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**National Missions: Spatial Planning
and Implementation Initiatives**



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Editorial



This issue of the journal contains a collection of papers presented at the ITPI Congress 2019 held at Mumbai. Our mission was to debate the national missions and their complex and variegated relationships with spatial planning. In line with this thinking, the first paper written by D.S. Meshram titled 'Spatial Planning Initiatives under the National Urban Missions' focus on the initiatives under taken in national urban missions. The paper begins by showing that planning in India is limited to economic planning at the national level and physical planning is restricted at urban settlement level. There is a lack of spatial planning at the national level and it has not ranked as a priority policy agenda in the five year plans as per National Commission on Urbanization. While the Task Force on Housing and Urban Development underlined that the policy and program interventions in the five year plans were discussed in a half-hearted manner. Spatial considerations have never received adequate attention. Accordingly, this paper attempts to study the spatial planning initiatives undertaken in the national missions.

The second paper christened 'Spatial Planning in the Times of National Missions and Guidelines' by Ashok Kumar also focuses on the national missions. This paper identifies two parallel developments in spatial planning. First of these include those changes, which are clearly non-plan based spatial planning practices having a specific focus on economic growth in a globally connected market led environment, for instance, the Jawaharlal Nehru National Urban Renewal Mission, and Special Economic Zones. This is considered as a part of the larger aspirational agenda of the country being pursued through the growth centric spatial planning practices. The second development is antithetical of the first development, which clings on to the historically developed institutional arrangements such as state level town and country planning organizations by supporting the existing system of spatial planning practices with planning guidelines. This trend promotes status quo in terms of spatial plans and governing institutions. The author argues that both trends are neoliberal in nature due to their heavy reliance on the global and local private sector.

Anumita Roychowdhary concentrates on 'Seeking Solutions for Polluted and Climate Challenged Cities in Urban Design and Planning'. The paper begins by saying the obvious i.e. India as an emerging economy is on a rigorous development trajectory. However, this trajectory has raised several environmental challenges in our cities related to air pollution, climate change and the inefficient use of resources. In the climate challenged world, cities have also become vulnerable to extreme and intense weather events leading to urban flooding on the one hand and heat island effects on the other. Extreme weather events magnify health burden several times. In this way, urban environmental degradation of this magnitude erodes development gains. At the same time, India has adopted the SDGs to stimulate, align and accomplish action by 2030 in areas of critical importance. Yet city level planning is still fragmented and is not cohesive enough to align with these policies to allow resource efficient, inclusive, and sustainable urban growth. This paper puts forward a guidance framework that integrates and aligns with a wide gamut of central and state policies for improving liveability, health and climate response in Indian cities.

Liveable cities have become quite a popular term in the planning scholarship. The fourth paper by Joy Sen and Arpan R. Paul takes up a study on liveable cities in a paper titled "Mission of Liveable Cities - Planning of Metropolitan Regions: A case of Kolkata Urban Agglomeration. The authors argue that an understanding of the history and morphology of a metropolis is critical to comprehending the uneven development of a large metropolis like Kolkata. After presenting a brief overview of the literature on livability and urban development, the paper provides an analysis of historical development of Kolkata since the last 300 years. Through a brief discussion of urban missions, the paper shows that these missions do not take into account historically




developed built environments and consequently ignore historical, economic, political, and in the case of Kolkata, even the colonial processes. It is argued that a-historic missions cannot improve livability in metropolitan areas.

The fifth paper is written by N. Sridharan, and is titled 'The Disruptive Development Strategy for Reconnecting the Settlement Planning in India'. The author believes that spatial planning is an important instrument to redirect a country's development and to position itself as a global leader. Spatial planning strategy can achieve a balanced development in the urban and regional space. However, in the Indian scenario, archaic spatial planning that is often concentrated at the micro level often shies away from national and global linkages. The National Commission on Urbanization chartered a new spatial policy for the country but was ignored by central government. Similarly, interlinking rivers was scaled down. In contrast, the Suez Canal, and the Panama Canal benefitted several countries around that region through international and national spatial policy initiatives and strategies that leapfrogged their development. Exploring the future by seeking disruptive strategies, this paper attempts an alternative strategy for settlement planning. It deviates away from the existing discourses or piecemeal development strategies.

