A critical analysis of the 100 Smart Cities Mission (2015-2020): implications for urban governance and planning in India

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Prepared by Nidhi Harihar
Supervised by Prof. Madhav Badami

Abstract

The 100 Smart Cities Mission (SCM), India's ongoing national urban renewal program, was launched in 2015. The Mission continues to face major funding and implementation challenges with only a meagre 18% of total projects standing completed as of 2020. Yet even this dismal rate of progress has not deterred the Government from announcing plans to renew the Mission, soon aiming to cover 4,000 cities and towns across India.

At this critical juncture, it becomes important to critically re-examine the motivations furthering the 'smart city' obsession in India. This is even more urgent given that 'smart' policy goals are being pursued in a context where the basics— with regard to infrastructure provision, governance and institutional capacities are themselves seriously flawed. Cities that are nearly non-functional nurture 'smart' aspirations. The 100 SCM in India therefore stands on a weak regulatory edifice. The task at hand is to look beneath the optics and understand the fundamental questions—what really is the 'Smart City'? Why does it sell? And who really is the 'Smart City' for?

This SRP explores these questions through a critical analysis of policy documents published by relevant Government ministries at the national and city levels respectively. The first part highlights the historic challenges in urban governance and planning; and the violence of urban living in India. The second part discusses the objectives and implementation of the 100 SCM along with its possible outcomes through a specific 'smart' road project in the city of Pune.
In conclusion, the study establishes the 100 SCM as perpetuating and intensifying the long-standing culture of technocratic, exclusionary and privatized governance and planning in India. The optics of technology and competition under the 100 SCM lend an illusion of 'neutrality' that further depoliticizes fundamental challenges in local capacity building, autonomy and participation.

Résumé

La 100 Smart Cities Mission (SCM), le programme national de rénovation urbaine en cours en Inde, a été lancée en 2015. La mission est encore confrontée à des défis majeurs de financement et de mise en œuvre, avec seulement 18 % du total des projets achevés en 2020. Pourtant, même ce taux de progression lamentable n'a pas dissuadé le gouvernement d'annoncer des plans de renouvellement de la Mission, dont l'objectif est de couvrir bientôt 4 000 villes et agglomérations à travers l'Inde.

À ce moment critique, il devient important de réexaminer de manière critique les motivations qui poussent à l'obsession de la "ville intelligente" en Inde. C'est d'autant plus urgent que les objectifs politiques "intelligents" sont poursuivis dans un contexte où les éléments de base - en ce qui concerne la fourniture d'infrastructures, la gouvernance et les capacités institutionnelles - sont eux-mêmes sérieusement déficients. Les villes qui sont presque non fonctionnelles nourrissent des aspirations "intelligentes". Les 100 MCS en Inde reposent donc sur un édifice réglementaire faible. La tâche à accomplir consiste à regarder sous l'optique et à comprendre les questions fondamentales : qu'est-ce que la "ville intelligente" ? Pourquoi se vend-elle ? Et à qui s'adresse réellement la "ville intelligente"? Ce SRP explore ces questions à travers une analyse critique des documents politiques publiés par les ministères concernés au niveau national et au niveau des villes respectivement. La première partie met en lumière les défis historiques de la gouvernance et de la planification urbaines, ainsi que la violence de la vie urbaine en Inde. La deuxième partie traite des objectifs et de la mise en œuvre des 100 MSC ainsi que de leurs résultats possibles dans le cadre d'un projet de route "intelligente" spécifique dans la ville de Pune.

En conclusion, l'étude établit que les 100 MCS perpétuent et intensifient la culture de longue date de gouvernance et de planification technocratique, exclusive et privatisée en Inde. L'optique de la technologie et de la concurrence dans le cadre des 100 MCS donne une illusion de "neutralité" qui dépolitise encore plus les défis fondamentaux du renforcement des capacités, de l'autonomie et de la participation locales.

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Study Outline

This SRP is organized in five chapters.

Chapter 1 will broadly discuss the persisting challenges and inequities of urban living and the existing state of governance and planning across Indian cities. It will do so through a critique of the two landmark urban reforms the country has witnessed viz. the 74th Constitutional Amendment Act, 1992 and the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), 2005. This will set the stage for unpacking the current 100 Smart Cities Mission in **Chapter 3**, as a successor to these two national urban reforms. Here, the focus will be on highlighting its rationale and stated objectives along with critiquing its overall implementation until now, with regard to the 'smart' strategies adopted in designing projects; and the selection, planning and funding processes and the actors/institutions involved in these strategies. In doing so, the project draws on an interpretive analysis of secondary sources i.e., available policy documents and reports. A discussion of the sources, methodology and research objectives informing the project will be found in **Chapter 2**. The broad implications of the Smart City Mission across India will be followed by an examination of this experience in the city of Pune in **Chapter 4**. The chapter will discuss the governance, planning and development outcomes of 'Smart City' reforms in the city. Here, the focus will be on a Smart Road project in the Aundh-Baner-Balewadi area (the selected site for the city's Area Based Development under the Mission).

Finally, **Chapter 5** will conclude with a discussion of the inherent challenges and possible outcomes of the 'Smart City' vision and experience in Indian cities.

Chapter 1: Urban Challenges in India

Indian cities today, are in essence, iniquitous (Fernandes, 2004). Over the years, especially since the 1990s, several adjectives, be it 'global', 'world-class', or now 'smart' have been prefixed to the Indian city, to signify visions for a better future. Yet, beneath the aesthetics of these ambitious visions, most Indian cities, in their bare realities, continue to grapple with the most rudimentary challenges. These challenges relate to the most basic conditions of daily living, and basic processes of urban governance and planning.

As India continues to become increasingly urbanized — it is estimated to add by 2050, over 400 million urban dwellers (UN, 2018) — burgeoning populations are left to compete for limited resources. With demand for basic services outpacing their supply, claims to these services have in turn transformed from being the basic rights of citizens to needs that can now be satisfied only as per one's ability to pay for it (Environment Support Group, 2020). This process has been accelerated by the opening up of the economy and broader development sector in 1991 that brought in the culture of privatization of public service provision (Smitha, 2016). Exchange value has thus steadily substituted the use-value in defining the provision of and access to public infrastructure such as housing, transportation, water, sanitation and so on, which has in turn deepened socioeconomic inequalities (Benjamin, 2008). Further, the violence of such iniquitous patterns of living are persistently borne by communities at the margins of the society, where they remain trapped and invisibilized by the State (Fernandes, 2004).

In response to these divisive realities, governance and planning interventions have been largely ineffective. Development planning processes are delayed, remain frozen for a period of 20 years at a stretch, lack a coordinated regional focus and are drafted in broadly non-consultative ways by technical experts (Pethe et al., 2014). Further, State-led development undertaken haphazardly through the term of the ruling political dispensation is generally not in sync with the master/ development plan of a city/region (Krishnankutty, 2018). In fact, policies and

programs initiated by the ruling government at the national level have in themselves been delayed and over the years remained stagnant. This is not to deny the rolling out of key initiatives holding out the potential for urban reform. Prominent among these have been the Mega City Scheme, the 74th Constitutional Amendment Act, 1992 and the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), 2005. These sought to not only build infrastructure capacity and availability but also to institutionalize key local governance reforms to devolve powers to urban local bodies and nurture local capacities and participative processes. However, despite even potentially reformative state-led initiatives, the fact is that urban development in India continues to be driven in a highly centralized, undemocratic, unplanned and opportunistic manner. The most telling reiteration of such a state of affairs with regard to top-down urban governance in India can be seen in the unfolding of the ongoing COVID19 pandemic across its cities. The pandemic has laid bare the historic exclusion of marginalized communities such as in the State's treatment of migrant laborers in its emergency response plans (Venkataramakrishnan, 2020). Simultaneously, it is revealing how a long-sustained institutional crisis centered on the subversion of local capacities and initiatives is evidently hampering its effective management (IIM-A, 2020).

In stark contrast to such a landscape of historically perpetuated basic challenges to urban development in India, the imported vision of the 'Smart City' was operationalized in 2015. In its very literal meanings itself, the word 'smart' as "quick-witted", "shrewd" or "up-market" does not inspire much confidence (Environment Support Group, 2020). But read in the language of the 100 Smart Cities Mission at the core of the word 'smart' are really- the endless possibilities opened up by information communications technology (ICT) (Eremia et al., 2017). The 'Smart City' then emerges as a city that functions on the very basis of its use of ICT through a 'collecting-communicating-crunching' of data model (Smart Cities Council, 2015). Through this, it becomes capable of identifying, reporting and solving its own problems i.e., it

emerges as a city "that knows itself and makes itself more known to its populace" (Ibid.). But in employing this ICT in development, the 'Smart City' also leverages other "technologies of governance" such as increased centralization, corporatization, privatization, speculation and entrepreneualism, drawing from and building on the discourse and unfolding of neoliberalism across the globe (Gopakumar, 2015). So, on the one hand, the 'Smart City' is focused on prescribing technology-driven solutions to pressing social problems and physical infrastructure deficits, as paths to economic growth and efficiency. On the other hand, it also nurtures a more ambitious but problematic goal of stirring "disruptive changes in governance and ways of thinking about it" (Joss et al., 2019).

In this context, the 100 Smart Cities Mission in India also aggressively mandates the use of ICT-driven solutions to social, economic and environmental challenges in cities (Burte, 2014) while being aimed at stirring a "paradigmatic shift in urban governance" by leveraging global 'best practices' to substantively transform urban living (Environment Support Group, 2020). Such substantive changes are to be initiated not in the whole city at once but rather in a particular pocket within it to create a model "nano-city" developed as an "island to showcase technological interventions" (Ibid.). Much of the 'Smart City' vision in India relies on the idea of replicability of this nano-model throughout the city in due time (MoUD, 2015), which by nature is speculative. Further, while the use of ICT in urban governance and broader development is in itself not un-useful, experience of the 'smart city' in advanced countries reiterates the importance of key foundational factors (Burte, 2014; Eremia et al., 2017) viz.—digital access and awareness of the populace, privacy and security measures, existing state of data infrastructure (all of which are contingent on the extent of socioeconomic inequalities), civic trust in the ruling State power, and most importantly, strong and autonomous local governance structures.

In view of all these factors, the 100 Smart Cities Mission in India really stands on a precarious edifice of historically sustained governance and development challenges. Moreover, its unconsidered push towards 'smart' technologies of ICT and advanced neoliberal forms of management serves to further depoliticize grave issues in urban governance and widen inequalities in development outcomes. In this regard, it is timely to discuss in detail these long-sustained challenges with reference to the two landmark interventions in the relatively recent history of urban development in India, viz.—the 74th Constitutional Amendment Act, 1993 and the Jawaharlal Nehru National Urban Renewal Mission, 2005. Despite their progressive framings, these legislative-policy frameworks continued to perpetuate the status quo of centralized and undemocratic governance, informal and uncoordinated planning, and iniquitous development outcomes. The Smart Cities Mission carries forth the baton.

This chapter is divided into six sections -- the first will broadly lay out the progression of urban governance and development in India since its independence with specific reference to the historic evolution of the role of urban local bodies as the first step towards ground-up governance. This will then lead us to a critical discussion of the enactment of the 74th Constitutional Amendment Act, 1993 that served as a landmark moment in empowering and recognizing urban local bodies as a third tier of federal government. The focus will be on highlighting the Act's reformative potential as well as the reasons why it remains unrealized to this day. As a manifestation of the failure to effectively conceptualize and implement the 74th Amendment Act, the third section will briefly dwell on the state of urban planning practice in India. Against this constitutional context of the powerlessness of urban local bodies and their capacity to plan and administer cities autonomously, the fourth section will proceed to critiquing the Jawaharlal Nehru National Urban Renewal Mission, 2005 with regard to its efforts towards triggering infrastructure development and governance reforms across cities. Finally, the chapter will conclude with an examination of the socioeconomic and

environmental challenges gripping cities today as a result of the above discussed stagnant governance responses.

I. History of urban governance and development in India

1.1. Evolution of local self-governance as constitutional principle and institution

Reforming urban local governance or ensuring comprehensive urban development was not an immediate and urgent priority of the newly independent Indian State. Soon after independence, political attention was geared towards consolidating former disparate princely states under the united idea of the Indian Nation (GoI, 2007). Therefore, the focus remained on endowing powers on and constitutionally recognizing States in line with a federal structure of government (Ibid.). Amidst this process of strengthening Union-State ties, local governments did not really find constitutional recognition. Having said this, the principle of local self-governance (Panchayati Raj) did find place in the Constitution under what is now Article 40 of the Directive Principles of State Policy (The Constitution of India: Parts I to XXII, 1950). Such a value for local governance however remained non-enforceable by any court since it was only a guiding principle under the Directive Principles of State Policy for state governments to consider while framing laws (Ibid.). Further, the Centre's initial vision to push for local self-governance remained restricted to villages (Ramanathan, 2007). While the Draft Constitution was still being finalized in November 1948, draft Article 31-A[1] was unanimously added by the Constituent Assembly (CLPR, n.d.). This directed States to organize and endow necessary powers on village panchayats so that they may "function as units of self-government" (The Constitution of India: Parts I to XXII, 1950). The related Constituent Assembly debates of 1948 highlight that the immediate focus on villages emerged from the need to take forth

[1] Draft Article 31-A eventually became Article 40 in the final document of the Constitution of India as was adopted on November 26, 1949 (CLPR, n.d.).

Gandhi's vision of national development with the village as the primary unit and to realize "economic and even military benefits of organizing village republics" as some other members emphasized (CLPR, n.d.).

But there was no similar vigorous push towards encouraging local self-governance in urban areas, either in the Constituent Assembly debates (GoI, 2007) or in the text of the Constitution itself as enacted in 1950. Item 5 of the State List under the Seventh Schedule makes a passing reference to the constitution and powers of municipal corporations and other urban local bodies[2] as lying with the state governments, thereby constitutionalizing their position as creatures of the state (Ibid.). So, firstly local self-governance itself emerged as only a guiding constitutional principle, not as an enforceable law. The focus remained on strengthening respective states. Further, such a vision for the local remained largely focused on villages vis-à-vis urban areas.

Despite such a relative hesitancy to determinedly enshrine the need for urban local self-governance within the Constitution of India, it had been existing in varied forms since before the colonial era (Aijaz, 2008). Institutionalized urban local bodies began being established since colonial times. Selected presidency towns (and district towns) such as Madras and Bombay were "bestowed" with municipal corporations and municipalities— as "gifts" from the colonial government (Idiculla, 2020). Besides investments in such institutional infrastructure, there were also attempts by the colonial government to reform the workings of these institutions. A series of resolutions from 1872 culminating in the Government of India Act 1935, attempted to instill administrative and financial autonomy, notably by introducing adult franchise in the creation of these urban local bodies (Aijaz, 2008). Despite these initiatives, urban local bodies remained under the control of the Crown, and local governance,

[2] Other Urban Local Bodies include"improvement trusts, districts boards, mining settlement authorities and other local authorities" besides municipal corporations (GoI, 2007).

mostly as ornamentation, remained limited to select cities, mostly state capitals. Post-independence, many policies of the British raj across varied domains were merely retained. So also, with regard to urban governance, municipalities from the colonial era continued to exist albeit now under the ambit of state governments. Since then, municipalities have to-date continued to remain "creatures of the states" (Sivaramakrishnan, 2013).

1.2. Urban development post-independence: lagged, selective, ornamental and centralized

Just as the constitution of local bodies remained limited to few cities, urban development post-independence was also selective and highly centralized. The first Indian dispensation prioritized the development of state capitals (such as Chandigarh, Delhi, Kolkata), industrial towns (Bhillai), and satellite towns (Singh & Parmar, 2020). Such strategic investments in select cities were made in pursuance of goals of industrialization and planned urbanization as markers of a modern and independent India (Prakash, 2002; Sivaramakrishnan, 2011a) . This process of urban development was steered by the setting up of the Planning Commission in 1950 that spearheaded the system of Five-Year Plans (Sivaramakrishnan, 2011a). The Ministry of Urban Development (MoUD) formed in 1952 was responsible for implementing projects, as per the Plan, in pre-determined cities across the country (Ibid.). In this way, urban development like governance remained highly centralized (and remains so today).

Moreover, for the length of the first four Five Year Plans, besides the articulation of housing concerns, the urban focus remained largely on ornamental development and even it has been said had an anti-city bias (Sivaramakrishnan, 2011a, 2013). It was only in 1974 that a dedicated chapter titled 'Urban Development' even appeared in the Fifth Five-Year Plan. Since then, until as late as 2005, the Centre kept rolling out disparate schemes, programs and setting up committees specifically targeting metropolitan development (Sivaramakrishnan, 2011a) -- for example, the PM's Programme on Urban Slum Renewal in Mumbai, Kolkata and Delhi; the

formation of the National Commission on Urbanization (1985) that urged more economic attention towards metro cities as growth engines; and the Mega City Scheme (1994) that encouraged alternate state-led models of local governance led by Development Authorities, among others (Ibid.). However, there was still want of a pan-Indian initiative covering urban areas (cities, towns and urbanizing areas) across a more comprehensive array of sectors from physical to social infrastructure and the environment. Such a vision for comprehensive urban development in itself involving massive centralization was realized in 2005 with the rolling out of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

Therefore, urban development in India has lagged and been incoherent until as recently as four to five decades post-independence when the first pan-Indian urban renewal mission was launched in 2005. But historically, since the early years of Independence itself urban development has been centralized. Simultaneously, substantial urban governance concerns were also put on the back burner, until the enactment of the 74th Constitutional Amendment Act in 1993.

The question of national development was in the formative years after independence refracted through the sites of the city and the village. This was informed famously by Gandhi and Nehru's debates on the role of urban and rural areas respectively in defining the nature of development of the newly independent nation (Gandhi, 2009). Nehru's stance was inclined towards seeing the city as the space of the 'urbane' and educated—therefore, as symbols of modernity and progress; even as villages were seen as being backward and "the fundamental problems of India" (Prakash, 2002). In fact, both Nehru and Gandhi, in their own ways, saw villages as sites to be urbanized. These political positionalities of the city and village in the discourse of the nation had direct implications for the modes of governance each of them was eventually meted out. The city, as "symbols of the freedom of India" emerged as sites for "planning and development" (Ibid.) not to be trusted with in the hands of local government

authorities, but rather, to be driven by the Union government. On the other hand, village administration involved the enthusiastic promotion of those very local institutions and officials that the city was denied. This was manifest in the Community Development Scheme (1952) that laid the foundations for a local government structure with three administrative units within each village—viz. the village, the mandi and the development block. The need to develop villages in terms of building not only physical-social infrastructure but also improving the human being, required the State to devolve into smaller units and seep into the grassroots (Sukumar, 2019). In this way, for political and practical reasons, local governance in rural areas came to be prioritized over urban local governance in the early years of Independence—even as the city in itself took centre stage in the project of national development. Having said that, local governance in either areas remained only a guiding principle, rather an instrument of choice to be exercised on the will of the centre and state governments.

1.3. Towards constitutionalizing local self-government

Sovereign attention towards urban governance was procrastinated and stumbled out of the failure of rural governance (Idiculla, 2020). When the Community Development Programme (CDP) of 1952 failed, the state was forced to consider alternate rural government models. Therefore, the Balwant Rai Mehta Committee was appointed in 1957 that recommended the creation of a 3-tier Panchayati Raj structure in rural areas (Ibid.). For close to three decades, between 1957 and the late 1980s, these recommendations for rural local governance remained unacted upon by successive governments. It was only in 1985 that the Rajiv Gandhi government sought to institutionalize the Rai Committee recommendations by introducing in Parliament, the 64th Amendment Bill for rural Panchayati Raj. Simultaneously, for the first time, the need for a similar structure of urban local governance was recognized and the 65th Amendment Bill to devolve powers to urban local bodies was recognized (Ramanathan, 2007).

The bills failed to be passed and eventually became laws under the 73rd and 74th Constitutional Amendment Acts only in the early 1990s under the Narasimha Rao government (Idiculla, 2020). Why did the country have to wait almost half a century since its independence to constitutionally entrench local governance structures in rural and urban areas? While the need for rural governance was established as early as the 1950s, why was the need for urban local governance recognized only in the late 1980s? (Ramanathan, 2007) points to there being no real political advocate for nor "protracted debate" on urban local self-governance (in the same way as for rural areas) at the national level until (marginally) in the 1980s[3]. The result was the hasty passage of an urban governance bill structurally similar to its rural counterpart, even unique in its recognition of urban needs, but devoid of the key spirit driving rural governance—"the centrality of the citizen and the bottom-up nature of local self-government" (Ibid.). In this regard, it is also hard to ignore (as a rationale for increased political attention towards urban governance) the simultaneous rolling out of the New Economic Policy reforms in 1991[4]. These reforms paved the way for a liberalized, privatized and globalized Indian economy. Steadily spreading over into the urban development sector, these neoliberal[5] reforms signaled the beginning of the traditional State's partnership with other (domestic and international) actors—private firms, consultancies and big corporate giants and non-governmental and civil society organizations. In a way then, there is reason to believe that urban local governance began gaining political traction in India owing to the language of inclusion propagated in such a

[3] (Ramanathan, 2007) also notes the intervention of a senior Congress party member who appealed to the then Prime Minister about having a similar provision of local governance for municipalities; after which the 65th Amendment Bill was hastily prepared within a period of months on lines similar to the 64th Amendment Bill for rural governance.

[4] The New Economic Policy reforms were the result of a globally surging neoliberal agenda and its injection into India as a reform conditionality imposed by the IMF in return for its bail out of the balance of payment crisis in the country (Gopakumar, 2015).

[5] Liberalism as an idea gained popularity in 1930 when the economist Frederick Hayek suggested seeing the market as being "a kind of mind" on its own, capable of self-organizing an economy without any State intervention. The word 'neo-liberalism' came to substitute it in the late 1980s when in response to the recession of 1973 and the failure of Keynesian State-led policies, capitalist economies between the 1970s-1980s had moved towards the other extreme of solely market-driven interventions (Metcalf, 2017; Monbiot, 2016). Neoliberalism in this regard globally emerged as a sort of balancing principle between state and market.

neoliberal environment and its political value in the Indian context at the time. The Washington Consensus of 1989 disseminated the idea of a state organized market economy to developing countries. By the late nineties, pressure from grassroots movements, urged a 'socialization' of this neoliberal movement by stressing the role of non-government and civil society organizations (Gopakumar, 2015). In order for the State to leverage such neoliberal, ground-up processes, they were required to be embedded in an institutional infrastructure of a strong, autonomous local state, i.e., in a local government/local body (which had hitherto been largely compromised/absent in India). By this time, political parties in India had also been playing a prominent role in local/regional politics (Prakash, 2002) which further presented this neoliberal push towards local devolution of powers as a key political opportunity for national parties to expand their clout. Therefore, this rising neoliberalism in the late 1990s, may have also played a part in the central government's shift in attitude towards urban local governance.

Local governments in most parts of the world remain creatures of the state deriving their existence and powers from higher tiers of government. For example, the American Constitution does not recognize local governments as distinct entities. But it lays down provisions relating to their functioning under the provinces (Russell & Bostrom, 2016)[6]. Similarly, the Canadian and Australian Constitutions too do not mandate local self-governance and municipal matters come within the purview of states or provinces (Murthy & Mahin, 2015). In this regard, constitutional entrenchment of local government implies not merely the administrative exercise of devolving power downwards. Rather, it means cementing a three-tier federal structure where along with the Union and State governments, local governments too exist as a separate third tier. That is, there is a bottom-up guarantee of local autonomy along with a recognition of inter-dependence and inter-relation among the three tiers of government constituting the political-

[6] Local and higher-tier government relations in America are defined by (i) the "Home Rule" which following on the principle of subsidiarity allows local governments autonomy in matters that are not under the purview of the provinces or (ii) "Dillon Rule" which binds local government functioning to that decided by the provinces.

administrative setup of a nation. In this context, along with India, Brazil and South Africa too around the same time, took a step towards strengthening local democracy by recognizing local governments as the distinct and constitutionally recognized third level of government (GoI, 2007). In the case of India however, the enactment of the 74th Amendment Act has in no way ensured a real transition from a two- to three-tier federal setup. Despite constitutional recognition, local bodies continue to remain creatures of the state (Sivaramakrishnan, 2013). This is due to (a) inherent limitations in the design and scope of the Amendment Act itself; and (b) its ineffective implementation on the ground by respective state governments (Idiculla, 2020). The failure to realize the spirit of the 74th Amendment Act, is however a symptom of the larger failure of local governance and democracy in India. At the root of this, lies an obstinate political unwillingness to give up centralized powers.

II. 74th Constitutional Amendment Act, 1993

2.1. Rationale: towards local democracy

The enactment of the 74th Constitutional Amendment Act was not only a step towards administrative reform but also a politically charged one (Murthy & Mahin, 2015; Sivaramakrishnan, 2011a). Firstly, the intention was to frame the hitherto existing system of managerially doled out urban development projects within a democratic system of elections. The Statement of Objects and Reasons lists the "regular conduct of elections" to local bodies as a key step towards strengthening local government (The Parliament of India, 1993). Politically, this also implied the Centre's constitutional recognition of the distinct "vernacular" politics that had begun gaining ground in urban areas, especially metropolitan cities, in the years post-independence (Hansen, 2001)[7]. The 74th Amendment Act's focus on systematizing

[7] This vernacular politics involved the rise of regional-local political parties like the Shiv Sena in 1960s Bombay, which, founded on a particularly fiery faith and race-based ideology, was actively involved in demanding a 'right-to-the-city' back in the hands of those that it held as Bombay's true natives viz. the Hindu Marathas.

local elections worked towards providing a formal platform for such new local voices to emerge in the process of influencing urban development. On the other hand, it also provided another avenue for the central and state governments to expand their political parties to a municipal level closer to the people. So, the enactment of the 74th Amendment Act was also political in that it can be said to have played out as a "rescaling" (Boudreau et al., 2007) of State power in the name of devolution of powers. Scholars have suggested how in some countries municipalization has in itself served as an instrument of centralization (Dickovick, 2007). The 74th Amendment Act too did not provide for the direct vesting of powers in urban local bodies. Rather, it provided guidelines for state governments to devolve some of their powers "that rightly belonged to urban local bodies" (GoI, 2007). In doing so, it may be said that the national government sought to empower local institutions by undercutting the states (Idiculla, 2020). The need to empower local institutions then in itself unfolded in a centralized top-down manner—which is the irony of local governance reforms in India. The reforms did not manifest as a response to demands for local autonomy from below, i.e., from existing local bodies or civil society in cities (GoI, 2007). Rather, local governance reforms were initiated as guidelines (not even directives) from the centre to the states with regard to improving the functioning of local bodies (Ibid.).

Despite the politics behind the enactment of the Amendment, its stated ideal remains focused on transforming urban local bodies into "vibrant democratic units of self-government" (The Parliament of India, 1993). The normative basis for self-government draws from the argument for decentralization (Murthy & Mahin, 2015). The 74th Amendment Act reads decentralization in terms of a top-down administrative devolution of a select list of functions to local bodies. However, it is in such a reading of decentralization that the 74th Amendment Act's challenges lie. For instance, it neglects the real agency of the citizen—their rights and duties in the process of local development. It also ignores the possibility of concentration of power in the hands of

existing local power structures. For example, the experience of Panchayati Raj institutions in tribal areas points to "upper caste landlords and traders dominat(ing) village affairs" (GoI, 2007). In this light, the Second Administrative Reforms Commission Report (2007) also urges an interpretation of decentralization as furthering the "principle of subsidiarity"[8]. Therefore, in the true spirit of self-government, decentralization ought to involve efforts to realize "citizen sovereignty" where the citizen is the final decision-maker (Ibid.). Owing to inherent loopholes in the text of the Act and the failure of states to interpret and implement it in the right spirit; the 74th Amendment Act falls short of the very ideal it envisages. Despite constitutional recognition, urban local governments in India are rendered powerless both in terms of their legal authority and in the de facto exercise of powers.

2.2. Legal (de jure) authority of city governments

The power of city governments is significantly limited by the very scope and letter of the Amendment Act itself (Idiculla, 2020). The scope of the Act is narrow, in that it does not allow for the designation of legislative and administrative powers to city governments. Secondly, the Act does not cater to a wider definition of the 'urban' (largely limited to 'municipal' settlements) (Sivaramakrishnan, 2011b); and neither does it discuss the role (rights and duties) of citizens and their participation in local development. Further, the drafting of the Act itself leaves adequate space for state and central governments to intervene in local affairs.

Constitution and dissolution of municipalities: state governments hold the right to constitute, dissolve and also determine when not to constitute a municipality (The Parliament of India, 1993). Article 243Q of the 74th Amendment provides for the constitution of three types of urban

[8] The Second Administrative Reforms Commission Report highlights the principle of subsidiarity as a system wherein only functions that cannot be performed by citizens should be delegated to higher levels and in this way, decentralization should mean delegation of functions upwards from the citizen.

local bodies in every state, viz. municipal corporations and municipal councils for large and small urban areas respectively, and nagar panchayats for areas in transition from rural to urban. In line with this, new municipalities are constituted by the concerned state legislatures in accordance with the prevailing state municipal act/s. Further, states also have the power to decide *not* to constitute a municipality in delineated section/s in a large urban area. As per Article 243Q clause 1 (c), industrial townships in large urban areas are exempt from the constitution of and governance by a municipality (if such an industrial township provides or proposes to provide municipal services in such area). This provision especially continues to be exploited by central and state governments, be it as part of the Special Economic Zone (SEZ) policy (Sood, 2015), relevant for the ongoing Smart Cities Mission. It furthers the culture of privatization of urban governance in the hands of multi-national companies unaccountable to the electorate. For instance, leveraging Article 243Q, the Karnataka State Government in 2013 granted the powers of a municipal government to the Electronic City Industrial Township Authority (ELCITA) in Bangalore's Hosur[9] (Idiculla, 2013). This is in direct contrast to the 74th Amendment Act urging power in the hands of autonomous locally elected urban and rural bodies.

Further, in the absence of allowing for distinct administrative, executive and legislative powers in the hands of municipalities (just as with the Union and States), the Act, by leaving their constitution and dissolution to the whim of state governments, strongly jeopardizes their autonomy in functioning.

Executive powers: municipalities in India cannot make laws[10] nor do cities have a separate administrative cadre (Kher, 2017). As a result, legislative and administrative functions are the

[9] As a result of this privatization of peri-urban governance, three village panchayats in the area designated to ELCITA, ended up losing authority over parts of their jurisdiction (including property taxation powers).

[10] As per Article 13 (3) (a) of the Constitution of India, "law includes any Ordinance, order, bye-law, rule, regulation, notification, custom or usage having in the territory of India the force of law" (The Constitution of India: Parts I to XXII, 1950)

purview of the state governments. In essence then, the 74th Amendment Act only charges urban local bodies with the duty of service delivery, as determined by the states. Article 243W provides a list of 18 functions under the Twelfth Schedule as endowed by the states to be performed and implemented by local bodies. These functions include "urban planning including town planning", public health, solid waste management, water supply, slum improvement among other civic matters. Despite the effective delivery of these functions having a direct bearing on the everyday lives of urban residents; their devolution to lower tiers of government is not made mandatory or binding on respective state governments (GoI, 2007). Article 243W in the 74th Amendment Act is drafted as a 'may' (and not shall) provision, thereby leaving devolution to the discretion of states. Having said that, most states today have amended their municipal acts to accordingly empower municipalities (Aijaz, 2008). However, the de facto exercise of these executive powers by local governments remains heavily compromised (as will be discussed later). Article 243S provides for the creation of "Wards Committees" to facilitate delivery and management of services at the sub-local level. Here too, it is the state legislature—and not the municipality—that directs even neighbourhood-level affairs. In this regard, the Act also falls short of mandating investments in local capacity building and particularly bridging the trust deficit with regard to locally elected councilors (IIM-A, 2020).

Planning powers: under the Twelfth Schedule, "urban planning including town planning" is the first function to be delegated to urban local bodies. This includes spatial planning and resource planning (natural, physical, financial) while furthering infrastructure development and environmental conservation. The 74th Amendment Act provides for urban planning at three

tiers viz.—the city, metropolitan and district levels [11] [12]. In this regard, it is important to take note of its effort to recognize the metropolitan dimension, given the specific patterns[13] in which the country is urbanizing (Onda et al., 2019). Article 243ZE mandates every state legislature to constitute a Metropolitan Planning Committee (MPC) to prepare a draft development plan for the metropolitan area. While there are issues with the implementation and functioning of these MPCs, the point to highlight here is that the 74th Amendment Act's recognition of the metropolitan dimension is limited to only the aspect of planning and is not accompanied by simultaneous efforts to reform or instill metropolitan governance frameworks (Sivaramakrishnan, 2011b). So firstly, the Act's focus predominantly remains only on municipal governance. In emphasizing local needs and preferences, the Act misses out on institutionalizing inter-municipal or inter-community engagement and sharing of resources. In doing so, it also misses out on laying down a governance structure for areas that may not be municipal but are still labelled urban (Sivaramakrishnan, 2011b) . These areas, namely Census Towns, remain governed by village panchayats even though they are categorized as 'urban' according to the Census (Pradhan, 2017). The Act's employment of the standard rubric of the Union-State-Municipality therefore raises questions about planning, development and service delivery in such "invisible urban villages" and the related implications for metropolitan

[11] The 74th Amendment provides for the drafting of the regional/metropolitan plan (Article 243 ZE) and the district plan (Article 243 ZD). In what ways, these plans would be distinct vis-à-vis that suggested at the city (municipal) level is not clearly articulated.

[12] In this regard, it is important to clarify the distinctions between these varied manifestations of the urban settlements. As per the Census of India (2011), an urban settlement is one that satisfies three broad criteria: (i) a minimum population of 5,000, (ii) at least 75 per cent of the male main working population engaged in non-agricultural pursuits and (iii) density of at least 400 persons per sq.km. In this regard, a municipal area is an area that (irrespective of whether or not it is urban as prescribed by the census), is statutorily notified to be governed by a municipality (municipal corporation, nagar panchayat or municipal council). That is, a municipal area is also known as a Statutory Town. On the other hand, Census Towns are those that meet the requisite urban definition but have not yet been statutorily notified under a municipality (but rather under panchayats/rural governments). Subsuming these areas, a "metropolitan" area, as per Article 243 P (c) of the 74th Amendment Act, is one that has a population of over ten lakhs, is spread across one or more districts in a state and consists of "two or more municipalities or panchayats or other contiguous areas".

