



Assessing the state of physical infrastructure in progressive urbanization strategy: SAP-LAP analysis



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ABSTRACT

The paper examines the current trends in Indian urbanization, a country known to be the second most populous country in the world. It aims to explore whether India, with its prevailing urban physical infrastructure bottlenecks and targeted policies to overcome the same, is equipped enough to sustain a growing urban population. Due to the excessive concentration of population in cities, the link between urbanization and development has evolved as a critical concern for policy makers. The paper employs a situation-actor-process (SAP) - learning-action-performance (LAP) [SAP-LAP] model of inquiry to assess the state of urban physical infrastructure in India and indicates future actions necessary from the standpoint of reaching the Sustainable Development Goals (SDG) target of inclusive, consistent, sustainable and resilient infrastructure to bolster economic progress and social welfare, with an emphasis on affordable and even-handed access to all. There has been paucity of studies in the recent past which explore government's role in recognizing physical infrastructure as a sustaining factor to urbanization and its paradoxical policy response—excessive zeal on the one hand and extreme apathy on the other—to urban development issues. The SAP-LAP framework shall assist systemic exploration of various issues in India's urbanization, with specific emphasis on physical infrastructure. This holistic approach would enable to identify further actions to realize sustainable growth and livability benefits of urbanization for India.

1. Introduction

India has emerged as a fastest growing economy in the world alongside China in the last couple of decades (Paul & Mas, 2016). India's growth story has been captivating and buoyant. Since the economic reforms period in the early 1990s, Indian economy has become globally integrated and shown considerable improvement with respect to macroeconomic stability, regulatory efficacy and stability in geopolitical environment (World Bank, 2018, 2019). The country has rich demographic dividend (Joe, Kumar, & Rajpal, 2018) wherein two-thirds of the aggregate population is of the working age of 15–64 (International Monetary Fund, 2018). This demographic dividend is known to be available for five decades from 2005 to 2006 to 2055–2056, longer than any other country in the world, according to a study by United Nations Population Fund (Singh, 2019). The ease of doing business environment has improved internal trade and trade across borders after simplification of goods and services tax structure and relaxation of norms in obtaining permits (Singh & Jaiswal, 2018). Directed efforts towards inclusive growth, social harmony, and

allegiance to individual rights through the government initiative—'Collective Efforts Inclusive Growth'—have aimed at providing everyone a stake in growth and creating opportunities for all (Sharma, 2018). Likewise, India accounts for 15% global growth (International Monetary Fund, 2018), which is expected to soar in years to come.

Cities and urban centres have been the engines of India's emergence and growth, particularly in the era of liberalization, despite the challenges that they have undergone over the years due to unemployment, high density of population, etc. (Paul & Shrivatava, 2016). According to the 'World Cities Report 2016,' urban areas in India contribute to more than 60% of the nation's GDP and it is estimated that "49 metropolitan clusters are likely to account for 77 per cent of incremental GDP from 2012 to 2025" (UN Habitat, 2016, p. 150). The country is projected to experience a further growth in urban population to 590 million by 2030, as against 282 million at the beginning of the century (World Bank, 2011). This is apparent considering the fact that as population grows and mankind progresses, there continues to be a sizeable influx of people to cities and metropolises. These cities, in turn, have to outfit themselves to accommodate an ever-growing population. Urban sprawl

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has emerged as a prominent feature of urban development (Zanganeh Shahraki et al., 2011) in India in the last few decades. The mounting demand from residents for housing, infrastructure, transport, communication, education, healthcare, civic amenities, entertainment, etc. has led cities and urban agglomerations to emerge as intricate and multifarious social networks, where ensuring sustainable growth and quality of life are equally critical concerns (Rodríguez-Bolívar, 2015). This is in conformity with the 11th Sustainable Development Goal (SDG): “make cities and human settlements inclusive, safe, resilient and sustainable” (United Nations, 2016). It is imperative to ascertain whether urban planning, local governance, directed investments, critical infrastructure and service delivery in India have been able to catch up to meet the growing requirements of the burgeoning urban population, an aspect evidently ignored by recent studies. The present study therefore seeks to inquire: Is India able to effectively address congestion constraints arising from “disordered urbanization” (Kumar, 2016) with respect to provision of infrastructure and basic services?

In the context of the present study, urbanization implies growth in urban population and urban scope, as well as the ensuing chain of economic and social ramifications (Guan, Wei, Lu, Dai, & Su, 2018; Wang, Hui, Choguill, & Jia, 2015). Urbanization in India exhibits two unique attributes—“messy and hidden”—reports World Bank (Dhindaw, Ganesan, & Pai, 2017; Ellis & Roberts, 2015). It is deemed “messy” because a major chunk of the population resides in urban slums (inapt for human habitation) and “hidden” because of inhabitants occupying settlements having urban characteristics (congested shantytowns), which fail to meet the conditions essential to be officially categorized as urban (World Bank, 2015a). The “hidden” aspect of urbanization results in underestimation of the actual growth in population, which leads to underprovision of physical infrastructure, public utilities and essential services. Most of those dwelling in urban slums are reported to be open sewers, having restricted access to sanitation, squatting unlawfully and making up for the inadequacy of government infrastructure by manipulating obscure, frequently illegitimate, systems to gain access to electricity and other utilities (Johnson, 2013). According to the official Census estimates, undertaken in India every 10 years, although the growth in total number of residents in urban areas in India exhibited a persistent rise, it is a condensed reflection far off from reality. In 2011, the actual urban sprawl was 55.3% (understated as 31.2%) according to the World Bank’s Agglomeration Index, a globally relevant complementary measure of urban concentration (Indian Express, 2015; Kumar, 2016). Notwithstanding the underestimated official figure of urbanization in 2011, “377 million Indians live in cities and this means that 1 out of 10 global urban citizens is Indian” (Zérah & Denis, 2017, p. 2).

Due to the excessive concentration of population in cities, the link between urbanization and development has evolved as a critical concern for policy makers (Turok & McGranahan, 2013) in India. Although it is widely known that urban livelihood invigorates commercial activities, allows productivity gains, and pushes the economy towards development and financial upturn (Quigley, 2009), this is not a mechanical or an automatic process. It is important to consider the dynamics of urbanization and the diverse ways in which cities can sustain growth. The potential of urbanization to encourage development is contingent upon how favorable are the infrastructure and institutional settings within the country in question; eliminating hindrances to rural-urban mobility can facilitate economic progress, and the gains are likely to be bigger with accommodating policies, markets and infrastructure investments (Esfahani & Ramírez, 2003; Turok & McGranahan, 2013). Investment in physical infrastructure has positive impact on the deprived, overtly and implicitly, in numerous ways (Sahoo & Dash, 2009).

While the need for infrastructure is recognized by countries across the globe (Achour & Belloumi, 2016; Kumari & Sharma, 2017; Maparu & Mazumder, 2017; McKibbin & Henckel, 2017), in many developing countries, critical infrastructure is still in short supply and of poor

quality (Briceno, Estache, & Shafik, 2004). India is no exception to this bleak reality. “Most of India is trying to operate as a 21st century economy with early-20th century infrastructure” (Mitra, 2018). “The state of Indian cities, both with respect to the building and maintenance of urban infrastructure as well as delivery of public services, is highly unsatisfactory, and is far short of what is required to sustain faster and more inclusive growth of the economy” (Ahluwalia, Kanbur, & Mohanty, 2014).

India embarked upon the ‘Smart Cities Mission’ in 2015 to transform 100 cities from the viewpoint of improving the quality of life, upgrading citywide infrastructure and kindling urban rejuvenation; but these are deemed as ‘sandbox initiatives’—entailing restricted scope but huge visibility (Praharaj, Han, & Hawken, 2018). With the above-mentioned background, the present study seeks to answer the following questions:

- Is India, with its current urban physical infrastructure bottlenecks and targeted policies to overcome the same, equipped enough to sustain the growing urban population?
- How can the various policy distortions be overcome to improve urban livelihood and access to infrastructure services?

The paper adopts case study approach, a widely used method to analyze and critically examine urban policy frameworks (Bakici, Almirall, & Wareham, 2012; Praharaj et al., 2018). The authors employ Situation-Actor-Process (SAP) - Learning-Action-Performance (LAP) [SAP-LAP] model of inquiry (Sushil, 2000)—an interpretive framework used in a case method—to assess the current situation of urban physical infrastructure in India and indicate future actions necessary from the standpoint of reaching the SDG target of “quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all” (UNDP, n.d.).

The rest of the paper is organized as follows. The second section gives a brief background of the salient policy initiatives introduced for urban development in the post economic reforms period in India. The third section discusses the methodology and elucidates how the SAP-LAP framework assists systemic exploration of various issues in India’s urbanization, with specific emphasis on physical infrastructure. Section four employs holistic approach enabled by SAP-LAP paradigm to underscore how Indian cities are under enormous strain to meet the rising demands and aspirations of their people and further actions required to realize sustainable growth and livability benefits through efficient service delivery. Section five offers concluding remarks.

