European Economic Letters
ISSN 2323-5233
Vol 14, Issue 4 (2024)
http://eelet.org.uk

Shouldn't Housing Services and Environment Improvement Be Fulfilled for Smart Living in Urban India: Need for Expansion of Smart Cities Mission

M. Mahadeva
Formerly Professor and Research Dean
IFIM, Electronic City, Bangalore
Email: madaiahm1657@gmail.com

Abstract: Development of selected urban services (like safe drinking water, sanitation, electricity and others) to cover the entire urban population and achieving conducive urban environment, this paper has analysed these necessities as orderly human settlement, good health and decent urban living. It is argued fulfilment of the urban services to the fullest extent ensures deprivation-free situation, slum-free cities and effective solid waste management would bring in higher urban living standard, coupled with protection of urban water bodies brings about sustainable urban living. These critical elements are the necessary conditions for promotion of smart living and for development of smart cities. Incidentally, public policy making and strategic intervention of the governments in recent years have been the rays of hope to achieve these goals in the years to come. The success achieved notwithstanding, one-fifth of the urban families have been facing deprivation of basic services, which is a black hole in the development history. Given the widespread incidence and magnitude of the slums, achieving slum free urban India is a distant dream, although the desired change is foreseeing with concerted and sustainable efforts. Similarly, the collection of the solid waste and total coverage of the urban households would make the urban environment clean. This paper besides accounting these issues, has highlighted the need to achieve total coverage of urban families with all the services and good living environment through sustainable methods to make entire urban India smart segments.

Key Words: Environment, Slums, Services, Solid Waste, Smart Cities, Deprivations, Imperatives.

Introduction: Good urban living environment necessarily encompasses a good connectivity to all major urban basic services to urban households, as part of the lifeline as well to achieve conducive environment. Equally important is perspective planning to cope with the prospective urbanisation. If these two critical needs are not met, the development gaps would results in the deprivations in short run and their poverty in the long run. In other words, total coverage of the urban population/families with all basic services and better urban environment are the necessary criterion to ensure smart urban living. Development of the adequate urban services to all urban population/families is as important as urbanisation itself. If it does not progress correspondingly, such urban growth amount to mal-development, and development failure. Urban services chiefly encompasses safe drinking water, electricity for lighting, sanitation (Toilets) for decent defecation, households bathroom for decent showering particularly for women and drainage connectivity to avoid water logging around the living places. Ensuring these facilities not only influences hygienic environment but also promotes good living condition. Drinking water as a basic necessity is a lifeline of all lives, which is supplied through various methods. Electricity is an economic good produced by mainly government has been an indicator of modern way of life and is a production agent of economic goods and services at household level. Household sanitation to cater to human needs, particularly women, children and elders round the clock, is a critical utility in urban living environment. Further, irrespective of agency that promotes development of housing environment, ensuring a decent level of urban services is unescapable in the dwelling environment. If this critical requirement is not accomplished, not only it demeans urban living but amounts to deficient or ill-housing, which would have negative impact. Unlike the rural practices, which paves for development of housing amenities on compartmentalised basis (at different points of time and according to one's own convenience due to costs factor generally) urban development of housing services should take place simultaneously with the construction of houses, irrespective of the costs considerations, administrative formalities, inconvenience etc.

The related literature strongly supports this argument that housing amenities (safe drinking water, sanitation and other services) showed a positive relationship with health and overall welfare improvement, and adverse impact if these services are not provided safely and adequately. It further recognizes that drinking water and sanitation are obviously

central to good housing, living condition and health, besides central to prosperous economies (UNCHS 1996; Dieterich and Henderson 1963). Access to water supply and sanitation is a fundamental need and a human right, apart from being vital for dignity and health of all people and poor water supply and sanitation would lead to health hazards like diarrhoea, intestinal infections, blindness and Schistosomiasis (WHO & UNICEF 2000). The progress achieved notwithstanding, especially after "The International Drinking Water and Sanitation Decade 1981-1991", short coverage of urban people is India's reality, as the water supply and sanitation sectors are financially unviable, insufficient and low quality (World Bank 1999). Further, inadequate water services, low quality services and constraints have been the commonest attributes of the public water system in major and other urban areas (Zerab 2006). Urban water supply to all, including the poor is continuing to face difficulties like inadequate public funding, high cost supply, pilferages, jurisdictional conflicts, improper mechanism to recover water user charges and others. Similarly, households' sanitation is continuing to be a distant dream of the squatter settlements, on account of ill-financing and poor solid waste collection (Planning Commission, 2008).

Despite these considerations, urbanisation ever since commenced in India has not paid adequately to the development of urban services commensurate with the urban growth. There has always been a deficit in the provision, as perspective planning (development of urban services according to prospective growth) has been altogether missing in the development administration. Not because of lack of interest but for want of the huge financial resources. Addition to the deficiency, there has also been a growing menace of filth and degraded environment in and around urban areas, especially in the metropolitan and mega cities. Straightforwardly, there has been a world of slums within the urban setting, which are not only located in core business districts but also in urban peripheries. Influx of migrant workforces for better prospects has undoubtedly created slums, as safer settlements with affordable housing facilities and services. The increasing employment opportunities, guaranteed income, better services and what not in the urban informal sector have largely been responsible for the growth of urban slums. Equally responsible has been the political patronages in the growth of the filth environment in urban areas.