Chetan Vaidya has penned the sixth paper titled 'Role of Urban Planning in Achieving SDG -11, in India'. Looking at the most recent literature on the evaluation of SDG 11, this paper presents a review of the sustainable goals, directly relevant to urban planning. The paper shows that some progress in detailing out SDG 11 is made in India including the efforts made by the NITI Aayog. The paper also shows that urban planners must change according to the changing contexts and focus on new areas of concern that did not exist few decades ago. These emerging areas include energy efficiency, climate change, urban economics, urban finance, etc. Participation, engagement and partnerships with citizens, community groups, public agencies, private sector, and academic institutions are claimed to help realize implementation of SDG 11.

P.S.N. Rao's paper titled 'A Review of the Pradhan Mantri Awas Yojana (PMAY) Urban: Housing for All' takes up the most critical issue facing the Indian city. Housing remains one of the critical challenges facing Government of India and the various state governments. It is lack of affordable housing for the poor, more particularly access to housing for the urban poor, that Indian cities are populated with slums. Government of India has been formulating various housing policies from time to time. This paper considers the issue of housing by examining the latest housing policy of Government of India by carrying out a review of the Pradhan Mantri Awas Yojana (Urban). Before conducting the policy review, an analysis of housing condition in India is also provided.

The last paper is written by S. Surendra and it is titled 'Spatial Analytics for Urban and Regional Planning'. This author views the speedy master plan preparation based on credible data and information as an essential requirement for handling the major challenges being faced by cities and towns in India. It is argued that credible information could be gathered only by use of modern geo-spatial technologies. The paper provides a discussion of various missions being run by Government of India for faster and effective implementation of housing, employment and infrastructure programmes. Technology centric planning appears to be necessary for better and quicker turnover of master plans, which still cover only one third of urban settlements.


Ashok Kumar, Ph.D.
Editor



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Spatial Planning Initiatives under the National Urban Missions

D. S. Meshram, Ph.D.

Abstract

Planning in India is limited to economic planning at the national level and physical planning at the urban settlement level, besides there is a lack of spatial planning in the country and it has not ranked as a priority item in national plans as per National Commission on Urbanization. While the Task Force on Housing and Urban Development under lined that the policy and program interventions of Five year Plans in this behalf have been half-hearted and loosely coordinated. Spatial considerations have never received adequate attention. Accordingly, this paper attempts to study the spatial planning initiatives under taken in the national missions, launched under urban sector.

1. INTRODUCTION

Except few new towns, India too like any other country, witnessed villages emerging as towns, towns as cities, and cities as metros and further growing beyond their boundaries to accommodate increasing population, in spite of the fact that the green buffers and green belts were provided to restrict the expansion of towns beyond certain limits. Accordingly, to accommodate this ever growing population, process of extension of boundaries was adopted due to which nearby settlements and large villages surrounding the city became part of ever extended boundaries of cities. In fact cities have grown about twice as fast spatially as they have grown in terms of population (Anumita Roychowdhary). This unabated growth of population and unplanned development becomes unmanageable, because there is a limit to growth beyond bearing capacity of a city.

In India there are 7,933 towns and cities comprising 4,041 statutory towns and 3,892 census towns accommodating around 376.40 million people (Census of India, 2011) showing decadal growth of 31.16 percent. High Power Expert Committee (HPEC) in 2011 estimated that by 2031 the urban population would reach to 60 crore and the number of metropolitan cities (population one million and above) will increase from 53 in 2011 to 87 in 2031. Besides the urban population is expected to reach to 81.4 crore by 2031. However, a majority of this population will be settling in existing towns and cities, mostly in large towns. Out of 7,933 towns and cities, 2,231 urban settlements have approved master plans and 507 towns are in the process of preparation of master plans. Thus, remaining 5,195 (65 percent) towns do not have any spatial planning framework

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for their orderly development, due to which haphazard and unplanned growth takes place, besides non-conforming land uses and mushrooming unauthorized colonies occurs, resulting in degrading environments and quality of life.