[13] (Onda et al., 2019) highlight that unlike the Census, 2011 estimates of urban populations being concentrated in mid-sized cities (with populations half-one million); "18% of the total population and 48% of the urban population (are found in) very large, often polycentric urban agglomerations of greater than 10 million people".

governance (Onda et al., 2019; Sivaramakrishnan, 2011b). Secondly, the Act's limited metropolitan focus remains on "sovereign planning" (pertaining to policies and programs that are aspatial in nature but spatial in its consequences) (Krishnankutty, 2018). For instance, Article 243ZE tasks the MPC with "coordinating spatial plans" in a metropolitan area. While the focus is on coordination/administration, the technical capacities required to make these plans in the first place are not discussed under the Act. That is, the Act does not highlight how "sovereign" and "spatial planning" (Krishnankutty, 2018) would act in tandem with each other in the undertaking of development projects. This in turn may be considered a reflection of the national dispensation's uncertainties regarding how local finances and capacities in general will be generated to undertake planning or any of the functions that the 74th Amendment suggests. This serves as yet another indication of devolution of powers without any real local power or resources. Related to this failure of holistically conceptualizing urban planning, the Act nowhere lays down processes by which community participation should be leveraged in the making of plans. In these ways, its recommendations for planning remain devoid of any discussion of the role of urban and regional planners and varied sections of the community in tandem with elected representatives, across varied urban areas.

Therefore, the legal authority of city governments to govern their areas in a democratic manner is severely restrained by the scope and letter of the Act itself. In this regard, courts too have consistently failed in purposively interpreting the 74th Amendment Act in favour of local governments (Idiculla, 2020). Having said this, any real step towards local autonomy can be made only by re-visiting the existing Union-State federal structure and including local government as a distinct yet inter-dependent federal tier (GoI, 2007).

2.3. De facto authority of city governments

In empowering urban local bodies, the 74th Amendment Act did not take steps to dissolve power accumulating in the hands of agencies and institutions such as development authorities that had historically been performing municipal functions prior to 1993 (Idiculla, 2020; Singh & Parmar, 2020). Largely the structure and practices of the Indian State continue to be drawn from colonial era structures. As a result, these institutions continue to work in parallel with, in fact dominate over, the now constitutionally recognized municipalities in local service-provision (Mohan & Rajagopal, 2010; Pethe et al., 2014). These institutions are representatives of the state and even central governments at the local level and help retain their control over local affairs.

Office of the Municipal Commissioner: as mentioned earlier, the Indian Administrative Services (IAS) still following its colonial legacy has not been reformed to include a metropolitan level cadre (Kher, 2017). As a result, municipal administration (and even legislation) is steered by the Municipal Commissioner who is drawn from the state cadre of the IAS appointed by the Chief Minister of the state (Jha, 2018). The officer is not answerable to the electorate directly (but rather to the respective state government); and is appointed on a fixed short-term tenure, subject to transfers. These factors have been stated as being crucial impediments to ensuring the long term, holistic and locally driven development of the urban area concerned (Ibid.). The lack of expertise and professionalism among locally elected councilors has always been used to justify the need to vest key powers in a duly selected administrative head with a different type of expertise. Further, in this process, the office of the mayor—who is the democratically elected head of the city council and thereby legally accountable to the people — is reduced to a mere ceremonial position (Jha, 2018; *The Constitution (Amendment) Bill*, 2016).

Parastatal agencies (Development Authorities): parastatal agencies are semi-government private incorporated companies composed of a non-elected task force. The basic form of an urban parastatal, viz. the development authority has been in existence in India since 1957 when first the Delhi Development Authority was enacted (Singh & Parmar, 2020)[14]. The early functions of a development authority were to ensure planned development and create housing stock in line with the State's initial vision for metropolitan cities (Ibid.). However, in reality this has proved to be a failure, the effect of which remains visible in many initially planned cities even today (Mohan & Rajagopal, 2010). It is reflected in the huge work to home distances, car-centric transport systems, congestion, unprioritized pedestrian spaces, lack of green spaces, cookie cutter housing and widening spatial inequalities. Despite this reality, the 74th amendment leaves scope for continuing the culture of development authority led development and planning. Their authority even stands expanded to other sectors such as the provision of water, electricity, road building—everyday functions that the Act also delegates to urban local bodies in the name of self-governance. Being unelected and unaccountable, their decisions are not obliged to reflect community needs and preferences. The principle of proximity by recognizing a third tier closer to the people thus stands largely unfulfilled.

III. Informality in urban planning

Urban planning at the municipal and metropolitan level in any real sense is non-existent and even held as being a joke (Pani, 2018). Firstly, the master plan is a static document, unsuited for the dynamic entity that is the city. It remains unresponsive to macroeconomic policies and the city's own economy, population and real estate prices (Pethe et al., 2014). Plans remain unchanged for 20 years with no scope for mid-course evaluations and limited scope for

[14] The establishment of the Delhi Development Authority set the ball rolling for 300 such development authorities to be set up across other Indian cities since the 1960s.

amendments (Ibid.). Secondly, what is practiced as planning is characterized by informality, i.e., by a "state of deregulation" where land-use and ownership does not follow "a prescribed set of regulations or the law" (Roy, 2009). For instance, even though Development Control Rules (DCRs) present a formal way by which certain permissible land use changes may be incorporated, on the ground it remains driven by rent seeking behaviors such as bribes and even coercive tactics (Pethe et al., 2014). Further, such informality in planning also has implications for which areas get delineated as 'illegal' and which ones are "formalized and protected" (Ghertner, 2011). Ghertner (2015) cautions against being lured by the aesthetics of planning where particular settlements/properties even while looking planned and "world-class" may in fact be in violation of prescribed zoning by-laws. Yet such informal settlements are granted amnesty while other informal settlements such as slums are decried and marginalized (Ibid.). Much of development in India is in this way informal and unauthorized, involving the favouring of one informal settlement over another. Thirdly, related to such a practice of planning, is the invisibility of professionally trained and sensitized planners. According to a UN Habitat Report of 2016, India has only 1.2% professionally certified planners for a population of 1.3 billion people, that is, the "ratio of planners to citizens is 1-2 planners per a lakh of population"(WCR, 2016). The majority of 'planners' in local government departments tend to be trained in civil engineering, a discipline which while being indispensable to city-building, can only be effective if it is built on a sound democratic process. More important than building a bridge, is first asking the questions who needs such a bridge, why at this point in time, who will it benefit at the cost of whom and what other environmental and social factors need to be considered; and so on. As (Watson, 2009) highlights, urban planning systems across the globe are themselves part of the urban challenge as they "serve to promote social and spatial exclusion, are anti-poor, and are doing little to secure environmental sustainability". These are concerns that a rounded, sensitive and politicized planning education ought to stimulate and

consequently produce planners capable of meaningfully complementing other expertise necessary to city-building.

IV. Jawaharlal Nehru National Urban Renewal Mission (JNNURM), 2005

4.1. Rationale: insertion of neoliberalism as technology

Until the 1990s, urban development in India was the sole prerogative of the State primarily driven by the Union government in a managerial, top-down manner (Sivaramakrishnan, 2011a). From the early 1990s, there were attempts to open up the urban sphere to other (lower tier) levels of government and even to non-governmental actors. The enactment of decentralization reforms in 1993 therefore was accompanied by another significant development—the move towards a neoliberal mode of governance. This made its way into India in 1991, as a reform conditionality imposed by the IMF in the wake of a surging balance of payment crisis (Smitha, 2016). Thus, liberalization reforms, with the aim of cutting back State control from key macroeconomic sectors, initially targeted the area of monetary and financial policy; but steadily other sectors, notably urban development, also came under its influence (Gopakumar, 2015). Neoliberalism came with three key logics: a constant preoccupation with finding efficient alternatives to the traditional State-run order; an understanding of development as primarily economic growth and overarching commitment to efficiency and market reforms. Therefore, neoliberalism was imported into India not only in the form of one-time use standardized structures of governance from the advanced Global North (Gopakumar, 2015), but rather, also as a "mode of thinking about governing" that like a "mobile technology" could be tweaked by domestic actors as per situated needs and preferences (Ong, 2011).

So, the nineties brought in a new mode of thinking of governance in India that was here to stay -- one that involved the State working in strategic partnerships with private corporations,

international financial institutions and non-governmental organizations in shaping and directing urban policy. As a result, a techno-managerial mode of governance began competing with the decentralization driven democratic governance narrative. Techno-managerial governance involves the leveraging of "neutral" tools and techniques by "technocrats" or "professional experts" in addressing (rather depoliticizing) development problems (Wilson, 2006). For instance, strategies such as "project scoping and detailing" (involving laying down timeframes, tasks and appointing consultants) are leveraged in conceptualizing development projects rather than negotiations and discussions with socio-political networks (Gopakumar, 2015; Wilson, 2006). Community participation too is undertaken only within fixed pre-determined organizational frameworks, and not nurtured as a social, political and democratic process for collective redressal of issues. So, the language of equitable development to inclusive public participation is framed within this techno-commercial orientation.

In these ways, this environment of neoliberalism was instrumental in shifting the value of the city in the eyes of the Indian State—from an ornamental symbol of independence/modernity to "engines of growth" (MoUEPA & MoUD, 2005a). In this context, cities required investments not merely in spatial planning but more importantly significant governance reforms to nurture an "investor friendly" (Ibid.) business environment. The poor state of governance and infrastructure in Indian cities and their "incompatibility with India's growing role in the world economy" were seen as pressing concerns by the then political dispensation (Sadoway et al., 2018). Against this backdrop, in 2005, just after the Congress was re-elected to power, India's first pan-national and most ambitious urban reforms-linked development initiative, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched.

(Sadoway et al., 2018) point out how the JNNURM bore three distinct strains or "signatures" of the emergent techno-managerial mode of governance. One, multiple actors from outside the government served not just as policy-advisers but in fact were at the helm of formulating and

implementing the policy in "flexibly" organized ways. This network included individuals associated with reform initiatives of international financial institutions (IFIs) (World Bank, Asian Development Bank and USAID); and from academia, civil society, NGOs and private corporations. Two, a pool of multiple ideas and "best practices" drawn from these networks together influenced the Mission's reform and renewal agenda. So "domestic corporate groups" like Mumbai First and Bangalore Agenda Task Force were influential in shaping the narrative for urban renewal in times of 'decay'. On the other hand, IFIs' past experience in development initiatives and governance reforms in developing countries was leveraged in formulating the Mission's structure and operationalization. Three, program execution and formulation of procedures relating to it were left in the hands of professionals associated with international and domestic consultancies. These defining strains of the JNNURM viz. trans-local actors and ideas and privatized forms of policymaking and implementation set the ball rolling for a particular culture of urban development that continues to this day in the form of the Smart Cities Mission (SCM) as well.

Besides ushering in this new institutional environment, the JNNURM also served as a "Big Bang" in other ways (Sadoway et al., 2018). Firstly, it proposed an unprecedented initial estimated investment[15] of Rs. 1,20,536 crore (approx. CAD 33.1 billion) over a seven-year mission period and secondly, it was equally ambitious in its scope (Sama Khan, 2014). The Mission covered 67 large metropolises including influential state capitals and aimed at not just infrastructural development but also governance reforms (MoUEPA & MoUD, 2005a). With regard to the latter, it was particularly novel in mandating an elaborate reforms agenda galvanizing decentralization as envisaged under the 74th Amendment Act (Kundu, 2014). This was uniquely facilitated by making the implementation of such reforms, pre-conditions for the

[15] The actual financial outlay under the mission was about Rs. 68,000 crore (approx. CAD 18.6 billion) (Sadoway et al., 2018).

sanctioning of funds to respective states/ULBs. The extent to which local governance reforms were achieved in real terms has been rightly subject to criticism. Yet, the JNNURM's intention to institutionalize municipal reforms sets it apart from other national-level urban programs rolled out post 2014 (that do not even have such an intention embedded in their scope).

4.2. Critiquing Mission scope and architecture: impacts on governance and development

Program flow: bureaucratic and multi-tiered

The Mission unfolded with the anchoring objective of making cities "economically productive and efficient" (MoUEPA & MoUD, 2005b). It did so in three phases viz. – planning, project development and appraisal; and sanctioning. Additionally, there was due monitoring and review of project and reforms implementation in the identified cities (Ibid.). Every identified city was to first prepare a City Development Plan (CDP) to assess urban needs and prioritize projects. Accordingly, detailed project reports were to be sent for appraisal to a monitoring and sanctioning committee at the state and central levels. On their approval, part of the funds was duly sanctioned by the Ministries of Urban Development and Urban Employment and Poverty Alleviation. These funds were then to be further leveraged by city governments to attract and create a cycle of private investments to sustain local urban development. The flow of directives and funds from the centre before reaching the urban local body; and approval of project proposals upwards, had to pass through several committees and steering groups at the national and state levels (**Figure 1**;(MoUEPA & MoUD, 2005b)). The Mission remained highly bureaucratic resulting in massive project delays and a lack of transparency (Sadoway et al., 2018). Moreover, mere lip-service to e-governance did not translate into substantive transformations in guaranteeing accountability.

Program scope: uneven development outcomes and short-term planning

Projects and reforms were framed by two sub-missions: investments in (i) Urban Infrastructure and Governance (UIG) and provision of (ii) Basic Services to the Urban Poor (BSUP) (MoUEPA & MoUD, 2005a).

The UIG component, besides laying down 23 governance reforms at the state and municipal levels, also included city-wide development of infrastructure related to urban transportation, water supply, renewal of old city areas, sewerage and solid waste management among others. The BSUP on the other hand emphasized projects focused on improving living conditions of the urban poor through slum redevelopment (housing, related civic amenities and basic services) (Ibid.).

This dual focus constituted a wide scope for the Mission, however key universal services like health, education, employment and so on were left out (MoUEPA & MoUD, 2005a) . Further, its focus on massive infrastructure projects came at the cost of the urban poor. Projects were chosen and sited according to efficient cost recovery rates and the accrual of profit returns—not according to people's needs especially those of lower income groups and economically weaker sections (Sadoway et al., 2018) . Also, the initiation of projects for the urban poor came with an inherent "segregationist logic" widening spatial inequalities within the city (Ibid.). Land grabs and dispossession in the process of undertaking projects also multiplied intra-city inequalities (Mahadevia, 2006). In these ways, despite the Mission adopting a language of inclusion and equity goals, continually favored market and commercial interests over those of the marginalized.

Besides, it has been noted that the Mission also exacerbated inter-city and inter-state inequalities by identifying only large cities with sufficient political and financial clout (Sadoway et al., 2018). Small towns received secondhand treatment receiving only 20% of the funds doled out to large influential metropolises (Sama Khan, 2014; Sadoway et al., 2018).

Census towns or invisible urban villages were left out, thus further neglecting forces of interdependent regional/metropolitan development.

The concept of the City Development Plan (CDPs) in the JNNURM, drawn from the World Bank's previous urban development initiatives in Kolkata and Mumbai between 1975-95, promoted the formulation of strategic investment plans (SIPs) (Sadoway et al., 2018). These CDPs caused a "great deal of confusion" with regard to how they would fit within the hierarchy of land development plans, like the master plan, in the cities (Meshram, 2006). CDPs being strategic plans in line with the broader objectives of the JNNURM were short term, project-specific and area/city-based. On the other hand, master plans are concerned with ensuring integrated regional development of urban areas over a long period of time. They are focused more on the sustainable distribution of land among various uses so as to give the city/town a form within which it can perform its socio-economic functions (Ibid.). Therefore, the CDPs lacked a comprehensive, long-term approach and through the duration of the JNNURM these strategic investment plans replaced statutory master planning approaches. This had further implications for widening spatial and socio-economic inequalities in cities.

Thus, the JNNURM is said to have fallen short of its development objectives. So also, with regard to its vision for governance reforms.

Program architecture: retention of central control and powerlessness of ULBs

The implementation, monitoring and review of the projects and reforms under the Mission was supported by a multi-tier, top-down institutional framework (MoUEPA & MoUD, 2005b).

Firstly, such an institutional arrangement allowed the central government to assert control over every step of local urban development. In doing so, it has been said, the centre in fact circumvented the rightful constitutional authority of state governments to legislate on local matters, and even coerced states to "buy into" decentralization reforms in return for project

funds (Sadoway et al., 2018). Yet, the status quo of state government control over urban local bodies was preserved. For example, while the JNNURM mandated the creation of Ward Committees and facilitation of Area Sabhas at the sub-local level to further local community participation, it also retained the power of state legislatures to create them and did not empower urban local bodies to do so (Gopakumar, 2015).

Therefore, in many ways, despite the Mission's objective to strengthen municipal governments and their functioning (MoUEPA & MoUD, 2005b), ULBs continued to remain powerless. They remained dominated by the centre, states, parastatal agencies and private consultancies, running completely counter to the spirit of the 74th Amendment Act (Gopakumar, 2015; Sadoway et al., 2018) . The implementation of the Mission was left to be steered by a State Level Nodal Agency (SLNA) or a Special Purpose Vehicle (SPV) in the name of "assisting ULBs/parastatal agencies" (MoUEPA & MoUD, 2005b). Further, due to the lack of local capacities in the face of heavy bureaucratic procedures that ULBs were expected to meet in short spans of time, most SLNA functions were also outsourced to private consultancies (in some cases for the entire five-year duration of the Mission) (Gopakumar, 2015). State governments, strategically, found it convenient to invest in temporary consultants rather than recruiting permanent professionals within the ULBs since doing the latter threatened to dissolve their existing authority over ULBs (Sadoway et al., 2018). Therefore, much of the Mission, was driven on the backs of unaccountable unelected elite actors—from the formulation of City Development Plans and Detailed Project Reports to monitoring and review by handholding consultancies.

In essence then, despite the NURM's massive financial outlays and ambitious scope, the status quo on the over decades' old weak urban local governance was only maintained. Further, iniquitous and market-driven forms of development were bred by a techno-managerial mode of governance that set a precedent for future reform initiatives.

V. Violence of urban living and stagnant governance responses

The case of both the 74th Amendment Act and the JNNURM underscore how in the very act of reformative law and policymaking, the State simultaneously and deliberately creates scope to break away from those very visions and rules that it lays down (V. Das, 2007). The result has been that urban governance and development reforms in India have been an illusory exercise, changing little on the ground with regard to everyday lived experiences.

"…streets are generally unpaved, rough, dirty, filled with vegetable and animal refuse... supplied with foul, stagnant pools"— conditions characterizing 18th century cities (Chaplin, 1999) can still pass off as being very true of a significant number of 21st century Indian cities. The violence of rising socio-economic and spatial inequalities, poverty and environmental degradation is continually borne by the same communities stuck in a vicious trap at the bottom rung of society (Burte & Kamath, 2017; Fernandes, 2004; Mahadevia, 2006). Even today, 77% of total national wealth is concentrated in the hands of the top 10% of the Indian population (Oxfam, 2018). Two people every second are pushed into poverty due to rising healthcare costs (Ibid.). The health of the urban poor remains significantly compromised by the state of their living environments, i.e. housing and related basic services and amenities (Chimankar, 2016). India is staring at a compounding urban housing shortage. According to a recent study, the gap in housing has risen by 54% to 29 million in 2018. 99% of this shortage is concentrated in the economically weaker sections (EWS) and low income groups (LIG) (PTI, 2020b). This has encouraged the proliferation of informal and illegal residential settlements. Over 50% of urban populations in the country today live in slums and squatters and nearly 7 people per day have died due to the collapse of rickety residential structures between 2001 and 2015 (Dubbudu, 2017). The lives of the urban poor are further threatened by problems pertaining to sewerage and solid waste management, and rising water and air pollution. About 78% of sewage generated in India remains untreated and enters rivers, lakes and seas (DTE, 2016). This is

because sewage treatment capacity is way below the amount of sewage generated daily and existing treatment infrastructure does not function adequately (Ibid.). As a result, internal waterways have all been turned into clogged sewers, increasing the instances of flooding especially impacting those in precarious living settlements. Development remains car-centric despite 91% of trips in cities such as Mumbai being made on foot, bus or train (Harris, 2014). Public transport continues to function way below rising demand, leading to overcrowding.

Governance responses: expert vs grounded forms of knowledge

Governance responses to such urban challenges have been undemocratic, centralized and negligent through the years. Decentralization in terms of an administrative devolution of powers or the presence of historically powerful urban local bodies[16] leveraging significant financial and political clout does not translate into real grassroots change. Strong city governments are constituted by real constitutional recognition and autonomy, even financial and political capacity—but most importantly by being able to harness locally grounded ideas of the civil and political society that elects them to power.

The path towards the redressal of many of our urban challenges today lies in leveraging the local knowledge arising out of situated experiences. (Karpouzoglou & Zimmer, 2016) show how locals' experience-based perceptions and practices, together with municipal workers' knowledge contribute to addressing issues arising from waste waterscapes in unauthorized settlements in Delhi in more practical ways, than centrally propagated elite driven solutions. Informality has often proven to be the bane of Indian cities, leading to grave issues pertaining to land titles and ownership, corruption, and at a more mundane level pure chaos in lived experiences of the city. But at the same time, informality also serves as an enabler allowing for

[16] For instance, the Municipal Corporation of Greater Mumbai-MCGM is believed to be Asia's richest municipality

the inclusion of intermediary community associations and individuals in the speedy solution of issues. It is this very messy web of informality or deregulation that allows for the unfolding of local democracy by providing a platform for the otherwise state-shunned local ways of self-organizing (Benjamin, 2008). These networks come with their own challenges and power structures. However, in an ideal state of local self-governance, the local state and society regulate each other in effective ways and there is hardly a distinction between the two. There is a strong case to regulate informality in Indian cities towards nurturing self-organizing platforms for negotiation, discussion and ideating on paths to address local challenges. Governance reforms therefore aimed at not mere decentralization, but cultivating an environment for "citizen sovereignty" (GoI, 2007), has over the years been stressed as key to minimizing the violence of our urban environments.

In contrast, urban policymaking especially since the nineties, has unduly favored a certain type of expertise over grounded forms of knowledge (Gopakumar, 2015). This has involved a "fetishization" of technology and technical knowledge that has lent the aura of magically solving urban issues with roots in deep seated structural challenges (Harvey, 2003). We have seen this with regard to the failures of the JNNURM in it being driven solely by "consultancy urbanism" and trans-local policy mobility (Sadoway et al., 2018). Such a culture of privatized, non-democratic governance has been kept alive and even extended further by the 100 Smart Cities Mission (SCM)- the new centrally controlled urban renewal program rolled out in 2015. From the discussion in this chapter, it may be said that India's Smart Cities Mission stands on the weak legacy of poor implementation of the 74th Amendment Act and the JNNURM, i.e., on a historically exacerbated culture of undemocratic urban local governance, absence of planning and the violence of urban living especially for some communities. Further, given the objectives and ideologies driving it, the Smart Cities Mission only threatens to sustain such a status quo or even worsen it.

Chapter 2: Research Scope and Methodology

I. Scope & Objective

This project seeks to produce a systematic critique of the 100 Smart Cities Mission (SCM) that is both current and relevant in the light of it having completed five years (as of June 2020) since its launch in 2015 and the government's intention to renew this flagship program on a larger scale across 4,000 cities (Sobia Khan, 2019b). Such a critique is seen as an attempt in understanding policy with regard to its fundamentals, in an environment of politicized and urban development. In this regard, an examination of three parts of the 100 SCM is proposed:

→ **Phased selection**: unpacking the structure, criteria and institutions as part of the two-stage competitive city challenge with a focus on the format and preparation of the (i) Score Card and (ii) Smart City Proposal to be submitted by each participating city.

→ **Implementation**: prescribed organizational and financial architecture centered around the powers and structure of the envisaged Special Purpose Vehicle; as well as the extent of current implementation of projects and associated costs.

→ **Outcomes**: of a 'smart' sustainable transport project with regard to urban governance and planning in the city of Pune

In examining these aspects, the project aims to pursue the following research objective:

To critically examine urban governance and planning under the 100 SCM, with regard to the 74th Constitutional Amendment Act, and the roles and capacities of the Urban Local Body, de facto and de jure, in designing and implementing 'smart' projects.

II. Methodology

The key data source for the study would be policy documents produced by relevant departments of the Government of India, as part of or in the lead up to the 100 SCM. The selection of documents is based on two policy contexts:

→ **National level**: for a broader conceptual and procedural inquiry into the 100 SCM

→ **City level**: for a grounded inquiry into the development of city-specific 'smart' visions through the case of Pune, given its prominent participation in the Mission (ToI, 2020)).

The following policy documents were consulted:

National level	City level
- Smart City Guidelines, Government of India, 2015 - Smart City Concept Note, Ministry of Urban Development, December 2014 - Annual Report 2019-20, Ministry of Housing & Urban Affairs - Jawaharlal Nehru National Urban Renewal Mission (JNNURM)-Overview and Toolkit, Ministry of Urban Development, 2005 - 74th Constitutional Amendment Act, 1992 - Second Administrative Reforms Commission, Sixth Report on Local Governance, 2007	- Pune towards Smart City, 2018 o Vision document o Fiscal, technical and administrative capacity o Score card report - Pune Smart City Proposal, 2016 - Pune Smart City Development Corporation Ltd. (PSCDCL), Annual Reports 2016-17; 2017-18; 2018-19

Data was sourced from the following online sources:

National Level	
SMARTNET, Ministry of Housing and Urban Affairs, GoI	https://smartnet.niua.org
Smart Cities Mission, Ministry of Housing and Urban Affairs, GoI	http://smartcities.gov.in/content/
City level	
Pune Municipal Corporation	https://pmc.gov.in/en
Pune Smart City Development Corporation	https://punesmartcity.in/
Aundh Streets Project	https://aundhstreets.wordpress.com/aundh-streets-project/

Chapter 3: The 100 Smart Cities Mission

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in 2004-05 began waning away from the beginning of 2014 when the general elections installed a new political dispensation to head the Government of India for the next five years (Burte, 2014). As the political reins of the nation shifted from the hitherto Congress-led United Progressive Alliance (UPA) coalition to the Bharatiya-Janata-Party (BJP) led National Democratic Alliance (NDA) in 2014, ideologies for envisioning a new India shifted, yet in many ways retained the essential threads of the past. So, even as a (surficially) socialist, secular (yet statist) vision gave way to a religious conservatism (Chhibber et al., 2018), in essence the underlying aggressive push towards neoliberalism and market-driven economy and society was very much sustained and was even exaggerated under the new political regime. This shift towards a new ideology guiding India's development trajectory while holding on to historically perpetuated structures fueling it, is manifest in the evolution of the JNNURM, 2005 into the 100 Smart Cities Mission in 2015.

Irrespective of the change in national political leadership, the 100 Smart Cities Mission (SCM) was impending as the next logical step to the JNNURM, and to the long unfolding culture of techno-managerial governance in the country. In line with this pattern, political mileage towards furthering a 'Smart City' model in India had been building up since 2011 when plans for the Delhi Mumbai International Corridor (DMIC) included the idea of creating 'smart cities' across key locations along its length (Burte, 2014). In 2012, such a proposition was further escalated when Kamal Nath, the then Minister for Urban Development, announced plans to in fact launch 'smart cities' as part of the second phase of the JNNURM itself (Sethi, 2012). However, in 2014 the responsibility of operationalizing the 'Smart City' as a national

Mission was taken up by the newly formed BJP-led government. The Mission to create 100[17] smart cities was thus launched on June 25, 2015 (PIB, 2015b).

Overall, the 100 Smart Cities Mission draws its core rationale and emergence in the political history of neoliberal, techno-managerial governance in the country. More specifically in this vein, its objectives and general architecture share notable similarities and differences with that of its formative counterpart viz. the JNNURM. This becomes important to dwell on in the light of understanding the key "signatures" (Sadoway et al., 2018) driving the unfolding of the 100 Smart Cities Mission (SCM) over the five years since its launch.

Firstly, the 100 SCM carries forth the JNNURM's techno-managerialism by embedding within its program architecture and implementation, the similar language of technically proficient institutions, artifacts and partnerships such as handholding agencies, consultancy firms and special purpose vehicles (albeit in varied roles). There is also a separate planning framework in the form of the Smart City Proposal, largely disconnected from the existing city plan and also drafted on lines similar to the JNNURM's Comprehensive Development Plan (Meshram, 2006; MoUD, 2015). Secondly, the SCM is also unique in extending this managerialism to an "entrepreneualism"(Datta, 2015; Harvey, 1989). This it does primarily by introducing an element of inter-urban competitiveness through its program flow and scope. For instance, while the cities in the JNNURM were "identified" by the central authorities on the basis of population, religious, tourist and historical significance (MoUEPA & MoUD, 2005a), the SCM employs an elaborate architecture of a "City Challenge" that pits cities against each other in the race for the 'smart' title and associated funds (MoUD, 2015). Relatedly, such a competitiveness is pervasive in the preparation and implementation of Smart City Proposals wherein cities are mandated to employ the best "smart solutions" upon which their selection

[17] The number '100' appears to be an arbitrarily chosen number as no real reason has been articulated for the same either in the Guidelines or in press briefings.

and sustenance in the Mission is contingent (Ibid.). These 'smart solutions' make technology a key parameter for inter-city/state competition. While the JNNURM's rationale drew from the need to import technical knowledge and expertise as a novel solution, the SCM emerging in an advanced neoliberal environment is pivoted on importing (or domestically[18] developing) technology—as a sophisticated product or service in itself (Sukumar, 2019). While technical expertise continues to be favored, what also takes centre stage is the tangible product of that expertise in offering a concrete solution or "hard outcomes" to the problem (MoUD, 2015; PMC, 2015c).

In these ways the SCM, in taking the cue from JNNURM, carries its own three signatures. One, it bears the imprint of the techno-managerialism born in the nineties with a bias towards technical knowledge/expertise in governance (Gopakumar, 2015; Sadoway et al., 2018). Two, it marks the deepening of urban "entrepreneualism" in India centered on galvanizing economic growth through inter-urban competitiveness. Three, technology—as know-how and more visibly artifact -- is the 'smart' component geared towards socio-economic development and the stirring of a "paradigmatic shift in governance" (Environment Support Group, 2020). Bearing these three strands in mind, the rest of the chapter will detail the rationale and stated objectives of the 100 Smart Cities Mission in the first section; followed by a general critique of its implementation with regard to its program scope (prescribed 'smart' strategies for urban development), program flow (processes involved in selection, financing and city-level execution) and overall program architecture (institutions and actors involved).

[18] Under the BJP dispensation, on the one hand there is a push towards leveraging global best practices and technologies. On the other hand, the focus on Make in India has also gained renewed political mileage. The 100 Smart Cities Mission also imbibes this focus on domestic manufacturing and production in its emphasis on creating Start Up Hubs/Zones in selected smart cities (MoUD, 2015)

I. Rationale and Stated Objectives

1.1. Stated Objectives

The Smart City Guidelines (2015) lay down the main objective of the100 Smart Cities Mission: "to drive *economic growth* and improve the *quality of life* of *people* by enabling *local area development* and harnessing *technology*, especially technology that leads to Smart Outcomes" (Guidelines, 2015, emphasis added).

That is, the Mission is essentially concerned with furthering the technology-led development of an urban area aimed at improving the quality of urban living and galvanizing economic growth for the city and nation through such investments. At the core of understanding the nuances of these stated objectives and intentions of the Mission are the key questions of—what is the Smart City? whom is it for? And why is it necessary, in the words of the ruling political dispensation? In the context of these guiding questions, this section will describe and critique the main motivations and features of this Mission.

a. Why? —urbanization as an opportunity…only for a few and technology as political arsenal

The BJP-led national leadership since its coming to power have reiterated across varied forums their stance on seeing urbanization as an "opportunity", rather than as a challenge (ET, 2019; PIB, 2015b). Even though the Smart City Guidelines (2015) begin with a discussion of *"The Challenge of Urbanization"*, it is in fact its promising opportunities that define the objectives of the 100 Smart Cities Mission. India's fast-paced move towards urbanization[19], it is emphasized, is expected to drive up existing gains in national Gross Domestic Product (GDP) from urban areas- from over 60% currently to about 75% by 2030 (MoUD, 2015). Thus, cities in being seen as "engines of growth" (MoUD, 2015; MoUEPA & MoUD, 2005a) for the nation, are also becoming sites of increasing political capital. Similarly, migration into cities is also

[19] The existing share of urban populations in India is expected to increase from 31% in 2011 to 40% by 2030 (MoUD, 2015)

seen as an opportunity to trigger planned development, as it is believed to strengthen the base of an emerging "neo-middle class" (MoUD, 2014) seen as making professional contributions in building the urban economy and fiscal base. Therefore, the 'Smart City' model is driven by the belief in urbanization and migration as opportunities.

But rather opportunistically it interprets and emphasizes the promise of these opportunities— increased economic activity, employment and improved quality of life— only for a select few. The shaping of the 'Smart City' is also bound to be influenced by the ruling dispensation's broad vision for governance and development. This vision is driven by a belief in the transformational powers of science and technology besides propagating an aggressive nationalism under the Bharatiya Janata Party led government (Chhibber et al., 2018; Harvey, 2003). The use of technology is pitched as reflecting the "good intentions" of the government in promoting "transparent, corruption-free, simple, system based and policy driven" development (BJP, 2014). Indeed, this even informed the winning election slogan of the BJP- "minimum government, maximum governance" (Ibid.). True to this, the Manifesto (2014) emphasized that "a common thread will run across our ideas and initiatives—the wire and wave of Technology[20] –making governance easy, economical and effective". In materializing this in urban areas, the BJP's manifesto (2014) went on to highlight its early visions for the 'smart city'-- rather ambiguously, stringing together electorally appealing buzzwords such as 'sustainability', 'specialized domains'. In addition, there has been no sound justification provided for the arbitrary number of '100' cities-- to-date.

"We will initiate building 100 new cities; enabled with the latest in technology and infrastructure - adhering to concepts like sustainability, walk to work etc., and focused on specialized domains." (BJP, 2014)

[20] The language of 'technology' in the BJP Manifesto (2014) centres on words such as "computerization", "networking" , "digitization", "big data analytics" and so on. This is besides the reference to IT (broadband/Wi-Fi, optical fibre network)

Having said that, it is to be noted here that the government's initial vision for the smart city was one of building "new cities"—by developing urbanizable land/ greenfield development (Ibid.). By the end of 2014 however, protests against the Modi government's attempt to amend the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013—to acquire farmers' lands without land-owner's consent and social impact assessments, made it difficult for the government to acquire lands to develop cities from scratch (Hoelscher, 2016). Therefore, the 'smart' city vision shifted from building new cities to redeveloping/ retrofitting existing cities—satellite towns and mid-sized cities [21].