It must not be misconstrued that urban development administration has neither developed the urban services nor promoted clean environment. But, the question is whether coverage of entire population? Straightforwardly, the answer is no for three contributory reasons that needs highlighting. First, presence of substantial share of sub-standard and life-threatening housing stocks, although dwindling inadequately. These stock have been the major setback for connectivity of service like electricity. Also, inadequate housing space is a major concern for household sanitation, especially the poorer segment in slums and similar environments. Secondly, consumption of untreated drinking water by a good chunk of the population, open defecation by toilet less households, depending on unauthorised energy connections, filth environment etc., have been the serious concerns of development deficits, despite series of public interventions in low lying areas and slums. Third, in spite of determined guidelines for the states to enact legislations for eradication for in-situ improvement of slums, the incidence of informal settlements unabated. Lack of economic prospects and attractions in the non-OMPCs workforce centric informal settlements are cause of concern. Fourthly, the attempt to achieve slum - free environment and mainstreaming slums/slum dwellers into rest of the urban life has been in doll drum due to inadequate public financing and lack of political will. Thus achieving parity based amenities, arresting shortage of serviced urban land and housing the poor have been daunting the urban administration.

With the above backdrop, the paper has three very discrete objectives: (a) to assess the present scale of development in the provision of basic services like safe drinking water, sanitation, electricity, bathrooms and drainage connectivity with families; (b) to highlight the urban environmental challenges, particularly the incidence slums and solid waste administration; (c) to capture the features and process of SCM in response to the urban development challenges; (d) to ponder over the development gaps in access to the services; and (e) to discuss and offer the new set of policy implications for the entire urban segment, as a critical requirement of smart living. This paper has used the latest official data base to analyse the objectives presented by the Census of India (2011) and NSSO (2010) (65th Round), owing to their compatibility with the objectives. However, these sources have no presented any other data thereafter on these issues.

Access to Housing Services

Housing Services: The success in housing services development lies in the nature of the housing stock - if the housing stock is standard, obviously access to the urban services is very high and vice-versa. One of the striking features is safe drinking water, sanitation (Toilet), drainage and electricity facilities are being ensured simultaneously with house

construction in urban areas. This integrated approach is cost-effective, ensures all the facilities together and facilitates attainment of a decent and orderly urban living. It is widely followed across house builders, including the social housing schemes with occupants' contribution. It is high time to note that the entire urban households have been supplied with drinking water, although around 22 per cent depend upon unsafe sources. Safe source (taps, hand pump and tube wells) has been covering drinking water needs of over 78 per cent (Table 1). But a conspicuous difference is the success in the slums. If rest of the urban areas have covered over 91 percent of the households with safe drinking water, the slums have covered only 65 percent, which is far less than the overall average. Apart from taps and hand pumps increasingly played a critical role in supplying drinking water, digging household tube-wells to extract ground water to meet household needs has come to be a practice widely. This trend and tendency have been on account of inordinate delay in public water connectivity to new settlements. Especially, in urban fringe and peripheries, on account of either absence or limited public intervention, tube wells have been increasingly catering drinking water needs. So is the case in urban sanitation, in which conspicuous changes can be noticed. Against a dismal situation in the eighties and nineties, sanitation facility has been developed subsequently, although total coverage is yet a reality. With 81 percent coverage of households with different modes of sanitation, the development gap against slums is very marginal. Water-closet mode has come to be seen as most preferred over the household pits and other modes, which have been in practice and gradually losing their significance.

It is obvious to observe that household dependence on conventional energy (electricity) is in the order of about 93 per cent in urban areas than the others. Simultaneously, Kerosene and other oils have co-existed as source of energy by a small number of urban households, as they cannot afford economic costs of either electricity or solar energy. Interestingly, energy parity is by and large achieved in urban areas and in slums, although unauthorised electricity connections cannot be ruled out, out rightly. The provision of bathroom within the housing unit is essential for the reasons explained already and is highly true that the facility is an integral part of all residential construction. Urban areas and slums have developed this facility to the extent of 88 per cent and 81 per cent respectively. Similarly, households' connectivity to drainages is important from the view point of clean environment around the settlements and the development experience is equally impressive in the urban areas. Of the two drainages system-open and closed, the urban development administration generally resorts to open drainage system first in the new layouts and subsequently close it with time interval, once the settlement is full. The table clearly indicate that households connected to closed drainage have an edge over at 44 per cent, over the open drainage at 37 per cent.