2. Background

Urban India has been witnessing a steady rise in population (Tripathi, 2013) which may be significantly attributed to the evolution of new cities, massive influx of people from rural areas to urban areas, reclassification of rural areas as urban settlements (Kundu, 2006); globalization and integration of world economy (Paul, 2015); and internationalization of Indian IT firms (Paul & Gupta, 2014). Indian urbanization is paradoxical in nature: while the country is far more urbanized than what is stated by official figures (Sen, 2017; Sreevatsan, 2017), it is far less urbanized and unplanned compared to its developing counterparts on account of non-inclusion of spatial development as a critical component of socio-economic planning (Ahluwalia et al., 2014). It is claimed that India might be required to build a new Chicago each year to cater to its mammoth urban demand as 40% of the nation’s population is projected to dwell in urban areas by 2030 (Friedman, 2014). In India, “the challenge—as well as the potential opportunity—is that population densities in and around the largest metropolitan areas are extremely high” (World Bank, 2013, p. 1). The metropolitan suburbs are the points of congestion. In 2001, approximately 2,450 persons per sq. km resided in the 50 km surrounding area of the 7

prominent metropolises (with population in excess of 4 million), and one out of three of India's budding towns is born in the periphery i.e. 50 km vicinity of established cities having population over a million (World Bank, 2013). A major challenge is that such massive population densities have received no support—in terms of policy and patronage—to facilitate infrastructure development and connectivity. Infrastructure bottlenecks are typically cited by domestic and foreign investors as a hindering factor in India's pursuit to maintain 8–9% growth of recent years (Patel & Bhattacharya, 2010). The progressive impact of urbanization in India is thus shrouded by the apparent decline in the physical environment as well as quality of urban life resulting from a broad gap between demand for and supply of infrastructure and essential services. Consequently, the performance of Indian cities analyzed on the basis of urban indicators has been tripping way below the desired standards (Praharaj et al., 2018) and may eventually lead to urban gridlock and slump (McKinsey Global Institute, 2010). The challenge of reawakening the urbanization process, thus, lies in trouncing the infrastructural inadequacies and taking utmost advantage of economic momentum inherent in urbanization. As pointed by Venables' (2009) and Ahluwalia (2017), since new urban clusters are difficult to create, prevailing cities expand far beyond their optimum degree, perhaps to the extent that diseconomies of cramming and congestion offset the positive economies of scale.

The 'World Cities Report 2016' reports, how India, even after the decentralization of reforms¹ to monitor the source of funding to municipalities, has been able to devote only 1.1 per cent of its GDP for municipality outlays, far less than its global counterparts—OECD and BRICS nations (UN Habitat, 2016). The report further highlights the apathetic condition of planning capacity in India with only 0.23 planners for every 100,000 populaces in the year 2011. India's urban history exhibits a unique feature whereby most towns and cities have grown by themselves. This does not indicate that there have been no urban policies and programmes till date; it merely indicates that the planned initiatives have benefited only the major urban centres with very little or no avail to small towns, cities and non-metropolises (Bhagat, 2014). As rightly pointed by Gnaneshwar (1995, p. 314), "there appears to be lack of perspective and, more significantly, lack of will for planned urban development in India," although rural economic development has always been at the centre stage of planning (Nath & Aggarwal, 2007). Urban policy and planning have been considered in all Five-Year Plans of Government of India (Dwivedi, 2007; Bhagat, 2014). However, the policy interventions have been prominent since the early 1990s (the onset of economic reforms in India) when the 74th Constitution Amendment was introduced to decentralize the powers for urban development. These policies are exhibited in Table 1 and encompass initiatives introduced over a 20-year period from 1992 to 2012. The momentous centrally sponsored schemes of infrastructure development introduced in the subsequent period (post 2012), which are still operational, prominent and involve huge visibility (Praharaj et al., 2018), have been discussed as a part of SAP-LAP framework in ensuing segments.

While JNNURM (2005) was a major initiative towards planned urban development, the year 2013–2014 saw the introduction of Deendayal Antyodaya Yojana National Urban Livelihoods Mission and Swachh Bharat Mission—clean India mission—directed towards cleaning of roads, paths and infrastructure of towns, cities and hinterlands. The year 2015 saw the government take major strides forward toward urban renewal by launching the Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation, Heritage City Development and Augmentation Yojana as well as Pradhan Mantri Awas Yojana-Housing for All (Urban). The National Urban Policy

Framework 2018 is the most recent proposal by the Ministry of Housing and Urban Affairs which aims at gradual urban transformation through custom-build policies, with the Centre extending assistance for the execution of State urban policies based on the bottom up approach.

It is important to examine whether the directed programmes have supplemented India's urbanization efforts, which shall be discussed in the forthcoming segments.

3. Methodology

The present study adopts a three-stage case-based review approach—at Central government level, State level and Municipal level—to analyze and critically examine urban policy frameworks, unlike a two-stage case review undertaken by Praharaj et al. (2018). Furthermore, the review is complemented with situation, actor, process (SAP) – learning, action, performance (LAP) [SAP-LAP] framework which was first proposed by Sushil (2000) and has been extensively used in studies based on case scenarios (Anand, Medhavi, Soni, Malhotra, & Banwet, 2018; Arshinder, Kanda & Deshmukh, 2007; Charan, 2012; John & Ramesh, 2012; Naik & Srivastava, 2017; Nayak & Mukherjee, 2018; Pramod & Banwet, 2010; Suri & Sushil, 2008). SAP-LAP is a "generic framework which can be used in a variety of contexts, such as problem solving, change management, strategy formulation, supply chain management, marketing management, technology management, human resource management, and so on" (Sushil, 2009, pp. 11–12). The SAP-LAP paradigm (as exhibited in Fig. 1) is developed in the context of urbanization policy framework in India. 'Situation' considers the past, prevailing conditions, and what is expected to happen in the future relating to the issue under consideration. The 'Actors' include the major agents that influence the situation and are influenced by the situation. 'Process' involves the course of action taken by the 'Actors,' the rationale behind the same and the manner in which it is done. The freedom of choice rests with the 'Actors' with regard to bringing about a change in the situation. LAP is the outcome of the SAP inquiry. 'Learning' involves the major lessons realized from the situation, the actors involved and the measures taken to deal with the situation. 'Action' calls for improvement required in the situation and what needs to be done. 'Performance' involves the shift in behavior of the actors and how the execution can be improved in the future. The SAP-LAP study is akin to a journey that delves into the past, present and future.

To critically assess the initiatives for urban development at multi-level, the authors reviewed publications of the World Bank, Planning Commission, NITI Aayog, Census of India, Ministry of Housing and Urban Affairs, High-Powered Expert Committee of the Government of India (HPEC), Annual Survey of India's City Systems (ASICS), as well as other major policy documents of the Government of India. An extensive referencing of the different documents swotted during the course of this study is given at the end of the paper. The actual state of affairs with respect to key indicators such as public transport, water supply, electricity, sewerage, sanitation, citizen engagement, etc. have been studied through field visits to a select number of towns/cities such as Delhi, Gurgaon, Mumbai, Bengaluru, Hyderabad, Chennai and Pune, considering the nature of their activities, current population, urban growth rate, ease of living, cosmopolitan character and contribution towards the national development/economy.

4. Findings and discussion

The findings of the study are presented in the SAP-LAP framework as follows:

4.1. Situation

4.1.1. Indian urbanization: narrow definitional criteria

Indian urbanization is shambolic as it is gauged upon the population growth in officially classified urban settlements. The definition of

¹Decentralization of reforms came through the 74th Constitutional Amendment which required devolution of powers between the Centre, States and Urban Local Bodies.

Table 1

Major urban policies in India since the economic reforms period (1992–2012).

Source: Various Sources

Year	Urban Policy Highlights	Source
1992	The 74th Constitution Amendment Bill 1992 got approval from both the houses of the Parliament, and came into effect in 1993. It was first of its kind to confer constitutional status to Urban Local Bodies (ULBs) from the point of view of creating a three-tier federal hierarchical pyramid – Centre, States, ULBs.	Bhagat (2014)
1993	The Mega City Scheme was launched with emphasis on infrastructure development in five cities viz. Calcutta, Bombay, Madras, Hyderabad and Bangalore. These cities were chosen on account of their massive influence on domestic productivity and resource accumulation for planned economic development. The Centre and the State Governments were supposed to contribute in the ratio of 25:25, while the balance 50% was reckoned to be met through institutional finance.	Ministry of Urban Affairs and Employment, Department of Urban Development, Government of India (1992)
1998	The National Housing and Habitat Policy 1998 was introduced to strengthen the housing infrastructure in the country through public-private partnership.	Jha and Chandiramani (2012)
2001	The 2001 Census underscored the existence of 4500 urban centres which could have readily qualified under the category of small and medium towns, but due to abysmally low financial allotment and support, these towns could not act as agents of urban growth and failed to contribute to escalating urbanization. This observation resulted in major policy reforms in the following period.	Bhagat (2014)
2001	With a view to provide accommodation to urban poor in 5,161 towns and cities, Valmiki-Ambedkar Awas Yojana (VAMBAY) was launched.	The Hindu (2001)
2001	100% Foreign Direct Investment was allowed for building integrated townships.	Jha and Chandiramani (2012)
2005	Jawaharlar Nehru National Urban Renewal Mission (JNNURM) was launched in December 2005 with targeted initiatives for development of urban physical infrastructure in 63 select cities. All the earlier programmes which had met limited success [such as Mega City, Integrated Development of Small and Medium Towns (IDSMT) and VAMBAY] were merged with JNNURM. Under JNNURM, each city had to create a City Development Plan and arrive at a distant vision for the conurbation. The need to strengthen ULBs for capacity building was emphasized yet again. Public-Private Partnership was identified as a perfect solution to deal with urban physical infrastructure bottlenecks.	Ministry of Housing and Urban Affairs, Government of India (2018a)
2006	The Ministry of Urban Development introduced a practice of developing consistent and regimented service level benchmarks with respect to basic municipal services. Thus, a Handbook of Service Level Benchmarking was created to allow organized and persistent monitoring of services using homogenous indicators contrary to established targets and yardsticks.	Ministry of Urban Development, Government of India (n.d.)
2006	National Urban Transport Policy (NUTP) was introduced to engender wide-ranging advancements in urban transport services and infrastructure.	Ministry of Urban Development, Government of India (2014)
2009	India: Urban Poverty Report 2009 was presented to discern numerous issues of “urban poverty such as basic services to urban poor, migration, urban economy and livelihoods, micro finance for urban poor, education and health, unorganized sector and livelihoods.”	Ministry of Housing and Urban Poverty Alleviation, Government of India (2009)
2011	Rajiv Awas Yojana (RAY) was introduced in June 2011 with the objective of conceiving a slum free India. The primary objective was to extend assistance to State governments and cities to improve slums, designate legitimate titles to their inhabitants, and consolidate the efforts to speedy urbanization such that no more slums are formed.	Ministry of Housing and Urban Affairs, Government of India (2018a)
2011	The High-Powered Expert Committee (HPEC) presented a report on the state of urban infrastructure and services in India.	High-Powered Expert Committee (2011)
2012	The Twelfth Five Year Plan (2012–2017) outlined planned investment in infrastructure sectors to be Rs. 55.7 lakh crore.	Sahu (2016)