Broadly then, the immediate rationale driving the 100 Smart Cities Mission draws from the reigning political leadership's opportunistic understanding of rising urbanization backed by its ideological belief in technology-centered nationalism. Of course, the launch of the Mission followed in a longer, deeper political history of urban development in India (that will be discussed in the second sub-section to this first part of chapter 3).

b. For whom? — a city for global capital and 'smart' residents

The Smart Cities Mission feigns an inclusive policy language with its reference to concepts like 'citizen participation', 'holistic development' (walkability, sustainability etc. along with growth) and emphasis on "PPPP (People-Public-Private-Partnership)" (BJP, 2014; Hoelscher, 2016). Yet it does not shy away from clearly asserting the 'Smart City' as a city only for a select 'smart residents'. These smart people[22] are identified broadly as the community of highly skilled, technically proficient labour that "adds value to (the city) rather than someone who only benefits from it" (MoUD, 2014). Their "wish list" of aspirations (MoUD, 2015) are

[21] The Smart Cities Mission's focus on mid-sized cities has been said to have held an initial promise given that such cities have been historically neglected in terms of service provision and infrastructure development (Vasudevan, 2018)

[22] The Draft Concept Note (MoUD, 2014) refers to smart residents as including an emerging "neo-middle class", "professionals", "experts", "entrepreneurs" and "investors"

prioritized in the 'Smart City' over the basic needs of other assumed 'non-smart'[23] populations perceived to be dependents on the city's resources with the value of their economic contributions being delegitimized. In line with the current dispensation's ideology that marries an aggressive nationalism with the belief in technological transformation, such 'smart' populations who (Datta, 2015) refers to as "technocratic nationalists", form a potent voter base. In turn, the 'smart' model framing social problems as "technological fixes" (even when they are clearly not) (Harvey, 2003) appeals to this largely young 'smart' community not only in terms of expanded career opportunities but also presenting opportunities to explore the endless possibilities of technology application in other non-traditional domains.

So, from its very policy language and intentions, the Smart Cities Mission itself asserts its exclusionary spirit--leaving out not just lower socio-economic classes in the organized 'formal' city; but more so further invisibilizing the unorganized economy that is part of the 'unofficial city'. The focus is really on directing cities to attract and sustain the aforementioned 'smart' community migrating from Indian cities and rest of the world. By its own submission, a key objective in this regard, is to "provide a very high quality of life (comparable with any developed European City)" to its residents (MoUD, 2014) . In essence then, the smart city in India extends "beyond the city itself" with the prime objective of producing spaces attractive to global capital and persons (Joss et al., 2019). In this context, it may also be said that the 'smart city' is in fact more a city for "places rather than people"[24] (Swyngedouw et al., 2002).

[23] While the policy focus is on the conception of a 'smart' resident, the urban poor and rural migrants- who make up the semi-skilled, unskilled labour fueling the informal economy sustaining much of the Indian city are substantively sidelined.

[24] This orientation draws from arguments framing patterns of neoliberal urbanization in Europe wherein it has been noted, the focus of urban development has shifted from having a social to a spatial orientation.

c. What? — the smart city as "an island to showcase technological innovations"

(i) Problem framing and technological solutions in response to a 'smart' market

The 'Smart City' is envisaged as one equipped with globally competitive core infrastructure comprehensive in its provision of "physical, social, institutional and economic infrastructure" (MoUD, 2015). Urban challenges under the Mission are thus framed with regard to these identified "pillars"—(i) Institutional infrastructure deals with improving governance, planning and management systems; (ii) physical infrastructure subsumes mobility and utility services (from water supply to solid waste management, electricity and internet, to public transport, nonmotorized transport services and so on); (iii) education, health and entertainment (including sports) forms what is the social domain and (iv) economic infrastructure focuses on the creation of "financial hubs" that incubate new ideas, jobs and capital (**Figure 2**; (MoUD, 2014)). Each of these services, facilities and utilities are to be made efficient by the application of smart solutions i.e., by leveraging the latest advancements in "information communications technologies (ICT)" and "global best practices" (Ibid.).

ICT and technological innovation are mentioned as a mandatory requirement for all 'smart' cities (Eremia et al., 2017; Joss et al., 2019; MoUD, 2015). Therefore, it is binding on project proposals to contain technological products as solutions to identified urban problems, such as using smart meters in energy and water management, integrated traffic management systems, smart parking, tele-medicine, tele-education, smart thermostats and building management systems, internet band-with and so on (**Figure 3** ;(MoUD, 2015). More the application of these technological solutions within the identified domains of urban problems, the 'smarter' the city. Along with propagating technology as sophisticated product, the Mission also further legitimizes the tradition of using technical expertise in developing and implementing these infrastructure projects. In fact, (MoUD, 2014) advertises presentations made by "leading IT companies like Microsoft, IBM, CISCO, TCS, INFOSYS, Mahindra Tech" and global

consulting companies such as McKinsey, KPMG, PWC in steering policy understanding of the role of IT in 'smart city', as an achievement in itself.

In the context of these requirements then, both urban problem framing and the unconsidered role of technology as a 'solution' under the Mission stand as problematic. The Smart City Mission assumes urban problems in India to be a mere matter of optimization, i.e., those solvable by just improving and updating the performance of infrastructure—without grappling with the real questions of iniquitous access to and selective lack of such infrastructure (Burte, 2014). In this lies the real violence of the Mission, as the "neutrality" lent by its technology obsession allows the Smart City to conveniently stay outside the realm of the historically perpetuated politics of inequality and deepening poverty that characterize urban living in India (Ibid.; (Wilson, 2006)). Therefore, it has been held that the "smart city is not a political city" in its framing, even as it continues to actively indulge in the politics of iniquitous development in practice (Burte, 2014; Hollands, 2008; Idiculla, 2015).

The propagation of technology as a 'solution' is at the core of this politics of the smart city. Technology is largely mere rhetoric under the Mission. But at the same time it serves as a potential market for political capital to venture into; as well as a key legitimizing tactic in terms of facilitating 'citizen participation'. In fulfilling these objectives, the package of technology as sophisticated commodity and expert knowledge—is "endowed with magical powers" (Harvey, 2003) i.e., one whose existence in itself is deemed capable of solving (shallowly framed) urban problems with a swish of a wand. For instance, (MoUD, 2014) pitches the use of ICT in governance (e-governance systems) as being capable of automatically "decreasing arbitrariness and discrimination" in the provision of services. In the same way, digital outreach and feedback through an aggressive use of social media platforms like Twitter and Facebook is legitimized over traditional non-digital outreach as citizen participation under the Mission (Taraporevala, 2018). This push towards technology as community mediator is gravely

concerning especially in a political economy that has struggled to nurture even the most basic forms of bottom-up processes of development through for instance, governance reforms suggested to an extent under the 74th Amendment Act to begin with. Moreover, the fact is that a mere digitization of the system neither solves nor even addresses questions of iniquitous access and the rising "digital apartheid" that the raging COVID pandemic is violently reiterating (PTI, 2020c). Having said that, this soft talk of the magical and 'reformative' capabilities of technology is embedded in the political economy of a real and booming global "smart city market" in which large multinational IT companies and international governments transact. This market is growing "by 27% year over year" and is estimated to hit "$20 billion in worldwide sales by 2020" (Ibid.). Compared to the global experience wherein the scale and show of 'Smart City' infrastructure stands on historically strong local governance ecosystems and democracies, all that is left of the weakly-founded Indian 'Smart City' is its outer optics and its embedded political economy of capital generation and accumulation. Overall, then, India's smart 'city' in reality stands as a privatized smart 'corporation' focused on attracting global private demand through centrally controlled supply-side investments in technology-driven infrastructure (Burte, 2014; Joss et al., 2019).

(ii) 'Smart City' as 'Smart Area'

Further, the development of such 'smart' infrastructure across the four domains is not targeted at covering the entire city but rather focused on "compact areas" that may be replicated over time across the city and in other cities (MoUD, 2015). This means that the 'Smart City' is in essence only a 'Smart Area'[25] -a pocket of the city packed with the latest technology-mediated services and facilities catering to a meagre percentage of the entire city population. Replicating

[25] Around 80% of the projects in a city are mandated as part of Area-Based Developments (ABD) (Deka, 2019). Even in the evaluation of Smart City Proposals, ABD projects are attached a higher weight vis-à-vis Pan City projects (PMC, 2015d).

such ‘smart areas’ across the city is delineated as a “long-term goal” that “cities can work towards (by) developing such comprehensive core infrastructure incrementally, adding on layers of smartness” (Ibid.). In promoting such a focus on replicability, the ‘smart model’s inherent propagation of speculative urban development is highlighted. The development of the rest of city is contingent on the success of the area-based project (i.e., actual usage of infrastructure exceeding or at least matching estimated demand, rate of return for investor companies, ability to finance and keep in check cost of maintenance and so on); and the subsequent investments it can generate as a multiplier effect in other areas of the city. Driven therefore by returns; private capital at the helm of funding mandated technological solutions for urban infrastructure, is bound to prioritize the high-income, up-town areas of the city. This is not to suggest the neglect of low-income settlements. Under the SCM, there are over 70 affordable housing projects across 60 cities at a cost of Rs. 17,035 crores (approx. CAD 2.9 billion) (MoUD, 2016). In this vein, there is reason to believe that infrastructure development under the ‘smart city mission has sustained the political economy of private investments in low-income settlements- as is seen in the sector of affordable housing. For slum rehabilitation/affordable housing projects, local governments tend to incentivize private developers with Floor Space Index (FSI) and Transfer of Development Rights (TDR) gains. Private developers in turn tend to use the TDR generated from these low-income housing projects to build high- end housing in more lucrative areas of the city thus exacerbating housing inequalities ()[26]. Further, in undertaking ‘smart’ housing (rehabilitation) projects, forced evictions were reported in 2017 itself, in 32 out of the then 99 selected cities (Chaudhry et al., 2018). At least 6 homes and 30 people are forcibly evicted every hour in India in the process of smartening cities (Chandran, 2018). (Asher, 2017) detailing the case of demolition of the

[26] Ms. Marina Joseph of Youth for Unity and Voluntary Action highlighted how the 100 SCM “completely negates and overrides existing laws on land tenure and planning” and discussed the urgent need for in-situ housing developments as more sustainable living arrangements for the urban poor.

Charan Khad settlement in June 2016, asks where the place for the poor is, in Smart City Dharamshala. In these ways therefore, the SCM is focused on really creating islands of access and convenience across a massively deprived urban landscape.

In these ways, the Smart City Guidelines (2015) and its Draft Concept Note (2014) lay down a very prescriptive template for what the features and strategies for the 'Smart City' in India ought to be. Despite the ambiguity allowed to prevail around its definition—a mention of there being no "universally accepted definition" and the concept meaning "different things to different people" (MoUD, 2015)— key signatures of the 'Smart City' stand out clearly through the text of these policy documents. First, technology captures the essence of the 'smart' vision (Eremia et al., 2017). Technology as not only the technical expertise held by intelligent, entrepreneiual people but more conspicuously as sophisticated products and services. To this extent, there is no clarification of the difference between 'smart solutions' or strategies and the 'smart outcomes' that are to result from it. All this points to the fact that while the role of technology in development processes is in itself not un-important (and not the subject of this critique); it is rather technology's grossly unconsidered role and aim in the context of the peculiarities of Indian urban governance and living that is of consequence. The second underlying aspect is the global environment of competition fueling the 'Smart City' (Joss et al., 2019). The 'Smart City' sidelines local needs in the race for realizing global aspirations. In doing so, a competitive and corporate spirit overpowers welfare state objectives in guiding development (problem framing and the solution-set) (Swyngedouw et al., 2002). Global (and domestic) inter-city competition to attract capital mandates cities to invest in building competitive advantage over other contenders through constant innovation and development of a core competency (Harvey, 1989; MoUD, 2014). Technology in this regard emerges as a game changer. Such a package therefore becomes indispensable to the creation of a productive physical and business environment attractive to potential investors. In these ways, cities are

transformed from being places of settlement into wholly corporate entities. Within such a competitive and corporatized urban environment, indeed it is the survival of the 'smartest'.

In summation therefore, an examination of the text of the policy documents itself reveals the 'Smart City' in India, in fact as (i) a mere fraction of the actual city, a nano area *("local area development"*) packed with (ii) technology-driven infrastructure, services and planned places (*improved "quality of life")* aimed at attracting an (iii) exclusive 'smart' community of professionals and entrepreneurs domestically and globally *("people")*. This 'smart' model after five years[27] since its launch, continues to neglect the real issues such as historically weak urban local governance, finances, basic problems such as urban flooding/disaster response in need of actual technological interventions. In doing so, its stated aim targeted at economic growth stands as nothing more than political rhetoric and ambition pursued at the inhumane cost of exacerbating iniquitous, exclusionary, centralized and speculative processes of development.

1.2. Rationale

The Smart Cities Mission (SCM) in India is not a novel initiative with new objectives and gains for populations as the ruling government would have us believe. In fact, the SCM is just one more chapter in the long-standing history of the Indian State's arbitrary and thoroughly misplaced deployment of technology as a solution to raging development challenges. Indeed, since even before the country's independence, technology as "expert knowledge and sophisticated product or service" (Sukumar, 2019), has been the prime card played by government-after-government. This is evident in the insidiously similar ways and forms of urban planning and development spread over many decades.

[27] Even within these five years (2015-2020) there has been no attempt at appraising and revising the aforementioned policy documents associated with the Mission to make substantive changes through participative processes involving local communities.

The roots of the model 'Smart *City*' today—translating rather into a 'Smart *Area*'—may be traced back to the specific political history of "private urbanism" or "corporate urbanism" (Glasze, 2005; Sood, 2015) that have since colonial times manifested as "functionally self-contained", elite "urban clubs" developed by public or private corporations . Such settlements grew at varied scales from "gated communities to satellite cities and urban-integrated mega projects" (Sood, 2015). Thus, the historical spread of corporate urbanization in India encompassing many sites such as "gated enclaves", "company towns" "industrial townships" "export processing zones" culminating in an integrated policy on Special Economic Zones (SEZ) in 2005 and the National Investment and Manufacturing Zones (NIMZ) in 2011 (Ramachandraiah & Srinivasan, 2011; Sood, 2015)—all point to an embedded history of privatized, centralized and technocratic urban governance; as well as segregationist and iniquitous development outcomes. These historical patterns of development and associated policy and legislative initiatives form the backdrop to the 'Smart City', which has been previously established (sub-section 1.1.) as an exclusive zone of convenient living for a select professional community, distinct from the rest of the city.

a. Early corporate urbanization—gated enclaves and company towns as "private governments"

Spatially segregated and iniquitous patterns of settlement have been in existence since the time of British rule in India. The first of the British planned cities such as Bombay, Madras and Calcutta in the mid-late 16th century were spatially segregated pre-dominantly "by nationality and race" (Spodek, 2013). Major cities had a similar pattern of development that was usually defined by a "fort area" and its surrounding fortified space called the "civil lines", mainly occupied by British and European professionals, traders, administrators. Cantonment areas or military camps near the fort accommodated the British armed forces and beyond this elite largely British core, the rest of the city was spread out as the "native" or "black town" (Ibid.).

Therefore, the city emerged as a patchwork -- large tracts of unplanned spaces scattered with planned gated enclaves. Gated enclaves have been vastly discussed in urban studies/planning literature globally (Glasze, 2005; Webster, 2001) and in India where they continue to be a defining feature of metropolitan cities as privatized spaces of living (R. N. Sharma, 2010; Wissink, 2013). They are characterized by a **privately administered system** of service provision that caters exclusively to populations residing within its delineated 'gates'. The quality-of-service provision is maintained by placing access restrictions on amenities such as roads, water and electricity supply i.e., by excluding people residing outside its gates from using them (Sood, 2015). Private and public housing colonies/cooperative societies, university campuses, colonial-era military cantonments or industrial townships are some examples of gated enclaves that have defined the urban landscape in India over decades.

A key takeaway here is the "private government" (Glasze, 2005) setup that emerges in governing these gated communities as distinct from and in strategic relationships with the elected local government for the whole city. These private governments are constituted specifically for the area concerned, lobbied for by the private or public developer and facilitated by the state through specially culled out extra-constitutional mechanisms. They take the form of subsidiaries/divisions of the private company developing the area, development authorities, special purpose vehicles or township authorities (as shall be discussed shortly). (Sood, 2015) argues that four key functions of city government are specially allocated to these private governments to govern their areas, viz., "executive and representative functions, infrastructure and services provision, urban planning and security." The allocation of these powers to these niche governments has implications for, and happens often at the cost of, service provisioning outside these gated utopias (Ibid.; (Datta, 2015)). Not only does this stand in clear violation of the spirit of equity in local development, it reiterates exclusive membership and the associated ability to pay as a condition for service provision. Public goods and utilities no more remain

basic rights but are framed as needs that may be met only at a price. That is, public utilities/services are transformed into exclusive "club goods"[28] (Glasze, 2005) .

Exemplifying these critiques is an early and popular manifestation of the gated enclave viz. the industrial township – "settlements developed by the corporate (public or private) sector often as part of concomitant industrial activity" (Denis et al., 2012). Industrial townships have a history that pre-dates the country's independence in 1947 when they existed as "company towns" (Sood, 2015). The first of these company towns in 1907, was the Tatanagar Town built as a planned development by the Tata Iron and Steel Company (TISCO) at the core of what is now the million-plus urban agglomeration (UA) of Jamshedpur (Sinha & Singh, 2011). It has been indicated how over time, the privately[29] governed Tatanagar core has developed distinctly from the municipally governed outer-city-registering fragmented service provisioning and infrastructure development (Crabtree, 2015; Sood, 2015). Yet, the Jamshedpur model of industrial development has been key in setting the ball rolling for other such State facilitated townships in the years post-independence, even providing the basis for the institutional-architecture on industrial townships beginning with the SEZ policy in 2005 (Ramachandraiah & Srinivasan, 2011; Sood, 2015). In fact, the much celebrated Jamshedpur industrial city is reportedly fast on the road to becoming a 'smart'[30] city even though it is not one of the selected 100 under the Mission (Gupta, 2018).

[28] (Glasze, 2005) applies the economic conceptualization of clubs to specific emerging urban settlement patterns, i.e., "private neighbourhoods with self-governing organization". In this light, patterns of club urbanism emerge as "groups which collectively, but exclusively, share the consumption of specific goods on the basis of ownership-membership arrangements"

[29] The Jamshedpur Utilities and Services Corporation Ltd. (JUSCO) was in 2004 carved out of the Town Services Division of TATA Steel (Gupta, 2018)

[30] JUSCO, serving as a Special Purpose Vehicle since 2004, has collaborated with TATA Communications to develop IoT for use in improving the city's utilities. This is an indication of an intensification of historically existing privatized (and divisive) patterns of urban development under the 100 SCM (Ibid.).

b. Shifts in corporate urbanization since the 1990s—policy boosterism and the rise of IT

A landmark period in this unfolding history of industrial townships and largely of corporate urbanization in India, has been the 1990s. Two major reforms were ushered in viz.—Liberalization, Privatization and Globalization (LPG) in 1991 and the 74th Constitutional Amendment Act in 1993. The political economy of industrialization sparked in the 1950s with the First Five Year Plan and hitherto steered by the national and state governments (Sivaramakrishnan, 2011a) was opened up to include other actors who (to varying extents) were now seen as partners of the traditional State, in governance. These partners included those drawn from the market—global manufacturing industries, private firms and consultancies; representatives from the society—non-governmental and civil society organizations and —now constitutionally recognized local governments.

i. Strengthening corporate-led urban development through decentralization and LPG reforms

The 74th Amendment Act directed state governments to devolve key urban service-provision functions (relating to urban planning, sanitation and so on) to urban local bodies at the city-level. But simultaneously and strategically, the Act also made provision to exempt industrial townships that had been providing (or proposed to provide) municipal services in the designated area, from the purview of such municipal governance as per Article 243Q clause 1 (c), as discussed in Chapter 1. Therefore, this exception clause enabled the national government, through its state counterparts, to sustain this pattern of corporate urbanization at a larger scale despite the decentralization reforms (Sood, 2015; The Parliament of India, 1993). At the same time, the move towards a liberalized and globalized political economy also shifted the value of the city in the eyes of the Indian central leadership, from an ornamental symbol of

modernity to being seen as "engines of growth"[31] (MoUEPA & MoUD, 2005a). With an open, liberalized economy now, the role of private capital in India in sparking and sustaining urban infrastructure development became more prominent. Additionally, as part of a globally competitive economy, India was faced with a challenge of competing internationally with other nation-states in attracting this private capital to its cities. This was accompanied by other factors such as the inefficiency of public sector initiatives in adequately bridging urban infrastructure gaps and the availability of policy models of private urbanization across other Asian countries (Sood, 2015) that sustained and strengthened such patterns of development.

ii. Policy boosterism for privatized governance—Special Economic Zones Policy, 2005 and National Manufacturing Policy, 2011

Together, such factors prodded a revamping of existing disparate frameworks of corporate urbanization, into a more integrated and up-to-date policy framework (Sood, 2015). As a result, the Special Economic Zones (SEZ) policy, evolving from the Export Processing Zones of 1960, was rolled out in 2005 (Ibid.). The envisioned SEZ at national and state levels largely carried forward the prototype of the industrial township and institutionalized it as a "self-contained[32] area with high-class infrastructure for commercial as well as residential inhabitation" (N. Menon & Kanti, 2009). Similarly, the National Manufacturing Policy (NMP), 2011 proposed

[31] A widely quoted McKinsey report India's Urban Awakening (2010) predicted a fast-paced rate of urbanization in India, estimating urban populations to increase to 590 million by 2030 (from 340 million in 2008) and therefore necessitating increased expenditure on infrastructural development and the creation of over 30 "new cities" to house expanding populations. It reads thus: "Although building new cities is generally more expensive (on a per capita basis) than renewing existing cities, such an effort will act as a benchmark and a model for well-planned, environmentally sustainable world- class cities while helping ease some of the strains of rapid urbanization" (Sankhe et al., 2010). This claim of a fast-urbanizing India and the associated urgency to prioritize urban development in an open, globally competitive economy has since shaped the stated rationale of the JNNURM and now for the 100 SCM.

[32] Private government setups within this 'special zone' were endowed to varying extents (by central government or by respective state government legislations) with municipal powers of planning, governance, security, infrastructure development and so on, besides tax incentives, faster clearances among other benefits.

to set up National Investment and Manufacturing Zones (NIMZ) as green-field development industrial townships "benchmarked with best manufacturing hubs in the world…to meet increasing demand for creating world class urban centres" (National Manufacturing Policy, 2011). In some states like Gujarat, Special Investment Regions (SIRs) were proposed as industrial townships, with a Gujarat SIR Act passed in 2009 (BS, 2013; Sood, 2015). As of 2020, there are 358 SEZs (MoCI, 2020b)[33] and 8 SIRs (in Gujarat) (GIDB, 2020), three approved NIMZ[34] (MoCI, 2018)—indicating the spread of corporate urbanization in the country.

iii. 'Smart' urban development—industrial corridors and the 'IT' factor

By the mid-2000s, drawing on redeveloping existing freight corridors, Industrial or Infrastructure Corridor projects were initiated (MoCI, 2020a). Their primary aim was to enhance connectivity among key industrial townships along the length of the corridor and thereby stimulate the manufacturing sector in the region through investments in "world-class infrastructure and reduced logistics cost" (Ibid.). Key among this, is the Delhi Mumbai Industrial Corridor (DMIC) that was approved by the Union Cabinet in 2007, which set the ball rolling for many such projects under the new political leadership in 2014 that are in various stages of development today. These corridors have been critical in catalyzing the move towards 'smart' urban development –with the objective of "integrating geographic planning with digital planning with an Information & Communication Technology (ICT) backbone to create Smart cities of the future" (Ibid.).

As is highlighted above, along with the policy boost triggered by the 1990s reforms, the nature of corporate urbanization also underwent a change as the city began chasing 'world-class'

[33] Over 50% of these notified SEZs as of 2020 are under the category of IT/ITES- Information Technology or Information Technology Enabled Services.

[34] In 2018, approval to create 16 National Investment and Manufacturing Zones (NIMZ) has been granted by the Ministry of Commerce and Industry

aspirations by taking a 'smart' turn. The neoliberal agenda, in establishing alternatives to traditional state-led development, urged nation-states to tap aggressively into the global market of scientific and technological innovations spearheaded by large private and multi-national corporations[35]. An international market for technical expertise and sophisticated product/services in urban development began to emerge. Urban problems thus came to be framed in relation to the expertise, products and services this market could supply (and earn from)[36] and not in response to the daily lived realities of people on the ground (Burte, 2014; Smart Cities Council, 2015). As a result, the patterns of corporate urbanization that had until now been fueled pre-dominantly by the manufacturing (including electronics) industries; was met by a globally galvanized Information Technology (IT) revolution and its promise for shaping urban futures in the early 1990s. This signaled the beginning of a corporate urbanism wave, centered on IT.

In some cities, the ground was already well-prepared to promote IT- and ITES (IT Enabled Services) industries. These industries began to be accommodated in clusters on primarily agricultural land bordering city limits that grew as 'IT parks' especially in Bangalore, Hyderabad, Pune by the mid-late 1990s (Ramachandraiah & Srinivasan, 2011). For instance, Electronics City emerged on the outskirts of Bangalore, in the Hosur area, with the central government establishing the Software Technology Parks of India (STPI) in 1991 (Idiculla, 2013). Over the years, it grew to include more industries and multinational corporations while being endowed with special State-facilitated benefits under enabling policy frameworks such as the SEZ. By March 2013, Electronics City became Karnataka's first Industrial Township

[35] Such technologies were pitched as providing transparent and efficient alternatives to what began being considered as traditionally opaque and inefficient state-led systems. This informed policies like the e-governance movement in India (Hoelscher, 2016).

[36] An example in this regard is India's subscription to the globally surging e-governance movement in 2004. This sought to improve the quality and speed of public service delivery at the municipal level by partnering with global tech companies such as SIEMENS, MICROSOFT, CISCO and so on that furnished municipal bodies with cutting edge computer software and mobile-based technologies (Hoelscher, 2016)

Authority and was thereby endowed with powers of a municipal government (Ibid.). Today, the industrial township is being 'smartened' through a collaboration between ELCITA and CISCO under its smart+ connected communities initiative (IANS, 2014).

The case of Bangalore thus illustrates the evolution of the current Smart Cities wave from patterns of (private) urbanization. The immediate political traction for the 'smart city' came from what has been termed as the "entrepreneiual urbanization" shaping the development of industrial townships along the Delhi Mumbai Industrial Corridor such as the Dholera and GIFT City in Gujarat. Under the chief ministership of Narendra Modi, they began being pitched as 'models' of 'smart' development that prioritized a technology-facilitated efficient urban vision—in time for the general elections of 2014 (Datta, 2015; Hoelscher, 2016).

In summation therefore, there are key takeaways for the strategies and potential impacts of the unfolding Smart City Mission from this deep history of corporate or private urbanization in India—from colonial-era gated enclaves (such as military cantonments and housing colonies), to company towns and industrial townships centred around manufacturing industries- rapidly influenced by a digital/IT turn since the 1990s.

Through this, the aspects relevant to our understanding of the 'Smart City' are (a) the "private government" arrangements in these exclusive zones of living that are facilitated by the State and exist in strategic relationships with it. The framework of the Special Purpose Vehicle (SPV) as the implementer of the 100 Smart Cities Mission draws on a history of such private company led development[37]. These private governments under different enabling legislations have been tasked, to varying extents, with urban government (executive and representative) functions pertaining to the provision of—physical infrastructure, social infrastructure, urban amenities, planning and/or access/security (Sood, 2015). Such allocations of local governance,

[37] As discussed, these privatized forms of development have existed in the form of the Town Division of TATA Steel governing Jamshedpur's company town, elaborately detailed Development Committees under the Gujarat SEZ Act or SPVs established for administering National Investment and Manufacturing Zones (NIMZ).

have worked towards rendering "these sites largely autonomous of the wider urban region" (Ibid.). As a result, past experience has reiterated the (b) long-term impacts of these specialized development patterns. In fact, historically existing cases of industrial and electronic cities such as Jamshedpur and Bangalore together highlight how under the 100 SCM, such patterns of privatized and corporatized governance are getting further legitimized and intensified. That is, the 100 SCM (i) attempts to bring new mid-sized and small cities under this prevailing corporatized framework while (ii) supporting its intensification in long standing big (industrial and electronic) cities (that may/may not be 'selected' under the Mission).

The Smart City's governance and development framework centred on four core infrastructures (**Figure 2**) takes forward such existing corporatized arrangements, with a distinguishing focus on efficiency through mandatory technology-enabled services/utilities, an increased thrust towards inter-city competition and speculation in stimulating development.

II. Program Architecture

The above Section I critically evaluated the stated objectives of the 100 Smart Cities Mission and the rationale or political history of development it draws from. Therein, the questions of *what* is the 'Smart City' and *why* it exists as a policy intervention in India were discussed. Specifically, the features of the 'Smart City' were highlighted as the application of 'smart solutions' to utilities/services across four domains of intervention in urban areas viz.— physical, social, economic and institutional infrastructure. The following section will expand on the question of *how* this envisioned 'Smart City' is to unfold with regard to the scope and flow of the Mission— as prescribed under the Smart City Guidelines (2015) (released by the Ministry of Urban Development, Government of India) and the ways in which it has unfolded over the years since its launch.

2.1. Program Scope and Flow

This will be discussed with regard to the strategies, processes and institutions involved in the (a) selection and monitoring and (b) implementation and financing of projects as prescribed under the100 Smart Cities Mission (SCM).

a. Selection and Monitoring

i. Selection process— the competitive City Challenge

The Smart Cities Mission aimed at promoting 'smart' development in 100 cities over a duration of five years (FY2015-16 to FY2019-20). While the initial intention was to create 100 'new' cities as greenfield developments (BJP, 2014), the (MoUD, 2014) made evident the Mission's focus on existing mid-sized and small cities including satellite cities, capital cities and those of "religious, tourist and economic importance". Between 2016-2018, 100 cities were selected under the Mission over four rounds (**Table 1**; (Smart City Selection))

To an extent, a distinguishing aspect of the 100 SCM is its process of phased selection of cities that was framed as a competitive 'City Challenge'[38]. This mandated cities across the country to 'compete' with each other in two stages—intra-state and inter-state, in order to receive allocated funds and initiate development under the Mission (MoUD, 2015).

Stage 1, the "intra-state" challenge, involved cities within each State/Union Territory (UT) competing against one another to be shortlisted as a potential smart city at the sub-national level; and Stage 2 involved an inter-state challenge wherein state-shortlisted and centrally approved cities across all the states competed at the national-level, for final selection as a 'Smart City'. Through this process, a pre-determined cap was placed on the number of smart

[38] Bloomberg Philanthropies, with its contested track record in shaping urban development in America, was involved in "providing strategic and technical support to the (Government of India) in the design and delivery" of this competitive challenge (Bloomberg, 2015). Further, it is stated that Bloomberg Philanthropies would support "India's municipal officials (to) …generate smart proposals". This is misguiding, as "municipal officials" have no real place in the conceptualization or execution of the smart city; especially with the urban local body required to devolve its relevant powers to a bureaucratized Special Purpose Vehicle.

cities each State/UT could have, depending on two (equally-weighted 50:50) criteria—the urban population of the state/UT and the number of statutory towns (or notified urban local bodies) in it[39] (MoUD, 2015). Therefore, a key rule of participation was that each State/UT could propose cities for 'smart' development under the Mission, only up to this total number of allocations assigned to it. In this vein, it must be said that this process of selection, framed as a 'competition', rather than being mediated by collaboratively set rules unfolded instead within very rigid, centrally prescribed and controlled templates.

Indeed, the detailed design of the City Challenge was developed and thrust upon the state and urban local governments unilaterally by the Mission Directorate at the national level. The centralized detailing of these criteria is so intensive that Annexures to the Smart City Guidelines (2015) contain forms, indicative table of contents and blueprints that state governments/urban local bodies are expected to just fill in and submit, with no real avenue (nor will) to recommend modifications or raise concerns regarding these templates.

Intra-state challenge— the city "Score Card"

As part of Stage 1, state governments were mandated to shortlist potential smart cities based on prescribed "conditions precedent and scoring criteria" (MoUD, 2015). Annexure 3 provides two forms—a Score Card and a Shortlisted Cities form.

The Score Card details 15 specific criteria under broadly four domains of local governance viz. —"existing service levels, institutional systems/capacities, self-financing and past track record and reforms" (Ibid.); in order to evaluate local capacities and historic performance (**Table 2**). Each of these domains are assigned marks such that the domains of 'self-financing' abilities of

[39] This meant that larger states such as Maharashtra (10 smart cities), Uttar Pradesh (13), Madhya Pradesh (7) and Tamil Nadu (12) stood to have higher number of 'smart cities' and thereby higher proportion of funds vis-à-vis smaller states/UTs such as Bihar (3), Himachal Pradesh (1) or Orissa (2).

the ULB and its 'past track record' are weighted the highest in determining its potential to becoming a 'Smart City'.

Once filled in and submitted to the State Mission Director by the ULB, the highest scoring ULB was thus approved and shortlisted[40] by the State High Powered Steering Committee (HPSC) and submitted to an Apex Committee at the MoUD. The Apex Committee then announced the winning ULBs across varied states, to participate in the next (and final) inter-state challenge (Ibid.).

Inter-state challenge— the "Smart City Proposal"

Under Stage 2 of the City Challenge, shortlisted cities across states/UTs were to compete against each other at the national level. In doing so, each city/ULB was required to prepare its own detailed Smart City Proposal (SCP) as per centrally prescribed guidelines.

The SCP forms a key guiding document to the conceptualization and implementation of the Mission at the city level. To have competitive advantage over other cities, the (MoUD, 2015) urges cities to draft the SCP with "great care" and "made smart enough" by adding more smart solutions to proposed infrastructure.