Degraded Environment: Clean environment in the present context refers to (a) orderly developed settlements with acceptable but affordable housing structure and planned provision for all services to the households free from all forms of filth and (b) management of solid wastes generated from the households, which is an essential service of the municipal authorities to keep urban centres clean. Disappointingly, not all the urban areas of the country fulfil these norms, owing to unplanned and even unauthorised settlements, along with life - threatened and unserviceable housing structures. The environment being dirt all around the settlements, most of the basic services are unauthorisedly obtained by a good number of households. These arguments coincides with prevailing environment in slums, if one acquaints with the various definitions defined differently, according to their contextual understanding. The official definition given by the NSSO is that slums are such parts of the city which may be unfit for human habitation either because the structures therein are old, dilapidated, grossly congested and out of repairs or because it is impossible to preserve sanitation for want of sanitary facilities including ventilation, drainage, water supply etc, or because the sites by themselves are unhealthy (Singh 1978). Further, redefined that a slum is a compact settlement with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions (NSSO 2003). The Draft National Slum Policy - 2003 (DNSP) defines slum is a compact area with 300 population or about 60-70 households, poorly built congested tenements, unhygienic environment, inadequate infrastructure lacking proper sanitary and drinking water facilities (GOI-2003). Slums have been both notified and non-notified by local bodies and development authorities for administration purposes. Solid waste generation by the households is universal phenomena, irrespective of size of the population and presence of local administrative institutions or municipalities (Asnani 2006, Sharholy et al 2008). The quantum of waste surges as the population increases in urban areas and very poorly collected, segregated and managed by the municipalities due to apathy and absence of community participation. Above all, there has been a poor coverage of settlements, slums and new settlements, wherein insanitary living conditions are very common. With these emergent urban challenges, the environment cannot qualify to be orderly and smart way of living, as filth environment and slums shall not co-exists.

The official data source brought to fore that the incidence of the slums is widespread across urban India, barring a small exception (Census of India 2011). Of the 35 regions, 31 of them have registered presence of slums of course with higher incidence in 7 and lower in 24. Only four regions have declared without slums (Table 2). There are 2822 slum reporting towns, which works out to over 35 per cent in the total 8027 towns and over 35 million households dwell in the slums or roughly 21 per cent. A striking feature of the classification (higher incidence) registered an average number of 130 slum reporting towns with 4.26 million households with one-fourth (24.85 per cent) of them in the slums. Further, this category of regions accounted to major portion of the incidence of slums and success towards slum-free India also largely lies with it. The lower incidence category recorded an average number of 80 slum reporting towns with 0.22 million households (11 per cent). It is also revealed that about an average 21 per cent of the urban India dwells in slums with settlement challenges.

There are two views on the prevalence of slums in urban India. One school presents that slums prevails only in mega and metropolitan cities or state capitals. The other is that the problem of slums is widespread across entire urban India, barring a few regions, irrespective of the size of the cities. But one very common perspective is that there exist slums with their own population - with most of them deprived of the comfort livings. According to the NSSO, urban India registered a total number of 48,994 slums, of which 24,781 (50.58 per cent) are notified and the remaining 24,213 (49.42 per cent) are non-notified, mostly distributed across the ten major states (Table 3). The total population of the slums is in the order of 36.12 million, which is 16.59 percent of the total urban population. Three states have registered larger number of slum dwellers above 17 per cent average. Maharashtra recorded 11.20 million population (27.25 per cent), followed by 5.19 million (24.93 per cent) in Andhra Pradesh, and 4.12 million (18.35 per cent). West Bengal and Delhi have marginally lower than the average while all the other states have registered below the average. Further, it may not be astonishing that the 23 One Million plus Cities (OMpCs) of the selected major states have been the centres of the slums because of their economic prospects and affluent situations. The OMpCs alone have housed 16.48 million, which is around 46 per cent of the total slum population. Maharashtra is the topper in housing 7 OMpCs with 8.30 million slum population, which is over 74 per cent of the total slum dwellers. It accounts to more than fifty' per cent of the slum population of the OMpCs. It is followed by Uttar Pradesh (5 OMpCs), Gujarat (3), West Bengal & Madhya Pradesh (2 each). Correspondingly, these OMpCs have registered 29.09, 62.56, 39.07, 39.07 and 16.11 per cent slum dwellers. Among the remaining OMpCs, Delhi registered highest number of 91.13 per cent of slum population, trailed by Karnataka (30.71per cent), Tamil Nadu (28.57 per cent) and Andhra Pradesh (12.13 per cent).

Solid Waste Administration: The second very important concern that has defaced urban India is the incidence and collection practices of solid waste. It is estimated that over 10,844 metric tons per day waste quantity is being generated in the state capitals and in one million plus cities, at the rate of 0.35 kg per capita per day. Bangalore and Ahmadabad capital cities have been in the top positions among the state capitals respectively generated at 1669 and 1302 metric tons per day and 0.39 and 0.37 kg per capita per day waste (Asnani, P 160). Similarly, 23 major states of the Indian Union with 299 cities have generated a total municipal solid waste (MSW) of 48,134 tons per day, at 38 kg per capita per day (Sharholy et al, p460). Maharashtra State has topped the list with highest MSW at 8589 t/day or 17.84 per cent in the total, followed by Uttar Pradesh (5515 or 11.46), Tamil Nadu (5021 or 10.43), West Bengal (4475 or 9.30), Delhi (4000 or 8.31), Andhra Pradesh (3943 or 8.19), Gujarat (3805 or 7.91), Karnataka (3118 or 6.48), Madhya Pradesh (2286 or 4.75), Rajasthan (1768 or 3.67), Bihar (1479 or 3.07), Kerala (1220 or 2.53) and Punjab (1001 or 2.08). If these thirteen states have together accounted for a total MSW of 46,220 tons per day or 96.02 per cent of the total in the country, the other 10 states have accounted only for 1914 ton per day or 3.98 per cent of the total incidence.