‘urban’ has been varying from time to time, thus giving a condensed impression of the actual picture. While the number of inhabitants and urban-like features used to be the defining criteria for urbanization according to Census 1951, since 1961 the defining criteria is based on either a constitutional proclamation of a township as an urban local body or a consideration of the size of towns in terms of population (a settlement accommodating more than 5000 persons), density (greater than 400 per sq. km.) and structure of work force (greater than 75% of the male population engaged in non-agricultural livelihoods) (Denis, Mukhopadhyay, & Zérah, 2012). Nonetheless, this is a feeble definition as it understates urbanization by excluding sizeable growth outside the ambit of ULBs. The number of ‘Census’ towns (in conformity with the aforementioned definition) shot up by more than 185% amid 2001 and 2011, relative to an increase of a mere 0.36% in the number of villages (Srinivasan, 2017). Likewise, the urban population growth soared, as exhibited in Fig. 2, but these official estimates do not reflect actual growth. The percentage of Indian population identified as ‘urban’ has been erratic when assessed on diverse considerations: the official estimates of Census 2011 report 31% to be urban, the administrative classification identifies only 26% on the basis of governance by ULBs, it is 63% from what can be gathered by satellite images of built-up areas in the country (Sreevatsan, 2017) and 55.3% according to the World Bank’s Agglomeration Index (Kumar, 2016).

4.1.2. Restricted land policy

India is witnessing suburbanization—a brisk urban sprawl in its metropolitan suburbs owing to metropolitan stagnation. Suburbanization implies “the combination of non-central population and economic growth with urban spatial expansion” and incorporates the “process of constructing residential enclaves, squatter settlements, commercial developments, business and industrial parks, and fragmented infrastructure on the peripheries of urban regions” (Ekers, Hamel, & Keil, 2012, p. 407). A primary reason for this is the restricted land policy—limited permissible floor space index (FSI)—to accommodate population densities within the cities, which has automatically driven away people and businesses from urban cores to urban peripheries. The Census 2011 testifies that the top 10 cities in India accommodate 8% of the nation’s population but occupy merely 0.1% of the total land area (Indian Institute for Human Settlements, 2011, p. 4). A NITI Aayog Report generated in 2017 distinctly suggests that inadequacy of land can be “countered by expanding space vertically through the construction of taller buildings” (Nair, 2018) by easing FSI norms in urban areas. In India, admissible FSI is very low and ranges between 1 and 1.5 (Nair, 2018). Density regulation through truncated FSIs is encouraged out of sheer apprehension that a majority of the cities’ prevailing infrastructure would breakdown if population densities are not moved to new towns or suburbs. Cities are not authorized to go vertical for high-rise buildings in the urban core but are permitted

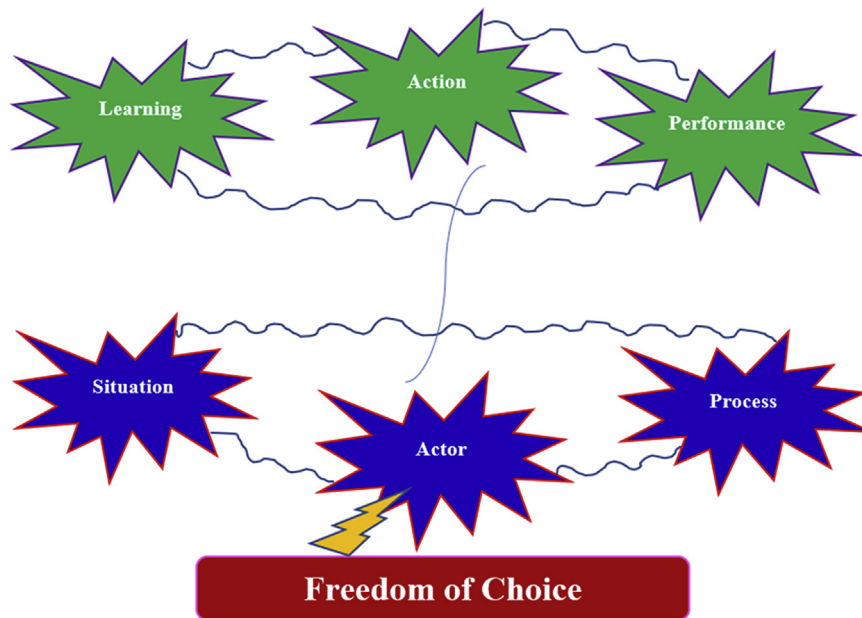


Fig. 1. SAP-LAP paradigm. Source: Sushil (2000).

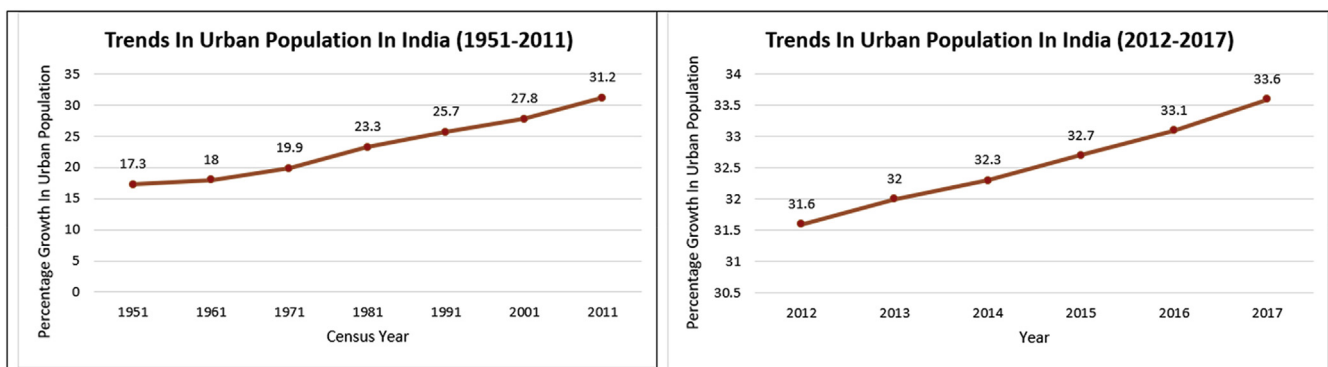


Fig. 2. (A): Trends in urban population in India (1951-2011) Source: Census of India, 2011 (B) Trends in urban population in India (2012-2017) Source: United Nations Population Division. World Urbanization Prospects: 2018 Revision

to do so to some extent in the peripheries, owing to height restrictions posed by prevailing laws. This amplifies vehicular congestion as it makes residents travel long distances to their workplace. The connectivity between metropolitan cores and peripheries is appalling and calls for investments in network infrastructure and logistics to expediate the movement of goods and ease up the mobility of people.

Shaw (2012) reports Indian cities engulfing tinier towns in the periphery by quoting how 221 small towns were coalesced into the bigger urban agglomeration amid 1991 and 2001, which was twice the number than what was observed in the previous decade. But this is thwarting the gains of agglomeration economies. Maintaining low FSIs quashes economic progress; in addition, it fuels housing insufficiencies, drives up real estate prices and moderates affordability. Bengaluru (formerly Bangalore), which encounters stagnation in the core of the city and observes sprawl in the peripheries, experiences welfare deductions of 2–4 % of household income on account of expenses involved in commuting to distant places (World Bank, 2013). Likewise, Delhi, Mumbai, Hyderabad and Kolkata, have witnessed widespread sprawl in their peripheries, which can be assessed on the basis of difference in growth observed within districts located in the cities and those located in the suburbs (World Bank, 2015b).

India lacks a distinct and well-defined system for land use, an active framework for property valuation, fails to accurately outline property

rights, and does not have a judicial system that can deal with public concerns and outcry with respect to land market operation (World Bank, 2013). The Urban Land Ceiling and Regulation Act has brought several estates under litigation, thus withholding them from the ambit of developable urban zones.