Annexure 4 of the Guidelines contains a set of evaluation criteria and indicative table of contents "worked out by the MoUD on professional advice" (**Table 3**). Two sets of criteria are laid down, to evaluate the (i) city and its (ii) proposal to create a 'Smart City'. The city is evaluated with regard to its vision for a 'smart' future and credibility to implement it (capacities and track record), with a total of 30 points allocated to this level of evaluation. The major score (70 points) is assigned to the proposal that is expected to detail the financing, processes,

[40] In this regard, the Shortlisted Cities Form was to be filled in by the State HPSC. This form contains the list of shortlisted cities in the state, details of scores obtained by each, undertaking by the state government to develop them as 'smart city' and the order for creating an Inter-departmental Task Force (consisting of parastatal agencies, ULBs and urban development authorities) in each shortlisted city.

scalability, innovation, and impacts of projects under two broad strategies of 'smart' development viz. Area Based Development (ABD) and Pan City Initiatives (PCI).

Smart Strategies—Area Based and Pan City Developments

The ABD and PCI form the strategic components in preparing the SCP and therefore in critically defining the implications of the Mission for governance, planning and development. Under the ABD, a pocket of the city is chosen to be improved (retrofitted), renewed (redeveloped) or extended (greenfield development). The (MoUD, 2015) mandates that the SCP of each shortlisted city in proposing an ABD encapsulate either of these modalities[41] or a mix thereof. Along with an Area Based Development thus created using either of these strategies, it is required that the SCP also contain a mandatory (at least one) city-wide smart component also so that "all city residents feel there is something in it for them also" (MoUD, 2015). Pan City development is envisaged as the "application of selected Smart Solutions to existing city-wide infrastructure" such as Intelligent Traffic Management Systems in the city's transport system, or wastewater recycling or smart metering of water (Ibid.). Having said that, of the 70 points allotted to the smart city proposal under the evaluation scheme, the majority (55) points are assigned to the proposed Area Based Development and the Pan City initiative carries only 15 points of this total. Therefore, from the evaluation and preparation of the SCP itself, resources are deemed to be more skewed towards Area Based Developments. This explains why the Smart Cities Council of India (SCCI) has itself pointed to the 'Smart City Mission' being instead a 'Smart Area Mission' (Sobia Khan, 2019a).

[41] Through retrofitting, it is expected to improve an identified "existing built-up area" of more than 500 acres at least, packing it with "more intensive infrastructure service levels and large number of smart applications". On the other hand, redevelopment is deemed to transform, i.e., renew or replace an existing tract of built-up area (of more than 50 acres) by changing its existing layout with "enhanced infrastructure using mixed-land use and increased density". Taking this a step further, greenfield development is envisioned as extending the city itself by acquiring "vacant area (more than 250 acres)" within municipal limits or outside it (within the limits of the development authority) through speculative land pooling or land reconstitution; and developing it with housing and services for expanding populations.

In these ways, the Smart City Proposal emerges as the core conceptual document determining not only the fate of participant cities in the final stage of the City Challenge; but also, crucially shaping the Smart City's implementation after its selection. The higher the 'smartness' quotient (with regard to technology-driven projects) of the SCP, the higher it is likely to score in the competition. Moreover, a major "element that must form part of a SCP" is physical infrastructure be it "pedestrian pathways…streetlights, innovative use of open spaces" (MoUD, 2015). Therefore, the prescribed design of the SCP is focused more on development triggering "visible improvements in the Area" or "hard outcomes" in shorter frames of time (Ibid.; (PMC, 2015c)). This further reiterates the Mission's framing of urban problems as needing only to be optimized- retrofitted or beautified; and its sidelining of questions of iniquitous access and other structural challenges, deemed as 'softer' 'invisible' and incremental' outcomes.

In addition to prescribing the aforementioned evaluation criteria and template of the SCP, the MoUD also provides a centralized mechanism of technical assistance to cities/states in preparing their respective SCPs. This technical assistance manifests in the form of (i) consultancy firms that may be hired by states/cities from the "panel qualified by the MoUD"[42] (MoUD, 2015) and (ii) handholding agencies including foreign government agencies and international financial institutions such as Asian Development Bank, World Bank, JIC, UN Habitat and so on. Annexure 1 of the Guidelines (2015) highlights the "scope of work for smart city consulting firms".[43] All interactions between the state/city and the technical consultants are mediated and forged by the MoUD. In this regard, the language of technology-mediated citizen participation is also leveraged as a key legitimizing tactic for the Mission in terms of shaping the SCP in what is pitched as an inclusive or democratic way.

[42] States can also hire consultancy firms independently from outside the panel, provided rules of transparency are followed in the process.

[43] Smart City consulting firms are required to prepare a City Concept Plan (by reviewing existing plans and policies across different urban development departments such as the city Mobility Plan, City Sanitation Plan, City Development Plan and so on), undertake citizen consultations, form Strategic Action Plans (for Area-Based and Pan-City developments) and respective financing plans in drafting the SCP.

Once the SCP is thus prepared by the respective urban local bodies, it is to be reviewed by the State High Power Steering Committee (HPSC) and then submitted to a national committee "involving a panel of national and international experts, organizations and institutions" (Ibid.). After evaluation, the Apex Committee at the MoUD reviews all the submitted SCPs and announces the winners of the (first round) of the Challenge. While the winners proceed to setting up the requisite institutional infrastructure to begin implementing projects proposed under their SCPs, the SCPs not selected in this first iteration are expected to re-work their entries and re-submit them in the second round of the Challenge. In this way, 100 smart cities were selected through a prescriptive and competitive process across four rounds between 2016-2018 (**Figure 4**).

ii. Mission monitoring—centralized three-tier system

In the unfolding of this process, a centralized monitoring scheme becomes evident (Error! Reference source not found.)

At the helm of this scheme is the national-level Apex Committee[44] headed by the Secretary of the Ministry of Urban Development. The Committee is to be composed of top bureaucrats, officers of the Indian Administrative Services (IAS) and allied public services heading related ministries and agencies of the national and state governments[45]. The National Mission Director (NMD), "not below the rank of Joint Secretary to Government of India" (MoUD, 2015), head of the Mission Directorate, is responsible for overseeing all activities related to the Mission, coordinating among state, city and national stakeholders; facilitating "knowledge sharing"

[44] The Apex Committee plays a (more direct) reviewing role in the process of selecting cities, along with approving funds release after adequate mid-course evaluations and quarterly reviews of the progress made by selected cities in implementing their respective plans

[45] City-level representation is limited to select CEOs of the Special Purpose Vehicle (SPV) (constituted in each city to implement the Mission), who are again bureaucrats.

(Ibid.), capacity building and technical assistance among them; and importantly, conceptualizing/designing the overall structure of the Mission including the City Challenge.

This bureaucratized and centralized structure follows into the sub-national level as well; steered by the State High Powered Steering Committee (HPSC) headed by the State Mission Director (SMD). The State HPSC consists of bureaucrats from the state and central governments[46]. City political representation is limited to the nominal elected head of the local government, i.e., the Mayor. Together, the HPSC and SMD are involved in facilitating participation of cities in the City Challenge, as well as guiding the Mission's implementation in selected cities by providing a state-level platform for inter-city exchange of ideas.

Finally, at the city-level a Smart City Advisory Forum[47], headed by the CEO of the Special Purpose Vehicle, is responsible for guiding and coordinating the Mission. Here, local representation is marginally expanded to include at least one representative from civil society organizations in the area (resident welfare associations, chamber of commerce, slum federation) and "local youths" (Ibid.). Centre and state-level bureaucratic and technical representation is sustained even as elected representatives are included in the Forum.

Overall, the Mission's monitoring emerges as "intrusive" with the central government intervening in the functioning of the state and local governments (Gopakumar, 2015; Sadoway et al., 2018); highly bureaucratized and technocratic being steered by the unelected administrative cadre and technical experts; and prescriptive with no avenue for substantive dialogue.

b. Implementation and Financing

[46] This includes the centre-appointed CEO of the Smart City SPV and state-appointed Municipal Commissioner.
[47] The Smart City Advisory Forum is to be established on the lines of the Inter-departmental Task Force committed to in Stage 1 of the City Challenge

In continuation of the historical language of privatized urban governance in India, a Special Purpose Vehicle (SPV) is mandated to hold the reins of implementing and financially sustaining Smart City related projects at the city-level. On the face of it, the Smart City SPV is pitched as being unique in it ensuring an equitable role for the urban local body in creating and sustaining it. But owing to the historically centralized urban governance structure in India, the SPV emerges as yet another political aspiration for corporate governance led urban development in India, likely to ultimately become a financial liability for the central government.

i. Organizational structure of the SPV

The stated objective of creating a SPV, distinct from the urban local body, is to "ensure operational independence and autonomy in decision making and mission implementation" (MoUD, 2015). Therefore, after the selection of the city into the Mission; it is incumbent on the concerned state/urban local body to set up a SPV as a limited company (under the Companies Act, 2013). At the helm of this public corporation structure is the Chief Executive Officer (CEO), an Indian Administrative Services (IAS) officer appointed by approval from the Ministry of Urban Development for a fixed period of three years. The CEO is charged with the responsibility of overseeing the day-to-day conduct[48] of the Company. In the discharge of these duties, the CEO is to be assisted by a Chairperson, again a bureaucrat[49] appointed by the State government. Both the CEO and Chairperson are answerable to a Board of Directors composed of administrative representatives from the central and state governments; chief executives of concerned parastatal authorities; and independent directors drawn from the realm of publicly listed companies from "data banks maintained by the Ministry of Corporate

[48] This involves supervising work, entering into contracts or partnerships with service providers, determining duties of employees, formulating a Human Resource Policy and managing recruitments and removals.
[49] A bureaucrat of the rank of a Municipal or Divisional Commissioner/Collector/ head of Urban Development Authority is to be appointed.

Affairs" (Ibid.). Broadly then, the city's dynamic and long-term development agenda, is placed in the hands of an SPV run by non-elected bureaucrats and private sector chiefs, serving on a contractual basis, subject to unaccountable transfers/removals.

ii. Powers and functions of the SPV

Although thus incorporated under the Companies Act, the SPV (questionably) draws most of its powers from the concerned urban local body as delegated under the respective state Municipal Acts. In this context, the broad "rights and obligations" of the ULB with regard to Smart City projects are required to be delegated to the SPV (MoUD, 2015), in direct violation of decentralized urban governance under the 74th Constitutional Amendment Act. Municipal decision-making powers and approvals are allotted to the Chief Executive Officer (CEO) and Board of Directors (BoD) of the SPV. Further, the SPV also has the power to determine and "collect taxes, surcharges" and "user charges" as authorized by the ULB (Ibid.). In these ways, in delegating municipal powers to the SPV, the aim is to assure "complete flexibility" (Ibid.) to it in implementing the Mission. The SPV is thus the main implementing agency of the Smart City Mission, expected to "plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate" (Ibid.) proposed projects in compliance with the Smart City Proposal as well as the necessary directives of the Ministry of Urban Development (MoUD). In doing so, one of its key functions is to mobilize resources, both technical and financial, towards the operationalization, monitoring and timely completion of projects. So, it is expected to draw on technical assistance independently or as provided by the MoUD, i.e., hire Project Management Consultants from the nationally empaneled consultancy firms or handholding agencies; or draw on "model frameworks developed by the MoUD" with regard to draft Detailed Project Reports, Financial Plans and so on. Along with thus building technical proficiency and professionalism in functioning, the SPV is also expected to be financially self-sustainable. Besides utilizing

government funds[50] towards operationalizing and monitoring projects, the SPV is required to financially innovate in terms of independently mobilizing funds from other sources.

iii. Mission's financing model—role of the SPV

The 100 Smart Cities Mission is to operate as a Centrally Sponsored Scheme. The central government has proposed to commit Rs. 48,000 crores (approx. CAD 8.3 billion) over five years across the 100 cities[51]. This is to be matched by an equal amount, Rs. 48,000 crores (approx. CAD 8.3 billion) from the State/ULB, thereby making the total available government funds for smart development over five years about Rs. 1,00,000 crores (approx. CAD 17.4 billion). Of these total funds, 93% are directed towards projects while 7% are reserved for administrative and office expenses (A&OE) undertaken at the state/ULB and national level[52]. These government funds are released to each city over five years in specific installments of Rs. 192 crores (CAD 33.5 million) in the first year[53] followed by Rs. 96 crore (CAD 16.7 million) each for the next three years (after deducting A&OE costs). The rest of the financial model of the Mission revolves around the ability of the SPV to optimally leverage these initial government funds towards attracting additional funds from other sources (both government and, more importantly, market sources; Error! Reference source not found.). Therefore, the Mission's financial model rests critically on the SPV's ability to "evolve its credit worthiness" (MoUD, 2015) over time.

iv. Equity arrangement of the SPV

[50] Government grants under the Mission are disbursed to the SPV in the form of tied grants and kept in a separate Grant Fund.
[51] This translates to Rs. 96 crores (CAD 16.7 million) for one city per year. Central budgetary allocations to the SCM as of 2019 stand at Rs. 6,450 crores (CAD 1.1 billion), a meagre amount of the total proposed commitment. (Ramani, 2020; Venkataramakrishnan, 2015)
[52] Administrative and office expenses are categorized as the cost of preparing the Smart City Proposal or conducting pilot studies and capacity building activities, concurrent evaluations and so on.
[53] Funds for the first two years (Rs. 96 crore (CAD 16.7 million) each) are released together in the first installment, therefore totaling to Rs. 192 crores (CAD 33.5 million).

As a limited public company, it is prescribed that the SPV have a specific arrangement of shareholders and a required initial paid-up capital (that is tied to the broader financing of the Mission). The shares of the SPV are to be jointly held by the state government and the urban local body (ULB) concerned, in an equal 50:50 ratio[54]. The private sector may also be a part of this arrangement, if needed. Thus, two shareholding arrangements may be possible, involving the (i) ULB and State government or (ii) ULB, State government and Private sector. Across these arrangements, two conditions are given as mandatory: (i) number and value of shares held by the ULB and the State must in all circumstances be equal and (ii) jointly, the ULB and the State must have majority shareholding (and control) of the SPV (**Table 4**). Therefore, the initial paid-up capital[55] of the SPV is to be made up of equal contributions from the State and the ULB.

The idea through this equity arrangement is to cement the ULB as a co-owner of the SPV and retain local government control over it. But this is futile given the historic centralization of urban public finance and the requirement for ULBs to devolve their powers to the SPV. Moreover, the (MoUD, 2015) permits "GoI (Government of India) grants….to be utilized as ULB's share of equity capital in the SPV"[56]. Urban development is to be driven by the SPV attracting private actors to be part of this equity arrangement, i.e., speculative and corporatized.

2.2. Extent of Implementation

a. Selection and institutionalization

[54] Both the ULB and the State Governments are required to be equal contributors to investing in and creating the SPV.

[55] The initial paid up capital is to be jointly determined by the State and ULB according to the size and number of projects; and the amount and means of financing required.

[56] Thus, calculated in accordance with the aforementioned central grants of around Rs. 96 crores per city per year; and a matching contribution (Rs. 96 crores) by the state government; the initial estimated (minimum) paid-up capital of the SPV is prescribed to be Rs. 192 crores (approx. CAD 33.5 million).

The total 100 smart cities represent all 28 states and 8 union territories, if not uniformly, with at least one city selected from each of them, over four rounds between January 2016 to January 2018 (Smart Cities Network) The Mission covers an estimated total urban population of more than 99 crores (990 million) (SCM India). Over 95% of cities fall in the Tier II and Tier III categories with populations between 10-50 lakh (1-5 million) and less than 10 lakh (< 1 million) respectively (PIB, 2015a). Some of these cities with populations over 20 lakh (2 million) such as Pune, Surat, Indore or Jaipur are burgeoning multi-jurisdictional urban agglomerations. Across all the 100 cities, Special Purpose Vehicles (SPV), Project Management Consultants and Smart City Advisory Forums (SCAF) have been instituted to implement the Mission (Anand et al., 2018). Further, a pattern of zero private ownership and minimal political representation in the constitution of SPVs has been registered in 35 out of 60 studied smart cities (Ibid.). Instead, bureaucrats of the state governments form the key "powerhouse "of the SPV (Taraporevala, 2018) .

b. Projects, costs and timeline

i. Total investment

As of 2019, a total of 5151 projects (including Area Based and Pan City Development projects) have been proposed at a total estimated cost of Rs. 2,05,018 crores (approx. CAD 35.8 billion) across the 100 cities between 2016-2018 (MoHUA, 2019).

ii. Strategies and domains of intervention

81% of the total proposed investment is directed towards Area Based Development projects (at a total cost of Rs. 164,204 crores (approx. CAD 28.6 billion) and 19% towards Pan City projects (totaling to a cost of Rs. 38,914 crores (approx. CAD 6.7 billion) (MoHUA, 2019); SCM India). (Anand et al., 2018) examining the case of top 60 smart cities, identify about 80% of the total smart city budget across these cities as being directed towards projects in largely

five domains viz.—Transportation, Energy and Ecology, Water and Sanitation, Housing, Economy. More than 70% of projects undertaken under these domains were found to be Area Based Developments, majorly focused on: roads and parking; renewable energy and gas metering; sewerage and solid waste management along with water supply; higher end real estate development; new office constructions and market redevelopment (Ibid.). As a reiteration of this pattern, the (MoHUA, 2019) also identifies six project categories as being key to the Smart Cities Mission, including—Smart Command and Control Centres, Smart Roads, Smart Solar, Smart Water, Vibrant Public Spaces projects; and projects enabled by Public-Private Partnership (Error! Reference source not found.). Smart Road projects emerge as the most rapidly progressing category, followed by (miscellaneous) projects enabled through PPP arrangements.

Across these projects, the deployment of the IT component, the defining and distinguishing core of the Smart City Mission (SCM), tends to be concentrated only in select sectors of transportation, energy and water/sanitation (Anand et al., 2018). In fact, only 15% of SCM funding is being directed towards sectors considered to be unique to the 100 SCM, viz. “IT, Governance, Culture & Heritage, Health and Education” (Ibid.). Much of the SCM then emerges as merely carrying forth development across traditionally favored domains (of transportation, housing, energy and so on) but with an intensified focus on building the economic (financial) value of the city, through a promotion of projects accelerated primarily by speculative development than by social development (Anand et al., 2018; Taraporevala, 2018).

iii. Performance and timelines

With regard to the rate of completion of projects under the Mission, newspaper reports indicate that as of July 2019 less than 15% (800-827 projects) of the total 5151 projects have been

tendered, about 37% (1900-1931 projects) work orders have been issued, and only a meagre 11-18% (910-933 projects) stand completed (Error! Reference source not found.; (Deka, 2019; Jadhav, 2019; Krishnan, 2019)). Government data on the other hand claims that by December 2019, over 85% (4354) projects have been tendered, work orders issued for over 68% (3548) projects and 28% (1461) projects stand completed, registering a 366% growth in completed projects in the last 18 months (MoHUA, 2019).

Yet, the actual utilization of funds towards completing projects has been poor vis-à-vis government projected total expenditure towards the same. Between 2015-2019, only about 50% of the total Mission budget (of Rs.48,000 crore (approx. CAD 8.3 billion)) has been allocated; three fourth of this has been released and only 36% of released funds have been utilized in four years (Error! Reference source not found.; (Krishnan, 2019).

Recently, post the COVID19 lockdown, it is reported that fund utilization under the Mission has doubled and stands at about 74% (Rs. 808 crore (approx. CAD 141.1 million)) as of September 2020 (Error! Reference source not found.; (N. Sharma, 2020). A thrust towards construction activities post lockdown and the unique phased selection of smart cities (due to varied completion timelines for different cities) have been attributed as reasons for this recent surge in funds utilization. Amidst the pandemic, the demand to build Integrated Command Control Centres to track and manage cases across cities has gone up. Owing to these factors, between January-September 2020 reportedly an estimated Rs. 5776 crore (approx. CAD 1 billion) have been utilized by the selected smart cities (Ibid.). However, Ministry analysis projected that Rs. 30,000 crore (approx. CAD 5.2 billion) worth of projects would be completed by March 2020 (MoHUA, 2019). Therefore, even as funds utilization has gone up post lockdown; the Mission completion remains delayed vis-à-vis its set deadline between 2019-2023 (Deka, 2019). The implementation timelines given by cities in their proposals, on an average, estimate around 18 months from the city's selection into the Mission, to begin

implementing a project. From the beginning of work on the ground, 36-48 months are set aside for completion (MoHUA, 2019).

c. Financing

i. Sources of funding

As discussed under the Mission's financial model, the estimated total investment of Rs. 2.05 crore (CAD 35.8 billion) is sourced from government grants and other (government and market) sources (Error! Reference source not found.; Error! Reference source not found.; (MoHUA, 2019)). Of this, it must be noted, the bulk (about 66%) of funding comes from the public sector— in the form of central and state/ULB grants (Rs. 93, 552 crore (CAD 16.3 billion) and convergence with other government missions (Rs. 42,028 crore (CAD 7.3 billion)) (Ibid.; (Anand et al., 2018)). Secondly, the urban local body's own revenue finances only a dismal 1% (Rs. 2,644 crore (CAD 461.8 million)) of this total investment (Ibid.). The rest of the 33% of the contributions are made from loans/debt, public-private partnerships and other market-based sources.

ii. Capacity to fund

At the end of the four rounds of selection, cities budgeted their Smart City Proposals (SCPs) at an average of Rs. 2050 crores (approx. CAD 358 million) (MoHUA, 2019). City budgets tended to become more conservative as the competition proceeded (coming down to Rs. 1586 crore (approx. CAD 277 million) by Round 4) (Ibid.; (Anand et al., 2018). Most (57) cities proposed budgets under Rs. 2000 crore (approx. CAD 349.3 million) followed by those (38) between Rs. 2000-Rs.4000 crore (approx. CAD 349.3 million- CAD 698.6 million) ((Anand et al., 2018); **Fig.12.**). Budgets varied from Rs. 500 crores (approx. CAD 87.3 million) (Kavarati, Lakshadweep) to about Rs. 6000 crores (approx. CAD 1 billion) (Chandigarh) (Ibid.).

However, these budgets stand on historically perpetuated weak financial capabilities of urban local bodies (ULB) to fund their own SCPs. Moreover, financially weak cities have been found to propose unreasonable budgets (even more than the national average of Rs. 2050 crore (approx. CAD 358 million)); and have a higher per sq. km. Area Based Development cost vis-à-vis cities with higher financial capabilities. To begin with, currently ULBs are financing only up to 1% of their SCPs vis-à-vis the Mission envisioned 25% (MoHUA, 2019). It has been reported that 47 of the 100 selected smart cities (not limited to small cities but also 11 of the 35 chosen million plus cities) lack any capacity to fund their SCPs (Environment Support Group, 2020). This is reiterated by the fact that 40% of cities do not even have an operating surplus to meet their proposed annual costs of smart project implementation (Ibid.).

III. Emerging Critiques

This chapter began by highlighting the historical and immediate political economy of urban development in India giving way to the launch of the 100 Smart Cities Mission as the next indispensable step. In doing so, a particular historical trajectory towards patterns of corporate or private urbanization were registered, heightened by the reforms of the 1990s, and dating back to the period before Indian independence (Datta, 2015; Sood, 2015; Spodek, 2013). There emerged three strands peculiar to the nature of this historic pattern of urbanization, viz., development (i) governed by technocrats or professionally skilled elites in the form of a centralized bureaucracy and domestic/trans-local corporate/private sector administrators; (ii) focused on creating areas or 'zones' of access, comfort and convenience and thereby (iii) facilitating fragmented urban spaces with iniquitously spread resources, facilities and services. Against this backdrop, policies pertaining to company towns, industrial townships, special economic zones and the like culminated in a nationally steered, large-scale urban renewal mission covering multiple cities under the banner of the Jawaharlal Nehru National Urban

Renewal Mission (JNNURM) in 2004. The JNNURM focused on facilitating city-led national economic growth through investments in building physical and civic infrastructure, basic services for the urban poor and local governance reforms (MoUEPA & MoUD, 2005a). Towards this end, it galvanized techno-managerial forms of governance in the wake of a recently liberalized and globalized political economy (Gopakumar, 2015). Therefore, the JNNURM's conceptualization and implementation came to be strongly defined by trans-local actors and ideas while carrying forward domestic and centralized technocratic structures (Sadoway et al., 2018). In this context, Chapter 1, highlighted key critiques of the JNNURM. Despite some of the social development[57] goals driving it at the outset, the Mission advanced an intensive centralization of urban governance and undermining of local democracy, short-term and fragmented planning and a bureaucratized multi-tiered architecture sustaining delays in implementation; together intensifying spatial and socioeconomic inequalities in urban living both inter- and intra-city (Ibid.; (Sama Khan, 2014; Mahadevia, 2006)).

The 'Smart City' framework, conceptualized as a stage II of the JNNURM, carries forth and even heightens the governance and development challenges perpetuated by its predecessor. In doing so, it brings to the existing techno-managerial setup, an aggressive focus on Information Communications Technology (ICT), Competition, and Speculation-driven development—that serve as the key distinguishing features of the 100 Smart Cities Mission. Along with enhancing the managerial goals of local governance pertaining to the "local provision of services, benefits and facilities to urban populations" (Harvey, 1989) through ICT, the 100 SCM also aspires to expand this to an "entrepreneiual" role by pushing cities towards playing a more active "initiatory" part in stimulating local economic development (Ibid.). Therefore, the 'Smart City' approaches development and indeed even welfare-oriented goals, through the sole driving lens

[57] The JNNURM had a focus on the provision of basic services to the urban poor and also the mandatory institutionalization of local governance reforms as envisaged under the 74th Amendment Act.

of expanding the financial and economic standing of the city (Anand et al., 2018; Taraporevala, 2018). However, such entrepreneiual ambitions rest on, as we have seen, the historically centralized functioning and financial capabilities of city governments. The gross invisibilizing of these basic structural issues for merely decorative 'smart' technologies renders the 100 SCM in India as an arbitrarily pursued political project in optics while increasing its violence in terms of urban living outcomes.

3.1. The optics of development

a. Technology as rhetoric and legitimizing tool

Even as ICT is pitched as the distinctive and defining feature of the selection and implementation process of the 'Smart City', we see how it is reportedly being applied to a limited extent in only a select few traditional sectors of development such as transportation, energy and water supply (Anand et al., 2018; MoUD, 2015). Further, for all its talk of 'smart' development pivoted around technology, only less than 15% of SCM funding is reported to be directed towards the IT sector (Anand et al., 2018). Much of the funding therefore is channeled to development through conventionally unfolding techno-managerial and speculative processes not relying on IT. Unlike the 'Smart City' experience in Europe (the model that the SCM admittedly aspires to replicate) (MoUD, 2014) where technology plays a more substantive role in defining daily lived realities (Eremia et al., 2017; Smart Cities Council, 2015), in the Indian scenario technology seems to be relegated to political rhetoric used to legitimize the historical neglect of deep-seated structural challenges under the Mission. Section I-1.1. (a) pointed to the framing of urban problems as "technological fixes", as being a persuasive State-led project for an electorally important section of 'smart' "neo-middle class"; as well as for a lucrative global "smart market" of tech-companies looking to sell their products

(Harvey, 2003; MoUD, 2014; Smart Cities Council, 2015). Further, the ruling dispensation's ideological vision for technology as the magical redeemer of India's challenges[58], when read in consonance with its aggressive nationalism, works towards legitimizing the 100 SCM as an urgent and unquestionable step towards national development in a globally competitive order (BJP, 2014; Burte, 2014; Sukumar, 2019). In these ways, it is the language of technology that frames the Mission more than its actual substantive use in sync with considered ground realities of urban living.

b. Promotion of spatial planning and transport-oriented development

In discussing the Guidelines for preparing the Smart City Proposal (SCP), the need for participating cities to pack in physical interventions such as "streetlights, pedestrian pathways…open spaces" that visibly improve a particular local area was highlighted (MoUD, 2015). The (MoHUA, 2019) has further identified Smart Roads and Vibrant Public Spaces as two of the six "key smart city projects"; of which Smart Roads as of 2019 constitute the most popular category of projects completed and in progress across the selected smart cities. Indeed, pedestrianization and place-making projects along a stretch of a road in a local area, are becoming a prototype of the 'Smart City' vision with cities across India following similar templates in the name of 'sustainable' development and enhancing livability. The 100 SCM therefore has an intensive focus on spatial/physical planning technologies and best practices, setting it apart from the JNNURM. In preparing the ground for planned development in this regard, the (MoUD, 2014) makes clear the government's intention under the Mission to revamp existing legal and policy frameworks with regard to town planning in India. So, it suggests interventions like updating the URDPFI Guidelines to be better suited to the needs of the age,

[58] Indeed, the 'neutrality' of technology is pitched as possessing the powers to pave the way for "corruption free, system based" development (BJP, 2014; Eremia et al., 2017).

simplifying land use change and revising “archaic” building byelaws, promoting “granular FARs” to establish areas with pockets of increased densities and ample green areas. In 2018, one of these recommendations saw the light of the day with the rolling out of the National Urbanization Policy (including transportation) in line with the existing National Urban Transport Policy. Problematically, this was done in a bid to make it easier for the central government (rather than local governments) to “channelize smart growth” uniformly in urban and urbanizable areas across the country. The Smart City Guidelines (2015) mandate the integration of “three mapping aspects viz. GIS mapping, ICT mapping and Master Plan” into area-based strategic developments under the SCP (MoUD, 2014).

A key domain to be increasingly shaped by such integrated spatial and technological interventions under the Mission, is that of transportation. Almost one-fourth of the budget for the top 60 cities, is assigned to the transportation sector at Rs. 32,600 crore (approx. CAD 5.6 billion) (Anand et al., 2018). Owing to the push for integrated transit management systems, smart traffic systems and so on, the application of IT in this sector, at about 30%, is the highest across the Mission (Ibid.). Even as the Mission continues to be biased towards private and motorized transport infrastructure; the (MoUD, 2014) encourages the aesthetics of public and non-motorized modes of transport; and pedestrianization in defining the Smart City. Imported buzzwords from the advanced west such as ‘transit-oriented-development’ (TOD) is emphasized along with the need to develop a Public Transport Master Plan (PTMP) as part of existing land use plans (Ibid.) So, investment in transportation infrastructure is seen as a stimulus to attracting real estate developments, malls, financial hubs i.e., a high-density area with mixed use developments that could boost local and national economic growth. The aim is to “decongest (presently congested) central business districts” (Ibid.) by creating “controlled

and compact"[59] area based developments in other areas of the city (D. Das, 2020). This seems counterproductive as with a focus on planned development and T.O.D. in disparate pockets across the city, the smart city is only expected to intensify congestion in certain areas. One of the challenges of T.O.D. in countries such as India having cities with already very high net densities is that it exacerbates rather than brings down congestion, high rises packed with more people. Data as of 2018 shows that 71.6% of transportation projects as part of the SCM are area-based projects (Anand et al., 2018). Further, the majority of these projects are focused on building roads and parking lots with only a meagre 20% of the budget allotted to public transportation (and only 2% on buses) (Ibid.). Therefore, a scattering of high-density areas around limited transit spots along with the promotion of a car-centric landscape is a recipe for iniquitous access, greater travel distances and time, continued marginalization of the pedestrian and other modes of non-motorized transit, traffic jams, noise and congestion. That is, nothing changes even with the smartest of interventions.

3.2. The real violence of development

a. Centralization, the undermining of local governance and democracy

The 100 SCM combines an aggressive centralization with the privatization of urban development functions, carrying forth the tradition of undermining local governance and democracy in India. Every step of the selection, monitoring, implementation and financing of the Mission is driven by techniques and capacities outside of the realm of the elected State, while being maneuvered solely and intensively by the central government. The selection process is framed as a "competition" (MoUD, 2015), yet it remains centralized, prescriptive and largely undemocratic. The language of the "competition" much like the Mission's affinity

[59] The concept of "smart growth" originated as a response to manage uncontrolled suburban sprawl in the developed countries of the advanced West (D. Das, 2020).

for that of technology and global best practices is suggestive of a neutrality, openness and fairness in selecting cities with regard to strictly laid out and weighed criteria in forms equally accessible to all participating cities. However, this prescriptive 'neutral' process is a key instrument in depoliticizing the historically perpetuated structural challenges that influence each city's existing institutional and financial capacities, service-levels and reforms record, required to be filled in mechanically as yes/no criteria as part of unilaterally designed forms. That is, the scoring criteria say little about who gets access to such services, their quality or to what end they are actually useful. Instead, it only emphasizes the mere presence of such infrastructure as pre-condition of selection into the mission. For instance, the electronic availability of municipal budget expenditure is prioritized over the real questions of the sectors and sections of society such expenditure is directed towards and by whom. Similarly, the "% contribution of internal revenue to the ULB budget" conveniently obscures the concerns regarding the failure of effective financial devolution at the state level itself through for e.g., the dismal rate of constitution of State Finance Commissions. Overall, the (weak) financial, institutional and development profile and performance of selected cities under the Mission, render the very design of such selection criteria as ornamental. As with the selection process, local governance is systematically undermined through the monitoring and implementation of the Mission as well. The Mission's multi-tiered institutional architecture was also highlighted as being steered by an "intrusive" central government (Sadoway et al., 2018) at the state and city levels, to also be heavily bureaucratized and headed by central government officials at every tier with no representation of locally elected representatives in monitoring project development. Indeed, the entire implementation of the Mission across cities is assigned to an unelected and unaccountable limited company or Special Purpose Vehicle (SPV) that functions on a contractual basis. Significantly, in a grossly unconstitutional manner, the urban local bodies are required to devolve their rights and obligations to the SPV. Not only is this a crass

violation of the broad provisions of decentralization under the 74th Amendment Act; specifically, the nature of relationship between the SPV and the ULB is also not defined thereby making any collaboration between them fundamentally undemocratic (Taraporevala, 2018). It must be recalled that the entity of the SPV is not new to the governing of urban development in India (Sood, 2015). What makes the Smart City SPV unique in this regard, it has been argued, is its "control of a multitude of projects and multiple development sectors in the city" as opposed to the culture of SPVs being directed largely towards only a particular sector (more prevalently, transportation) (Taraporevala, 2018). Therefore, the Smart City SPV emerges as a powerful entity in its rivalling of the urban local body unlike those in the past. This systematic emasculation of already weakly empowered urban local bodies through institutionalizing corporate governance hampers the unfolding of local democracy. The Guidelines (2015) prescribe the SPV to handle everything from project design to operationalization and monitoring. The ULB is not envisaged as being involved in drafting its own Smart City Proposal itself, which is recommended to be assigned to (patronizing) "handholding agencies" (private consultancy firms and agencies). These private consultancies are also tasked with the process of facilitating citizen participation towards building the city's smart vision that remains largely confined to digital outreach. Digital platforms immediately limit participation to those who have access to these channels; and moreover, the Mission does not specify guidelines on how and what type of digital responses will be counted and which will not (for e.g., it has been noted that mere 'likes' and shares on social media platforms do not indicate consent as they may also be critical of the proposals). In addition, digital platforms allow people belonging not necessarily to the concerned jurisdiction to also voice their opinions (Anand et al., 2018). Therefore, even as advocates of the 100 SCM uphold it to be a citizen-centric program, the Mission's own drafted Guidelines indicate it does not even rest on an intention to promote bottom-up processes of decision-making really. In these ways, from its policy documents itself,

the Mission in every step of its selection, monitoring and implementation emerges as a project in political consolidation of the central government in legitimizing its micro-control over the development and governance of cities and states.

b. Unconsidered financing

The 100 SCM stands on a grossly unconsidered financial model that completely ignores the critical aspects of financial sustainability and financial capabilities of cities.