Urban planning and development being the state subject, in India central government provides assistance by launching various schemes under which state governments and local bodies are required to make equal contributions to ensure orderly and planning development of towns and cities. In fact since the Fifth Five Year Plan onwards efforts were made to initiate the schemes and projects under urban sector like Integrated Urban Development Program (IUDP), Integrated Development of Small and Medium Towns (IDSMT), Urban Basic Services (UBS), Mega City Program, Urban Mapping, etc. Subsequently the mode of national missions was adopted for development of towns and cities, through the schemes like the Jawaharlal Nehru National Urban Mission (JnNURM), etc. The present government also continued national mission mode for planning and development of towns and cities, vigorously by initiating number of national missions under urban and other sectors. The flagship missions in urban sector are Smart Cities Mission (SCM), Swachh Bharat Mission (SBM), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Pradhan Mantri Awas Yojana (PMAY), and Heritage City Development and Augmentation Yojana (HRIDAY), etc. Accordingly, this paper attempts to study spatial planning initiatives undertaken in the flagship national missions, launched under urban sector.

2. SALIENT FEATURES OF NATIONAL MISSIONS IN URBAN SECTOR

The important national missions launched by the present government under urban sector are discussed below in brief.

2.1 Atal Mission for Rejuvenation and Transformation (AMRUT)

The Mission acknowledges that provision of basic services such as water supply, and sewerage to households is a national priority to improve the quality of life, especially the poor and the disadvantaged. Accordingly, the Atal Mission for Rejuvenation and Transformation (AMRUT) was initiated to ensure that every household has access to a tap with the assured supply of water and a sewerage connection. The mission also aims to increase the amenity value of cities by developing greenery and well maintained open spaces i.e. parks, and recreation centres, especially for children, and reduce pollution by switching to public transport or constructing facilities for non-motorized transport i.e. walking and cycling.

In the Mission, state governments have been made equal partners in planning and implementation of projects in the spirit of cooperative federalism. Capacity building and a set of reforms have also been included in the Mission. Accordingly, reforms are expected to lead to improve in service delivery, mobilization of resources and making municipal functioning more transparent and functionaries more accountable. Capacity building will empower municipal functionaries and lead to timely completion of projects.



The target under the Mission is to cover 500 cities, comprising all cities and town with a population of over one lakh having notified municipalities, including Cantonment Boards; and all capital cities and towns of states. The mission also includes all cities and towns and cities on the stem of the main rivers with a population of above 75,000 and less than one lakh, and ten cities (one each) from hill states, islands and tourists destinations.

A total outlay of Rs. 50,000 crore has been proposed as central assistance however, one third of the project cost as grant from Government of India for cities with a population of above 10 lakh, and one half of the project cost as grant for cities and towns with population up to 10 lakh is available for the following projects, and balance funding is to be made available by state governments, ULBs or through private investment.

Water Supply: New, augmentation and rehabilitation of water supply system; rejuvenation of water bodies for water supply and recharge of ground water, special arrangement for difficult areas, hills and coastal cities.

Sewerage: New, augmentation and rehabilitation of the sewerage systems and treatment of plants; re-cycling of water for beneficial purpose, and re-use of waste water.

Septage: Fecal sludge management i.e. cleaning, transportation and treatment; particularly mechanical and biological cleaning of septic tanks and sewers.

Urban Transport: Sidewalks, foot over bridges, non-motorized transport, buses, BRTs, multilevel parking, waterways and ferry vessels.

Besides one half of the project cost to be borne by Government of India and the total expenditure on these projects not to exceed 2.5 percent of the State Annual Action Plan(SAAP) i.e. for the projects like development of green spaces and parks with special provision for child friendly components. However, for parks, ULBs will have to establish a system of maintenance with local residents' participation. For capacity building and reforms 100 percent grant will be made available by Government of India based on the exiting norms and unit cost set by the Apex Committee constituted under Secretary, Ministry of Urban Development, Government of India. The State level High Power Steering Committee (SHPS) will be chaired by State Chief Secretary for steering the mission program. At the city level, ULBs will be responsible for completion of the projects under the mission. The central assistant for the projects will be provided in three installments of 20:40:40 of the approved costs.

2.2 Smart Cities Mission (SCM)

In the Smart Cities Mission it is underlined that urban planners ideally provide for aspiration of city dwellers and aims at developing the entire urban eco-



system which is represented by four pillars of comprehensive development i.e. institutional, physical, social and economic infrastructure. The objective of the Smart Cities Mission is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment besides application of 'smart' solutions. The focus is placed on sustainable and inclusive development and the idea is to look at compact areas, create replicable model which will act like a light house to other aspiring cities.