4.1.3. Incongruous progress of cities and suburbs: glaring evidences

Provision of adequate basic infrastructure is a precondition to sustain the burgeoning urban population. Bengaluru, the city which has featured among top 20 global cities successfully attracting foreign direct investment (FDI) into the information and communications technology (ICT) and electronics sectors (Business Today, 2019), is battling acute congestion woes, water scarcity and stress, as well as poor waste disposal channels, to name a few. Most citizens claim that driving through the city streets is not for the faint hearted. Bumper to bumper traffic in prominent vicinities is appalling for the citizens, and during the monsoon, further complements to the scruffy traffic mess. Moving on the streets is exasperating even for pedestrians as the solid waste management in the city is in shambles as reflected in Fig. 3. Poor waste collection, absence of waste segregation and unrestrained dumping of mixed wastes has resulted in environmental contamination close to landfill sites, a major shortfall on the part of ULBs. This poses a major challenge to the city's livability.



Fig. 3. Poor solid waste management in Banashankari 3rd stage Bengaluru (March 2019).

Source: Authors

This is also experienced in Gurgaon (officially Gurugram), a suburb of Delhi, which has all the modern amenities and conveniences such as shopping centers vending international brands, sports and entertainment venues, IT firms as well as call centers, but fails to provide basic infrastructure to its inhabitants in the form of adequate drinking water supply, drainage system, suitable roads and public transport—a phenomenon archetypally classified as “dysfunctionality” (Shaw, 2012). A single spell of rain reveals the contemptible state of physical infrastructure with sopping roads resulting in traffic jams and power failures (Singh, 2016). Power outages lasting up to several hours in a day signify a common feature for the inhabitants (Dhankhar, 2018). The city is marred by land acquisition issues, weak governance, lack of well-equipped bus service, incomplete projects for improved transportation (e.g. metro expansion plan) and poor last mile connectivity (Behl, 2018). The Millennium city is ranked 88 according to the Ease of Living Index² 2018, released by the Ministry of Housing and Urban Affairs, Government of India (Arora Desai, 2018).

4.1.4. Substandard quality of municipal governance

Indian cities face major challenges with respect to the quality of municipal governance. According to the *Annual Survey of India's City Systems (ASICS) (2017)*, cities in India do not have a progressive and avant-garde framework of spatial planning, which is estimated to be forestalling up to 3% of the nation's GDP each year. The spatial plans lack the three tiers; are marked by absence of sufficient groundwork, execution and enforcement; have no well-defined parameters to assess performance; and are short of a common digital GIS base map across different agencies. Furthermore, the town and country planning acts are outmoded, most of which were drafted way prior to India's liberalization, having no cognizance to the emerging problems of population growth and urban sprawl.

Democratic decentralization of powers has not happened uniformly across all States in the country (Nandi & Gamkhar, 2013). According to the 74th Constitution Amendment Act 1992, ULBs were to be endowed with “funds, functions and functionaries” (Rajadhyaksha, 2014) to deliver 18 all-encompassing utilities for city development, of which, only half have been effectively delegated (ASICS, 2017). Also, only 11 States have been able to strengthen the ULBs by delegating them specific municipal functions in conformity with the Act (*The Economic Times, 2018*).

The management of human resources is derisory with respect to the availability of workforce, expertise and competencies of the personnel,

² The Ease of Living Index is based on four parameters: institutional – based on “quality of governance, that is, the performance of the city in terms of efficient service delivery,” economic – “based on the growth in trade and services in a city, in the organized sector and also in real estate,” social – “the degree to which a city embraces and maintains its cultural and natural heritage, education, health care and safety and security” and physical – “city's ability to reduce pollution, its power supply, waste management capabilities, transportation, water supply and so on” (Arora Desai, 2018).

organization design and performance management. Municipalities have lesser skilled employees than required. It is observed that no single city has the rank and recruitment policy specifying job descriptions regarding expected administrative skills and managerial expertise for each designation in the municipality. There is severe paucity of senior management personnel—Class I & Class II employees—in the municipalities (Rajadhyaksha, 2014). Commissioners of cities lack sufficient understanding and experience in urban administration thus confining their capacity to deliver persistently (ASICS, 2017).

Local governments have the highest geographical proximity to the residents and their neighborhoods. They are the first to act in response to disasters and emergencies. They provide basic services to their citizens (health, transport, water supply, etc.), which ought to be made resilient to disasters. The poor state of urban local governance in India is reflected by the fact that the elected mayor of a city does not enjoy enough influence to execute their designated functions and is just a “ceremonial authority.” Mayors and city councils are markedly devoid of powers and have little control over decision-making vis-à-vis vital functions such as housing, provision of water, sewerage, ecological concerns, socioeconomic development, town planning, etc. As reported in ASICS (2017), there is lack of uniformity in the way Mayors are elected in cities across the country; large cities such as those in the State of Uttar Pradesh elect their Mayor directly, while mega cities such as Delhi and Bengaluru have indirect elections. Likewise, the tenure of office for the Mayor is not uniform and varies from city to city. In few cities, the tenure is 5 years, while in the rest it is as less as 2.5 years or even 1 year. The term of 1 year is too less to fulfill the defined functions. Furthermore, Mayors are not empowered to take disciplinary actions against their subordinates for non-compliance with rules and non-adherence to responsibilities. These further confines their ability to ensure accountability from the city officials. The State governments exude their powers even in those matters which are the prerogative of the city Mayors. In a majority of the cities, Mayors are not permitted to borrow or spend money for development purposes without prior sanction from the State governments. Additionally, parastatal agencies responsible for development functions, are accountable to State governments. India has been very slow with respect to adopting reforms. Decentralization of administration is occurring at a snail's pace in the country.

The inefficiency of local self-governments has also been exposed during the Kerala floods in August 2018, which is ascribed by ecologists as a man-made catastrophe. The government-constituted Western Ghats Ecology Expert Panel (WGEEP) had submitted a report in 2011 which included a forewarning to protect the natural resources and green cover, refrain from forest land grabbing and erection of high rises in ecologically-sensitive zones. However, the recommendations of the Committee were rejected by the State government. Eventually, the statewide floods resulted in massive destruction of life and property owing to non-adherence to proposed recommendations.

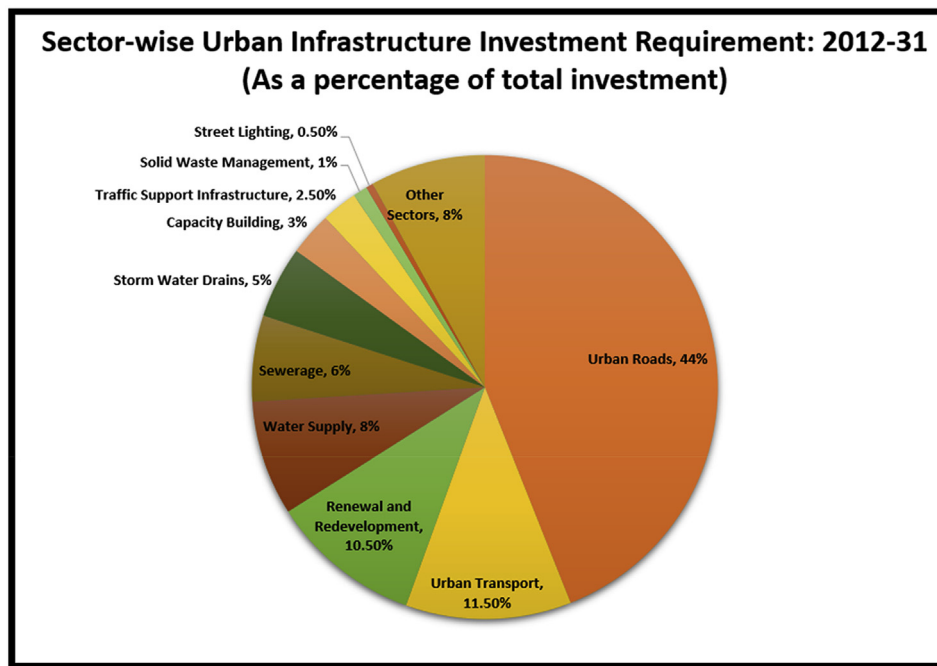


Fig. 4. Urban infrastructure investment requirement in India (2012–2013 to 2031–2032).

Source: High-Powered Expert Committee (2011), Ministry of Urban Development, Government of India.

4.1.5. Restrained urban finances

The funds are insufficient, both with respect to financial sustainability as well as financial accountability of cities. According to the 'Report on Indian Urban Infrastructure and Services' by an Expert Committee constituted by the Government of India, India needs an approximate investment of Rs. 39.2 lakh crore for physical infrastructure for a two-decade period extending from 2012–2013 to 2031–2032 (High-Powered Expert Committee, 2011). A sector-wise allocation of required investment, in terms of percentage, is depicted in Fig. 4. The Report enunciates that there is an acute deficit in investment in each of the sectors, particularly urban roads and urban transport requiring more than 50% of the investment, taken together. Recent experience also reveals poor absorption capacity with respect to sectoral initiatives: while the impact is conspicuous at the top level, not much difference is visible at delivery point, with excess resources being used up, but minor tangible results in service delivery.

Most of the Indian cities are unable to generate sufficient resources to remunerate their staff and have abysmally poor financial management practices, thus leaving them to depend heavily on grants from Central and State Governments. "Lack of adequate own revenue sources severely constrains the ability of cities to invest in infrastructure and service delivery" (ASICS, 2017). Municipal bodies lack financial autonomy and rely on State funds (The Economic Times, 2018). As regards financial accountability and responsibility, there are leakages and shady practices, both by chance and by choice.