Firstly, the design of the model, that expects entities such as the SPV to leverage public grants towards attracting other sources of revenue, is itself undemocratic and speculative. In fact, this model opens up more avenues for public funds to be channeled towards private ends, especially with no substantive institutionalization of principles of Public Disclosure, Transparency, Participatory Budgeting and historically powerless urban local bodies. Further, the prescribed initial central government at Rs. 48,000 crore (approx. CAD 8.3 billion) is about 30% less compared to the public grants under the previous JNNURM; indicating the 100 SCM's increased reliance on other (especially market) sources to finance city development.

The promotion of market-based financing has been noted as a defining feature of the 100 SCM (Anand et al., 2018). For example, political opinion is being galvanized around the municipal bond market with more smart cities adopting and branding it as a path-breaking initiative (PTI, 2020a). The push for financing through municipal bonds without addressing municipal governance challenges even years after the 74th Amendment Act is absurd as basic rating and investor confidence stands to be compromised. Even a decade after the 74th Amendment decentralization reforms, the share of the municipal sector in the domestic capital market was a negligible 0.1% (Error! Reference source not found.; (Bagchi & Kundu, 2003)) It has been noted that only a meagre Rs. 3,000 crore (approx. CAD 524.1 million) has been generated from this market over a period of 26 years (Environment Support Group, 2020). Therefore, such a

speculative, entrepreneurial monetary design rests on the historically neglected financial powers of the urban local body. Far from devolving new sources to ULBs or more relevantly leveraging the so-called 'innovation' streak under the SCM to actually instill innovative local financial reforms, the Mission does not even acknowledge concerns of financial autonomy and sustenance at the city level. For example, it expects ULBs to contribute an equal amount (as the state governments) to funding and more importantly expanding the initial paid-up capital of the SPV. So, the SPV emerges as another financial liability for the ULB/States as most SPVs are incapable of raising funds from the market as expected, given that development in most cities is unattractive to private investors seeking higher returns[60].

Secondly, evidence from how the Mission is being implemented is revealing a slow rate of utilization of funds towards project completion and a story of cities chasing 'smart' aspirations far beyond their capacity to achieve it. The scale and budget of projects far exceed available finances of cities. Further, project completion leaves in its wake a high cost of operation and maintenance with most projects investing in high-end infrastructure, thereby further burdening local coffers. Therefore, two equally undesirable scenarios are likely— (a) cities 'successfully' implement their SCPs, install high-end infrastructure in select pockets of the city, and then bear the brunt of increased O&M costs; or (b) cities are not able to implement and operationalize their SCPs itself, leading to incomplete or haphazard infrastructure at even higher costs. Irrespective of which situation the city finds itself in, the financial model of the SCM seems fated to exaggerate inequalities and financial dependencies of cities. Exorbitant investments are directed to a particular local area, slated to directly benefit only an estimated 10% of the city's populations. Further, increased O&M costs for this exclusive and high-end infrastructure may most likely spill over from the ULBs to the majority 90% of the city or non-beneficiaries

[60] Given weak local financial structures, costs of urban development in India are ultimately borne by the Central Government who in turn are financially dependent on international and domestic private corporations. Seen this way, much of development in India seems to unfold through such cascading financial dependencies upwards from the local state.

of the concerned project in the short-term; and ultimately require higher-tier finance to sustain the project. In all these ways, the 100 SCM in its selection, monitoring, implementation and financing process breeds iniquitous, exclusive and dependent cities.

Chapter 4: The Smart City Mission in Pune

The previous chapter critiqued the 100 Smart Cities Mission (SCM) broadly in terms of its rationale and stated objectives, program architecture and the extent of its overall implementation up to date. The 100 SCM was highlighted as being one more chapter in the political history of centralized and corporatized urban development in India. In this regard, its similarities with its predecessor, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) were noted in terms of its stated objective (focused on maximizing national economic growth through cities), and the techno-managerial strategies of realizing it, in terms of its distinct signatures of technology, inter-urban competition and intensified speculation led urban development, all of which rest on an unconsidered financing model. This works towards further quashing the autonomy and capacities of urban local bodies, and stifling participative processes, against a backdrop of historically neglected urban local governance and democracy. The focus on 'Area Based Developments' and a blanket 'Pan City Initiative' widens socioeconomic inequalities and promotes islands of development and access while neglecting holistic city development. It diverts attention away from the real violence of exacerbating poverty, corruption and environmental degradation, while indulging in cosmetic development strategies. The 'smart city' emerges as a city for a select class of 'smart', entrepreneiual citizens, where the poor and marginalized find absolutely no place.

Taking forward these critiques, the following chapter examines the unfolding of the 100 SCM in the city of Pune through a particular Smart Road project undertaken in Aundh, its area-based development under the Mission. After an introduction to Pune and its challenges, the following section will highlight relevant moments in the history of urban development in the city across three key reform phases viz., the New Economic Policy/74th Amendment Act period (1991-2004), the JNNURM phase (2005-2013) and the 100 SCM (2014 onwards). In doing so, the focus will be on understanding the (relatively) early push towards sustainable development in

the city, especially with regard to sustainable transportation reforms. This will prepare the ground to understand the strategies, processes and institutions involved in conceptualizing and executing the Smart Road project in Aundh. The chapter will conclude with a discussion of the possible implications of this smart project for the governance, planning and overall development of the city.

I. Pune: sustainability amidst a smart paradigm

A critique of the global discourse on Smart Cities has been its top-down or centralized structure (Hollands, 2008; Smitha, 2016). In the face of this, the trope of 'sustainability'[61] has surfaced as a part of the 'smart' (global) discourse, in making space for the possibilities of inclusive, democratic and participative processes within the 'smart' framework (Saunders & Baeck, 2015). That is, there have been calls to reorient[62] the meaning of 'smart' to include more sustainable and democratic processes. In this context, Pune emerges as a good example to put to test the workings of this frame of sustainability[63] within a growing smart paradigm. This is because Pune has a well-established history of facilitating sustainable urban development reforms, owing to a historically nurtured local culture of governance (Kamath et al., 2018).

The local state in Pune consists of a "relatively powerful" urban local body, viz. the Pune Municipal Corporation (PMC), backed by a receptive administration and a proactive citizenry organized in strong civil society organizations (Ibid). The PMC's power draws from greater autonomy in local decision making partly since the state-government led parastatal

[61] "Sustainability" forms one of the three key principles advocated by the 100 SCM in India, along with livability and competitiveness (MoUD, 2014). But it translates more as a politically appealing buzzword, rather than holding any substantive meaning (Burte, 2014).

[62] There are those working in the urban development domain in India, who believe, now that the ship is already afloat, so to speak, with regard to the Smart City development model; the question that remains is how to mitigate the risks and violence associated with such a pattern of development even if the framework cannot be completely dispensed with ((Environment Support Group, 2020); (Dasgupta, 2020)).

[63] Here, sustainability is taken to mean the ability to (self) sustain natural and human environments, through the nurturing of ground-up, self-governed organizational forms.

development authorities—characteristic of local governance in other Indian cities— have been historically absent in shaping the city's development[64] (Ibid.). Having said that, governance in the city has sustained the contradictions, typical of every Indian city: major control is informally retained by higher tiers of government; local decision-making remains concentrated in the hands of a few and is caught in the politics between the administrative and political wings of the local body (Gadgil et al., 2015). Muddling through these contradictions, it has been noted, the relative autonomy of the PMC has over the years been strategically leveraged by the local administrative leadership (the Municipal Commissioner). In this way, meaningful partnerships with civil society organizations have been forged in facilitating progressive sustainable development reforms. The city's strong civil society organization in turn is fueled by the presence of an educated, middle- and upper-middle class nurtured by the city's historic identity as an education hub—the "Oxford of the East" home to a significant number of higher education institutes (Krishnamurthy et al., 2016). Uniquely, it has also been pointed out that not only have these CSOs been able to mobilize citizen opinion around sustainable and inclusive development, but in doing so, they also have collaborated with each other, i.e., come together in coalitions (Kamath et al., 2018). Together, these CSO coalitions have been instrumental in locally advocating for sustainable development through facilitating rigorous participation within diverse communities and cementing strategic ties with local administrators and the political class. Elected representatives within this setup have tended to have a micro focus on their individual wards whereas their political ambitions associated have led them to favour infrastructure projects (such as flyovers) having a more visible, massive appeal over small-scale, community driven sustainable initiatives (pedestrianization) with potentially less political mileage (Gadgil et al., 2015). Meanwhile, even the local administration while at the

[64] The Pune Metropolitan Region Development Authority (PMRDA), mirroring similar regional development authorities in other cities such as Mumbai (MMRDA), Bengaluru (BMRDA), (that have been noted to actively intrude into the jurisdiction of their respective local bodies), was set up only in 2015 (Krishnamurthy et al., 2016).

outset opportunistically promoting locally led sustainable initiatives (toilet construction, solid waste management) has also under the sway of state governments and national career aspirations encouraged the conceptualization of large-scale, unsustainable development projects (Ibid).

Through its contradictions, Pune has managed to cultivate a relatively strong local state with a strategic place for ground-up processes of development. This has contributed to steering political attention towards sustainability-oriented goals, beginning with the two key sectors of solid waste management and sustainable transportation, ever since the early 2000s (Kamath et al., 2018). Organized calls for reforms in these sectors have their roots in civil society initiatives that began with the need to improve the city's natural environment, such as with regard to mitigating air pollution through tree-planting drives or organizing clean ups of its two major rivers, the Mula and Mutha (Ibid.). Such local efforts towards fostering environmental sustainability steadily fed into the community organizing more systematically to realize domain-specific sustainability goals such as those pertaining to sanitation, solid-waste and transportation. Through the years, Pune's local state has attempted to institutionalize these goals and operationalize projects within these domains, by tapping into relevant national policy frameworks in a timely manner such as those as part of the JNNURM in 2004 or the National Urban Transportation Policy (NUTP) in 2006 (Gadgil et al., 2015).

In these ways, the ground for sustainable urban development reforms, including sustainable transportation, was already well prepared by the time the city became a part of the 100 Smart Cities Mission in 2016. Therefore, sustainable transportation projects under the Pune Smart City framework, comprising pedestrianization, street redesign, and nonmotorized transport projects (specifically typified in the Aundh Smart Road project that this chapter seeks to examine) all draw from and build on this political history of urban reforms and the city's rooted culture of participative local governance (along with all its contradictions). This historical

context of a vibrant local state and society urging sustainable development reforms sets Pune relatively apart from the other cities under the Mission marked by polycentric local governance systems. Given this history and the city's prominent and much lauded participation under the Mission (ToI, 2020), Pune presents an interesting case to inquire if the 'Smart City' model really works given a marginally democratic urban governance setup? That is, do unfolding 'smart' sustainable projects in the city, have positive (inclusive) impacts on who governs, who plans and who benefits from these projects? An examination of these questions in Pune would be further useful in understanding the extent of impact of the 100 SCM on other participating cities with relatively more exclusive and centralized local governance structures.

Relatedly, the case of Pune raises other question, vis-à-vis the historical context of sustainable development in the city, of whether and how the framing of 'sustainability' has in essence shifted under the 100 SCM, and what is the role of technology in influencing sustainability reforms and outcomes in the city. And, more broadly, drawing from the example of Pune, can "sustainability" in its emergent framings be considered an effective counterforce to 'smart' development? These are some questions to explore in further research.

II. Pune Profile: historical influences and current urban challenges

2.1 Historical Influences

Pune's origins trace back to over 2,000 years ago when it was identified as a settlement along the trade route connecting the inner Deccan Plateau to the Arabian Sea port (Benninger, 1993). Since then, this erstwhile small fishing community, has grown through waves of change brought in by traditional, colonial and modern influences (Butsch et al., 2017). Indeed, the city's current urban form, and patterns and challenges of development remain influenced by these historical imprints.

a. Pune pre-independence: from traditional 'kasba' to colonial capital

At the core of the city today lies the traditional 'kasba'. The 'kasba' that emerged as an organized market town post AD 1246 was organized into 'peths' (administrative wards) across which the population was spread out in a specific socioeconomic pattern[65] evident even today (Benninger, 1993). By the late 16th century, as the 'kasba' came under the rule of the Maratha Bhonsales and then their Brahmin ministers, the Peshwas, a unique housing typology of the 'wada' (mansion) emerged that accommodated the crème-la-crème of society from the royal family to foreign dignitaries and wealthy merchants (Ibid.). Together, these traditional 'wadas' in various states of disrepair today and relatively neglected 'peth' areas constitute what is now Pune's inner old city. Since the 16th century, the city has grown radially outward from this core. The early 19th century marked the beginning of the colonial era, as Pune became the military headquarters of the British and gradually their Monsoon Capital by 1862 (Benninger, 1993). Socioeconomic divides were exaggerated and manifested spatially in the form of gated cantonment[66] areas with "sprawling bungalows and wide avenue roads" (Butsch et al., 2017) contrasted by the growth of narrow-laned squatter settlements from the east along the Mutha river towards the south along Bhavani, Ganesh and Nana peths (Benninger, 1993). As populations started to rise steadily, peripheral villages especially in the north-western fringes began undergoing urban transformations. By the end of British rule, Pune was largely a "pensioner's paradise" with cantonment and suburban residential developments, a few factories guiding economic activity and higher educational institutes nurturing a student population (Butsch et al., 2017).

b. Pune post-independence: modern industrial city and the 'IT' factor

[65] Lower castes occupied the east and southeast ends, higher castes and landowning classes settled along the western fringes and business communities were attracted towards the south of the city.
[66] Cantonment areas in Pune are even today under military governance and not under the urban local body's jurisdiction.

In the initial years after independence, industrial activity steadily expanded[67] and was especially accelerated by 1960 with Maharashtra being granted statehood[68] (Krishnamurthy et al., 2016). The Maharashtra Industrial Development Corporation (MIDC) set up industrial townships in the fringe villages of Hadapsar and at Bhosari (in Pimpri Chinchwad[69]) (Ibid.). Over the years, with the expansion of roads and highways connecting Pune to places both within and outside Maharashtra[70], industrial centres emerged along these routes (Benninger, 1993). Squatter settlements grew south-west, in Pimpri Chinchwad and northward, to accommodate industrial workers. Small and medium scale industries were also set up along arterial roads (Ibid.). This (State-driven) industrial wave of the 1960s expanded into an era of market-aided private and global services economy for the city (Mulay, 2009). Computerization and globalization brought in an IT wave that was quickly tapped into by Pune's largely educated middle-class (Ibid.). By 1999, the Hinjewadi Info Tech Park had been established which acted as a magnet for domestic and foreign capital and skilled labour (Krishnamurthy et al., 2016). This put Pune on the map, as an 'IT hub' along with mega-cities such as Bangalore and Hyderabad (Mulay, 2009). The opening up of the economy also brought Pune on the road to global recognition[71] (PMC, 2015b).

Therefore, the city's historical context reveals the existence of private forms of urban development/governance from colonial gated cantonments to industrial and IT townships, a

[67] Kirloskar Oil Engines was established in 1949 followed by other automobile manufacturers like Bajaj Auto, Mahindra and Cooper Engineering setting up their units (Butsch et al., 2017).

[68] The bifurcation of the Bombay state resulted in a restrictive industrial policy being adopted in metropolitan Bombay. Consequently, Pune emerged as the next best investment alternative (Benninger, 1993).

[69] Pimpri Chinchwad emerged as a twin city across the Mula river and became incorporated as a separate municipality in 1982 (Benninger, 1993).

[70] The Sangam Bridge built in 1875 to connect the city to Bombay was upgraded into what is now the Pune-Bombay highway.

[71] Between 2007-2012, the city attracted 291 FDI projects making it one of the top 5 FDI destinations in India (PMC, 2015b). In 2017, Pune was also chosen to be one of the four Indian cities under the 100 Resilient Cities initiative of the Rockefeller Foundation (Gita Nair, 2017). This further helped the city build its global capital by presenting opportunities and resources to network with other member cities across the world to build strategies for resilience.

booming manufacturing and IT-led economy, the presence of technically skilled labour and an emerging global identity—that is, a significant number of 'smart' ingredients in the making. Today Pune stands as the second largest city in Maharashtra and the eighth largest metropolitan region in India (PMC, 2015b). With a Gross Domestic Product of $1,065 billion, it is the 5th largest metropolitan economy in the country (Ibid.). The city and the larger metropolitan region have grown around the dense, traditional core, the original 'kasba', spreading outward along a radial network of rail and road lines(PMC, 2007). Along these routes, diverse formal/planned, informal/unplanned and traditional settlement types have emerged in the core and cantonment areas, around industrial zones and IT parks along the expanding peri urban fringes (Butsch et al., 2017). The urban fringes mark the boundaries of the Pune Municipal Corporation (PMC's) jurisdiction. Beyond this, stretch the municipal corporation of Pimpri Chinchwad (PCMC), seven municipal councils, 13 census towns and 842 villages that together constitute the Pune Metropolitan Region (PMR) (PMRDA, 2018). The PMC and the PCMC occupy around 20% of the PMR (Pednekar, n.d.). The Pune municipality established in 1857 was incorporated as a municipal corporation in 1950 (Benninger, 1993; PMC, 2007). Administratively, the area under the PMC is divided into four zones and 15 administrative wards which are further subdivided into 76 prabhags (PMC, 2015a). Between 1950 and 2011, the PMC area witnessed a historic increase in its population from over 400,000 to 3.1 million[72](Krishnamurthy et al., 2016).

2.2. Urban Challenges

The sustained increase in population has posed significant challenges to the PMC's capacity and resources to manage urban growth sustainably. Firstly, it has led to an expanding urban fringe consisting of under-served peripheral villages (Krishnamurthy et al., 2016). Secondly, it

[72] Simultaneously, the Pune Metropolitan Region's population has also expanded to over 5 million.

has put considerable strain on housing, waste-management and importantly transportation infrastructure within the inner city (Ibid.; (PMC, 2007)).

a. Expanding and unevenly served urban fringe

Since 1997 up to as recently as 2017, the city has been witnessing an expansion of its limits by the successive inclusion of peripheral villages totaling up to 68[73] as of today (Krishnamurthy et al., 2016; Phadke, 2019). Such a peripheral expansion, it has been suggested, is a political move by ruling local governments to expand their electoral power within the PMC and drive up prices of plots and properties in these villages (Gadgil et al., 2015; Khape & Ashar, 2014). With most industrial zones and IT parks located towards the fringes or just outside PMC limits (Error! Reference source not found.; (PMC, 2015a)); this move has been successful in attracting working professionals, real-estate and infrastructural investments towards these areas. At the same time, speculative development has displaced villagers into unauthorized and under-served settlements with higher prices to pay for public utilities like water and sewerage (Khape & Ashar, 2014).

Here, it must be noted that most industrial/IT zones are concentrated towards the north, north-west and north-eastern fringes (Error! Reference source not found.). Apart from the Hadapsar Industrial Area in the south-east, the southern parts of the city remain largely devoid of such large business clusters. Yet, the city's settlement pattern has been growing towards the south-east and south-west directions.

In sum, an overall expanding and unevenly developing urban fringe serves as a significant developmental challenge for the city. Debates on whether to create a separate municipal entity

[73] In 1997, 2014 and 2017; 23, 34 and 11 villages respectively were included within city limits. This has led to the expansion of the PMC's territorial jurisdiction from 243 sq.km to over 500 sq.km as of 2017.

for the administration of these added villages is ongoing with some elected representatives and town planners being in favour of doing so (Gadgil et al., 2015).

b. Dense and iniquitous urban core

i. Overcrowding and urban living challenges

Simultaneously with an expanding urban fringe, the city remains inflicted by a congested, highly dense urban core (PMC, 2007). Some areas such as Kasba peth and Bhavani peth in the heart of the city carry densities as high as 100,000 persons per sq.km (Ibid.). Such high densities are packed into traditional 'wadas' that have turned into chawls in varying states of disrepair. The core also carries through it the retail node of the city, viz. Laxmi Road and the Tulsibagh market (Benninger, 1993; Gadgil et al., 2015). This further adds to the overcrowding, increased pollution and compromised conditions of living around these areas. Further, with 50% of the population increase being caused due to migration of professionals (Krishnamurthy et al., 2016; Mulay, 2009), students and most importantly rural persons, the proportion of populations living in informal settlements has increased to 40% (over 1.2 million people) as of 2011 with an upward trend (Krishnamurthy et al., 2016). While the PMC has hitherto serviced the about 564 slums (both declared and undeclared) within the city and has had a 'slum free city' as one of its major goals, there remains a dearth of affordable and adequate housing i.e., livable housing and environments (PMC, 2007).

ii. Increased sprawl and transportation challenges

Sprawled urban growth, radiating out from the centre, has dispersed clusters of populations across a wide area, posing a challenge for connectivity. A network of national and state highways radiates outward from the centre connected to an inner-city road network of about 1922 kms constituting 15% of the existing land use (PMC, 2007). The absence of a single

central business district and the spread of industrial, commercial and institutional centres across the city has led to the simultaneous movement of traffic both outward from the dense centre and into it (Benninger, 1993). Traffic congestion has thus been a recurring issue over the years (PMC, 2015b). This has been compounded due to the unsustainable reliance on private modes of transport. The number of privately-owned vehicles especially two-wheelers and cars has doubled between 2007 and 2017(Kamath et al., 2018). As of 2018, it stood at 3.62 million, more than the population of the city itself (IANS, 2018). Public transport accounts for a meagre 20% of trips despite the launch of the bus-rapid-transit-system (BRTS) in 2006 (Kamath et al., 2018; PMC, 2015b). Moreover, with only the BRTS, suburban rail and informal modes like the autorickshaw as available options, public transport modes in the city are relatively limited (PMC, 2007). Road cover has not expanded in sync with increase in populations (Krishnamurthy et al., 2016). Development focused on road-widening and flyover construction has triggered a vicious cycle of increased supply of infrastructure fueling an increase in private motor vehicle ownership and activity. Along with congestion, this has exacerbated environmental challenges, road accidents and larger public health issues. In the light of this scenario, the city's political leadership driven by the ideas of strong civil society coalitions has since the early 2000s treaded the path of sustainable transportation (Kamath et al., 2018).

III. Urban Development in Pune: shaping of sustainable transportation reforms

Sustainable transportation in Pune has been one of the key sectors witnessing progressive reforms in terms of improving quality of life (Ibid.). Projects relating to nonmotorized transit modes (cycles, e-rickshaws) and infrastructure (street redesign) have gained momentum in the past and at present hold a key place in the city's development under the unfolding Smart Cities Mission. Local advocacy for sustainable transportation has been ahead of related national level reforms that have unfolded in broadly three phases across the country. These are broadly the

74th CAA (1992 onwards), the JNNURM (2005-2014) and currently the 100 Smart Cities Mission (2015 onwards).

3.1. Decentralization reforms (1992-2004): the emergence of the Pune Traffic and Transportation Forum (PTTF)/ "Pune Declaration"

As has been suggested earlier, despite sustaining its contradictions, Pune has historically had a relatively decentralized local governance ecosystem. Much before the enactment of the 74th Constitutional Amendment Act, there has been a relatively autonomous Municipal Corporation (PMC), a strong civil society and a receptive local administrative leadership. This ecosystem has been successful in sparking the move towards sustainable development goals beginning with natural environment concerns and slowly spreading into the transportation domain (Gadgil et al., 2015). Against this backdrop, the Pune Traffic and Transportation Forum (PTTF) was formed as a coalition of four functioning civil society organizations (CSOs) in 2002 (Kamath et al., 2018). The PTTF released a "Pune Declaration" in 2004 that was instrumental in proposing and influencing political action on a range of sustainable transport initiatives (Ibid.). Prominent among these has been the realization of the Bus Rapid Transit System (BRTS) in 2006, creation of the PMPML, a single bus company catering to both Pune and Pimpri Chinchwad regions in 2007, and the re-establishing[74] of a culture of Non-Motorized Transport through street redesign projects since 2007 (Ibid.).

3.2. JNNURM (2005-2014): The Comprehensive Mobility Plan (CMP)

In Pune, the JNNURM served as a largely financial enabler in terms of infrastructural development but it did not have any transformative impact with regard to (the evolving or

[74] Pune in the time of colonial rule was often seen as a 'cycling' city. Reviving such a past has served as a key policy rationale for sustainable urban mobility projects in the city, especially under the 100 SCM (PMC & PSCDCL, 2016).

already instituted) governance reforms in the city (Gadgil et al., 2015). That is, the JNNURM provided a timely funding opportunity that was adequately leveraged by the PMC to operationalize projects, especially the above-mentioned sustainable transport projects such as the BRTS, already in the pipeline. Besides this role as a funding mechanism, the JNNURM has been termed as a "missed opportunity" in terms of triggering real socioeconomic and institutional transformations in the city (Ibid.). The (23-point) decentralized governance reforms envisaged under the JNNURM were already in place in the city and the Mission failed to cause them to be further evolved. Thus, structural challenges with regard to the PMC's financial powers, capacity building and organizational culture continued to persist. Moreover, while there was a mandated focus on the urban poor under the JNNURM, the institutional bias of the PMC with regard to certain domains of development were sustained. Therefore, the focus remained on service provision in/redevelopment of declared and undeclared slums that the PMC had already been undertaking prior to the JNNURM (PMC, 2007). On the other hand, sectors like transportation remained devoid of a "pro-poor approach" (Gadgil et al., 2015). Despite this bias, the JNNURM took a key step towards accelerating and institutionalizing sustainable transportation reforms in Pune, by mandating cities to draft a Comprehensive Mobility Plan (CMP) (MoUEPA & MoUD, 2005a). Development Planning (DP)[75] in Pune was thus supplemented by the Comprehensive Development Plan (CDP) and the CMP. The CMP was to enable the National Urban Transportation Policy (NUTP) of 2006, at the city level (PMC, 2017). Its aim was to facilitate holistic transportation planning with a specific focus on increasing the share of sustainable transportation. The drafting of the CMP in Pune revealed fault lines in the governing and planning mechanisms in the city, posing challenges to the sustainable reform process. Some of these challenges included conflicts between the

[75] The Development Plans (DP) of 1966 and 1987 preceded the existing Draft Development Plan (2007-2027). The drafting of the 2027 DP coincided with the launch of the JNNURM (Kamath et al., 2018; PMC, 2007)

administrative and elected wings within the PMC, dearth of technical capacity in the PMC, uncoordinated[76] planning and lack of an entrenched institutional[77] framework for sustainable transportation, and the "lack (of) political and executive power" with CSOs despite their power to mobilize public opinion on and advocate for reforms (Gadgil et al., 2015; Kamath et al., 2018). The CMP drafted in 2008 was finally approved and passed by the PMC's General Body in 2012, carrying forward these structural challenges while also revealing urban transport policy as being conflicted between its support for sustainable transport on one hand and the simultaneous promotion of car-centric infrastructure and unsustainable public transport on the other. Having said that, the CMP has served as the key policy guideline for the operationalization of sustainable mobility projects in Pune, including the ones being continued under the ongoing Smart Cities Mission.

IV. The Smart City Mission in Pune

4.1. Selection and Institutional Infrastructure

Pune was selected under the 100 Smart Cities Mission in January 2016, ranking second amidst the 100 participating cities in the first round of the national city challenge (PSCDCL, 2015). In the run up to its selection, the Pune Municipal Corporation (PMC) spearheaded the completion of its Score Card[78] (precondition documents) and the drafting of the Smart City Proposal (SCP) as mandated for participation in the competition. These developments were unfolding amidst a shifting political environment between 2014-2016. As the national leadership changed to a Bharatiya Janata Party (BJP) led National Democratic Alliance

[76] The CMP was not prepared in sync with the existing Development Plan (DP) and in the implementation of projects under the former, the DP is hardly consulted for requirements like land use and availability. This has complicated land acquisition for transportation projects while also exposing the uncoordinated approach to development planning in the city.
[77] The CMP is not a legally backed, statutory document like the Development Plan.
[78] Pune scored a 95/100 on its Score Card highlighting existing service levels and capacities of the Pune Municipal Corporation (PMC, 2015a)

coalition; the Maharashtra state government also changed political hands from a 15-year Indian National Congress and Nationalist Congress Party (INC-NCP) rule to a BJP-Shiv Sena alliance (PTI, 2014). But in Pune, the NCP[79] continued to form the local government, constituting the majority of the General (elected) Body of the PMC until 2016 (Kamath et al., 2018). Therefore, between 2014-16, the city was preparing for its participation in the 100 SCM as the PMC's administrative and elected leadership were being influenced by different political arrangements[80]. Sustaining political differences and anxieties[81] of locally elected councilors, Pune's Smart City Proposal was ultimately[82] finalized at an estimated cost of Rs. 3,480 crore (approx. CAD 607.8 million) and submitted to the Ministry of Urban Development (MoUD) in December 2015 (TNN, 2015). It has been reported how Pune's strategic location along the under-construction Delhi Mumbai Industrial Corridor (DMIC) may have played a key role in its early induction[83] into the Smart City Mission (Bhattacharjee, 2015). Pune forms an important part of the Maharashtra Industrial Belt (consisting of Mumbai-Nashik-Pune) known for its automobile/auto components, textile, aluminum and pharma industries (**Fig.15**; (DLDSL-LDB, 2016)). In these ways, the central government's rationale of developing smart cities along the freight corridors it is developing (Sood, 2015), coupled with Pune's historically evolving 'smart' identity with regard to a budding IT sector, industrial township culture and dominance of 'smart' (high-skilled) population, accelerated its selection into the 100 SCM as

[79] The NCP had been in power at the local government level since 2006. Local government in Pune between 1992-2006 had been driven by the Indian National Congress.
[80] The PMC was being headed by the state (BJP) government appointed Municipal Commissioner and electorally represented by the local (NCP) government.
[81] Local elected representatives were anxious about the creation of a Special Purpose Vehicle that held the potential to rival their (constitutionally provided) powers and political standing. The creation of the SPV required the transfer to it of the rights and obligations of the PMC with respect to its Smart City (Idiculla, 2015)
[82] Even as the draft SCP received the approval of the Municipal Commissioner backed by some civil society organizations, elected councilors, planned to hold back their approval of the SCP in the upcoming General Body meeting. The politically well-connected Municipal Commissioner (who is now the Mission Director of the SCM and Joint Secretary of the MoHUA, GoI) was able to dissolve the then scheduled meeting of the General Body and have the SCP finalized and submitted to the MoUD.
[83] Indeed, a majority of cities selected in Round 1, viz. Surat, Ahmedabad and four other cities in Gujarat, four in Rajasthan including Jaipur and similarly those in Punjab and Haryana, are situated on the DMIC.

a "lighthouse city for priority funding" (PSCDCL, 2015). In order to implement the Mission, the Special Purpose Vehicle, i.e., the Pune Smart City Development Corporation Limited (PSCDCL) was established in March 2016[84]. The PSCDCL was created as a limited company under the Companies Act, 2013 with the Maharashtra State Government and the Pune Municipal Corporation (PMC) as shareholders, contributing to an initial equity capital of Rs. 186 crore (approx. CAD 32.4 million)[85] [86] (Ibid.). It was to be headed by an appointed Chief Executive Officer (CEO) and a selected Board of Directors. Between 2016-2017, the leadership of the Pune Municipal Corporation (PMC) and the PSCDCL was the same, being headed as they were by the incumbent Municipal Commissioner, Mr. Kunal Kumar, IAS. It has been noted that the formative years of the Mission (2014- 2017) were governed by the traditional arrangement of the PMC and existing civil society organizations. The creation of the SPV in 2016 had not really caused any major changes to this set up yet. In 2017, the leadership[87] of the PSCDCL was split up from that of the PMC[88]. The additional municipal commissioner of the PMC was appointed as the CEO of the PSCDCL. Typical of the Smart City SPV, the PSCDCL is not restricted to one sector, rather it operates across a range of domains—

[84] The Memorandum and Articles of Association of the SPV were drawn and approved by the PMC's General Body in February 2016. As per these Articles, the powers of the Maharashtra state government and the PMC were devolved to the PSCDCL to the extent and as given under the Maharashtra Municipalities Act, 1996 (PSCDCL, 2015).

[85] Rs. 93 crore (approx. CAD 16.2 million) each were contributed by the PMC and the State government respectively, towards building the initial equity capital of the SPV. Owing to the PMC's relatively strong financial standing vis-à-vis other municipalities, it was able to furnish Rs. 93 crore (CAD 16.2 million), without utilizing central government grants for the same (as has been suggested under the Guidelines, 2015 to assist weak ULBs).

[86] It was proposed to increase the equity capital of the SPV from Rs. 186 crore (CAD 32.4 million) to up to Rs. 300 crore (approx. CAD 52.4 million) in three years from 2016.
As of 2019, the SPV's equity has increased by only Rs. 10 crore (i.e., to Rs. 196 crore (approx. CAD 34.2 million)) through contributions of the state government and PMC (Rs. 5 crore each) (PSCDCL, 2019a). Over three years, the SPV has been unable to attract private investor/market sources towards building its capital (as envisaged by the national mission) and it continues to rely unsustainably on the state & ULB and central government to be viable. Central government grants were received to the tune of Rs. 186 crore (approx. CAD 32.4 million) in 2016-17.

[87] Mr. Rajinder Jagtap, IAS took over as the CEO of the PSCDCL on June 29,2017. He had previously served as the additional municipal commissioner of the PMC between 2012-2017. Since 2019, Ms. Rubal Aggarwal, again the additional commissioner at the PMC, has been serving as the CEO of the PSCDCL. As of September 2020, a new CEO (who does not hold additional charge under the PMC) has been appointed (HT, 2020).

