countries. Spon Press, Taylor & Francis Group, London and New York

CEE–WR (Chief Electric Engineer—Western Railway) (2011) Information obtained from personal interaction with Sr. Section Engineer, EMU services, Electrical Dept., CEE Office, Churchgate, Western Railway, Mumbai

Census of India (2001) Census data online—2001. New Delhi. http://censusindia.gov.in/2011-common/censusdataonline.html

Cities Alliance (2008) Cities alliance in action. Annual Report

Cohen B (2004) Urban growth in developing countries: a review of current trends and a caution regarding existing forecasts. World Dev 32(1):23–51

Cohen B (2006) Urbanization in developing countries: current trends, future projections, and key challenges for sustainability. Technol Soc 28(1–2):63–80

Datta P (2006) Urbanization in India. Paper prepared for European Population Conference, 21–24 June. www.infostat.sk/vdc/epc2006/papers/epc2006s60134.pdf. Accessed 15 Jan 2011

Davis M (2004) Planet of slums. New Left Rev (26):5–34

Devas N, Rakodi C (eds) (1993) Managing fast growing cities: new approaches to urban planning and management in the developing world. Longman, Harlow

Girardet H (1996) *The Gaia Atlas of Cities: New Directions for Sustainable Urban Living*, Gaia Books Ltd., London

Global Urban Observatory (2003) Slums of the World: the face of urban poverty in the new millennium? Working Paper, United Nations Human Settlements Programme, UN-Habitat, Nairobi, Kenya

GoI (Govt. of India) (2019) Handbook of urban statistics 2019. Ministry of Housing and Urban Affairs, GoI

Gugler J (1982) Overurbanization Reconsidered *Economic Development and Cultural Change*, Vol. 31, No. 1, pp. 173–189

Haub C, Sharma OP (2006) India's population reality: reconciling change and tradition. Popul Bull 61(3):1–20. Population Reference Bureau (PRB)

Heinrichs D (2005) "Why research on mega urban regions matters!", Department Urban and Environmental Sociology. UFZ Centre for Environmental Research, Leipzig–Halle

HPEC (The High Powered Expert Committee) (2011) Report on Indian urban infrastructure and services. Ministry of Urban Development, Govt. of India, March

Jenks M (2000) Sustainable urban form in developing countries? Introduction chapter. In: Jenks M, Burgess R (eds) Compact cities—sustainable urban forms for developing countries. Spon Press, Taylor & Francis Group, London and New York

Jenks M, Burton E, Williams K (eds) (1996) The compact city: a sustainable urban form? E & FN Spon, London

Kamete AY, Tostensen A, Tvedten I (2001) From global village to urban globe, urbanisation and poverty in Africa: implications for Norwegian aid policy. Report R 2001: 2, Development Studies and Human Rights, Chr. Michelsen Institute

Kenneth L (2005) *Rural-Urban Interaction in the Developing World*, Routledge, London

Kundu A (1983) Theories of city size distribution and Indian urban structure—a reappraisal. Econ Polit Wkly 18(3):1361–1368

Kundu A, Lalitha N, Arora SL (2001) Growth dynamics of informal manufacturing sector in urban India: an analysis of interdependencies. In: Kundu A, Sharma AN (eds) Informal sector in India perspectives and policies. Institute for Human Development and Institute of Applied Manpower Research, New Delhi, pp 93–123

MGI (McKinsey Global Institute) (2010) India's urban awakening: building inclusive cities, sustaining economic growth, MGI, April

Montgomery M, Stren R, Cohen B, Reed HE (eds) (2004) Cities transformed. Demographic change and its implications in the developing world. Earthscan, London

Mukherji S (1993) Poverty induced migration and urban involution in India: cause and consequences. International Institute for Population Sciences, Mumbai, pp 1–91

Nallathiga R, Taneja S, Gupta A, Gangal B (2018) Sustainability of urban fringe development and management in NCT-Delhi: a case study. In: Mukherjee J (ed) Sustainable urbanization in India: challenges and opportunities. Springer, Singapore

Parikh J, Gokran S (1991) Consumption patterns: the driving force of environmental stress. Working Paper, Indira Gandhi Institute of Development Research (IGIDR), Mumbai

PRB (Population Reference Bureau) (2007) The future population of India: a long range demographic view. Population Foundation of India, August

PRB (2008) World population highlights, key findings from PRB's 2008 world population data sheet. Popul Bull 63(3), p 9