4.1.6. Poor public transport

An offshoot of suburbanization—concentration of population in the peripheries with the need for citizens to travel daily to urban cores for work-related commitments—inevitably exposes the problems relating to transportation. India has made rapid advances in public transportation in recent years—extensive dispersion of metro rails, ride hailing and ride sharing services, highway infrastructure, and so forth—but is still unable to catchup with the global standards, and has miles to cover with respect to delivery of quality and economical services to the public. Consideration to urban transport in the past has been fitful and sketchy. Some of the major challenges confronting public transport constitute institutional gaps, poor supply, dissatisfied customers,

absence of technology use, etc. The transport sector also has witnessed serious issues with respect to project implementation that is most often behind schedule, inadequate financing, inappropriate contractual frameworks which characteristically supplement infrastructure projects (KPMG, 2017).

The State road transport undertakings have not been able to deliver consistency, frequency and quality while providing bus services owing to paucity of funds. Commuters often sarcastically whine by pointing to a paradoxical situation wherein they see buses only plying on roads, but do not find the one they are looking for while actually awaiting on bus stops. It is a vicious circle wherein the poor quality of bus service has led to an increase in private ownership of vehicles and vice versa. According to latest government data, the number of buses available for transportation is nearly less than one-tenth of the actual requirement (Dash, 2018). In a large number of cities, even those known for their ease of living—such as Pune city—"the buses are in a dismal state; few buses lack window panes; few others are either short of seats or have broken seats; frequent breakdowns are reported; there is paucity of qualified people to guide passengers; there are inadequate bus depots and washing facilities; hygiene is abysmally poor; bus stops and bus stands are pathetic" (Chandiramani & Nayak, 2018, p. 249). Cities rely on private vehicles, rather than the inconsistent and not-so-reliable public transport, to meet their travel requirements. As a result, most State road transport undertakings are incurring massive losses. It is interesting to note that the share of buses in the total number of vehicles registered in the country fell from 11.1% in 1951 to 1.1% in 2011 (Planning Commission, Government of India, 2014). The decline has been particularly massive in the decade from 2001 to 2011 wherein there has been a sizeable rise in the number of two-wheelers and cars in the metropolises, without a commensurate growth in the carrying capacity of existing roads. Slender roads coupled with ubiquitous growth of private vehicle ownership imply that the journey pace for motorized travel across all the cities is just about quicker than riding a bicycle (World Bank, 2013). Fig. 5 exhibits the extent of bus penetration in India from a global standpoint for the year 2015–2016. As is clearly evident, India has the lowest bus penetration compared to its global counterparts.

The design patterns for public utilities are outdated and obsolete

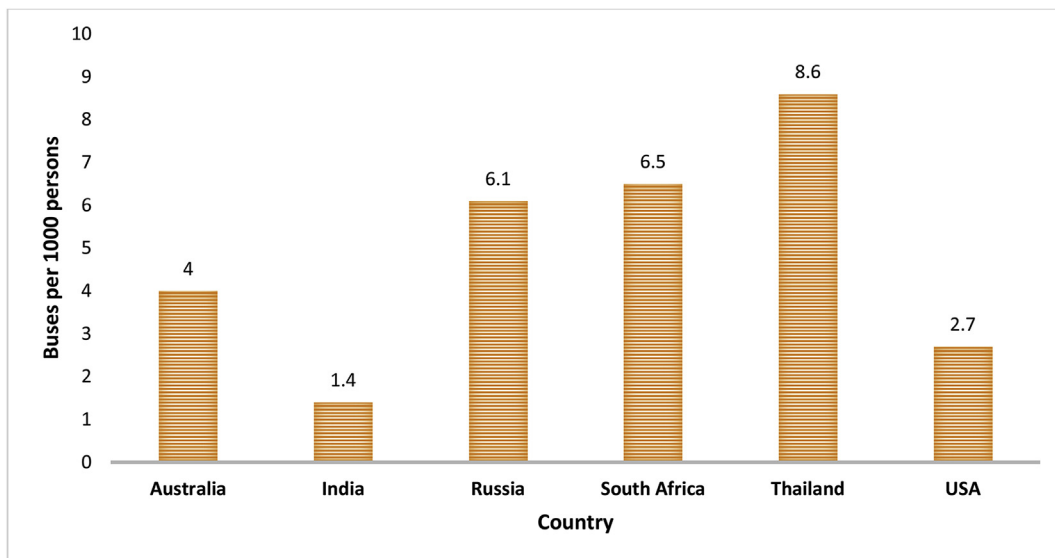


Fig. 5. Extent of bus penetration in India: A global comparison (2015–2016).

Source: International Road Federation World Road Statistics 2016, Union Road Transport and Highways Ministry 2015-16 Report (as cited in Das Gupta, 2017)



Fig. 6. Traffic congestion in Karvenagar, Pune city, due to an impending flyover (August 27, 2017).

Source: Authors

(ASICS, 2017). Urban roads have insufficient capacity, are of poor quality and defaced by pits and holes (Salini & Ashalatha, 2018). Flyovers are constructed to ease the stream of traffic, which merely direct commuters from the points of congestion to the points of flow, but neither enhance the availability of transport options for travelers nor broaden the capacity of roads. Eminent urban strategist, Enrique Penalosa, once said that such short-term solutions are akin to attempts to put out a fire with gasoline. These flyovers simply add to the costs of construction and maintenance, but offer no long-term solutions to transport concerns plaguing major cities. Some flyovers have taken more than the projected time for completion and caused immense traffic snarls to commuters. As a case in point, the city of Pune, which has earned the reputation of topping the country with respect to “livability” according to the Ease of Living Index 2018, had a major flyover—Karvenagar flyover—complete in 2018, which was initiated in 2012 and projected to finish in 2015. The three-year delay was attributed to issues concerning land acquisition as well as relocating of power cables and water ducts (Times of India, 2018). The period under construction was a nightmare for travelers as exhibited in Fig. 6.

Due to the absence of an apex body for the transport sector which

can coalesce the interests of all stakeholders, the diverse modes of public transport—buses, metros, auto-rickshaws, taxis, etc.—are operated by different agencies and lack cohesion as well as coordination to perk up the quality of conveyance for commuters (KPMG, 2017).

The extent of private investment in urban transport through public-private partnership (PPP) has been very low compared to other infrastructure sectors such as solid waste management, water supply and sewage (Planning Commission, Government of Census of India, 2011). Public transportation in India is a State subject and is administered by the State governments through State Transport Undertakings (STUs). Consequently, there is a lot of resistance to privatization of transport on the part of workers working for STUs as they fear loss of jobs upon change in ownership and control. This was particularly evident when there was a nationwide strike observed by All India Coordination Committee of Road Transport Workers’ Organizations in August 2018 as a response to certain provisions in Motor Vehicle Amendment Bill that allowed private players to enter the public transport sector with respect to ownership, regulation of permits and taxation (Sood, 2018).

4.1.7. Absence of citizen engagement in urban governance

Indian cities have limited platforms for citizens to participate in civic matters affecting them. Although there is a constitutional provision to set up 'Ward Committees' in cities within the territorial area of a municipality having population of more than three lakh, the implementation has been weak and non-uniform across all the States. Rather than each ward having a Ward Committee, there is a single committee catering to multiple wards, thus limiting adequate representation of citizens to voice their concerns. It is reported that in cities such as Hyderabad, the municipal corporations do not provide funds to Ward Committees. The city's Ward Committees have become "defunct"—neither do they formulate ward development plans, nor conduct regular meetings (Reddy, 2018). In Bengaluru, the number of citizens participating in ward committees has been very less due to limited information availability about the existence of such committee formation or the deliberate exclusion of interested citizens through sketchy criteria for entry. Most of the ward committees comprise citizens who are the kin of the existing council members with entry reservations for the non-members. Such exclusion and rivalry acts as a constraint for citizen engagement for social change (Alva, 2017).

4.2. Actors

There is decentralization of powers with respect to urban development in India, although urban development is primarily a State subject in the country. The 74th Constitution Amendment Act of 1992 obligates State governments to adopt the system of three types of municipalities for governance: *nagar panchayat*—"for a transitional area, that is, an area in transition from a rural area to an urban area"; *municipal council*—"for a smaller urban area"; *municipal corporation*—"for a larger urban area"³; the Act expects the States to transfer 18 functions⁴ (Laxmikanth, 2017), funds and functionaries as listed in the 12th Schedule of the Constitution to ULBs. The Act further contains provisions for creation and structure of Ward Committees; term of municipalities; powers, influence and onuses of municipalities; institution of State Finance Commissions, committees for district planning, metropolitan planning, etc. (Aijaz, 2007). At the State level, there are several departments, agencies and Parastatals⁵ which interact at State, district and town level for provision of urban infrastructure and services.

The role of the Central government is to aid the State government in embracing projects to improve the delivery of urban amenities. At the central level, there is a separate Ministry of Housing and Urban Affairs constituted by the Government of India to look after urbanization and

³"A transitional area, a smaller urban area or a larger urban area means such area as the governor may specify by public notification for this purpose with regard to: (a) Population of the area; (b) Density of population; (c) Revenue generated for local administration; (d) Percentage of employment in non-agricultural activities; and (e) Economic importance or such other factors as the governor may deem fit."

⁴"Urban planning including town planning; regulation of land use and construction of buildings; planning for economic and social development; roads and bridges; water supply for domestic, industrial and commercial purposes; public health, sanitation, conservancy and solid waste management; fire services; urban forestry, protection of the environment and promotion of ecological aspects; safeguarding the interests of weaker sections, including the handicapped and mentally retarded; slum improvement and upgradation; urban poverty alleviation; provision of urban amenities and facilities such as parks, gardens, playgrounds; promotion of cultural, educational and aesthetic aspects; burials and burial grounds, cremations and cremation grounds and electric crematoriums; cattle ponds, prevention of cruelty to animals; vital statistics including registration of births and deaths; public amenities including street lighting, parking lots, bus stops and public conveniences; and regulation of slaughter houses and tanneries."