[88] The incumbent Municipal Commissioner, Mr. Kumar, was promoted to the national administrative cadre and a new Commissioner was appointed to the PMC by the state government.

transportation, water and sewerage, urban planning (Error! Reference source not found.; About PSCDCL). It is tasked with implementing all the area-based and pan-city smart projects as outlined in the Smart City Proposal, drafted by the PMC[89]. In doing so, it is assisted primarily by a General Consultant, McKinsey, whose role is to (i) raise funds innovatively from the market; and (ii) assist respective Heads of Departments by providing technical assistance and procuring project consultants and implementation agencies to manage and execute projects (PSCDCL, 2020a). Thus, elected representatives are kept away from influencing decisions on project execution and financing. Further, citizen engagement is also far removed from the PSCDCL's laid out structure and functioning.

4.2. Vision, Proposed Projects and Capacities

Pune's vision for the 'Smart City' highlights its focus on Livability, Competition and Sustainability (MoUD, 2014; PMC, 2015b). These three core principles are stated as having driven the PMC's participative process with regard to identifying problem areas and chalking out 'smart' solutions to them. The PMC facilitated citizen consultation appears to have been a collaborative process using a mix of digital and non-digital outreach[90] platforms (PMC, 2015b). This seems to have been aided by the historically built relationships between the PMC and civil society organizations, unique to the city. As a result of this consultative process, a 36-point program of smart solutions was spelled out across seven identified problem areas (Error! Reference source not found.; (PMC, 2015b)). The most prominent of these problem areas were

[89] While the PSCDCL largely seems to have stuck to the projects listed under the original SCP, it has also revised this list to an extent by reorienting certain projects (smart schools from ABD to pan city initiative); adding new projects (smart tourism- "heritage and zoo" under pan city initiatives in addition to existing riverfront ABD); streamlining broad categories (low income skill development-maternity health care) and delineating "convergence projects" to be undertaken in collaboration with the PMC or other government departments.

[90] The process integrated ideas from a curated online Smart City Samvad Portal online city design competition, while also leveraging its long-existing community platforms such as the instituted Area Sabhas to hold face-to-face consultations in every ward. Responses from a household survey conducted in preparation of the Comprehensive Development Plan (2041) were also tapped into, along with inputs from elected representatives from the state and central governments.

identified to be concerns around Housing, Unemployment, Water Supply and Sanitation, Air and Noise Pollution and significantly, Transportation. This visioning process formed the basis of project detailing in drafting the Smart City Proposal (SCP).

Pune's SCP highlights a total of 55 smart projects, of which 36 were proposed to be implemented in its Area Based Development stretch of Aundh Baner-Balewadi and 19 as pan-city initiatives ((PMC, 2015d)). A total estimated Mission cost of Rs. 3,000 crore (approx. CAD 524.1 million) is quoted (Ibid.). Transportation garners special attention with an estimated total expenditure of Rs. 4300 crore (approx. CAD 751.1 million) (between 2015-2030) towards mass transit (metro construction), ring road and BRT extension. Amidst this, Street Redesign (with walkability and non-motorized transport solutions) features as another mid to long term goal as a "less is more solution" (PMC, 2015c). Pune's SCP clearly states the "SPV (as) the execution arm of the PMC for Smart City Projects" (Ibid.). That is, the SPV in Pune is pitched as a creature of and under the control of the Urban Local Body of the city (Error! Reference source not found.). In line with this, the SCP lays out for the SPV, the nature and type of projects to be undertaken but also their implementation and financing plan in relative detail. The SPV is required to execute these "critical packages" already in place. The proposal also specifies potential funding sources to meet the estimated costs (Error! Reference source not found.; (PMC, 2015d)). Here, international technical assistance[91] garnered by the PMC, for the SPV to leverage is also emphasized. The PMC is believed to be one of the financially stronger municipalities in the country, with an AA credit rating and a stated contribution of internal revenue[92] to its budget at around 86% (PMC, 2015d, 2015a). Having said that, the PMC's capacity to fund[93] and complete projects on time has historically been

[91] For instance, financial assistance from Future Cities Catapult (UK), Cities Development Initiative for Asia (CDIA) and direct financial and technical support from the UK government have been promised.

[92] In Pune, traditional sources of revenue for the PMC have broadly been in the form of taxes, development charges, loans and grants (Gadgil et al., 2015)

[93] Octroi and development charges along with property tax have tended to be the key contributors to the PMC's revenue pool until 2013. With the introduction of the GST by the new government in 2017, the octroi (later

poor (Gadgil et al., 2015). Despite being able to channel grants from the centre and states, projects to which budgetary allocations are made are either delayed, implemented in a haphazard fashion or most likely shelved[94] (Ibid.). In this context, the PMC's plan seems to make the 100 SCM another funding mechanism through central government grants and financial and institutional investments in the SPV as a solely executing agency.

4.3. Extent of Implementation

The PSCDCL's final project list identifies a total of 54 projects across the ABD and pan-city initiatives (Error! Reference source not found.; (PSCDCL, 2015)). Additionally, it lists 10 projects to be implemented in the Aundh ABD that converge with other national and state level missions such as AMRUT, Housing for All, Swachch Bharat and Digital India. Overall, this makes Pune's plan for a 'smart city' an ambitious one, including a total of 64 projects at an estimated cost of Rs. 4849 crores (approx. CAD 846.9 million) (PSCDCL, n.d.). Of these, 50% are transportation and transport infrastructure projects (including Non-Motorized Transport (NMT) and street redesign (11), public transit (9), smart parking and road widening (6), placemaking (6)). Sustainable transportation therefore emerges as a key domain of smart intervention in the city. Within six months of its selection into the Mission, the PMC (with the PSCDCL) had launched 15 pilot projects in June 2016, largely under the transportation sector[95] (PSCDCL, 2016a).

replaced by the local body tax) was also made defunct. The local body tax until then had been contributing to almost 40% of the PMC's revenues. With the introduction of the GST and the abolition of relevant taxes, the PMC now stands to be more dependent on funds from the state and central government (besides a few sources such as property tax) (PTI, 2015; TNN, 2017b).

[94] An example of this is the implementation of the Bus Rapid Transit System in Pune.

[95] Seven out of the 15 projects were transportation related such as the City Common Mobility Card, Mobile Passenger Information System, Central Command Control Centre for Public Transport, Traffic Demand Modelling project, Pedestrian Walkway in Aundh and so on. Not all of the launched projects were taken forward after the pilot, for instance, the Quantified Cities Movement project designed by the CSO- Centre for Development Studies and Activities.

The Annual Report of the Ministry of Housing and Urban Affairs (MoHUA), 2019-20 paints an optimistic portrait with regard to the extent of implementation of smart city projects in Pune—with 62 (of the 64 proposed) projects being tendered at a total value of Rs. 4,036 crore (approx. CAD 704.9 million); and 47 projects completed/grounded registering a utilization rate of 36% of projected expenditure (at Rs. 1,748 crore (approx. CAD 305.3 million)).

At the city-level, PSCDCL Annual Report 2018-19 indicates only over Rs. 47 crore (approx. CAD 8.3 million) as having been spent under the Mission at the end of 2019; with only 12% of total proposed projects being completed or nearing completion (Prachee Kulkarni, 2020). Between 2017-18, 17 projects were commenced largely under the Aundh Area Based Development; of which 11 projects (majorly including street redesign, road works, public bicycle sharing and placemaking projects) were registered as completed (PSCDCL, 2018b). Overall, at the end of 2019, total Mission expenditure in Pune (approx. CAD 8.3 million) remains distributed among projects in broadly seven categories viz.—"Placemaking and Open Spaces, Smart Health, Smart Schools, Smart Tourism, Citizen Engagement, Road Assessment and Management Systems and Street Redesign" (PSCDCL, 2019a). Of these categories, about 80% (over Rs. 38 crore (CAD 6.6 million)) of the total Mission expenditure up to 2019 has been directed towards Street Redesign projects (Ibid.).

Therefore, in the unfolding of the Smart Cities Mission in Pune, a fast pace of completion of projects is highlighted by the central government, even as the city's SPV's own data points to a dismal performance on the ground. As of January 2020, it was reported that only "five out of 41 projects touted by the PSCDCL were even nearing completion" (Prachee Kulkarni, 2020). Projects are being executed by the PSCDCL largely in PPP models through private contractors selected after a bidding process. However, the PSCDCL has been moving towards scrapping many initiatives under the PPP model, even urging the PMC to take over major projects such as the Transit Hub at the Balewadi (ABD). The inability of the SPV to attract adequate funds

and land acquisition issues among different government agencies coupled with the limited (five year) tenure of the SPV is reported as having caused projects to be stuck (Ibid.). Amidst this meagre progress, what is also revealed however is a strong focus on transportation—public transit, private vehicle infrastructure and sustainable transportation; along with placemaking initiatives.

Entering into the 100 SCM in 2015, it can be said Pune had a strategic advantage with regard to initiating projects under the transportation sector. This is especially true given the steady push towards sustainable transportation reforms across previous urban development reform periods in the city since the early 2000s. Therefore, notwithstanding the actual implementation rate, the basic vision for Pune's Smart City focused on sustainability (especially in its application to transportation) has continued in this historically unfolding trajectory of urban development in the city. This is reiterated in the fact that proposed 'smart' transportation (especially street redesign, non-motorized and public transport) projects draw their rationale from previously instituted policy frameworks (primarily the Comprehensive Mobility Plan 2008; National Urban Transportation Plan, 2006) and even build on operationalized projects in the past (such as with street-redesign initiatives since the mid-2000s). In this context, the period of transition from the JNNURM to the SCM (2014-16), saw the materialization of several sustainable transportation related policies and programs being led by the PMC in collaboration with CSOs, triggered by the NUTP 2006 and the CMP, 2008. Significantly, these included the Pune Bicycle Plan and the associated Public Bicycle Sharing (PBS) policy (introduced in 2014 and rolled out in 2017), and the Pedestrian Policy, Pune Streets Program, Urban Street Design Guidelines (in line with the NUTP, 2006) passed in 2016 (PMC & PSCDCL, 2016). This historically evolving, local state-driven sustainable policy framework in the city thus met with a conspicuously technology-driven idea of sustainability in the 100 SCM in 2016.

Against this backdrop, ‘Smart Street’ projects began to be proposed which in essence carried forward the package of Street Redesign-Non-Motorized transport projects of the past. In this context, the Aundh ‘Smart Road’ will be discussed as a continuation of the Aundh ITI road and other street re-design projects unfolding in the city since 2007.

V. Aundh Smart Street Project

5.1. Profile: Aundh Region

Dominating the north-western fringes, the Aundh region makes up the fourth of Pune’s 15 administrative wards (Error! Reference source not found.;(PMC, 2014)). The region is sub-divided into five areas or ‘prabhags’, one of which is the Baner-Balewadi area (Pune Open Data). Historically, these areas were peripheral villages surrounding the traditional ‘kasba’ in the late 16th century, that began to be included within the formal limits of the city since 1997, gradually consolidating as one region (Benninger, 1993; Krishnamurthy et al., 2016).

Today the Aundh region is a growing suburb of the city, holding strategic value for the city’s development. Bordered on the north by the Mula river, the region serves as a strategic entry point into the city from the neighboring metropolis of Mumbai(PMC, 2015d). The Hinjewadi IT Park set up in 1999 lies just outside the city limits, close to the northern most fringes of the region (PMC, 2015a). This has attracted IT professionals looking to settle close to their workplace, creating many high-income pockets across the region such as around the Aundh ITI, Pune University, Baner areas. This area is generally identified as an up-town neighbourhood in the city. Simultaneously, the region also includes considerable rural/rurban stretches that open up new land for development. Overall, then, Aundh carries all the ‘smart’ ingredients—the IT factor breeding ‘smart’ entrepreneiual citizens and the need for global standards of living driven by technology.

a. Local Area Development Site: Aundh-Baner-Balewadi

The site chosen to be retrofitted under the SCM is a 900 acre stretch of existing built-up area covering parts of the Aundh ITI, Baner and Balewadi prabhags (Error! Reference source not found.;(PMC, 2015c)). The development is estimated to impact a population of 40,000-50,000 (PMC, 2015d). The PMC in preparation of the SCP was involved in selecting the site from 11 potential sites across the city, through consultations with citizens and urban planning experts, across specific criteria (Ibid.). As a result of this process, the Aundh-Baner-Balewadi (ABB) area emerged as the preferred place for living, investing and recreation; as well as for easily replicating and implementing (PMC, 2015c). Given the up-town character of the area housing a mostly upper-middle class society, the stated vision for the ABB area is "to fully transform livability across all dimensions so that it matches best-in-class global cities" and becomes a "round-the-clock, happening destination" (PMC, 2015d; PSCDCL, 2018a). To this end, the retrofit model envisaged for the site is packed with 36 technological interventions across six themes (**Fig.23**; (PSCDCL, 2020b). Under the envisioned theme of "fixing hard infrastructure and making it future-ready", a proposed goal is to initiate Street Redesign with a focus on Non-Motorized Transport infrastructure across an identified network of streets in the area.

5.2. Aundh (Nine) Streets Project: 'Smart Road' Pilot

As part of the 'smart' vision for the Aundh-Baner-Balewadi site as mentioned above, a re-designing/improvement of about 46 km of streets in the area is proposed[96] (PMC, 2015d). The Aundh Streets Project (ASP) seeks to improve 8 km of this network across nine streets

[96] This 46 KM network is further part of a pan-city initiative that aims to re-design 100 km of streets cross the city under the Pune Streets Program launched in 2016 (PSCDCL, 2018b)

exclusively in the Aundh[97] area (**Fig.24**; (ASP, 2016b)). In redesigning these streets, the main objective of the ASP is to create a "walkable, cycle-safe, connected, people-friendly neighbourhood" (ASP, 2016a). To this end, the following principles are envisaged: (i) "walkability and non-motorized transport" through building cycling infrastructure and safety as well as universal accessibility to the use of streets, (ii) "organized and multi-use streets": creating and integrating open space, 'smart' parking, hawking zones; and (iii) "improved connectivity" both within Aundh and to other places by connecting NMT with sustainable private and public transit options such as cycles, e-rickshaws and BRT (Ibid.). Therefore, the stated vision of the ASP is to apply urban designing principles in building streets as a community/public space, i.e., as an extension of each one's 'angan' or courtyard.

a. Street redesign projects since mid-2000s: the Aundh ITI street upgradation

In harboring this vision, the ASP's rationale traces a history of collaboration between the Pune Municipal Corporation (PMC) and a network of local firms, associations and civil society organizations (CSOs) towards developing sustainable transportation infrastructure, especially through Street Redesign. The earliest of street upgradation initiatives go back to the mid-2000s when it was spearheaded by the Pune-based architectural firm Prasanna Desai Architects (PDA) and a couple of CSOs such as Parisar and the Centre for Environment and Education (CEE) established in the early 1980s. The expansion and urbanization of the urban fringes of the city created the need to redevelop the network of roads radiating from the centre of the city such as the roads towards Satara, Solapur and Mumbai, and so also their associated streets marking growing neighbourhoods such as Aundh and Deccan Gymkhana (Benninger, 1993; PMC, 2007) . The introduction of the BRTS by 2006 also accelerated the process of organizing

[97] While the Aundh Streets Project focuses on 8 km in the Aundh area; parallelly (not under the ASP) 17.7 km are proposed in Baner and about 16.5 km in Balewadi thereby totaling to about 42 km of roads across the Aundh-Baner-Balewadi site (PSCDCL, n.d., 2018b)

the city's "erratic road systems", towards an "equitable distribution of road space" across its multiple (and chaotic) current uses (PDA, 2011). This began with the Prasanna Desai Architects' work on the Satara Road that paved the way for a street design framework centered on equally dividing its existing use to create—wide footpaths, a parking/service lane, cycle track, a BRTS lane around a reduced carriageway/motor vehicle lane (Ibid.). Such a re-design sought to reorient the PMC's focus from road widening initiatives towards creating "streets as (equitable) public spaces" (Ibid.).

In a similar pattern then, by 2007-08[98] the PMC, fueled by local advocacy and expertise kickstarted the redesign of 5 km stretches at Jangali Maharaj Road and Fergusson College Road respectively (PDA, 2011). These two roads are counted as a landmark in the city's development as they transformed these already bustling (but chaotic) commercial spaces into a vibrant organized public space attracting locals and tourists alike[99] (Parisar, 2010). A similar design along a 2 km stretch of the Aundh ITI[100] road was spurred by the PDA and the Aundh Vikas Mandal (a resident welfare association in the area), who jointly lobbied the local corporator and PMC engineers to reorient the PMC's proposal towards creating instead an equitable and pedestrianized public space (PDA, 2011). This single-street project over time evolved into a neighbourhood-level project of spreading awareness among residents with regard to the value of pedestrianized and non-motorized streets designed by the community. In this regard, workshops such as the "Streets for people, by the people" were conducted by CSO members

[98] These street redesign initiatives beginning from the mid-2000s were undertaken even before the global non-profit Institute for Transportation and Development Policy (ITDP) started to influence sustainable transportation reforms in Pune, thereby indicating the inherent capacities for local advocacy in the city.

[99] Even as traffic and congestion mars their shrunken carriageways today, in February 2020, Pune's traffic police announced the conversion of the FC road into a two-way road allowing more vehicles to ply; defeating the purpose of the original one-way traffic design (Parekh, 2020; Parisar, 2010). This goes to show the challenges in maintaining street redesign projects in the city, as they are caught amidst poor enforcement, a culture of private vehicles and the politics of local governing institutions such as the traffic police department and the PMC.

[100] The Aundh ITI road until then had a relatively well-developed footpath along the side of the Industrial Training Institute, while its residential edge remained unpaved and dirty. The PMC's proposal involved adding a footpath on the residential side while also increasing the carriageway.

of the Sustainable Urban Mobility Network[101], which facilitated idea sharing between citizens, students, planners and architects (Ibid.).

b. Old design along new streets: the "Smart" DP Road

Against this backdrop of local mobilization of public opinion around sustainable transportation, by 2015, the Aundh-Baner-Balewadi area was identified as a site for 'Smart City' development (PMC, 2015d). In order to make the street redesign project viable and cohesive at a neighbourhood level, it was decided to expand the existing collaboration along a single street to a network of nine streets in the Aundh area[102] (PDA, 2018). A proposal for the Aundh (nine) Streets Project was thus developed by the PMC's urban design consultants, the PDA and IBI consultants in 2016. A 'Design-Discuss-Demonstrate' process was followed that brought together a range of public, private and civil society stakeholders[103] to facilitate the process of public consultations, technical studies and trial/demonstration of identified designs along a small stretch of identified street networks. The design principles and elements framing the ASP (Error! Reference source not found.; (PDA, 2018)) carry forward the ones applied in previous street redesign initiatives as discussed above. The only notable aspect is that 'Technology' in the form of incorporating ICT solutions such as sensors, Wi-Fi, CCTV and so on is spelled out as a distinct guiding design principle.

By the first week of October 2016, an eight-day trial of the proposed street re-design was initiated along a 500 m stretch of the 1 km DP Road (Error! Reference source not found.; (ASP,

[101] The national Sustainable Urban Mobility Network was created as a coalition of CSOs and individuals engaged with promoting sustainable transportation in line with realizing the principles envisaged under the National Urban Transportation Policy, 2006.

[102] The aim was to achieve a "Complete Neighbourhood" through a network of 9 "Complete Streets" (PSCDCL, 2016b).

[103] Public and private stakeholders included Pune Mahanagar Parivahan Mahamandal Ltd (PMPML), Bharat Sanchar Nagar Ltd (BSNL), Maharashtra Natural Gas Ltd. (MNGL), optical fibre companies and the Mahratta Chamber of Commerce, Industries and Agriculture (MCCIA), whereas civil society representation was provided by the Aundh Vikas Mandal, CEE, Parisar (SUM) along with the ITDP. Each of these actors contributed in their own way in shaping reforms: while community participation and local advocacy was driven by the CEE and Parisar, the ITDP aided in networking with key political actors at the municipal corporation, the MCCIA guided the contracting process, and the PDA firm was involved in actually designing the project on the ground.

2016c)). As part of the trial, it was proposed to make existing two-way traffic flowing along DP Road, one-way (from Brehmen to Parihar Chowk) while completely pedestrianizing the other side[104]. With the trial receiving a largely positive response, implementation of a 1.5 km 'Aundh Smart Road' pilot was rolled out in April/May 2017 (PSCDCL, 2018b). The pilot project is being implemented by the PSCDCL in collaboration with the PMC (PSCDCL, 2016b). The PSCDCL selected private construction contractor works with the appointed project management consultant and urban design consultants in order to execute the project (Ibid; (ASP, 2016a)). The 1.5 km 'Smart Road' pilot was initiated proposing three components: from (i) Brehmen Chowk to Parihar Chowk (0.5 km) and (ii) Parihar Chowk to Ambedkar Chowk (0.5 km) forming the 1 KM DP Road; as well as the segment from (iii) Parihar Chowk to University Road via Police Lines (0.5 km) (PSCDCL, 2016b). The tender for the project was floated for an estimated total cost of Rs. 22.9 crore (the PSCDCL estimated cost for the same was Rs. 25 crore (approx. CAD 4.4 million)) (Ibid.; (PSCDCL, n.d.)). As of March 2019, a total expenditure of Rs. 18.2 crore (approx. CAD 3.2 million) has been incurred, with the 1 km DP Road upgradation completed (PSCDCL, 2018b, 2019a)[105]. The total 1.5 km stretch is expected to cost Rs. 19.2 crore (approx. CAD 3.3 million) (PSCDCL, 2019a).

c. Challenges and opportunities in the design and use of the 'Smart' DP Road

Since it was opened for use, the 1 km Smart Road has been garnering accolades even as it faces challenges (Bari, 2019a; Prasad Kulkarni, 2018). In its fundamental design, the redesigned road appears to be no different from those that have been undertaken in the city in the past. So, it remains characterized by the usual wide footpaths, cycle tracks, tactile pavements and ramps for universal access, street furniture, public art and greenery—typical of the previous JM Road

[104] In doing so, it was proposed to re-route traffic from Parihar Chowk to Brehmen Chowk, along the parallel street (Police Lines)
[105] The 500 m stretch from Parihar Chowk to University Lines is still under construction.

and FC Road developments. These interventions represent a significant transformation of the otherwise unpaved, unorganized, narrow, footpath less roads. In these ways, the 'Smart Road' also signals the initiation of these long unfolding standard pedestrian plazas along DP Road (Error! Reference source not found.; (PDA, 2018)). As of 2018, the most identifiable of "smart" components, viz. Wi-Fi hotspot was still work in progress (Phadnis & Kantawala, 2018). Having said that, the technology (ICT) aspect of 'smartness' with regard to road redesign (beyond Wi-Fi, CCTVs and the mere presence of 'sensors') and to what end they will be used or will inter-connect at a pan-city level is not an aspect clearly articulated by the Smart City Mission itself. Therefore, the first question that emerges is, what exactly is 'smart' about the Smart Road project (in a way that drastically signals a shift from previous initiatives)?

Notwithstanding this, the Smart Road project has been the recipient of national and global awards; even serving as a site of study for other aspiring 'smart' cities such as Hyderabad and Indore (HT, 2019; PSCDCL, 2019b). Indeed, not only the design of the street but also the history of participative processes that enabled it, demonstrate the city's relative receptiveness to ideas prioritizing pedestrianization and non-motorized transport in a largely centralized and car-centric landscape of urban development in the country. These present valid reasons for other cities to critically examine the case of Pune in view of its strengths and weaknesses. In this context, the project has been facing varied criticisms and challenges with regard to its inherent design, enforcement, regulation and institutional neglect.

i. Regulation and enforcement

Narrowing the carriageway in a still starkly private-vehicle culture has even in the past led to increased congestion and traffic issues especially in peak hours. Reports indicate the same scenario in the case of the Smart Road, causing two-wheelers stuck in slow moving traffic to ply on the widened footpaths to get across the stretch (Bari, 2017a; HT, 2017; Vaidya, 2017).

These indicate the irony and failure of pedestrianization projects in India that are built on highly deregulated systems of enforcement, staggered and poor maintenance and on a culture and economy that celebrates the private vehicle. While this presents a broader long-term struggle, from a more immediate perspective, the current use of the Aundh Smart Road points to the need for stricter enforcement and regulation by the PMC, traffic police and even through public campaigns. These, it has been noted, can work towards creating and enforcing strict penalties (such as those that already exist by law for encroachments over the path reserved for pedestrians)[106].

ii. Non-motorized transportation: public bicycle sharing and e-rickshaw

Another debated component of this project has been one related to its inclusion of non-motorized transport, viz. the e-rickshaw or Udaan Shuttle and prominently the public bicycle sharing (PBS) (Bari, 2017a).

Drawing on the NUTP, 2006, the PMC had in collaboration with iTrans private consultants, PDA and the CEE (with support from the MoHUA, GoI) begun working on a Comprehensive Cycle Plan for Pune since 2014 (PCP, 2016). The detailed Cycle Plan and the associated Public Bicycle Sharing (PBS) Plan prepared after rigorous public and technical consultations over two years, received final approval from PMC's General Body in December 2017 again in time for the city's induction into the 100 SCM (Ibid.). This therefore accelerated the ambitious vision of increasing the city's cycling modal share from the current 3% to 25% by 2031 (PMC, 2017). Under this framework, a (i) cycling network (merged with pedestrianized greenways) of 824 km has been planned across the city at an estimated cost of over Rs. 300 crore (approx. CAD 52.4 million), along with a (ii) public bicycle system (PBS) aimed at introducing about 100,000 cycles in the city over three years docked in about 800 stations to institute cycling as a public

[106] Some local residents and experts have also urged more design-driven enforcements such as integrating hurdles onto the footpath.

mode of transport (Ibid.). A pilot of this PBS was undertaken around Pune University and along the Aundh Smart Road in December 2017 (PSCDCL, 2017), after which a broader plan was launched by 2018 covering other areas in the city such as Kothrud and the pedestrian plazas along JM and FC Road, Deccan Gymkhana (Parekh, 2018). This was made possible by the PMC and the PSCDCL signing MoUs with four private global urban mobility companies[107] that together expected to ply around 10,000 cycles by 2019 at a user rate of Rs. 2 for half-an-hour[108] (Prachee Kulkarni & Nitnaware, 2019; Geeta Nair, 2018). By 2019 however, global economic slowdown reportedly caused all four companies to steadily exit, leaving the PBS in Pune with decreased fleet at increased costs, incidents of vandalism/theft, neglected/lack of required cycling amenities and infrastructure and waning enthusiasm of the PSCDCL and PMC (Prachee Kulkarni & Nitnaware, 2019; Welankar, 2019). Against this backdrop, the PBS along the Aundh Smart Road also faced a major jolt with MoBike becoming the third firm in less than a year in the area, to pull out its fleet[109] (Iyer, 2019). These exits are reported as having been triggered by low utilization rates, in turn attributed to inherent flaws in the design of cycle lanes (such as the lack of clearly demarcated and regulated cycle tracks) and imported cycles (unsuited to Indian physique), poor end-to-end connectivity and the generally unregulated use of related transportation infrastructure (Error! Reference source not found.; Ibid.). Having said that, the PBS in Aundh (and indeed across the city) garnered a good initial response especially from students and the youth populations and was even believed to have increased the number of private cyclists in the city.

In the same vein, Aundh also saw the introduction of another NMT option, viz. the Udaan Shuttle or e-rickshaws. The relevance and significant presence of "para-transit" or

[107] These urban mobility companies included Zoomcar's PEDL, the Chinese companies Ofo and Yulu; and the startup MoBike.
[108] The user rate increased to Rs. 10 for 20 minutes by 2019.
[109] A few months before July 2019, Ofo and PEDL had pulled out of the area too, citing low user rates. Yulu however decided to continue plying their fleet of 2,500 cycles across the city (and in Aundh) as of August 2019.

"intermediate public transportation" modes including small-capacity cars, jeeps, rickshaws etc. has been duly noted in India, especially in its small and medium towns that remain under-served by larger-capacity transit options (S. Menon, 2017). In Aundh too, given its poor connectivity to public transport and the lack of adequate modes for local travel, local residents had been lobbying the area's corporator to introduce cost-effective and convenient para-transit options (Ibid.). As a result, a fleet of six e-rickshaws inspired by the ones plying in Delhi were introduced by the local corporator in early 2016 (there were 7 e-rickshaws in 2017) (Ibid.; (Bari, 2018)). These e-rickshaws worked as an "on-call taxi" service plying across designated local routes throughout the day with a capacity to ferry 4-7/8 passengers at a cost of Rs. 10 per person per trip (S. Menon, 2017). By the time the Smart Road pilot opened for trials in October 2016, these e-rickshaws had already been in use, especially by senior citizens, office goers and school children. However, as of 2018, reports indicate that only one out of the seven e-rickshaws continue to operate in the area (Bari, 2018). The waning of this service since 2017 has also been attributed to increased costs of maintenance, weakening battery life and high costs of replacing the batteries, as well as lack of sufficient charging points (Ibid.; (Bari, 2017b)).

Overall, the design of the Aundh Smart Road and especially its incorporation of NMT, point to three key aspects (i) what is being branded as 'smart' is in essence a continuation of initiatives already in the pipeline in one way or another since before 2016; (ii) while the city is relatively ahead in terms of spearheading sustainable development initiatives especially in the transportation sector, there are visible challenges pertaining to maintenance, financial sustainability and existing processes of participative governance/design; and (iii) the use of technology remains minimal, with no real transforming capacity as yet. Further, its role (say, 'sensors" or "Wi-Fi)) in street development and design is still not substantively articulated with regard to firstly, why it is needed at all, given the locally existing challenges; and secondly

(even if used) how they will be connected through the city (and not just in one pocket), to what system they will feed into, with what safety/privacy mechanisms and really, for whom.

VI. A 'smart' road to development? Implications for Governance, Planning and Development in Pune

In Pune, the Smart Cities Mission seems to be playing out as another overarching national policy framework under whose banner historically developing projects and policies continue to be operationalized. The above discussion has attempted to highlight this with regard to the Aundh 'Smart' Road project largely retaining the design elements and collaborative processes shaping street redesign projects since the mid-2000s. Such a trajectory of development, while sustaining the opportunities in local governance in the city, also perpetuates (and even stands to exacerbate) the historic structural challenges associated with it (Gadgil et al., 2015).

The role of the urban local body, i.e., the Pune Municipal Corporation (PMC) in shaping local development appears to be sustained under the Smart Cities Mission—in its political, financial and administrative capacities. The established SPV- PSCDCL under the Mission, in many ways comes across as another wing of the PMC, instead of the independent implementing agency (with powers of the ULB) that it was envisioned to be under the national mission[110] (MoUD, 2015). This is evident from the city's Smart City Mission architecture (Error! Reference source not found.; (PMC, 2015c)), the leadership of the PSCDCL being linked to that of the PMC (until recently) (p.98); and the continued roles of the PMC's administrative and political wings in the execution of projects. For instance, the tender floated by the PSCDCL for the 1 km Smart Road reads that it "shall be implemented in coordination with the PMC" (PSCDCL, 2016b).

[110] (Gadgil et al., 2015) highlight that under the JNNURM too, the Pune Municipal Corporation continued to hold its influence as the prime institution in local development. A JNNURM Cell was created, as another office within the PMC building premises (just as in the case of the PSCDCL under the 100 SCM) and was staffed with technically trained PMC officials.

Moreover, in case of projects being executed by the PSCDCL such as the Multi Modal Transit Hub at Balewadi, the SPV as of 2019 was actively seeking PMC intervention (Prachee Kulkarni, 2020). Thus, the position of the urban local body in shaping development appears to be retained, but in a financially demanding and (surficially) competitive 'smart' environment. The national 'Smart City' vision has brought with it the pressures of investing in high-cost, visibly aesthetic, quick-fix and short-term infrastructure—without adequately proportionate central government grants to cities in creating it. Therefore, while Pune was able to leverage the JNNURM largely as a funding channel (despite it not bringing any real governance and development transformations), the 100 SCM seems to hold neither transformative potential nor the promise of financial (especially, grants) inflows into the city. This stands further exacerbated by the PMC's internal revenue generation compromised more by the abolishing of key local taxes and their integration into the broader Goods & Services Tax, making the PMC more dependent on the state and central governments (TNN, 2017b).

In addition, development under the 100 SCM is bound by fixed criteria amidst the optics of branding everything as 'smart'. This includes mandating the (ornamental) use of technology as commodity and (private) technical expertise, along with a push towards speculative finance. In the creation of the 'Smart Road' in Aundh, we see that these 'smart' pressures (such as the mandated use of ICT) have either not (yet) influenced the project or have been allowed to be retained (such as with technical design consultants building and guiding the project). This is not to discount the expertise and value brought in by global and local civil society organizations and technical consultants; but questions arise with regard to the poor technical capacities held by the urban local body and the reasons why capacity building has historically been retained. The Administrative and Technical Capacity Report prepared by the PMC for Stage 1 of the Smart City Challenge (PMC, 2015e) itself indicates that only about 2% of its total employees (19,656) hold technical degrees in civil, mechanical or technical engineering. Moreover,

reflecting a concerning national trend (WCR, 2016), there is no stated representation of local body officers holding urban and regional planning degrees and certifications. The history of street re-design indicates 'planning' in the city as having been largely shaped by urban design and architectural interventions that by the inherent nature of the discipline remains skewed towards designing the "space between buildings" and microclimates (Gehl, 1987). Here, the emphasis of design-led initiatives, even though through participative processes, tends to be on the aesthetics and convenience of utilities if not blurring issues related to (iniquitous) access to the same. It is such design-led 'planning'[111] that is further validated by the 'Smart City' through its intensive focus on spatial planning (p.78) which in turn is related to its broader framing of urban challenges as problems in mere optimization (p.45). This perpetuates the neglect of coordinated equitable and participative urban/regional planning of development. Read in terms of these processes of development then, elements of 'smartness' have been present in the city's sustainable development initiatives since the mid-2000s.

This brings us to the critical question of who really benefits from such 'smart' projects? It has been noted how the long unfolding supposedly "sustainable" transportation planning in the city has not really had a "pro-poor approach" (Gadgil et al., 2015). In building the 'Aundh Smart Road', the inclusion of organized hawking zones formed a fundamental principle and component of its inclusive design (Error! Reference source not found.), stressed by both the PMC and its collaborating consultants. However, a TISS-CEE student survey conducted in 2016 during the trial period of the Smart Road revealed concerns with the public consultation process including the lack of engagement with slum dwellers and street vendors (Dharwadkar, 2017). Moreover, reports indicate that the process of creating these hawking zones involved acquiring land from properties (especially from shop-owners) along the edges of the road in

[111] The need of the hour for urban development in India is not just to institutionalize urban planning; but in doing so to re-evaluate and re-conceptualize urban planning education in its complex relations with and differences between urban design.

order to widen it and make space for a more organized layout (Bari, 2017c). Further, a shopkeeper on the eve of the opening of the Smart Road, is quoted as saying:

"The design is very nice but why was this road made? This road already had everything in place, why disrupt things and also spoil our business?... and this is hardly ideal for a walking plaza as it is only 1.5-km long. The officials should have looked at bigger wider roads instead of this stretch." (Ibid.)