Undoubtedly municipalities have been shouldering the responsibility of collection, and management of the solid waste. In this regard, municipalities have offered two disappointing realities in the sense that not all the urban households irrespective of their type and location have been covered and the solid waste generated by them is collected. The solid waste collection arrangement data clearly show that only 63 per cent of the urban households have been covered for the collection. Unfortunately, the remaining households (roughly 37 per cent) have been deprived from the collection arrangement (Table 4). The other reality has been that municipalities covered only 48 per cent of the solid waste, followed by residents (13 per cent) and others (2 per cent). Further, the incidence of uncovered households is very large among the unserviceable kutcha houses, which are largely found in urban slums and similar environment. The municipal inefficiency in the collection of solid waste management has been countered by a number of alternative methods like (a) door to door

collection (waste pickers, PPP in small towns and full privatisation) (b) recycling, processing and scientific disposal (waste pickers and municipalities) and (c) awareness generation and campaigns (school children and households) (NIUA 2015). But, these alternatives have offered a very limited outcomes, as they neither governed nor supervised with remunerative attractions.

Smart Cities Mission (SCM) is a public commitment for provision of urban services and environment improvement. The mission contemplated "to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology that leads to smart outcomes". By design SCM is a cooperative participatory intervention of the central and state governments and to implement in selected one hundred cities/urban areas of the country (See Appendix). It has two pronged approaches: (a) Area-based Development to Transform (ADT) existing areas (retrofit and redevelop, including slums) into better planned ones for improving liveability of the whole city; and (b) Development of Greenfield around Cities (DGC) in order to accommodate the expanding population in urban areas. Smart solutions to use technology, information and data to improve infrastructure and services is contemplated strongly. The mission has number of typical features for development of smart cities: (a) land use planning for unplanned areas; (b) Housing opportunities for all; (c) Road network for vehicles, pedestrians, cyclists; (d) Greenfields - parks, playgrounds, recreational spaces; (e) promoting transport options – public - last mile connectivity, citizen - friendly governance - cost effective, online, web site based, e-groups; (f) smart solutions to infrastructure and services" (Govt. of India, 2015-Website).The mission has identified four strategic interventions - Retrofitting, City Renewal, Greenfield and Pan-City under area based development in the smart cities. Retrofitting refers to modification of city improvement with changes in cities over 500 acres, City renewal refers to redevelopment of existing built environment and new layout with enhanced infrastructure in more than 50 acres identified by urban local bodies, Greenfield to develop vacant area of more than 250 acres within the limit of urban local body (ULB) or within the limit of urban development authority (UDA) and Pan - City envisages application of smart solutions by using technology, information and data to make infrastructure and services. There are ten principal elements of infrastructure development emphasised in the smart city project: (1) adequate water supply (2) assured electricity supply (3) sanitation including solid waste management (4) efficient urban mobility and public transport (5) affordable housing for the poor (6) IT connectivity and digitisation (7) good e-governance and citizen participation (8) safety and security of citizens (women, children and elderly) and (9) health and education. The SCM although a limited initiative as compared to veracity of urban challenges but has covered the major cities across the country based on the regional/states participation. Though only 99 cities have been chosen for the implementation, all the regions including the UTs have been given due representation base on the need and preference.

Concluding Observations: At the outset, this paper also brought to the fore three major achievements of urban development administration. First, noticeable performance in creating access to three services like sanitation, provision of bathroom and connectivity to drainage systems. These services have covered around 80 per cent of the urban families and left behind the remaining 20 per cent uncovered. The performance in the case of electricity is much better and kept the deprivation level at less than 10 per cent. However, in the case of the drinking water supply covering entire population is laudable but for leaving over 22 per cent to unsafe sources, which is a serious concern from the view point of the health implications. Secondly, except for a very marginal difference in development performance of the services, the achievement between the slums and non-slums areas is very impressive in the sense that the development gap is narrowed. This only means that the development administration has not differentiated in the levels of interventions. It is especially true in the case of electricity, drainage connectivity and in the provision of sanitation. However, slums have become the target of casual attitude on the part of the administration in the provision of water, as the incidence of unsafe water consumption is exorbitantly high, which is unscrupulous. Thirdly, if the finding of the NSSO in regard to dwindling slums (2694 or 5.25 per cent of the total) is reliable and acceptable, then the mission of inclusive urbanization of the national slum policy and achieving slum-free cities of the RAY by subsuming all the slums have made a beginning. In other words, those slums that have subsumed with the rest of the urban areas would have achieved parity in the services/better environment and would have lost their identity. But, it must be accepted with a caveat that the dwindled numbers, the pace or speed of the same is always at question, given the nature, supply-demand factors, magnitude etc. Undoubtedly, the subsuming process (or the backlog) of slums is a very long way to go with mission mode approach and focussed intervention on the part of the administration and community and peoples' participation.