⁵Line agencies taking up specific functions such as finance, poverty alleviation, housing, town planning, etc.

allied matters of national importance.

The private sector, although not considered in the present study, is involved in urban development through the PPP model, particularly in projects involving solid waste management, provision of water, and transportation.

The key actors also include citizens who constitute Ward Committees for community participation in urban governance.

4.3. Process

Several government initiatives and interventions have been directed towards improvement in urban development and urban governance in the post-liberalization period in India, and more lately, with the objective of meeting SDG 11: "Make cities and human settlements inclusive, safe, resilient and sustainable." In addition to decentralization of powers, centrally supported programmes and associated interventions have been introduced from time to time by the Ministry of Urban Development, listed in Table 2.

4.4. Learning

Major schemes with huge projected impact on urban development have been introduced by the Government of India since the launch of JNNURM in 2005. This has been additionally supported by a series of other centrally supported schemes and associated interventions for urban transformation, most of which have attained limited success as it is more a case of work-in-progress.

- i. JNNURM had great intentions and was first of its kind in the post-liberalization era to have drawn focus to urban development. Nevertheless, it turned out to be an occurrence of learning by doing for the Central government. Although the overall financial requirement for JNNURM for the period 2005–2012 was projected at around Rs. 3–4 lakh crore, only Rs. 66,000 crores were allotted for the period (Bhagat, 2014). Capacity building was a sizeable constraint while effectively implementing infrastructure projects; also, financial sustainability of cities as an objective remained only on paper (World Bank, 2013). The arrangements were streamlined wherein States were expected to plan reforms cohesively with the cities, but integrated urban planning had experienced limited success. Eventually it became a practice of merely fulfilling the technicalities of reform by heavily relying on funds from the Central government. JNNURM was not successful at accomplishing the objective of decentralization of powers and strengthening of ULBs in the pursuit of transforming the fundamental governance infrastructure (Nandi & Gamkhar, 2013). ULBs still lack funds to discharge their functions and continue to be dictated by State governments. The peri-urban areas remained outside the ambit of the Mission resulting in haphazard growth in the city suburbs (World Bank, 2013).
- ii. DAY-NULM has achieved significant progress with respect to the objectives identified for the Mission, as illustrated in Fig. 7. The targets achieved have been far more compared to those set at the beginning of the programme, wherein every State is reported to be involved in taking effective steps towards the upliftment of urban poor. Nevertheless, reports claim about assistance not reaching the targeted beneficiaries owing to lack of information dissemination and administrative deficiencies on the part of the government (Sharma, 2016) (see Fig. 7).
- iii. The evolution of SBM, although remarkable, is known to reflect mixed progress. The Mission when launched initially was welcomed for its fresh outlook and approach, as never before had such a programme been launched on a massive scale. However, the progress got slackened gradually. While the drive to clean the cities continues at a gradual pace, the headway in this direction is exhibited in Fig. 8. It is reported that government's fervent desire to

Table 2

Major centrally supported programmes and associated interventions by government of India for fulfilment of SDG 11.

Source: Authors' Compilation from [Ministry of Housing and Urban Affairs, Government of India \(2018a\)](#) and [NITI Aayog \(2016\)](#).

Major Centrally Supported Programmes and Associated Interventions (Flagship Programmes for Urban Transformation)	Targets (Toward SDG 11)
<p>Jawaharlal Nehru National Urban Renewal Mission (JNNURM):</p> <ol style="list-style-type: none"> India's largest urban programme which was introduced in December 2005 by the Government of India enveloping 65 cities for a defined period of 7 years, was further extended by another 2 years, from the standpoint of enabling the Centre, State and local governments to fulfil their responsibilities as prescribed in the 74th Constitution Amendment Act, 1992. The Mission comprised two sub-missions: Urban Infrastructure and Governance (UIG) and Basic Services to the Urban Poor (BSUP). Additionally, there were two more constituents launched simultaneously: Urban Infrastructure Development of Small & Medium Towns (UIDSSMT) and Integrated Housing and Slum Development Programme (IHSDP). The fundamental objectives of the Mission included provision of basic services, affordable housing, civic amenities and essential utilities to the urban poor. The Mission also endeavoured to bring about citizen engagement in urban governance through constitution of city technical advisory groups. ULBs were identified as the fundamental targets and strategic drivers for urban reformation and renewal as they are the nearest to the citizens and communities to deliver essential services, also in times of crises and emergencies. <p>Deendayal Antyodaya Yojana National Urban Livelihoods Mission (DAY-NULM):</p> <ol style="list-style-type: none"> The Mission was launched in September 2013 for the upliftment of the urban poor by initiating opportunities for their skill development from the standpoint of making them employable in the market; at the same time, enabling them to establish self-employment undertakings through provision of timely credit. The programme also aimed at providing accommodation to the urban destitute living on the streets and cater to the livelihood interests of urban street vendors. <p>Swachh Bharat Mission (SBM) (Urban):</p> <ol style="list-style-type: none"> SBM (Urban) was launched in October 2014 for urban sanitation as well as cleaning up the streets, pathways and infrastructures in cities and towns. <p>Heritage City Development and Augmentation (HRIDAY):</p> <ol style="list-style-type: none"> HRIDAY was launched in January 2015 with the objective of all-inclusive development of heritage cities in the country by invigorating and revivifying urban infrastructure such as basic civic amenities, improved roads, sanitation, transport, tourist accessibilities, etc. <p>Smart Cities Mission (SCM):</p> <ol style="list-style-type: none"> The SCM was introduced in June 2015 with the objective of upgrading 100 selected Indian cities; the selection of cities was undertaken in a phased manner. The cities were selected based upon a challenge/competition wherein each participating city had to submit a proposal. The cities with winning proposals were selected for comprehensive urban development that involved optimal land use, affordable housing, resilient townships, developing capacities to counter extreme weather conditions and disasters, smart roads, integrated multimodal transport, cycle tracks, walkaways, sanitation, clean air, litter free streets, waste management, effective governance, improved living conditions, etc. The Smart Cities Mission is executed through a Special Purpose Vehicle (SPV), a limited company constituted under the Companies Act, 2013. <p>Atal Mission for Rejuvenation and Urban Transformation (AMRUT):</p> <ol style="list-style-type: none"> AMRUT was introduced in June 2015 to provide every household with a tap for consistent water supply and a sewerage fixture; enhancing the amenities in cities by developing parks and open spaces; and lessen effluence by shifting to State transport or erecting facilities for non-motorized transport (e.g. strolling and cycling). The Mission aimed at covering 500 cities according to predefined criteria for selection such as size of population, geography and governance. <p>Pradhan Mantri Awas Yojana (Urban) (PMAY (U)):</p> <ol style="list-style-type: none"> {PMAY (U)} was launched in June 2015 (till 2022) with the objective of providing affordable housing to the urban poor through provision of funds to ULBs. 	<p>"By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" *</p> <p>"By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons" *</p> <p>"By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries" *</p> <p>"Strengthen efforts to protect and safeguard the world's cultural and natural heritage" *</p> <p>"By 2030, significantly reduce the number of deaths and the number of people affected and decrease by [x] per cent the economic losses relative to gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations" *</p> <p>"By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management" *</p> <p>"By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities" *</p> <p>"Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning" *</p> <p>"By 2020, increase by [x] percent the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, develop and implement, in line with the forthcoming Hyogo Framework, holistic disaster risk management at all levels" *</p> <p>"Support least developed countries, including through financial and technical assistance, in building sustainable & resilient buildings utilizing local materials" *</p>

* NITI Aayog, 2016.

demonstrate a brisk pace of toilet construction has deviated from the purpose of better health outcomes in a deliberate, strategic and sustainable manner. Toilets have been erected indiscriminately and at random, although not being used owing to a dearth of other supplementary amenities such as household water connections. The dismal failure in affording cleanliness compelled the World Bank to tag the execution of SBM "moderately unsatisfactory" ([Yadavar, 2017](#)).

- HRIDAY has identified 12 heritage cities and the development with regard to each one of these is illustrated in [Fig. 9](#).
- The SCM is a great leap forward towards urban development. It is affecting the lives of 99.5 million population with 5,500 town

planners acting on the program, and a total proposed investment of Rs. 2.03 lakh crore. As on March 31, 2018, 92 cities had formed Special Purpose Vehicles and 69 cities had appointed project management consultants to work on the project ([Seetharaman, 2018](#)). The Mission, although massive in size and scope, has come under intense scrutiny, and often questioned as being "branded"—embellished in advancing new possibilities for the prospective makeover of cities, or being "brain-dead"—merely a business idea of technology infusion replicated from western nations ([Aggarwal, 2019](#)). A major gap further identified is that despite being a significant initiative towards urban development, it has received lesser allocation of funds vis-à-vis proposed allocation, and has the lowest

Progress of DAY-NULM (as reported in July 2018)				
2.99 lakh SHGs were constituted	11.76 lakh individuals were trained	3.01 lakh persons received micro enterprise loans	1,625 shelters were sanctioned	2,212 street vendors survey was completed
2.09 lakh SHGs received revolving fund	3.86 lakh individuals were placed	4.09 lakh SHGs received bank loans	991 shelters were operationalized	

Fig. 7. Progress of DAY-NULM (as reported in July 2018).
Source: Ministry of Housing and Urban Affairs, Government of India, 2018b.