The core infrastructure elements in a Smart City Mission includes adequate water supply, assured electric supply, sanitation including solid waste management, efficient urban mobility and public transport, affordable housing especially for the poor, robust I.T. connectivity and digitalization, good governance specially e-governance and citizen participation, sustainable environment, safety and security of citizens, particularly women, children and the elderly, and health and education. The smart solutions include e-governance and citizen services, waste management, water management, energy management, and urban mobility among others.

The mission lays emphasis that area based development will transform exiting area (retrofit and redevelopment) including slums, into better planned ones, thereby improving liveability of the whole city. New areas (greenfield) will be developed around cities in order to accommodate the expanding population of urban areas. Application of smart solutions will enable cities to use technology, information and data to improve infrastructure and services. Comprehensive development in this way will improve quality of life, create employment and enhance income to all, especially the poor and disadvantaged leading to inclusive cities.

Here, the target is to cover 100 cities distributed across states and UTs on the basis of equity criteria. Aspiring city need to compete for selection as 'Smart City' in a process adopted as 'city challenge'. The Smart City proposal of each short listed city is expected to encapsulate with a retrofitting or redevelopment or green field development or a mix thereof besides a pan city feature with smart solutions. Each city has to formulate its own concept, vision, mission and plan (proposal) for a smart city that is appropriate to its local context. The implementation of the Mission at city level will be done by Special Purpose Vehicle (SPV) created for the purpose. The Smart City Mission will be operated as a centrally sponsored scheme for which Rs. 48,000 crore has been earmarked, on an average of Rs. 100 crore per city per year.

At national level monitoring will be done by Apex Committee (AC) headed by Secretary, Urban Development, Government of India, while at state level High Power Committee (HPC) will be chaired by Chief Secretary. At the city level a Smart City Advisory Forum will be established comprising of various stake holders. The Mission also recommends achieving convergence with other central and state government programs and schemes with Smart City Mission. It is interesting to note that, Smart City Mission requires smart people who actively participate in governance and reforms, which will be enabled by SPV, as per guidelines.



2.3 Heritage City Development and Augmentation Yojana (HRIDAY)

The HRIDAY Mission underlines that heritage development of a city is not about development and conservation of few monuments, but development of entire city, its planning, its basic services, quality of life to its communities, its economy and livelihoods, cleanness, security, reinvigoration of its soul and explicit manifestation of its character. However, HRIDAY observes that conservation of urban heritage has been often carried out without linkages with the city urban planning process and tool and local economy and service delivery aspects. In this direction HRIDAY scheme offer tremendous opportunity towards an integrated, inclusive and sustainable development of identified heritage cities of India. The aim of the mission is to undertake strategic and planned development of heritage cities focusing at improvement in overall quality of life with specific emphasis on sanitation, security, tourism, heritage revitalization and livelihood retaining the city's cultural identity.

HRIDAY is a central sector scheme with 100 percent funding coming from central government, for 12 identifies cities namely Ajmer, Amravati, Amritsar, Badami, Dwarka, Gaya, Kanchipuram, Mathura, Puri, Varanasi, Velankanni and Warangal. However, cities are required to prepare City HRIDAY Plan (CHP) for the city and develop DPRs for identified projects. To facilitate effective implementation of the project a tripartite agreement with respective ULBs, state and MOUD is required to be signed, prescribing the broad contours of the project and obligation on the part of all three parties.

The scheme broadly focus on four theme areas i.e. physical infrastructure, institutional infrastructure, economic infrastructure and social infrastructure and the components include revitalization of civic infrastructure around heritage, cultural, tourism areas; ghat areas; temple, mosque, basilica; kunds, and facade improvement of surrounding area for safety and stability, etc. The Mission aims at provision of basic services such as to improve sanitation, drinking water facilities, parking, solid waste management, traffic management and pedestrianization of heritage, cultural, and tourist areas in addition to heritage walks, religious trails, street furniture including shifting of hanging wires, poles and transformers. Beside the Mission also provides for improvement of roads and pathways, public transportation and parking in heritage areas including provision for last mile connectivity.

The funds will be released to urban local bodies by Ministry of Housing and Urban Affairs, Government of India, out of annual allocation of project fund available under HRIDAY in three installments of 40:20:20. The National Advisory Committee (NAC) will be the apex advisory body for the HRIDAY scheme and Secretary, Ministry of Urban Development, will periodically monitor the scheme while National Project Management Unit (NPMU) will develop monitoring framework.