Unequivocally, it is indeed necessary to throw light on the major issues encountering the urban development administration. Effective administration of these issues assumes unquestionable significance from the perspectives of services parity, total coverage, eradication of the deprivation/poverty, creating conducive urban environment and what not. At the same time, achieving better/smart living urban environment would be ridiculing with the presence of these issues. Therefore, the paper highlights the challenges emanated from the analysis. The foremost gap is the unsafe drinking water being consumed by a good chunk of urban families, which is fetched from open wells, tanks, ponds, rivers, springs and others that have open access to spoil and for pollution. This source is being chosen out of necessity and in the absence of piped but treated water. The incidence of unsafe water consumption in is around 22 per cent but incredibly highest in the slums to the extent of 35 per cent of the families, as against around 9 per cent in the non-slum areas. It is imperative that the public efforts of drinking water supply without caring for its safety of human consumption. Further, it is indeed necessary to protect urban water bodies given their uncelebrated importance and dwindling numbers conspicuously. Also, urban water bodies have been facing a number of threats on account of growing urbanisation, lack of monitoring and communities participation in their protection. Specifically, pollution, encroachment, eutrophication, illegal mining, unplanned tourism and cultural misuse have been the noted threats (CSE 2015). Secondly, the incidence of sanitation development deficiency is universal, irrespective of slums and non-slum, which is in the order of 20 per cent. The people have compensated with two methods - open drain and open defecation for want of good sanitation. These have dissented and discredited the urbanisation as well as the urban life. Unfortunately, open defecation is very frequent and widespread, especially around the water bodies, which is uncivilised practice with far-reaching implications. Invariably, urban slums have exhibited the incidence of open defecation rather severely than the rest that have been equally facing the brunt.

Thirdly, provision of bathrooms (showering place) and connectivity to drainage system are integral to good housing and living environment. These two facilities are as important as kitchen, bed rooms and living space in dwelling houses. Because, these facilities ensure domestic usage round the clock and avoids water logging besides circumvents epidemic diseases. But, their deprivation is also a reality in urban areas, as over 15 and 19 per cent of the housing environment never provided for bathrooms and drainage connectivity respectively. In other words, these many families either sought these facilities outside their houses or would have contributed to the development of filth environment. Fourthly, despite the fact increasing access to use of electricity as a source of lighting, there have been families in urban areas without electricity at all due to economic considerations. They have compensated using low priced goods like kerosene, oils etc. for lighting. The incidence is less than 10 per cent and this deprivation prevails in both slums and in non-slum areas. Lastly, the NSSO has claimed that between two its surveys (2002 and 2009) not a single slum has cropped up but there has been dwindling numbers of slums. This finding is countered on grounds of increasing migration of labour class to urban areas. It is argued that the dwindling took place across 2,694 slums for the first time than ever before and consequently, the number of slums have reduced to 48,994 in 2009 from 51,688 in 2002. If right, it is obvious that 2,694 slums have been either subsumed with the rest or converged with urban life, after attaining the prescribed norms of the services and environment. This apart, it can be said that urban areas have begun to achieve inclusive urbanization, as contemplated by the development strategy. Interestingly claimed that the dwindling a reality in the notified slums (1,385 or 51.41 per cent) and un-notified (1,309 or 48.59 per cent). This only indicates that the slum improvement interventions have focused both the types almost equally without discrimination. The notified slums, which were 26,166 have dropped to 24,781 and similarly, un-notified slums from 25,522 to 24,213 during the period. Equal concern is the huge backlog in slums development. Officially, there are 48,994 (both notified- 24781 and un-notified- 24213) slums still that needs overall development to subsume themselves and to become integral part of the urban life. The pre-condition is to achieve parity in services (drinking water supply in LPCD, all - weather roads, drainage connectivity, water logging, and proper collection of solid wastes) against the rest. Certainly, until the parity is achieved, achieving smart urban life will be in question.

Lastly, SCM is undoubtedly a unique intervention of the Government of India to bring about a quality life in selected urban areas for now, if not all for now. Going by the coverage, SCM covers only 99 major cities and a good number of state capitals working out to 22 per cent of the total Class 1 cities with a population of 1 lakh and above. The cities selected are the Special Purpose Vehicle (SPV). Interestingly and appropriately, the first three of the ten principle elements of the SCM will directly affect the issues pertaining to water supply, assured electricity, sanitation, and solid waste. The mission has a total allocation of Rs. 48,000 crores of which Rs. 46,787 crores have been spent till September 2024 and 7202 out of 8018 have been completed in the selected cities. The mission has been extended till March 2025 to complete the remaining works and to declare the cities as smart cities. The mission has been facing issues like overlapping

of powers, diluting the power of local government, and poor governance and has encountered the biggest challenge of technological integration with infrastructure.