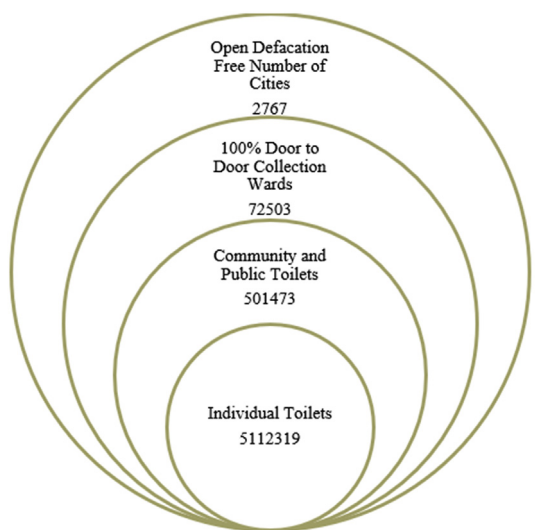


Fig. 8. Progress of Swachh Bharat Mission (as on April 17, 2019).
Source: Ministry of Housing and Urban Affairs, Government of India, 2018a.

rate of fund utilization compared to other urban schemes. The Mission utilized only 1.8% of the funds directed towards it, which is an exceptionally meager figure (Seetharaman, 2018). Nevertheless, the central government has defended its stance by claiming that national transformative projects entail time for effective execution, and the fund utilization estimate is not a true reflection of the success of the programme.

- vi. AMRUT was meant to replace JNNURM in its role and scope by fulfilling those objectives which its predecessor was unable to meet—importantly, empower the ULBs and enhance urban service delivery. However, the Mission has a long way to go with respect to devolution of powers to ULBs. Also, the apportionment and utilization of funds has been less than the intended allotment, which has decelerated the progress of the Mission.
- vii. {PMAY (U)} has attained significant progress as regards fulfilling the demand for urban housing, illustrated in Fig. 10. With an overall housing demand for 100 lakhs, 80.4% has been allotted, 19.6% is pending, while the figures of actual construction are hazy (see Fig. 10).

The progress of various centrally sponsored flagship programmes for urban development in India, may be further tracked from Table 3.

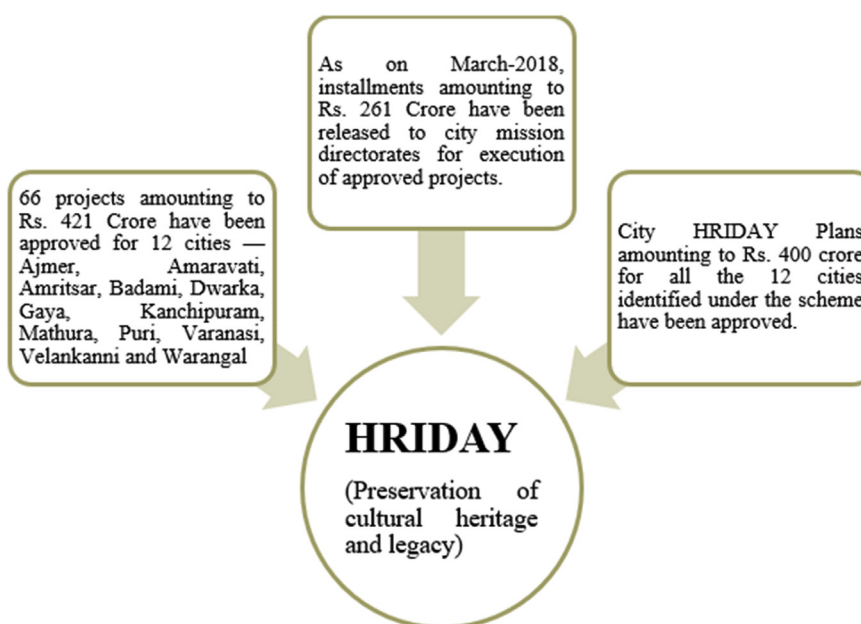


Fig. 9. Progress of HRIDAY (as reported in March 2018).
Source: HRIDAY, 2018.

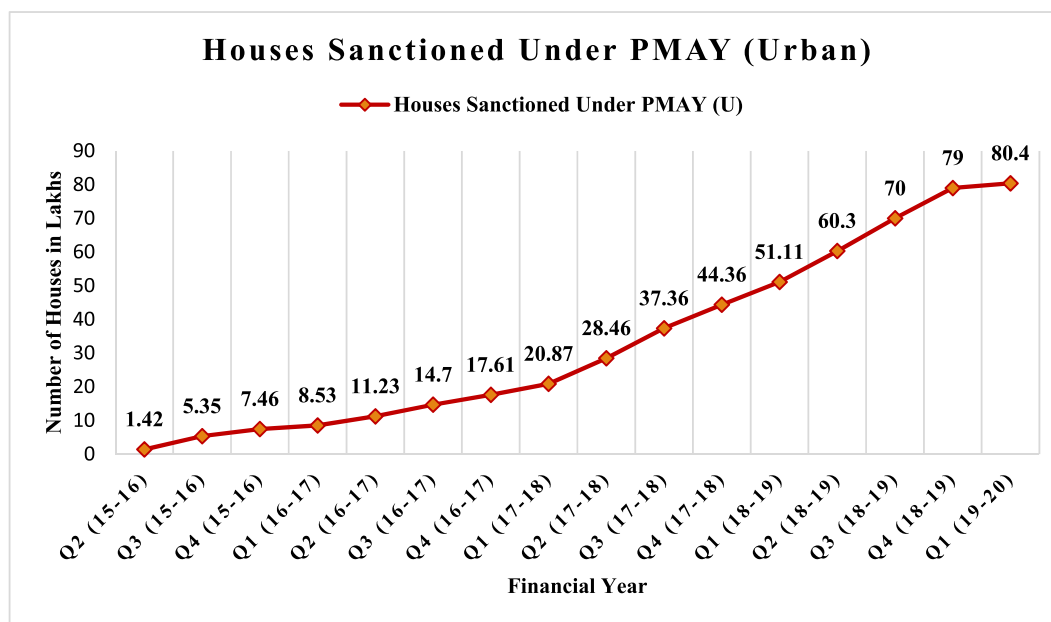


Fig. 10. Houses sanctioned under Pradhan Mantri Awas Yojana (Urban).

Source: Ministry of Housing and Urban Affairs, Government of India, 2018a.

The targets are ambitious while the achievements are slow in realization due to inadequate capacity to absorb infrastructure investments. This brings us to the point as to how we can pole-vault to the next stage of infrastructure development.

4.5. Action

In India, there have been numerous government initiatives undertaken for urban renewal and transformation, particularly after the 74th Constitutional Amendment. The nation is not short of measures for urban development, but the primary concern has been the execution of plans. The following actions are needed to improve the state of physical infrastructure from the standpoint of attaining the targets outlined in SDG 11:

- i. The defining criteria for 'urban' is rigid compared to global standards and should be reconsidered as the current one underestimates the actual rate of urbanization in the country. This will further ensure provision of essential amenities and basic services even to those towns which are not officially classified as 'urban' according to the prevailing narrow definition, but do possess urban-like features. It is imperative to erase the rural-urban segregation while providing physical infrastructure, and public policy should attend to the needs of rural areas and smaller urban areas principally on account of their feeble economic base, widespread poverty, and paucity of access to basic services.
- ii. To bring about an improvement in land use and provide affordable accommodation to all, there should be easing of FSI norms, particularly with respect to construction of high-rise buildings in urban cores. This should be accompanied by high standards of safety norms—keeping in mind some untoward disasters like fire and flooding—rendering the core as vulnerable, because changing the FSI norms will enhance the density in the core.
- iii. Cities and suburbs which are progressing at an enormous pace should be supported with infrastructure and basic services in a manner that sustains balanced growth. The asymmetric growth in prominent cities and suburbs have had awful ramifications such as excessive concentrations of people in large urban agglomerations; vast growth of slums; paucity of water and electricity; poor solid waste management; air pollution; etc.

- iv. Decentralization of powers, which is significant for ULBs to function towards urban growth and better urban governance, is imperative to reap sustained gains from the planned initiatives. ULBs should be conferred functional and financial autonomy to fulfil their obligations. This has not been fully realized by all the States, moderately achieved by few, and largely remains a Constitutional mandate, only on paper.
- v. The various centrally sponsored schemes have taken off ambitiously with well-defined targets to be accomplished in a definite period, but the enthusiasm needs to be sustained till the pre-mediated objectives are attained. Therefore, the allocation and utilization of funds, which has been deficient and has hitherto trimmed the progress of development plans, should be accomplished effectively. A national bank for urban renewal and transformation should be set up which can cater to the colossal needs of urban development, just like the National Bank for Agriculture and Rural Development (NABARD).
- vi. As regards public transport, the number of buses available for carrying general passengers should be increased to match the rising demand and reduce long commute times for people, an aspect which needs urgent consideration. After dealing with the supply-side bottlenecks and addressing the users' requirements with respect to quality of services, the next step should be making public transportation acquiescent to technological innovations.
- vii. Citizen engagement and participation in governance is crucial for urban transformation. Smart cities are those where citizens' activism—the presence of citizens' agencies and their cohesion—translate into desired outcomes. This would require planners/relevant municipal cadres at all levels to not only plan the services, but also deliver urban infrastructure services in a dedicated fashion. The formation of Ward Committees should be based on two of the most important principles of co-operation—open and voluntary membership as well as democratic member control—which will ensure greater community participation for social change.