2.4 Pradhan Mantri Awas Yojana: Housing for All (Urban)

Housing for All Mission (urban) seeks to address the housing requirement of urban poor including slum dwellers through the four verticals (i) Slum rehabilitation of



slum dwellers; (ii) Affordable Housing for weaker section; (iii) Affordable Housing in Partnership with public and private sectors; and (iv) Subsidy for beneficiary led individual house construction. The Mission will be implemented as centrally sponsored scheme except for the component of credit linked subsidy. The beneficiary family will comprise husband, wife, unmarried sons and unmarried daughters who should not own a *pucca* house either in his or her name or any member of his or her family. All 4,041 statutory towns as per 2011 census with a focus on 500 class - I cities would be covered in three phases. Phase - I will cover 100 cities, phase - II, additional 200 cities, and phase - III remaining cities will be covered. The Mission will support construction of houses up to 30 sq m carpet area with basic civic infrastructure.

In-situ Slum Redevelopment (ISSR): In-situ Slum Redevelopment using land as resource with private participation for providing houses to eligible slum dwellers aims to leverage the locked potential of land under slums bringing them into the formal settlement. Slums, whether on central government, state government or ULBs lands, or private land should be taken up in-situ redevelopment and will be denotified. Central government land owning agencies should also undertake 'in situ' slum redevelopment on their lands occupied by slums by using it as a resource for providing houses to slum dwellers. In case of relocation, land should be provided by the agency itself or the agency may collaborate with the states for obtaining land. However, central government agencies should not charge land cost for the land used for the purpose of housing slum dwellers. State governments and cities would provide additional FAR / FSI / TDR for making slum redevelopment projects financially viable. Slum rehabilitation grant of Rs. 100,000 per house on an average would be admissible. However, in situ redevelopment of slums on private land can be incentivised by state government and ULBs by giving additional FAR or TDR to land owner, but central assistance cannot be used in such cases.

Credit-linked Subsidy Scheme (CLSS): Credit linked subsidy (an interest subsidy at the rate of 6.5% for a tenure of 15 years or during tenure of loan whichever is lower up to Rs. 600,000 and additional loan beyond Rs. 600,000 non-subsidized rate) will be provided on home loans taken by eligible urban poor (EWS and LIG) for acquisition and construction of house. Subsidy would be available for housing loans availed for new construction and addition of rooms, kitchen, toilet, etc.; to existing dwellers as incremental housing. The carpet area of houses being constructed under this component should be 30 sq m and 60 sq m for EWS and LIG respectively. HUDCO and NHB has been identified as Central Nodal Agencies (CNAs) to channelize this subsidy. The State Level Nodal Agency (SLNA) identified by state for implementing the mission will facilitate the identified beneficiaries in getting credit linked subsidy. However, beneficiaries can take the advantage under one component only.

Affordable Housing in Partnership (AHP): The Mission will provide financial assistance to EWS houses being built with different partnerships by states, UTs and ULBs through its agencies or in partnership with private sector including



industries, can plan affordable housing projects, however central assistance at the rate of Rs. 1.5 lakh per EWS house, only would be available. Affordable housing projects can be a mix of houses for different categories but will be eligible for central assistance, if at least 35% of the houses in the project are for EWS category and a single project has at least 25 houses.

Beneficiary - Led construction (BLC): Under this component assistance is available to individual eligible families belonging to EWS categories to either construct new houses or enhance existing houses on their own to cover the beneficiaries who are not able to take advantage of other components of the mission. Such families may avail of central assistance of Rs. 150,000 for construction of new houses. However, a beneficiary desirous of availing this assistance shall approach ULBs with adequate documentation regarding availability of land owned by them, and such beneficiary may be residing either in slums (provided slums are not being redeveloped and beneficiary have a *kutch* house) or may be living outside the slums. On the basis of his application, ULBs will prepare an integrated citywide housing project for such individual beneficiaries in accordance with City Development Plan or other such plan of the city to ensure that the construction of proposed houses are undertaken as per planning norms of the city and the scheme is implemented in an integrated manner.