The Policy Imperatives: The paper has illustrated the levels of selected urban services developed for the benefit of urban families, reflected upon the degraded environment and mounting solid wastes. If the first one is deficiency of services in the coverage of the total population, the second one indicates degraded walks of life mounted over the years as an integral part of the urbanisation process. The third one is failure of the municipalities. Similarly, if urban poor families are suffering deficiency in the services, government and the urban development administration needs to be proactive to ensure these services on priority basis to qualify towards orderly urban life. The deficiencies and filth environment cannot qualify to be the smart cities with these major issues on hand. Urban India has to meet number of conditions to transform itself to bring about smart life. Also to have perspective planning for each urban area in place for forecasting the urban expansion in terms of the geography, demography and to assess the demand for various services. Following are the policy imperatives of the paper.

First, provision of safe drinking water, as a basic necessity shall be the responsibility of the state authority. State to fulfil this requirement has to ensure that all the families need to be connected with the treated water sources either with development of new water sources or by extending the existing sources to all the urban settlements developed by public authorities. The necessary financial burden should be shared between the public authority and the users. It is also unjustified to drop certain settlements from the ambit of safe water supply zone by the public authority and throw them into their own risks. Also, inordinate delay in the provision of safe water can be arrested by rectifying the pilferages, unauthorised and un-priced consumptions. Alternatively, the urban families depending on the unsafe water sources for drinking should be financially supported (one time grant or subsidy or both) to adopt the necessary technology to get the water treated to make it fit for consumption. Additionally, the state should ensure that families living in urban areas should harvest the rain water compulsorily to facilitate recharging of ground water by meeting the financial assistance for the urban poor.

Second, the present practice of open defecation by the toilets deprived families in urban areas should be eradicated completely, as is indecent and against orderly living. A special drive with financial grants and subsidies by the governments to put up household toilets for the urban poor families is a need of the hour to achieve the total coverage. In addition, the state and local authorities have to establish community latrines for floating population under their supervision and management in public places. The corporate bodies needs to handhold for the cause under corporate social responsibility scheme. There is all the more need and necessities to popularise the use and benefits of solar energy as source of lighting to the deprived families, as the progress achieved in this regard is far from satisfaction. The government needs to work on meeting initial capital expenditure for solar energy of those who cannot afford this facility by themselves. Increasing supply of good houses with bathroom facility by the government under social housing schemes is the only solution by the poor families. For this purposes, the unit cost of the housing and the services charges needs to be enhanced, especially under the social housing schemes.

Third, if urban life of all should be conducive with favourable living environment, the present public efforts for eradication of slums must be stepped up by many folds. The slow pace is due to precarious conditions and abundant problems for several decades and just a little over one decade for slums eradication all at once is unjustifiable. Therefore, sustainable approach at voluminous scale of interventions to provide basic services up to the total coverage of the slum dwellers. Given the in-situ improvement and the impact in the last decade, what is needed is the political will to mainstream the slums and to achieve the inclusive urbanization in all measures with adequate and sustainable public financing. Government should also give up its monopoly in slum improvement and should throw it open for corporate world investment under the corporate social responsibility. Corporate adoption of slums for their mainstreaming with the participation of communities and slum dwellers would go a long way. Equally necessary condition should be that the urban development administration should not give scope for birth of the new slums of labour migrants and needs to be watchful about the emerging settlements in urban areas. In order to contain new birth, urban local administration needs to build temporary housing units for the occupation of the migrants, construction workers and menial workers and should ensure vacation from time to time.

Fourthly, enormous volume of the solid waste on the one hand and municipal failures to cover the entire families on the other, public - private - participation (PPP) model appears to be feasible for the successful management, based on

the success achieved in few pockets. This model should be replicated to all the urban centres (major, medium and small) in the combination of people, community and the municipal authorities. Interested people, waste pickers and private agencies needs to be engaged to collect the household wastes on door to door basis and to segregate the wastes instead of wholly depending on the municipalities/corporations, which have exhibited their indifference largely in the recent years. Municipalities needs to distribute bins, cans and bags for separating wastes at household level, besides creating awareness among the women and children in order to infuse efficiency in management of the wastes. Involvement of the communities and residents associations for supervision over the collection would go a long way. Segregation of the wastes into reusable and decay able by the waste pickers themselves and processing for scientific treatment should be given to the agencies to coordinate between the collectors and processing authorities. State and municipalities have to establish processing and scientific treatment units of the solid wastes in non-residential areas in consultation with the people, keeping all forms of possible pollution (air, water, land, etc.) in view.

Lastly, based on the impact of the SPV experience upon the selected cities on various economic activities and smart outcomes, the SCM needs to be extended to the other cities in the category in the years to come. Similarly, given the infrastructure development challenges, it is indeed essential for the extension of SCM to the second and other-tier cities and towns. Such a strategy should not only infuse similar development in infrastructure and economic activities but also decongest the existing major cities in the country. However, while extending the SCM or with similar intervention the necessary care needs to be taken to create adequate space for the participation of local governments and municipalities in the governance aspects to ensure effectiveness.