Therefore, besides the design-induced irregularities, the real question that emerges, as this shopkeeper asks is, "why was this road made?" While this remains justified by the general need to promote pedestrianization and healthy neighbourhood environments in the city, the question that surfaces, is why and how was this particular site identified? This is a question in need of further research with regard to the politics of the so-called 'competitive' selection process as part of the ''Smart City' mission. The DP Road stretch selected for the Smart Road pilot lies at the heart of the Aundh ITI (Prabhag no. 8) that is marked by a largely upper middle class residential neighbourhood (especially around the DP and ITI roads), with a scattering of commercial and leisure related facilities (PDA, 2011). The Prabhag also consists of four slums including the large Aundh Gaon and Aundh Slums. As the development of the 2 km ITI road stretch in 2010 highlighted, the middle-class local community has been active and aware of their rights in collaborating with CSOs and urban designers to lobby for a particular type of development in the area (PDA, 2011). This local activism towards shaping development has involved prioritizing issues of "street vending…retaining green cover and social and cultural spaces" (Dharwadkar, 2017) in the residential pockets surrounding prominent and busy streets. Development, although through participative processes, appears to be negotiated and shaped within and in response to gated realities. This raises questions about the regional challenges being faced by the Aundh region and the extent to which they are being addressed (or sidelined for micro, 'smart' development). With an expanding urban fringe speculatively driving up real

estate value in the region, the rural populations being ushered into the region are forced into slums with higher costs of basic living (Khape & Ashar, 2014). Along with iniquitous development and a growing slum population, the region also faces other challenges such as a lack of public transportation connectivity into the core city, poor solid waste management and excessive wastewater dumping into the Mula river (Bari, 2019b). An objective of Pune's Development Plan (2007-27), also subsumed within its Smart City Proposal, is the goal of making the city "slum free" through rehabilitation (PMC, 2007). In this vein, the over 1,900 residents of the Ambedkar Slums were promised "smart houses", "matching upscale Aundh apartments" by the PSCDCL covering an 8,994 sq km area with 412 households. As of July 2017, this project was reported as being stuck in paperwork (TNN, 2017a). The larger concern here is not only the availability of finances for such ambitious projects but also the prioritization of (limited) funding. The 1.5 km DP Road stretch is estimated to cost up to Rs. 19 crore (approx. CAD 3.3 million) (similar to the JM and FC roads that cost Rs. 20 crore each) (PDA, 2010; PSCDCL, 2019a). The current priorities of development in the city, sustaining historical processes, stand to become more pronounced; making it ever more difficult to believe in the 'Smart City' as a city for the poor.

In summation, the Smart Cities Mission in Pune appears to be perpetuating historically neglected structural challenges and iniquitous patterns of development, even as it sustains the strength and opportunities of a (relatively) participative local state/society. That is, on the one hand the political and administrative role of the PMC in influencing development seems to be unaffected by the introduction of the Smart City SPV. Largely, elements of relatively decentralized and participative governance are retained through the PMC's continued collaborations with long existing civil society organizations and consultants. Yet, this relatively decentralized and participative set up seems to be promoting the very privatized and exclusive patterns of development intended to be an outcome of the centralized architecture of the Smart

Cities Mission. Participation and the public discourse on sustainable development remains dominated by a particular section of society with a higher bargaining power. Development planning in the city continues to be driven by urban design and engineering interventions, informality, and a local body with insufficient in-house technical capacity and strained finances. Moreover, transportation planning remains largely devoid of a pro-poor focus and conflicted by its enthusiasm for sustainable mobility initiatives even as private vehicle centric development investments continue to hold political mileage and value. Against this backdrop of long-standing paradoxical development in the city—subsuming decentralized and centralized; participative and privatizing processes -- the Smart City Mission in the city is unfolding with its legitimization of a "private urbanism" (Sood, 2015) through Area Based Developments, speculative patterns of financing, technology and emphasis on aesthetics. Such a 'smart' wave thus stands to exaggerate the violence of the status quo of development in Pune.

Chapter 5: Discussion and Conclusions

The objective of this project was to critically analyze the Government of India's ongoing national urban renewal programme, viz. the 100 Smart Cities Mission (SCM), and to understand the implications of the Mission's stated objectives and prescribed architecture, for basic urban governance and planning in Indian cities. In this regard, the specific focus was on understanding the role and capacities of Urban Local Bodies (ULBs) in shaping local development outcomes.

Urban development in India, especially for the poor and marginalized, has been a futile exercise in chasing mirages. Mirages of 'livable', 'sustainable', 'clean' and other such imaginaries of living that have largely remained limited to adjectives on paper. The 'Smart City' is yet another addition. As was noted in a recent webinar held on the financial and governance implications of the SCM in India (Environment Support Group, 2020), the vision for a 'Smart City' really involves giving the street beggar a bigger and more unaffordable house to live in. Indeed, the poor find no place in this envisioned "island of (glittery) technological innovations". While the JNNURM maintained at least a surficial focus on mandating a component of 'Basic Services to Urban Poor' within its program structure, it may be said that in many ways the 100 SCM does not even try keeping up this façade. There is a constant and clear reiteration of who really the 'Smart City' is for:

"I only want to stress on one thing…smart cities require smart people. They must be willing to reform, because it is going to be (a) PPP model, people has (sic) to participate, they have to pay for the user charges and they have to follow (a) certain amount of discipline. Then only (sic) you can make your city smart."—Minister of Urban Development, Venkaiah Naidu during the SCM's launch in 2015 (Taraporevala, 2018)

The Mission's strategies for urban development reflect on the ground the realization of this exclusive smart vision. 80% of the city's funds are being channeled towards 'Area Based

Developments' (MoHUA, 2019), with clear lines drawn for what types of areas are being chosen and which populations within that area are benefitting from the meagre fruits. This is highlighted in the participative yet exclusionary ways in which the 'Smart Road' has been developed in Aundh, Pune. Having said that, the 'fruits' of development under the Mission are in themselves not guaranteed nor really transformational in any way. Five years into the Mission, only 18% of projects stand completed; and even in a relatively decentralized local environment in Pune only five out of the proposed 41 projects stand completed as of 2019 (Deka, 2019; Prachee Kulkarni, 2020). Cities are struggling to be 'smart' even as their financial capacities to realize these grand visions are heavily compromised. Budgets of as high as Rs. 6,000 crore (approx. CAD 1.05 billion) are proposed for micro infrastructure development in nano pockets (Anand et al., 2018), with no consideration given to how these would be maintained if and when they are completed. To top this all, the Mission blatantly mandates Urban Local Bodies to devolve their decision-making powers to Special Purpose Vehicles (SPV) that in a break from the past, are put in charge of multiple departments of urban development and therefore stand to rival ULB structures even more (MoUD, 2015; Taraporevala, 2018). Moreover, even if these established SPVs do not pose a threat to the powers of the ULB, as the case of Pune seems to indicate, the Mission nevertheless works towards intensifying historically unfolding privatized and technocratic governance and planning patterns even within relatively decentralized setups with relatively strong ULBs.

In this regard, the nature of planning and governance under the Mission are being shaped by aesthetic notions of technology. Technology as product and service is not yet seen to be contributing as much to the real development of projects, as was noted in the case of the Aundh Smart Road. National level data also points to less than 15% of funds being channeled towards the IT sector (Anand et al., 2018). Yet, there is an intensified focus on leveraging technical expertise especially in the field of urban planning being practiced as urban design. Digital

forms of citizen participation are emphasized as 'smart' ways of inclusive governance in a landscape of iniquitous access to such platforms. Meanwhile, non-digital participative processes continue to neglect marginalized populations as in the street vending and slum community in Aundh.

Overall, the 100 SCM especially with its illusion of 'neutrality' of technological and competitive processes further depoliticizes historically neglected issues in urban governance and planning such as technical capacity building in ULBs, financial and functional autonomy in line with the "principle of subsidiarity", and a move towards a Mayoral system of local governance, away from the existing administrative hold over local development (GoI, 2007; *The Constitution (Amendment) Bill*, 2016). In this regard, the Second Administrative Reforms Commission's Report on Local Governance (2007) emerges in many ways as a farsighted, detailed and considered document that highlights a way forward to nurturing truly ground-up urban governance systems. For instance, it notes how the current decentralization system grants no real constitutional recognition to ULBs[112]. Indeed, many of the institutional challenges to urban development point towards a restructuring of the existing 'federal' (more like Unitary) nature of our Constitution (Sivaramakrishnan, 2011b). Having said that, the case of Pune appears to indicate the real structural issue as an unwillingness to give up centralized powers concentrated in the hands of the ULB or even certain sections of the population. Within this arbitrary governance setup, any talk of urban planning needs to begin from the scratch i.e., with regard to how it is being taught as a discipline in the country today.

By prioritizing 'smart' development in the way that it is being done since the 1990s and more so today, the real political questions influencing urban living are blurred (Burte, 2014). For instance, intensive centralization of local administration and finance (Bhattacharyya &

[112] The Seventh Schedule of the Constitution of India mentions only three Lists—Union, State and Concurrent under which functions of the state and national government are listed. The Report urges a separate, distinct List for Local Government under this Schedule as a first step towards ensuring real autonomy and de-centralization in the true sense.

Bandyopadhyay, 2012; Mohanty et al., 2007), informality in the form of "deregulation" (Roy, 2009), uncoordinated and lagged planning (Pethe et al., 2014) among other issues are strategically allowed to pervade and cripple the process of development. The aesthetics rather than the substance of development in India continues to gain political mileage (Ghertner, 2011; Watson, 2014). In these ways, the much-celebrated vision of the 'Smart City' in India remains an elusive and an illusory reality.

APPENDIX A: FIGURES

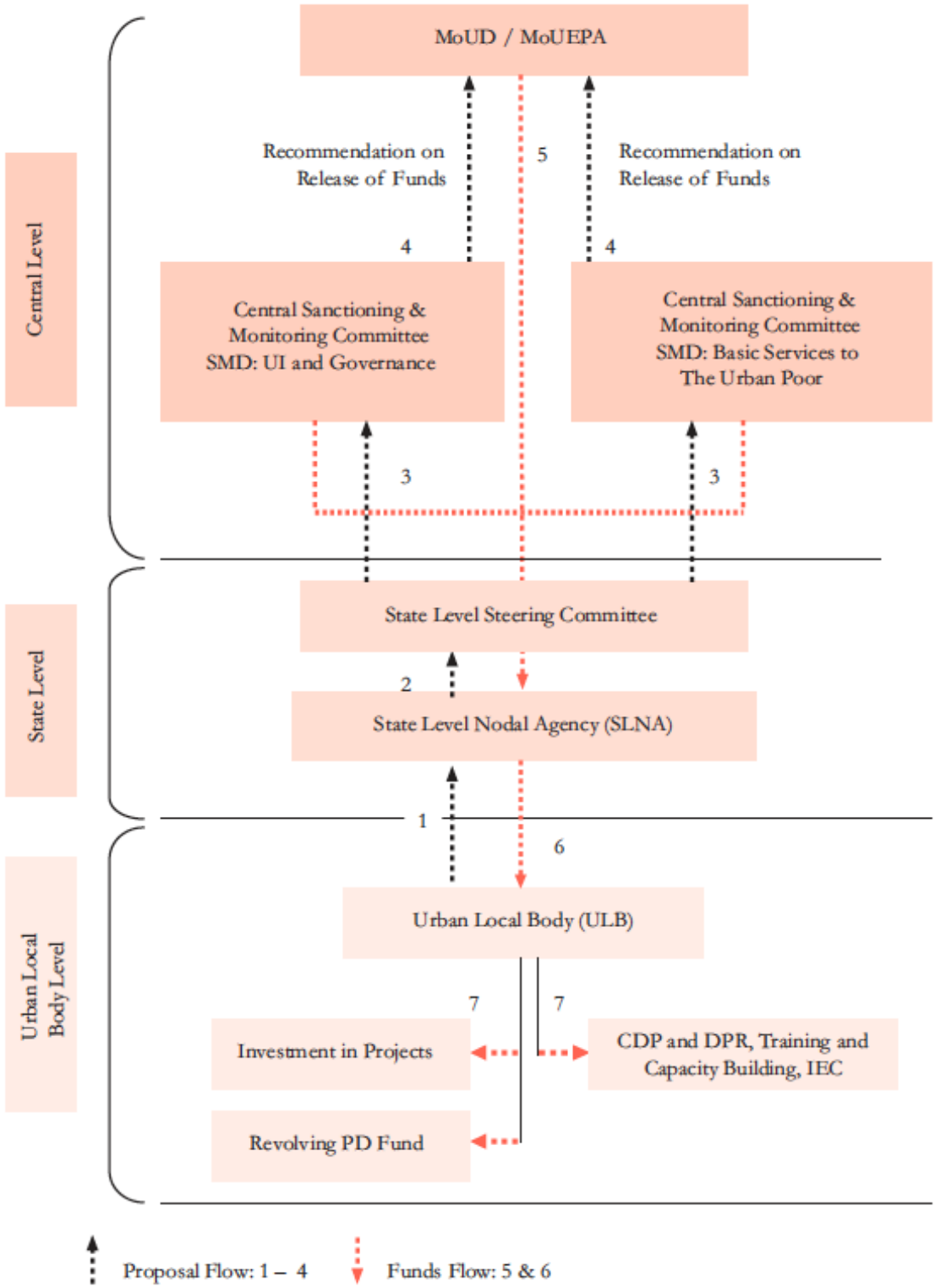

Figure 1. Program Flow of the JNNURM (MoUEPA & MoUD, 2005b)

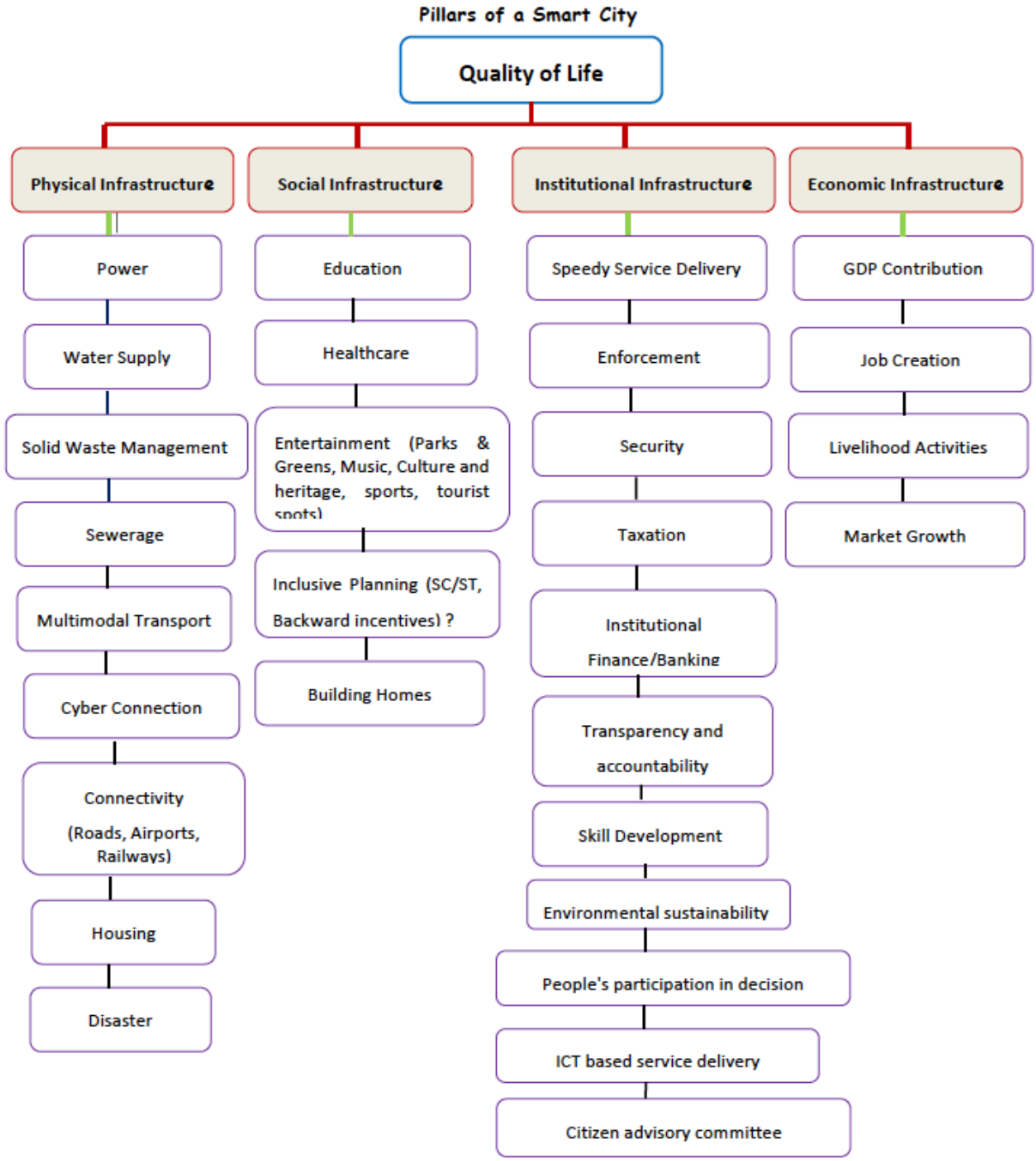

Figure 2. Problem framing under the 100 SCM (MoUD, 2014)

Figure 3. Smart Solutions (MoUD, 2015)

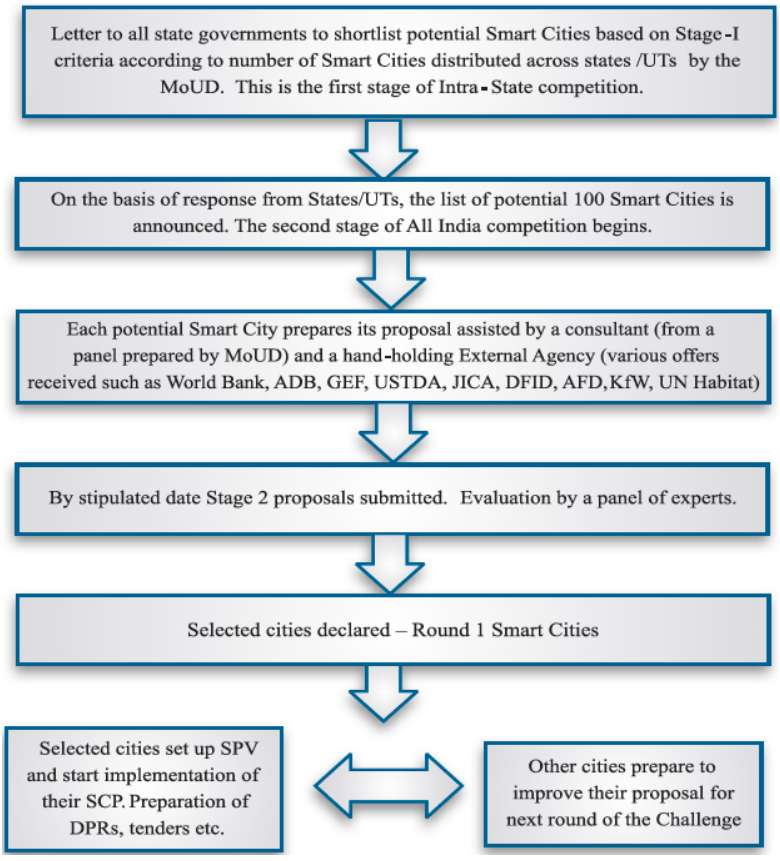

Figure 4. Smart City Challenge

Figure 5. Mission monitoring (compiled from (MoUD, 2015)*)*

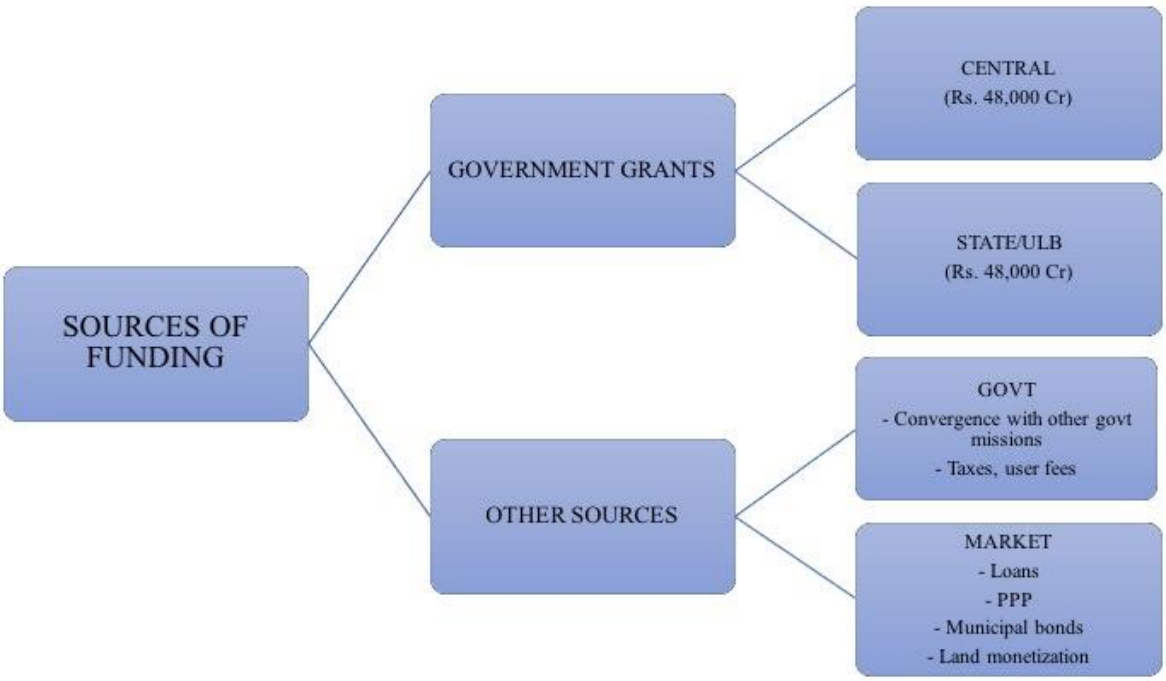

Figure 6. Sources of funding (compiled from (MoUD, 2015)*)*

Figure 7. Key 'smart' projects under the SCM (2019-20) (MoHUA, 2019)

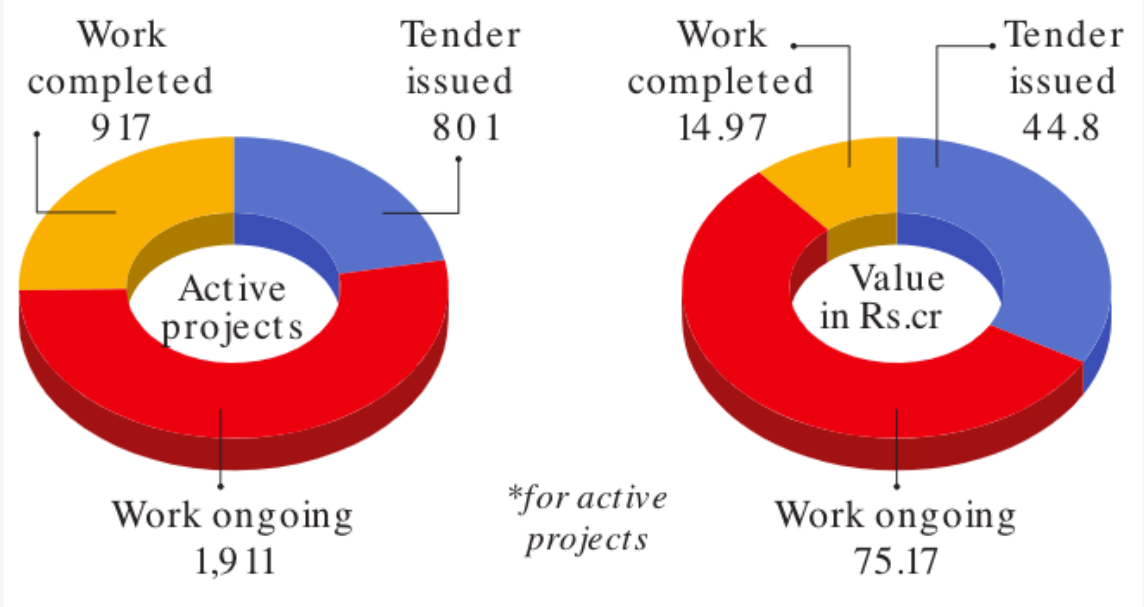

Figure 8. Status of active projects as of July 2019 (Krishnan, 2019)

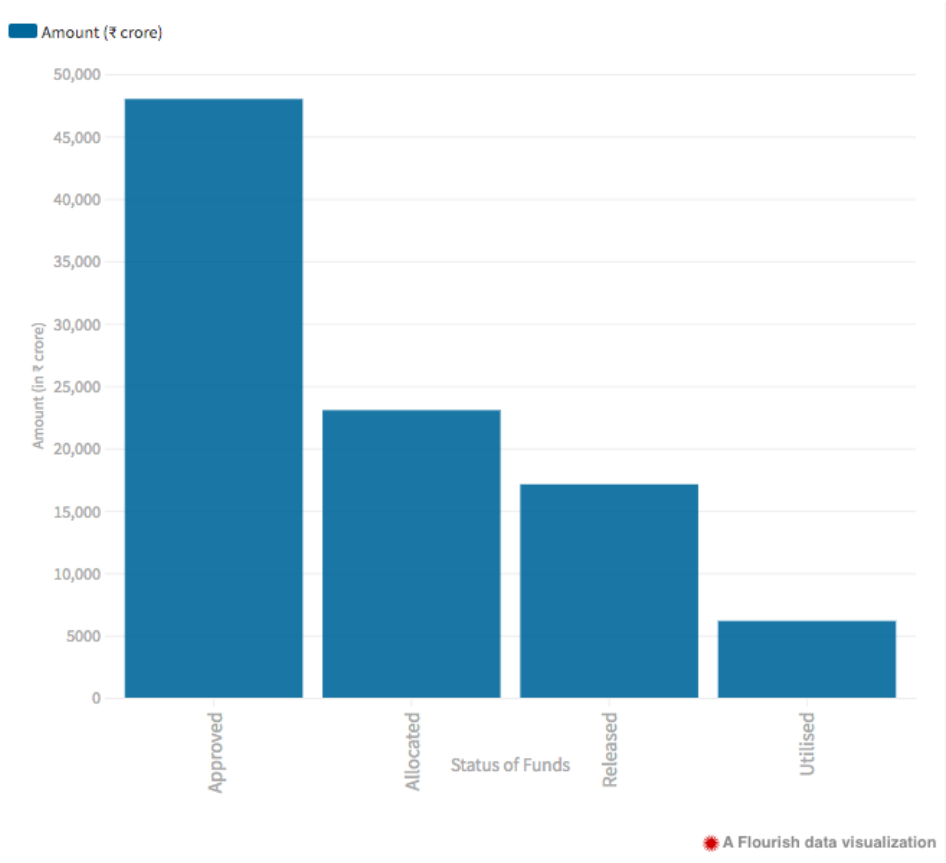

Figure 9. Poor fund utilization under the 100 SCM (2015-2019) (Krishnan, 2019)

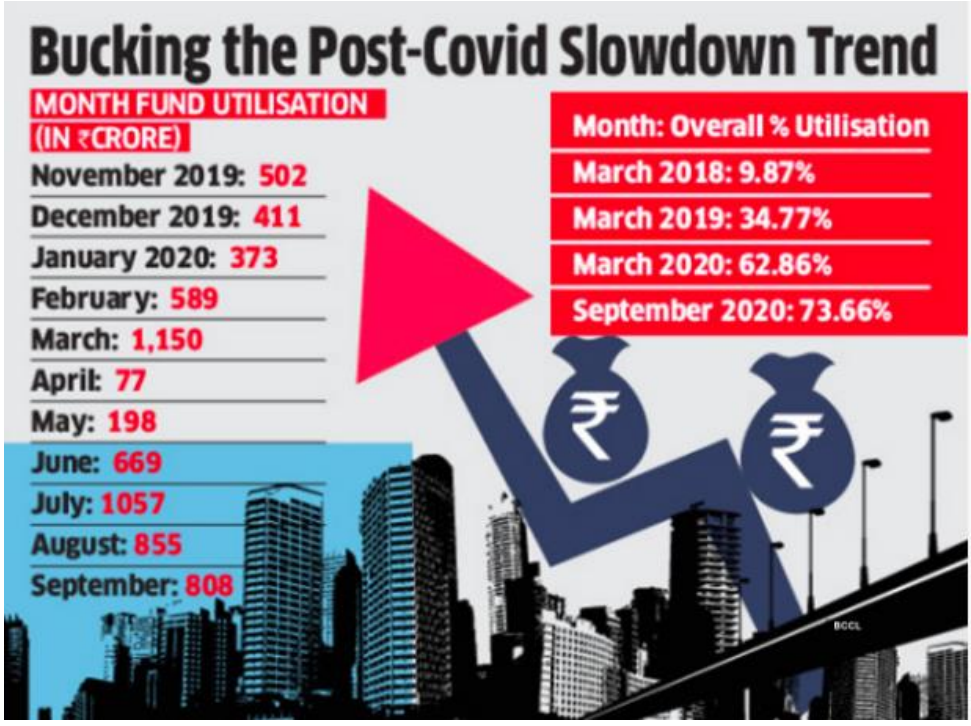

Figure 10. Fund utilization post lockdown (Jan-Sep 2020) (N. Sharma, 2020)

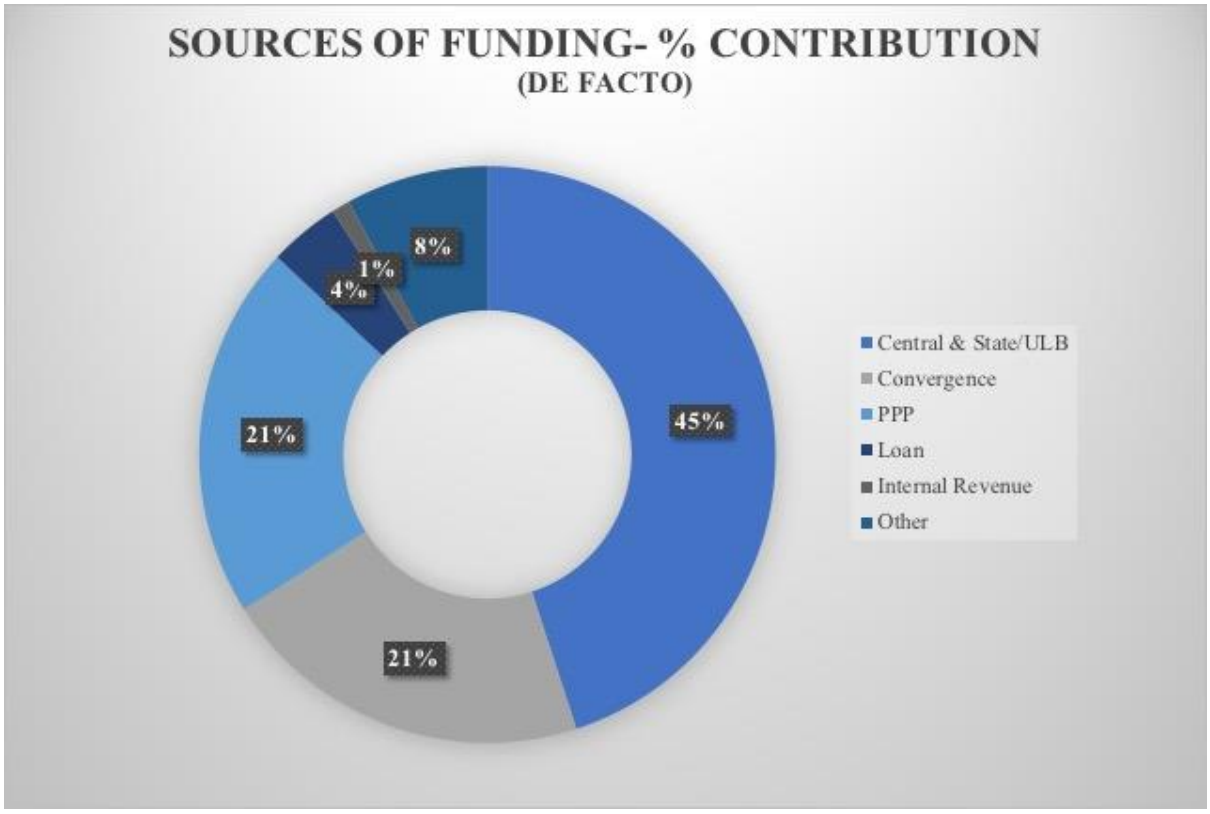

Figure 11. Current sources of funding as of 2019-20 (MoHUA, 2019)

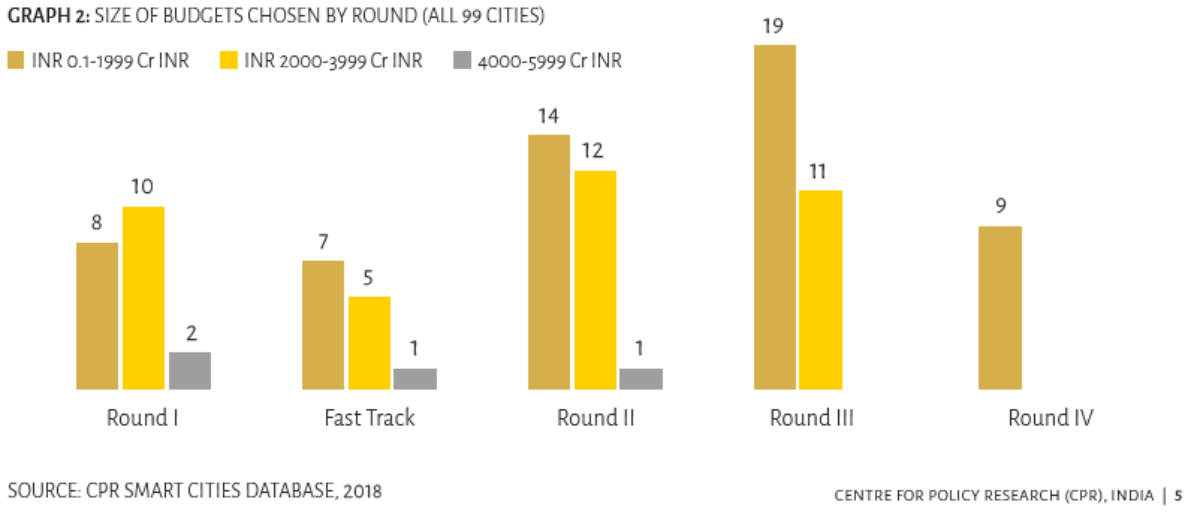

Figure 12. Proposed city budget size (round-wise) 2016-18 (Anand et al., 2018)

	1998-99		1999-2000		2000-01	
	Rs Million	Share (Per Cent)	Rs Million	Share (Per Cent)	Rs Million	Share (Per Cent)
Total debt market	3,87,470	100.00	5,47,010	100.00	5,24,330	100.00
Urban sector	1,66,80	2.56	1,44,90	2.74	1,27,80	2.44
Municipal sector	1,000	0.26	1,180	0.22	630	0.12

Source: Prime Annual Reports for the respective years.