Under the implementation process, it is mandatory on states to sign a Memorandum of Agreement (MoA) to participate in the Mission for agreeing to the conditions and other modalities of the Mission. States and cities need to undertake a demand survey for assessing the actual demand of housing, and on the basis of which after discussing with local representatives, cities will prepare Housing for All Plans of Action (HFAPoA). Urban local bodies need to take into account the provisions of the City Development Plan, City Sanitation Plans, etc.; in preparing HFAPoA for achieving synergy with other ongoing programs. It is also mandatory to make suitable changes in the procedure and rules for separate Non-Agriculture Permission if the land already falls in the residential zone earmarked in master plan of a city. Accordingly, states shall prepare and amend master plans earmarking land for affordable housing. The Mission will be monitored at city, state and central government level. Central Sanctioning and Monitoring Committee (CSMS) will monitor formulation of HFAPoA, Annual Implementation Plan (AIP) and project implementation. And accordingly, suitable monitoring mechanism will be developed by the Mission.

2.5 Swachh Bharat Mission - Urban

For ensuring hygiene, waste management and sanitation across the nation a 'Swachh Bharat Mission' has been launched. However, the Mission admits that without a proper City Sanitation Plan and resulting State Sanitation Strategy as indicated in the National Urban Sanitation Policy - 2008 comprehensive planning cannot be achieved. The following are the components under Swachh Bharat Mission.



Household Toilets: In fact SBM aims to ensure that no households engages in the practice of open defecation, no new insanitary toilets to be constructed during the mission period and pit latrines are converted to sanitary latrines. The target group for construction of households units of toilets is 80 percent of urban households irrespective of the fact that they live in authorised or unauthorised colonies or notified or non-notified slums. This will also include all households with insanitary latrines and all households with single-pit latrines.

The household toilets will have two main structures i.e. the toilet super structure including the pan and water closet, and the substructure either in-situ treatment system, or a connection to existing underground sewerage system. In case sewerage system is available within 30 meters from proposed household toilet, the toilet super structure be constructed and connected to existing sewerage system. In case sewerage is not available within 30 meter, in addition to construction of super structure on site treatment system such as twin pits, septic tanks, etc.; will be constructed for collection, treatment and disposal. Beneficiary households will be responsible for operations and maintenance of household toilets.

Central assistance of Rs. 4,000 per household toilet for each identified beneficiary is available, the 50 percent of which will be released as first installment on approval by ULB along with share of state government and remaining 50 percent will be deposited in the bank account of beneficiary household along with state government's assistance upon verification of physical progress of construction.

Community Toilets: The remaining 20 percent of the urban households in cities will be provided with community toilets due to land constraints. The community toilets will comprise of toilet seats, toilet superstructure including pan and water closet and a substructure with an on site treatment system or connection to underground sewerage or septage system shared by all the toilet seats besides facilities for hand wash will also be provided. For this component beneficiaries shall be group of households whose members practice open defecation and have no access to house hold toilet. Central assistance is available up to 40 percent for each community toilet block constructed. Community toilet blocks will be calculated @ Rs. 98, 000 per seat. While state government will contribute minimum of Rs. 26,134 per seat towards community toilet project to match central assistance of 39,200 per seat.

Public Toilets and Urinals: States and UTs to ensure that a sufficient number of public toilets and urinals (with adequate provision for men, women and facilities for disabled) are constructed with water supply arrangements, by each city for which 40 percent grant for each block constructed will be made available as central assistance. The base unit cost will be calculated at Rs. 98,000. While central government grant will amount Rs. 39,200 per seat and that for urinals, cost will be calculated at Rs. 32,000 per urinal and grant will amount Rs. 12,800 per urinal.



While state government needs to contribute Rs. 26,134 per seat and for urinals state share will amount to Rs. 8,534. The state governments and ULBs needs to identify land for public toilets and leverage this land and encourage the private sector to construct and manage public toilets, through PPP arrangement. The state governments are accordingly required to empower ULBs by delegation of power to allot the land for this purpose. The ULBs to ensure that for the convenience of the public, there should be at least one public toilet at every public place.

Solid Waste Management: Municipal solid waste management comprises of waste segregation and storage at source; secondary storage, transportation; secondary segregation, resource recovery; processing, treatment; and final disposal of solid waste. 100 percent cost reimbursement for DPR, to be approved by state level high power committee, shall be done by government of India as per unit cost. However, DPRs should be bankable and should be prepared emanating from the needs identified in the City Sanitation Plan, in conformity with goals outlined in National Urban Sanitation Plan - 2008. In order to promote projects of waste to energy, the central government grant may be in the form of maximum of 35 percent for each SWM project and state share will be 23.3 percent of the project. However, while funding it needs to be ensured that there is no duplication in terms of funding under any other scheme. The ULBs are advised to distribute colour coded bins so that waste is segregated at source itself: green for wet waste biodegradable and blue for non-biodegradable.