References

1. Asnani, P.U (2006), Solid Waste Management, India Infrastructure Report (Urban Infrastructure), Oxford University Press.
2. CSE (2015), protection and management of Urban Lakes in India, New Delhi: Centre for Science and Environment.
3. Census on India (2011), Housing Stock, Amenities and Assets in Slums, Series 1, Registrar General and Census Commissioner, Government of India.
4. Dieterich, Bernd. H and John M. Henderson (1963), Urban Water Supply Conditions and Needs in Seventy- Five Developing Countries, World Health Organization: Geneva.
5. Government of India (2003), Draft National Slum Policy, Ministry of Housing and Urban Poverty Alleviation, New Delhi.
6. ----------(2015), Smart Cities Mission, Ministry of Urban Development, New Delhi.
7. NIUA (2015), Urban Solid Waste Management in Indian Cities, New Delhi: National Institute of Urban Affairs.
8. NSSO (2003), Conditions of Urban Slums, NSS 58th Round, Government of India, New Delhi.
9. Planning Commission (2008), Eleventh Five Year Plan (2007-2012), Volume Il: Government of India, New Delhi.
10. Sharholy Mufeed, Kafeel Ahmad, Gauhar Mahmood & Trivedi R.C. (2008), Municipal Solid Waste Management in Indian Cities- A Review, Waste Management, Volume 28, Pp 459-467. Elsevier.
11. Singh, Andrea Menefee (1978), Poverty and Slum Dwellers in Urban India-Some Urgent Research and Policy Considerations, Social Action, April- June, P 165
12. UNCHS (1996), An Urbanizing World: Global Report on Human Settlements-1996, Oxford University Press.
13. World Bank (1999), Urban Water Supply and Sanitation, South Asia Rural Development Series, Washington DC, Allied Publishers: New Delhi.
14. WHO & UNICEF (2000), Global Water Supply and Sanitation Assessment Report. World Bank (1999), Urban Water Supply and Sanitation, South Asia Rural Development Series: The World Bank, Washington, D.C. Allied Publishers: New Delhi.
15. Zarab, Meri-Helen (2006), Urban Water and Waste Water, India Infrastructure Report (Urban Infrastructure), Oxford University Press.

Appendix: Glimpse of Smart Cities Mission of India

Sl. No	Indian States by Regions	Name of Smart Cities Selected	Remarks
1	**Southern (25)**		
	Andhra Pradesh (3)	Vishakhapatnam, Kakinada, Tirupati	1. Out of the 100 cities targeted, only 98 were shortlisted (selected) under the SCM in January 2016. Subsequently, another city from Uttar Pradesh was added.
	Karnataka (7)	Bangalore, Belagavi, Davanagere Hubli-Dharwar, Mangalore, Shivamogga Tumakuru	
	Kerala (2)	Kochi, Thiruvananthapuram (Trichy)	
	Tamil Nadu (11)	Coimbatore, Chennai, Vellore, Madurai, Thanjavur, Salem, Thootukudi, Thiruchinapalli, Tirunelveli, Tiruppur, Erode	
	Telangana (2)	Warangal, Karimnagar	
2	**Northern (26)**		
	Himachal Pradesh (2)	Dharamshala, Shimla	2. Eight state capital cities viz., Amravati, Bangalore, Gangtok, Itanagar, Naya Raipur, Patna, Shimla and, Trichy have been selected outside the quota of the respective states, in the third round. Similarly, by contravening the provision Srinagar, Jammu, Rae Bareli and Meerut have been selected under the mission.
	Uttarakhand (1)	Dehradun	
	Punjab (3)	Ludhiana, Amritsar, Jalandhar	
	Haryana (2)	Faridabad, Karnal	
	Rajasthan (4)	Jaipur, Udaipur, Kota, Ajmer	
	Uttar Pradesh (11)	Lucknow, Agra, Kanpur, Varanasi, Jhansi, Allahabad, Aligarh, Saharanpur, Moradabad, Bareilly, Meerut	
	Delhi (1)	New Delhi	
	Jammu and Kashmir (2)	Srinagar, Jammu	
3	**Eastern (19)**		
	Bihar (4)	Bhagalpur, Patna, Muzaffarpur, Bihar - Sharif	3. West Bengal government has withdrawn from the SCM and turned down the central government's financial support for the purpose from the second round itself. Similarly, Meghalaya government has not nominated any city under its quota. However, the reasons for non-participation are not publicised.
	Jharkhand (1)	Ranchi	
	Odisha (2)	Bhubaneswar, Rourkela	
	Chhattisgarh (3)	Raipur, Naya Raipur, Bilaspur	
	Assam (1)	Guwahati	
	Arunachal Pradesh (2)	Pasighat, Itanagar	
	Sikkim (2)	Namche, Gangtok	
	Manipur (1)	Imphal	
	Mizoram (1)	Aizawl	
	Nagaland (1)	Kohima	
	Tripura (1)	Agartala	
4	**Western (23)**		
	Goa (1)	Panaji	4. Nine more cities viz., Bareilly, Bihar-Sharif, Diu, Erode, Itanagar, Karavatti, Moradabad Saharanpur, and Silvassa have been included
	Gujarat (6)	Surat, Ahmedabad, Vadodara, Rajkot, Gandhinagar, Dahod	
	Maharashtra (9)	Pune, Sholapur, Kalyan, Nagpur, Thane, Nasik, Aurangabad, Amravati, Pimpry-Chinchwad	