Figure 13. Share of municipal sector in domestic debt market: a decade after decentralization reforms (Bagchi & Kundu, 2003)

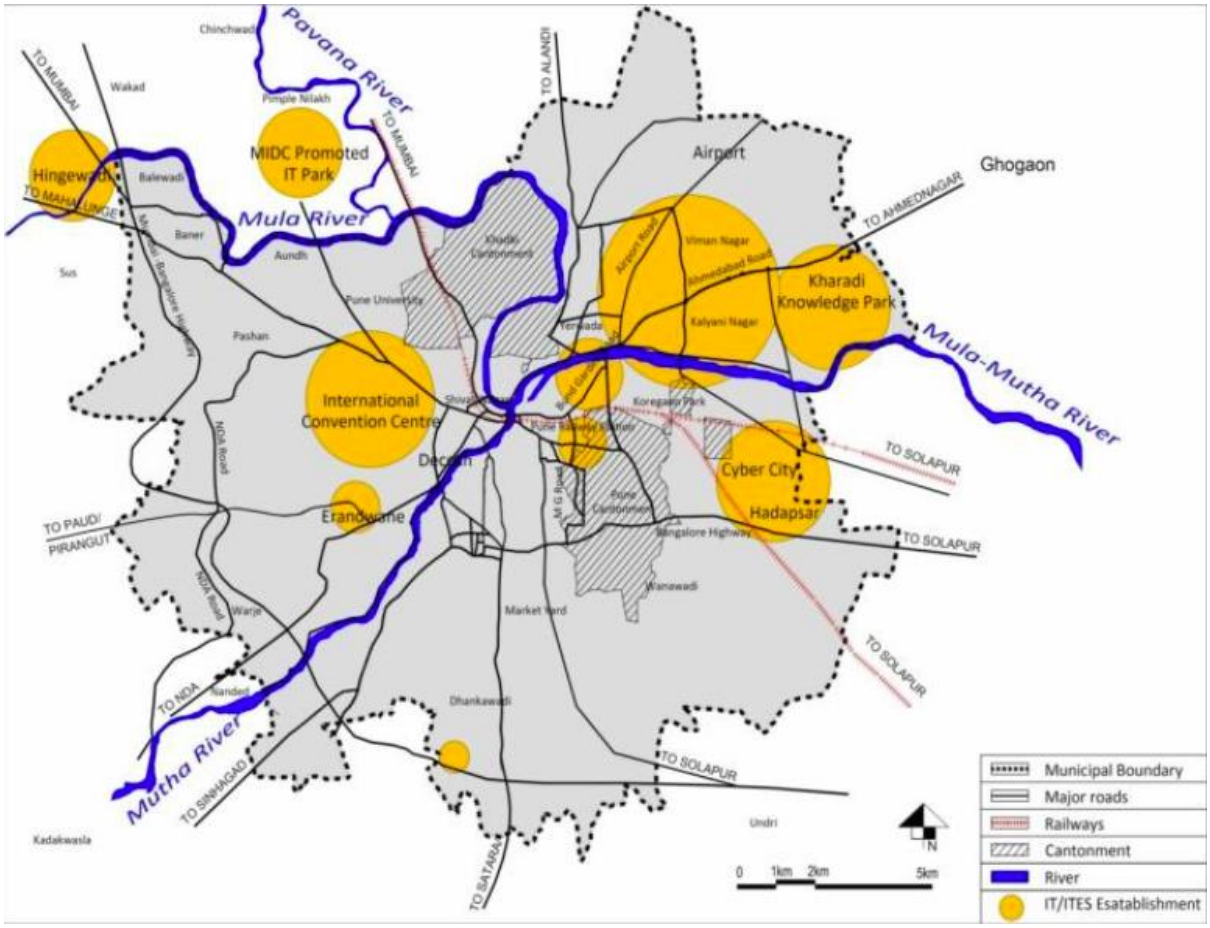

Figure 14. Spread of industrial/IT parks

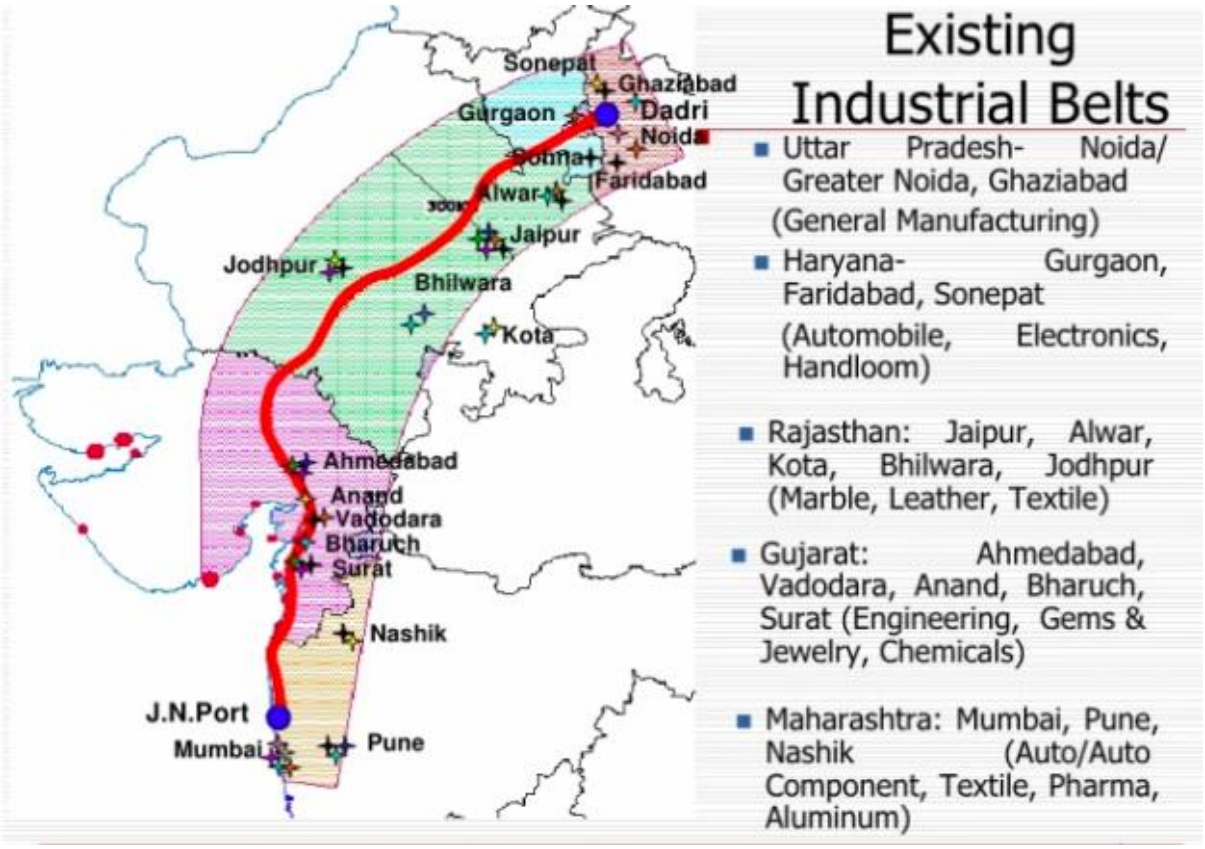

Figure 15. Pune's strategic location along the DMIC (DLDSL-LDB, 2016)

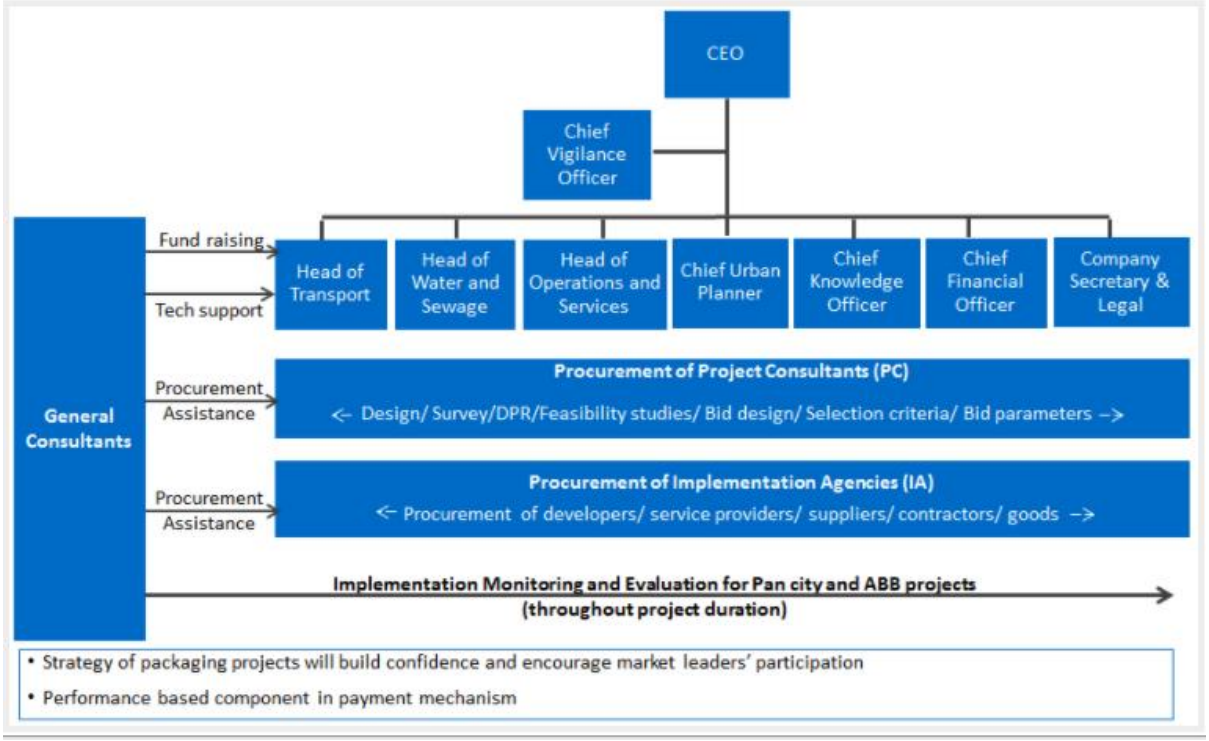

Figure 16. Organizational structure of the Pune Smart City SPV (the PSCDCL) About PSCDCL

36 point program to kick start the process of urban renewal

Sectors	1-2 years	2-3 years	> 3 years
Transport	▪ Augment bus fleet via pvt. participation ▪ Intelligent traffic management system: Digitisation of route and traffic light ▪ Congestion charge to discourage pvt. transport using automated payment system	▪ Construction of High capacity mass transport (HCMTR) corridor around CBD ▪ Road widening across key intersections and proposed metro corridors	▪ Construction of metro along 2 prioritized corridors
Water	▪ Differential water tariffs ▪ SCADA (supervisory control and data acquisition system) to monitor water plants	▪ Universal water metering to plug leakage, using 'smart' tools like GIS images ▪ Reduction in NRW	▪ District Metering Access in 5 most water starved wards ▪ 24X7 water Supply Scheme
Sewage/ SWM/ sanitation/ SWD	▪ 100% coverage of population with toilet facilities ▪ 100% Door to Door Garbage Collection ▪ C&D waste Management	▪ Increase MSW segregation to 100% ▪ 100% processing of waste ▪ Implementation of zero garbage model to all wards	▪ Achieving "Zero" Discharge in the River ▪ Recycling of Sewerage to be used for Irrigation Purpose
Housing	▪ Increase FSI ▪ Computerize and simplify land records and usage change	▪ In-situ redevelopment of tenable slums by collaborating with civil society	
Health	▪ Bring in technology enabled health workers to deliver health services	▪ Beef up core infrastructure to deliver affordable and quality health care services	
Job creation	▪ Conserve core areas and develop as tourist hotspots	▪ Ease of doing business and improvement of investment climate	▪ Creation of 2nd CBD ▪ Riverfront across *Mula-Mutha*
Governance	▪ Encourage participative democracy by increasing the ticket size ▪ Rationalize bureaucratic processes through business process re-engineering ▪ Create a central data platform for real time monitoring and coordination	▪ Leverage tech. for better inter-departmental coordination ▪ Application of e-governance and m-governance ▪ Smart solutions for monitoring	▪ Setting of sustainable citizen consultation process

Figure 17. Pune smart city vision: 36 point program (PMC, 2015b)

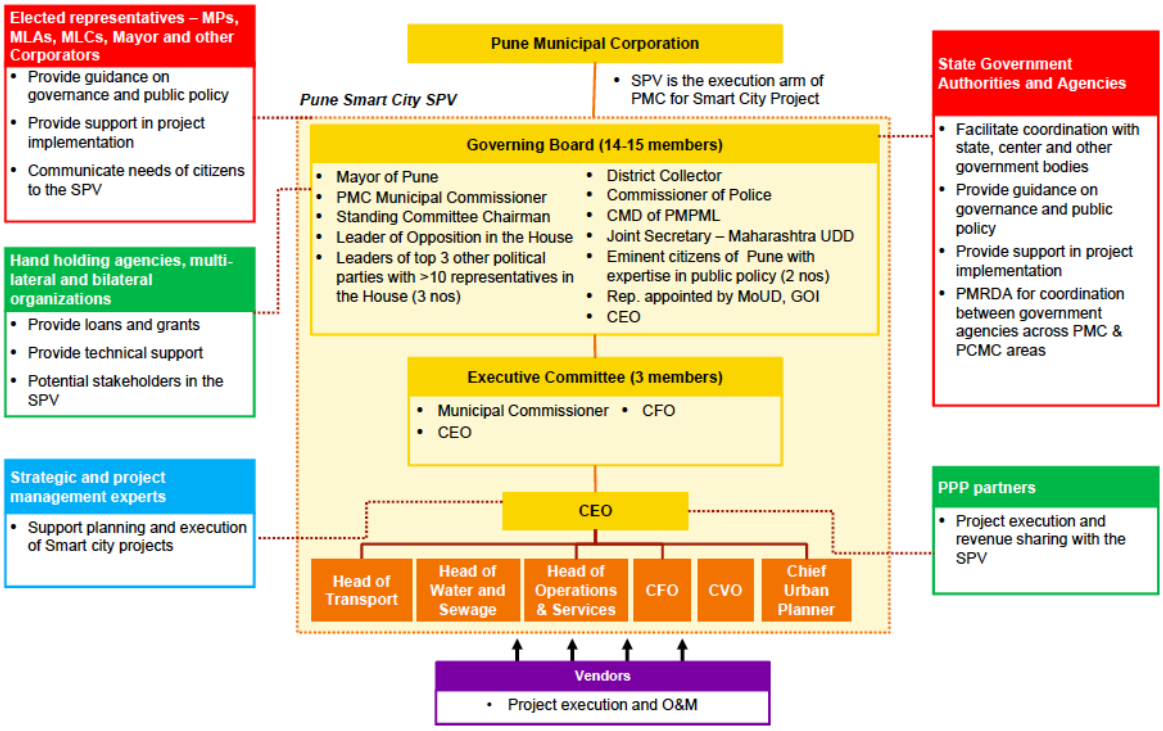

Figure 18. Proposed linkages between the Smart City SPV and ULB and parastatals (PMC, 2015c)

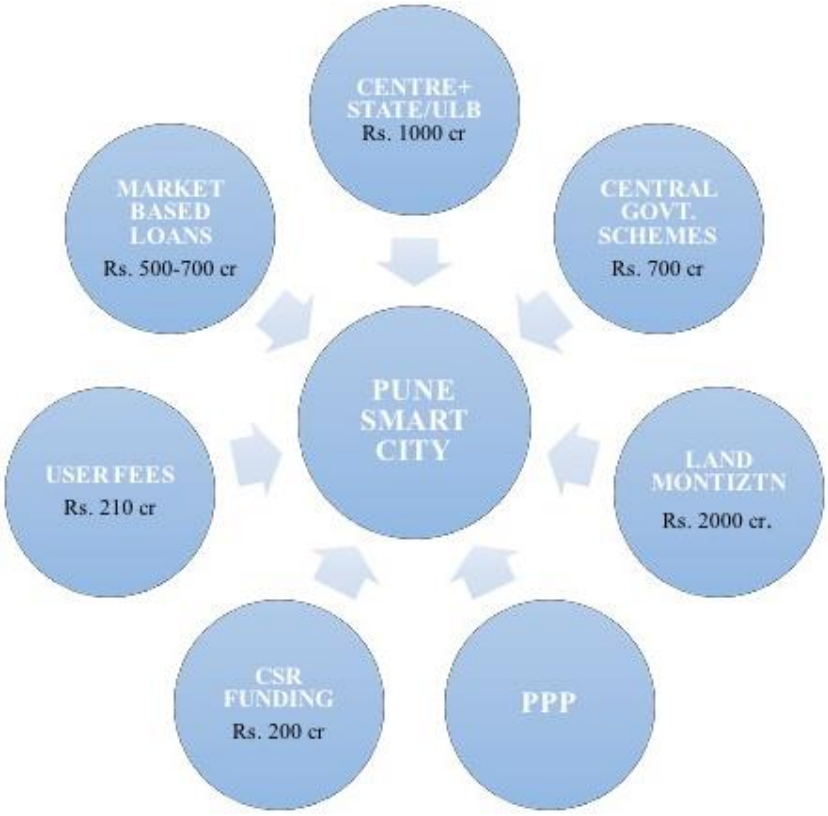

Figure 19. Proposed sources of funding: Pune smart city (compiled from (PMC, 2015d))

PROJECTS IDENTIFIED IN THE SMART CITY PLAN:

No.	WATER
1	Waste Water Recycling
2	Storm Water Use
3	Adequate Water Supply
4	Rainwater Harvesting
5	Smart Metering (water)
6	River Water Cleaning
7	Pilot DMA For 24x7 Water
8	Bulk Meters
9	Helium Leak Identification
10	Smart Commercial Meters
11	Smart Domestic Meters
12	Customer Survey Stp
13	Energy Generation
14	Mobile App And Website
15	Consumer Awareness

No.	SWM AND SANITATION
1	Solid Waste Management
2	Sanitation

No.	ICT
1	e gov
2	IT connectivity
3	Adaptive Traffic Control System
4	Bus System ITMS
5	Command Control Center
6	Intelligent Road Management
7	E Chalaan

No.	TRANSPORT
1	Road and road widening
2	100 Electric buses
3	Smart parking BRT
4	Express airport services
5	e rickshaws
6	Transit hub
7	Total Smart Parking
8	Traffic modelling system

No.	MARQUEE
1	Start Up Zone

No.	URBAN PLANNING
1	Redesign Of Streets
2	Footpaths (additional And Retrofit)
3	Place Making Bicycles
4	Bus Stops (revamp 54 Stations)
5	Junction Redesign For 14 Junctions Non
6	Motorised Street
7	Street Lighting
8	River Front Development
9.	Open Spaces

No.	OTHERS
1	Electricity Distribution
2	Smart Grid & Metering
3	Solar Energy Supply Security
4	Fire Stations
5	Low Income Skill Development & Healthcare
6	Build Affordable Housing
7	Connectivity Costs

Figure 20. Proposed smart city projects for Pune (PSCDCL, 2015)

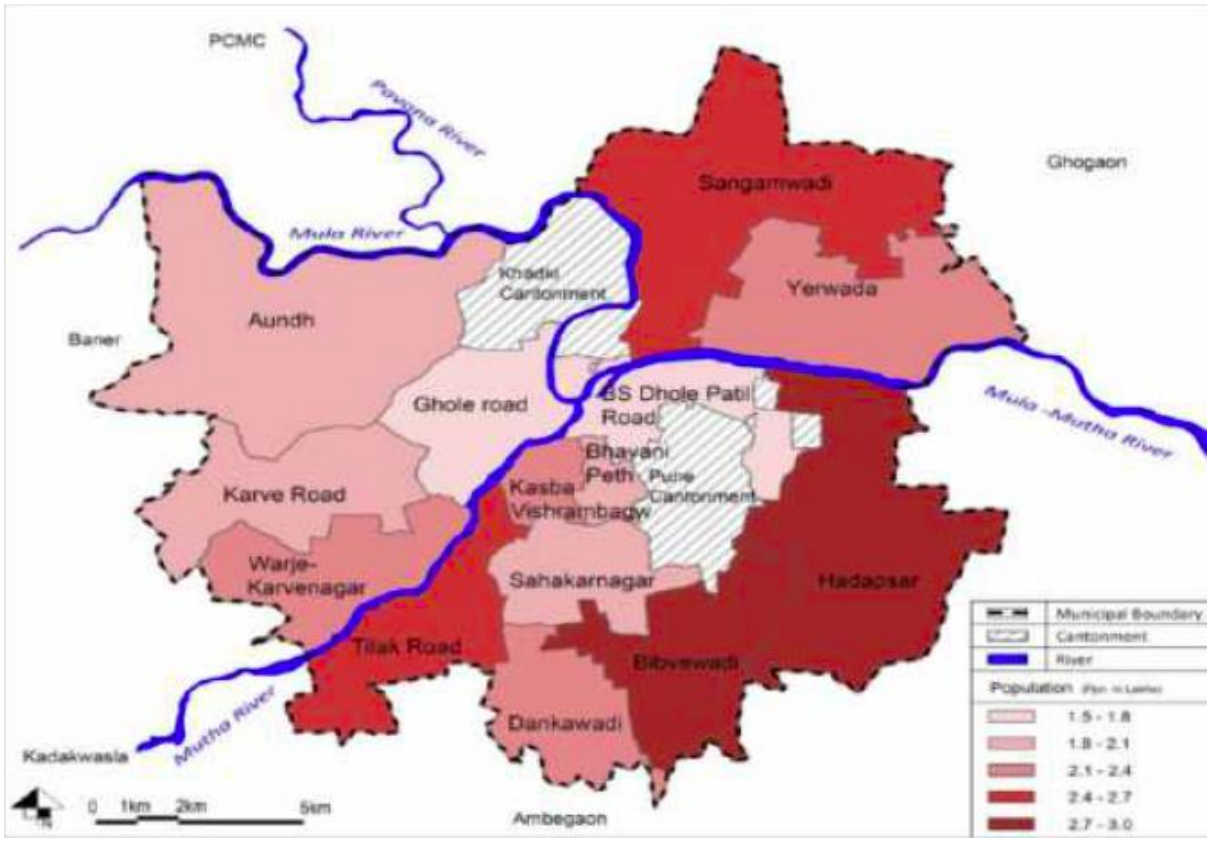

Figure 21. Aundh ward in Pune (PMC, 2014)

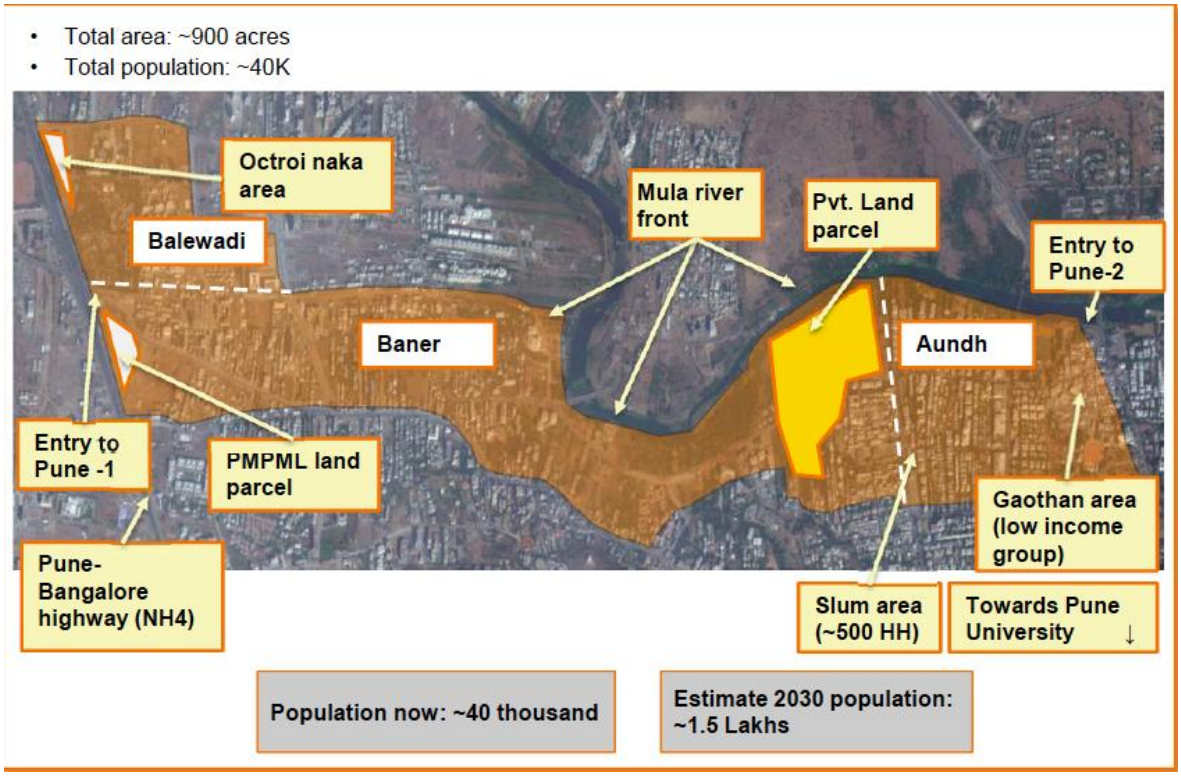

Figure 22. Identified Area Based Development Site in Pune: Aundh-Baner-Balewadi (PMC, 2015c)

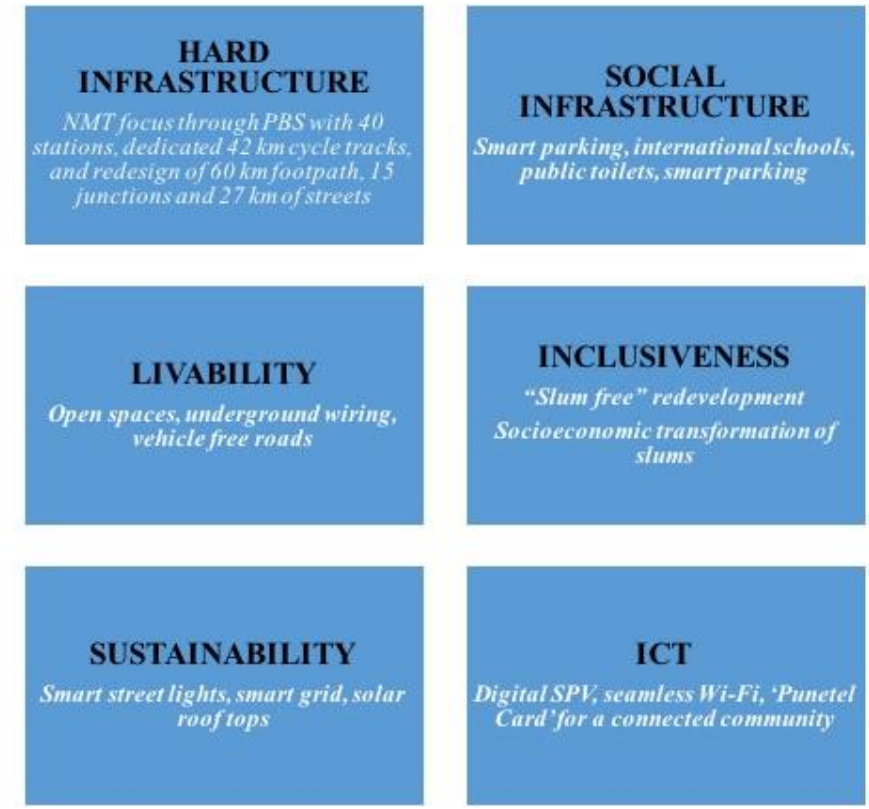

Figure 23. Smart vision for Aundh-Baner-Balewadi (PSCDCL, 2020b)

The Aundh Streets project aims to provide well-designed streets in the entire Aundh area.

Designs are being prepared for the following streets:

S1: DP Road (Bremen Chowk to Ambedkar Chowk)

S2: Police Line Road
(Parihar Chowk to Rushi Chowk)

S3: Westend to Mahadji Shinde Bridge

S4: ITI Road
(Parihar Chowk to Baner Phata)

S5: McDonalds to Aundh Gym
to Parihar Chowk (via Kumar Classic)

S6: Sarja Hotel to Seasons Hotel

S7: Kaka Halwai to Anand Park

S8: Petrol Pump to ITI Road

S9: Anandban Club to CCD / Titan Showroom

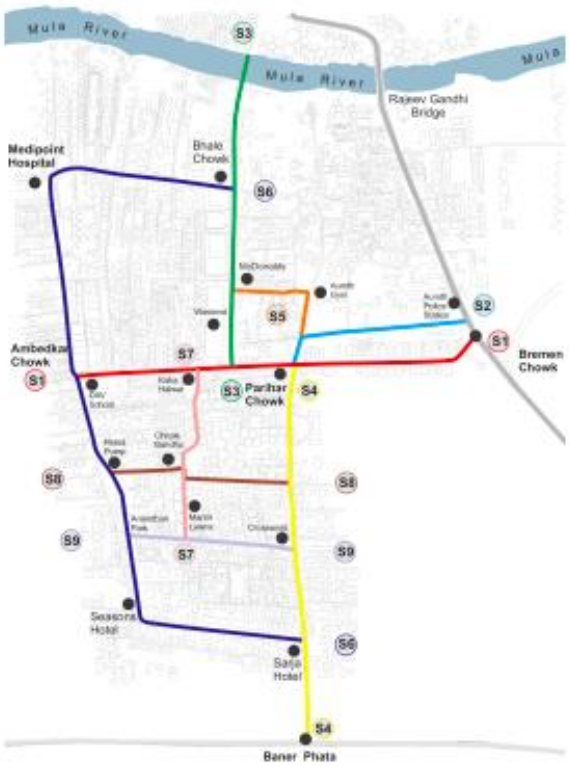

Figure 24. Aundh Nine Streets Redesign Project (ASP, 2016b)

Walkability with equity and dignity, at a continuous surface to facilitate uninterrupted movement.
Universal Accessibility as per the Act, for the differently abled to ensure their safe passage.
Cycle Friendly safe Environment, by a dedicated and demarcated right of way for the cyclists.
Hawker's and Vendor's Policy as per the Act, to restore the vibrancy and eyes of the streets.

Public Transport at the neighbourhood level to maintain connectivity and ease of access.
Organised Parking with a policy that initiates paid parking and result to revenue generation.
Public Realm that is people friendly by conserving green cover, providing seating and street lights.
Technology to incorporate free Wi-Fi, CCTV cameras for surveillance, sensors and traffic count.

Figure 25. Aundh Streets Project: Design Principles (PDA, 2018)

Figure 26. Aundh Smart Road Trial: Brehmen Chowk to Parihar Chowk (500m) (ASP, 2016c)

Figure 27. A stretch of Smart DP Road: Before (above) and After (below) (PDA, 2018)

Figure 28. Status of the Public Bicycle Sharing initiative (as of June 2019): a key element of street redesign projects (Iyer, 2019)

APPENDIX B: TABLES

Year	Date	Round	No. of Cities
2015	Official Launch of the SCM		
2016	January 28	Round-1	20
	May 24	Fastrack	13
	September 20	Round-2	27
2017	June 24	Round-3	30
2018	January 19	Round-4	9
	June 20		1
TOTAL			**100**

Table 1. Smart City Challenge: round-wise selection of cities (compiled from SCM India)

DOMAIN	CRITERIA
EXISTING SERVICE LEVELS (25 points)	- % increase of/ number of household sanitary latrines - operating online grievance redressal system - monthly e-newsletter (at least first edition) - electronic municipal budget expenditure
INSTITUTIONAL SYSTEM/CAPACITIES (15 points)	- compensatory penalty for service-delivery delay - increase in internally generated revenue (taxes, fees, user charges)
SELF-FINANCING (30 points)	- salary payment by ULB - audit of accounts - % contribution of internal revenue to ULB budget - collected user charge for water supply
PAST TRACK RECORD & REFORMS (30 points)	- % of internal revenue sources used for capital works - % of city level JNNURM reforms achieved (6 ULB reforms) - % of JNNURM projects completed

Table 2. Scoring criteria for 'smart' city selection: Stage 1 (tabled from (MoUD, 2015)*)*

SMART CITY PROPOSAL- EVALUATION CRITERIA

CITY LEVEL (30 points)	- credibility of implementation (operational efficiency of public entities, administrative efficiency) - city vision and strategy	
PROPOSAL LEVEL (70 points)	- AREA BASED DEVELOPMENT (55 points) - PAN CITY DEVELOPMENT (15 points)	- impact of proposal - cost effectiveness - innovation and scalability - process followed

Table 3. Scoring criteria for smart city selection: Stage 2 (tabled from (MoUD, 2015)*)*

	Shareholders	**Ratio of shareholding**
Scenario 1	ULB + State	50 : 50
Scenario 2	ULB + State + Private	40 : 40 : 20 30 : 30 : 40

Table 4. Equity arrangement of the Smart City SPV: 2 suggested scenarios (MoUD, 2015)

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