IEC and Public Awareness: A strategy under SBM is focused on behaviour change to ensure sanitation as main streamed issue, with general public and should cover issues of open defecation, prevention of manual scavenging, hygiene practices, etc. 15 percent of total central allocation is required to be earmarked for this component, of this 12 percent will be earmarked for states to take massive public awareness campaigns and remaining 3 percent for MOHUA for national media campaign. States are required to prepare annual action plan to be approved by state level High power Committee. The central assistance will be limited to 40 percent of the project cost and states contributions will also 40 percent.

Capacity Building and Administrative and Office Expenses: 3 percent of the total central government allocation and mission will be marked for capacity building, administrative and office expenses of states and ULBs, while 2 percent of the total central government allocation under the mission will be utilized by MoHUA for capacity building, national and regional level workshops, etc. States shall propose extensive capacity building activities to be implemented in mission mode manner. State will contribute a minimum of 40 percent of project costs towards capacity building and AEOE to match 40 percent of project costs as central share.

The estimated cost of various components under SBM is Rs. 62,009 crore, which includes Rs. 14,623 crore as the share of government of India; in addition a minimum additional amount equivalent to 25 percent of government of India



funding amounting to Rs. 4,874 crore shall be contributed by the state and ULBs share; the balance of funds to be generated through other sources.

The Swachh Bharat Mission will have a three tier mission management structure at national level - National Advisory and Review Committee (NARC); and state level a State High Power Committee (SHPC) and at ULB level with participation of Ward Committee, Area Sabhas, etc.

2.5 Urban Transport

Government of India approved the National Urban Transport Policy (NUTP) in 2006, which seeks to ensure safe, affordable, quick, comfortable, reliable and sustainable accesses to city residents to jobs, education, recreation and such other needs within the cities with focus on moving people and not vehicles. This calls for taking up comprehensive traffic and transportation studies like preparation of complete mobility plan, integration of land use and transport planning in all cities so that travel distances are minimized and access to livelihood, education and other social needs especially for the marginal segment of urban population is improved. The policy admits that no urban transport policy can succeed without fullest cooperation from all citizens; therefore NUTP envisages launching of awareness campaign to educate people of ill effects of growing transport problem.

Urban Transport Planning Scheme: In light of NUTP - 2006, the objectives of the scheme 'Urban Transport Planning' are to take up comprehensive traffic and transportation studies, for integrated land use and transport planning in all cities; public transportation, non-motorized transport systems, preparation of mobility plan; launching of awareness campaign; besides taking up pilot studies in some cities. The scheme is applicable to all cities, and components for central assistance under the scheme includes all kind of traffic and transportation studies, specifically: (i) Transport Planning i.e. Comprehensive Mobility Plan, Integrated Mobility Plan, Regional Transport Plan, Accessibility Planning and Area Improvement Plans, Transport Demand Management Plan, Traffic Improvement and Management Plan, Transit Oriented Development; (ii) Public Transport Planning includes road based - Bus and IPT like BRTs, and Rail based like metro rail and light rail, etc.; (iii) Transport Infrastructure i.e. network improvement and expansion; (iv) Non-motorized transport like NMT improvement plan, cycle track network; and (v) Intelligent Transport system like ITS Master Plans, ITS in Public Transport, and BRTs project, etc.

Central government will provide 80 percent of the cost as grant, remaining 20 percent of the cost shall be borne by states and ULBs. It is mandatory under the scheme that the Comprehensive Mobility Plan is prepared and notified under relevant State Town and Country Planning Act as part of the Master Plan for the respective planning area. The scheme will be implemented by Ministry of Housing



and Urban Affairs and central assistance will be released in three installment i.e. mobilization advance 10 percent interim report or draft report 45 percent and on approval of final report 45 percent.

There is also a component of capacity building because improving overall mobility requires several other measures to be undertaken in coordinated manner such as improved integration of land use and transport planning, integration of public transport system, etc., which calls for undertaking coordinated approach, accordingly capacity building has also been included, in the scheme.