Railway Gazette (2010) Loan to relieve world's most over-crowded trains. Railway Gazette News, 06 Jul. http://www.railwaygazette.com/news/single-view/view/loan-to-relieve-worlds-most-overcrowded-trains.html. Accessed 31 Dec 2010

Raza M, Kundu A (1978) Some aspects of disfunctional characteristics of urbanisation-socio-economic development problems in South and South East Asia. Popular Prakashan, Bombay

Richardson HW, Bae C-HC, Baxamusa MH (2000) Compact cities in developing countries—assessment and implication. In: Jenks M, Burgess R (eds) Compact cities—sustainable urban forms for developing countries. Spon Press, Taylor & Francis Group, London and New York

SIDA (Swedish International Development Cooperation Agency) (1995) Towards an urban world: urbanization and development assistance, Stockholm

SIDA (2006) Fighting poverty in an urban world: support to urban development. SIDA Policy Info, Department for Infrastructure and Economic Cooperation, Division for Urban Development, SIDA

SIDA (2008) The world goes to town—Sweden in the Urban World. Department for Environment, Climate Change and Sustainable Services, SIDA, October

Simon D (1995) Urbanization, globalization and economic crisis in Africa. In: Rakodi C (ed) The urban challenge in Africa: growth and management of its large cities. United Nations University Press, Tokyo, New York, pp 74–110

Tannerfeldt G, Ljung P (2006) More Urban Less Poor—an introduction to urban development and management. Swedish International Development Cooperation Agency (SIDA), London, SIDA & Earthscan

UNFPA (United Nations Fund for Population Division) (1999) State of World Population: six billion, a time for choice. United Nations Population Fund, New York

UN-Habitat (2003) The challenge of the slums: global report on human settlements 2003. London

United Nations (2002) World urbanization prospects, the 2001 revision. Population Division, Department of Economic and Social Affairs, United Nations

United Nations (2009) Data online, world urbanization prospects: the 2009 revision population database. Population Division, Department of Economic and Social Affairs, United Nations

United Nations (2018a) Download center. World urbanization prospects: the 2018 revision. Population Division, Department of Economic and Social Affairs, United Nations. https://population.un.org/wup/Download/. Accessed 13 Aug 2019

United Nations (2018b) The world's cities in 2018—data booklet. Population Division, Department of Economic and Social Affairs, United Nations. https://www.un.org/en/events/citiesday/assets/pdf/the_worlds_cities_in_2018_data_booklet.pdf. Accessed 15 Aug 2019

United Nations (2019) Goal 11-sustainable cities and communities, facts and figures at https://www.un.org/sustainabledevelopment/cities/. United Nations. https://developmentperspectives.ie/SDGChallenge/InformationPacks/SDG%2011%20Sustainable%20Cities%20and%20Communities%20.pdf. Accessed 15 Aug 2019

UNSC (United Nations Statistical Commission) (2016) Final list of proposed sustainable development goal indicators, Annex IV. Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators. https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf. Accessed 15 Aug 2015

UNSD (United Nations Statistics Division) (2010) United Nations demographic yearbook 2008. UNSD, Department of Economic and Social Affairs, United Nations. http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm

Vasudevan S (2009) Sustainability of business correspondent model for financial inclusion in slums in Mumbai. http://www.iibf.org.in/documents/reseach-report/Report-20.pdf. Accessed 20 Aug 2019

Wackernagel M, Rees WE (1996) Our ecological footprint: reducing human impact on earth. New Society Publishers, Gabriola Island

Wackernagel M, Onisto L, Linares AC, Falfan ISL, Garcia JM, Guenero AIS, Guenero GS (1997) Ecological footprint of nations: how much nature do they use?—how much nature do they have? Universidad Anahuac de Xalpa, Mexico

Williams K, Jenks M, Burton E (1999) How much is too much? Urban intensification, social capacity and sustainable development. Open House Int 24(1):17–25

Williams K, Burton E, Jenks M (eds) (2000) Achieving sustainable urban form. E & FN Spon, London

World Bank (1995) Better urban services: finding the right incentives. Development in Practice Series, Washington, DC

World Bank (2000) Entering the 21st century—world development report 1999/2000. Washington, DC

World Bank (2011) Online data, millennium development goals. World Bank. http://data.worldbank.org/about/millennium-development-goals. Accessed 31 Mar 2011

World Business Council for Sustainable Development (1999) Corporate social responsibility: meeting changing expectations. In: Crane A, Matten D, Spense IJ (eds) (2008) Readings and cases in global context. Routledge-Cavendish, Oxford; retrieved from Okoye A (2017) Legal approaches and corporate social responsibility. Routledge, London