	Madhya Pradesh (7)	Jabalpur, Indore, Bhopal, Ujjain, Gwalior, Sagar, Satna	in the fifth round of mission implementation.
5	**Union Territory (6)**		
	Andaman Nicobar (1)	Port Blair	5. Finally, SCM has been implemented in 99 cities of the country instead of 100. It is in various stages of completion of the works undertaken.
	Lakshadweep (1)	Karavatti	
	Pondicherry (1)	Pondicherry	
	Dadra Nagar Haveli (1)	Silvassa	
	Daman and Diu (1)	Diu	
	Chandigarh (1)	Chandigarh	

Source: Website://smartcities.gov.in: Smart Cities Mission Wikipedia

Table 1: Families with Access to Urban Services in India (Percentage)

Sl. No	Particulars	Slums	Urban	Total
1	Piped Water for Drinking (Tap, Hand Pump & Tube well)	65.30	91.39	78.33
2	Sanitation (Toilet) (Water Closet Pits and others)	79.50	81.50	80.50
3	Energy (Electricity and Solar Lighting)	91.30	92.56	91.92
4	Families With Bathroom	81.00	88.20	84.60
5	Families Connected to Drainage (Closed and Open)	81.20	81.76	81.48
	All the Above Facilities	**79.66**	**87.08**	**83.36**

Source : NSSO (65th Round), Some Characteristics of Urban Slums, 2008-09, Government of India and Census of India (2011), Housing Stock, Amenities and Assets in Slums, India Series 1, Registrar and Census Commissioner, India.

Table 2: Incidence of Slums & Environmental Challenge in Urban India

Categorisation of States and Union Territories	No. of States and UT's	Total No. of Towns	Slum Reporting Towns	Total Urban Households (Millions)	Households in Slums (Millions)	% of Slum Households to Total
Higher Incidence	7	2686	912 (33.5)	120.05	29.83	24.85
Lower Incidence	24	5270	1910(36.2)	47.77	5.23	10.95
No Slums	4	71	Nil	Neg	Nil	Nil
Total	**35**	**8027**	**2822(35.16)**	**167.82**	**35.06**	**20.89**

Source: Census of India (2011), Housing Stock, Amenities and Assets in Slums, India Series 1, Registrar and Census Commissioner, India

Table 3: Distribution of Slums and One Million Plus Cities across Major States by Population - 2010

Major States	Number of Slums			Population in Slums (Million)		Share of OMPC in Total Slums		
	Notified	Non-Notified	Total	Urban	Slum	No. of Cities	Name of the City	Population & Percentage
Maharashtra	9282	7736	17019	41.10	11.20 (27.25)	7	Greater Mumbai, Pune, Nagpur, Thane, Kalyan - Dombivli, Nasik	8.30 (74.00)

							& Pimpri - Chinch wad	
Andhra Pradesh	3964	1285	5249	20.81	5.19 (24.93)	1	Hyderabad	0.63 (12.13)
West Bengal	2475	2570	5045	22.43	4.12 (18.35)	2	Kolkata & Howrah	1.61 (39.07)
Tamil Nadu	1711	1663	3374	27.48	2.87 (10.43)	1	Chennai	0.82 (28.57)
Gujarat	1342	2017	3360	18.93	1.87 (09.86)	3	Ahmedabad, Surat & Vadodara	1.17 (62.56)
Delhi	1058	2075	3133	12.91	2.03 (15.73)	1	Delhi	1.85 (91.13)
Uttar Pradesh	1334	1060	2394	34.54	4.40 (12.73)	5	Kanpur, Lucknow, Agra, Varanasi, & Meerut	1.28 (29.09)
Karnataka	1118	1132	2250	17.96	1.40 (07.81)	1	Bangalore	0.43 (30.71)
Madhya Pradesh	759	1456	2215	15.97	2.42 (15.14)	2	Indore & Bhopal	0.39 (16.11)
Orissa	630	1323	1953	5.52	0.63 (11.42)	-	-	-
Total	**24781**	**24213**	**48994**	**217.64**	**36.12 (16.59)**	**23**		**16.48 (45.62)**

Source: Some Characteristics of Urban Slums, 2008-09: NSS 65 Round, NSSO Government of India.

Table 4: Solid Waste Collection Arrangements by Types of Houses in Urban India

Houses by Type	Number of Households (In Lakhs)	Waste Collection Arrangements by Source (%)			
		Municipalities/ Corporations	Residents	Others	No Arrangements
Pucca	609	63.90	12.90	3.7	19.50
Semi-Pucca	041	43.50	15.60	2.5	38.30
Kutcha	014	35.50	11.50	0.6	52.40
Total	**664**	**47.64**	**13.34**	**2.28**	**36.74**

Source: NSSO (2010) Report No 535 (65th Round), Housing Conditions and Amenities in India (2008-09. Government of India.