4.6. Performance

The performance of centrally sponsored schemes for urban development has been slow and sluggish. Therefore, it is important to realize that Indian cities do not require a plethora of programmes initiated by

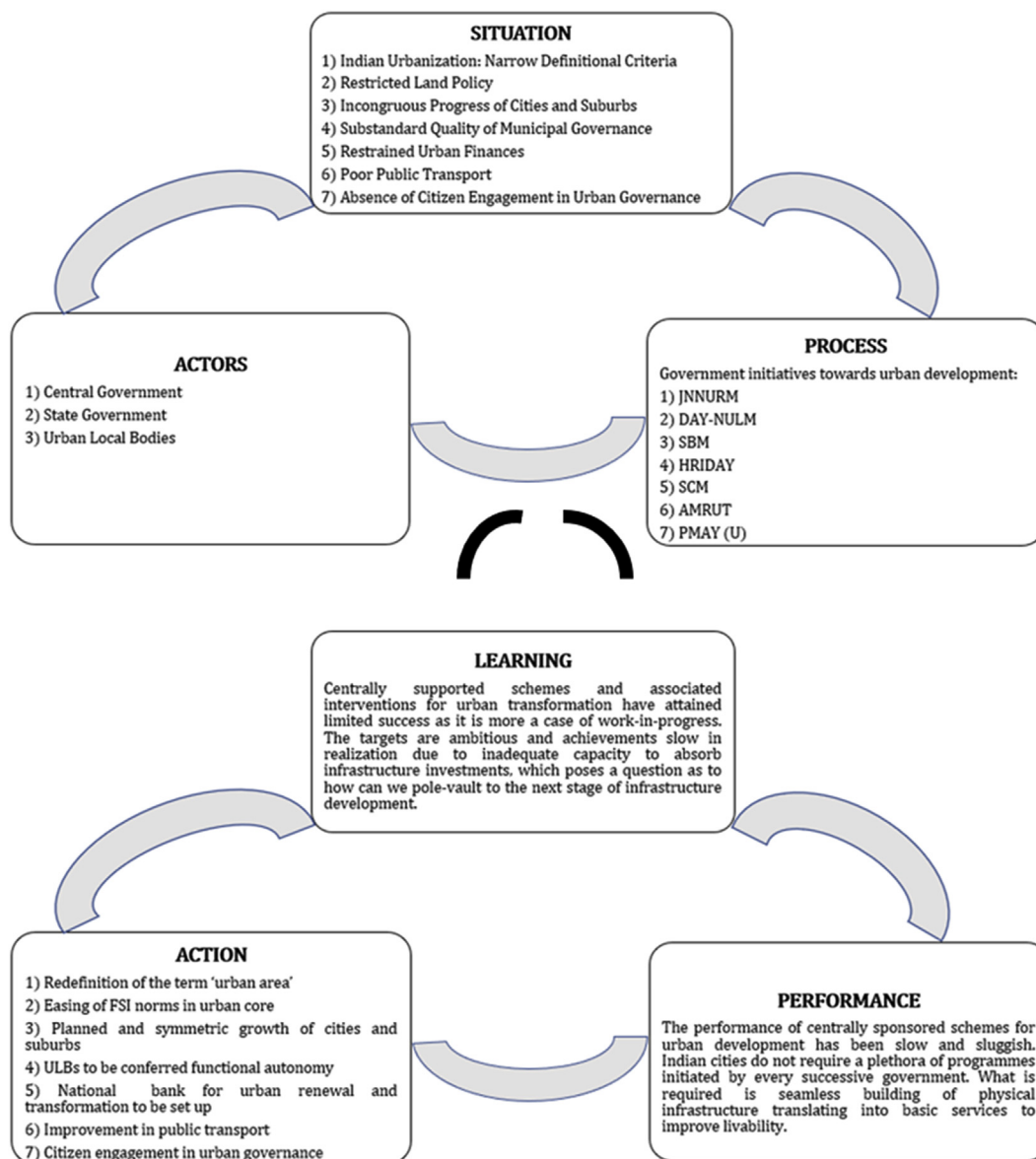


Fig. 11. SAP-LAP paradigm of India's urban policy framework. Source: Authors

Table 3
Allocation and utilization of funds by urban development programmes in India (in Rs. Crores).
Source: 22nd Report of Standing Committee on Urban Development (2017–2018) (as cited in Sanghera, 2018)

Funds Allocated, Released & Utilized by Urban Development Programmes				
Scheme	Funds Allocated	Funds Released	Funds Utilized	FR vs FU %
AMRUT	12447.19	8629.36	2480.43	28.74
HRIDAY	700.00	247.15	33.59	13.59
Smart Cities	10084.2	9943.22	182.62	1.83
Swachh Bharat	7690.52	5847.92	2223.22	38.01
National Urban Livelihood	2600.83	1514.85	850.34	56.13
Pradhan Mantri Awas Yojana	15025.9	10011.89	2080.52	20.78
Total	48548.64	36194.39	7850.72	21.6

every successive government. What is required is seamless building of physical infrastructure translating into basic services to improve livability. In order for cities to become agents of growth and the benefits of agglomeration economies be realized by the nation in due course, the 'actors' need to exercise their freedom of choice in the larger interests of the public through innovative interventions by taking cues from globally best practices. Names and distinct titles (of different programmes) do not matter; ideas, intentions and relentless pursuit make a difference.

5. Conclusion

The SAP-LAP analysis of India's urban physical infrastructure clearly suggests that the 'situation' is not up to scratch, the actors need to be more proactive and bite the bullet, the 'process' for bringing about a change is slow, which will only delay in realizing the targets of SDG 11. The 'learning' about the institutional adequacies and structural weaknesses should lead to right 'action' for improved 'performance' with respect to improving the livability of citizens.

India, being the second most populous country in the world after

China, is witnessing the challenges of urban sprawl paralleled with lack of physical infrastructure, which constitutes an important phase in the urbanization of any large country. Although 1 out of every 10 global citizens is an Indian, India's urbanization exhibits the unique features—messy and hidden—which understates the actual growth rate of population in the country. This may be attributed to a narrow definition of 'urban,' which has remained unchanged and inflexible for years together, and eliminates urban-like towns and conurbations from the purview of urbanization. The Census of India employs a benchmark of number of inhabitants, density and employment, and pegs India at 31% urban. Consequently, there is misappropriation of resources and much of the federal finances are directed towards rural development. As India is heading towards its next Census in 2021, this issue is likely to act as a deterring factor in the accurate estimation of urban population. A restricted definition further gives an obscure and fuzzy picture of the actual need for investment towards urban physical infrastructure. It is imperative to reconsider the definition of 'urban' and enable satellite data discover the proliferation of urban growth from the standpoint of extending the city boundaries, whenever feasible and required.

Restricted land policy has resulted in exorbitantly high land prices, which has made living in cities prohibitive for a vast majority of the population. Relaxed FSI norms could slacken land prices, allow vertical growth of cities and capsize the trend of people moving out of cities in search of accommodation. Nevertheless, a general overarching countrywide proposal may not serve the purpose. Each city should identify the extent of growth it can support and develop local capacities likewise. Similarly, one of the numerous sustainable urban development strategies to inhibit the influence of urban sprawl is considering the development of 'Compact City' that allows high density, mixed land use, and clearly demarcated non-sprawling boundaries. This will ensure symmetric growth and deter skewed population spread, congested cities, proliferation of shantytowns, costly housing, excessive pressure on land, thus improving livability.

It has been observed that the investment absorption capacity of Indian cities is feeble as the funds earmarked for development projects are seldom utilized fully due to their limited functionalities. Only when the gap between planned investment and actual investment is narrowed through proper deployment of resources, the development projects will have the anticipated outreach for larger benefit of the targeted population. The Central Finance Commission is required to consider the endowment of grants-in-aid and able human resources to the local bodies, which has been relegated till date. Similarly, performance grant system to enhance the quality of service delivery will ensure greater accountability and responsibility on the part of ULBs.

As cities begin to recognize their investment requirements, sustainable transport systems ought to mobilize financing under the Public Private Partnership (PPP) model. Government should also promote green financing by considering it as a priority sector initiative by bringing about necessary regulatory amendments.

Citizen participation in local governance should be encouraged through development of appropriate tools (such as websites, social media platforms, dedicated apps, etc.) to solicit resident feedback/response and recommendations on various programmes. The residents should be notified how their inputs were meaningfully incorporated in policy making. Such cohesion and rapport among citizens and policy makers can help in realizing the objectives of collective growth. To allow local governance and resolutions, resident voices and opinions ought to be the ones which formulate problems and encourage dialogue.

Cities cannot be transformed overnight, nor can a meteoric improvement be brought about in the livability of citizens. Indian Government's efforts on paper seem laudable in view of a vast array of interventions, particularly in the post-liberalization era. However, the drawing of plans for urban transformation has not been equally matched with effective implementation. Any initiative begins with first-rate enthusiasm that does not sustain for long. The rapidity with which the

new programmes are launched, promoted, touted and acclaimed is not matched by sustained efforts to take them to the finish line. There is acute misalignment between what is perceived about a certain programme and what its actual merit eventually is. What begins with zeal and enthusiasm gradually takes the form of indifference and apathy; it ultimately shapes out as poorly managed initiative due to low capacity to deliver ready infrastructure, poor capacities of functionaries, constraints on resources, multiple points of clearances, etc. As discussed earlier, Indian cities do not require a surfeit of programmes initiated by every succeeding government. Indian cities essentially require cognizance to residents' needs and timely action to meet those needs, building of physical infrastructure translating into basic services to improve livability.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.habitatint.2019.102002>.

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