Metro Rail: Cities are witnessing fast growth in the number of personal motor vehicles, with severe congestion and pollution being the most visible manifestation of the growth in number of motor vehicles, which calls for improving public transport system and Mass Transit Systems like metro rail, bus rapid transit, light rail, etc. However, cities are experiencing the need for metro rail to meet their day to day mobility requirement, as it provides high capacity transit. Accordingly, most of metro rail projects have been financed by central government in partnership with state government while some have been funded by the state governments either on their own or with private partnership. The guidelines lays emphasis on having a comprehensive approach to planning for urban land use and transport infrastructure through superimposing transport network on land use plan. Therefore, Comprehensive Mobility Plan (CMP) is mandatory prerequisite for planning metro rail in the city. The guidelines also lays emphasis for undertaking metro projects in Metropolitan Regions which transcend the state boundaries, and governments needs to take action to synergize comprehensive transport system.

Metro rail project needs to be seen not merely as transportation project but as urban transportation projects that help a city move from sprawled development to greater compactness leading to sustainable city. As metro projects are cost intensive therefore; efforts need to be made to reduce cost and enhance revenue through various innovative means like feeder system to metro rail, transit oriented development. For reducing the cost options like standardization, indigenization including competition, etc., besides fair fixation, issuance of bonds, monitoring of performance, private participation be explored.

Central assistance is limited to 10 percent of the project cost excluding private investment, cost of land, rehabilitation and resettlement cost and tax to the State Government for the construction of metro rail project. In case of equity sharing model, the financial support of government of India will be in the form of equity to subordinate debt (for part of taxes) subject to an overall ceiling of 20 percent of the cost of project excluding private investment, cost of land, rehabilitation and resettlement. In 27 cities the metro rail system is either operational or under construction and about 697 km of metro rail lines are operational in 18 cities.



3. SPATIAL PLANNING INITIATIVES IN INDIA

The objective of the spatial planning is to generate a process of spatial development, which optimizes utilization of resources, reduces regional, spatial, and economic imbalances, strengthens urban and rural relationship, improves the quality of life of the majority of the people, protects the environment and maintains an ecological balance. However, planning in India is limited to economic planning at the national level and physical planning at the urban settlement level. There is a lack of spatial planning in the country and it has not ranked as a priority item in national plans (NCU, 1988). Task Force on Housing and Urban Development underlined that the policy and program interventions of Five year Plans in this behalf have been half-hearted and loosely coordinated. Spatial considerations have never received adequate attention. It is uncoordinated in as much as national planning tends to be in terms of sectorial outlays while the urban planning has been mainly linked with physical layouts'. In fact each investment, whatever be the sector, has definite physical manifestation and geographic location because it generates chain of development impulses affecting, the activities of other sectors. The National Commission on Urbanization reiterated that inter - sectoral coordination and integration is inevitable in the planning process. Specifically there is a need to integrate economic and spatial planning with a view to achieving desirable pattern of economic development and urbanization. The main spatial problem that the country facing is excessive concentration of economic activities in few metropolitan centres or metro-regions and if these trends continue unabated, the areas subjected to this growth will develop into unmanageable metropolitan complexes. Accordingly, a regional approach to urban development and the future development of urban settlement i.e. towns and cities should be adopted.

The National Commission on Urbanization also identified 49 Spatial Priority Urbanization Regions (SPURs) in addition to 329 Generator of Economic Momentum (GEMs) comprising of 77 National Priority Cities (NPCs) and 252 State Priority Cities (SPCs). The Commission was also confident that if sufficient investment is made in the identified 329 GEMs and 49 SPURs, then, by the end of the Ninth Plan, the urban settlement pattern in India would have substantially changed and the imbalances of the present metro-dominated urban system would be greatly reduced.

In India for planning and development of towns and cities, the process of preparation of master plans have been adopted which elaborately covers various sectors like shelter; trade and commerce; industry; transportation-road, rail, and air; besides environment. Under social infrastructure health, education, sports, facilities, safety, etc. are covered, while physical infrastructure, comprises of water, sewerage, drainage, power and solid waste, in addition to traffic and transportation. Master plans are prepared under various acts of state governments, which define various levels of plans which are required to be prepared like zonal plans, layout plans, local area plans, etc.



4. SPATIAL PLANNING INITIATIVES UNDER THE NATIONAL URBAN MISSIONS

In this section of paper an attempt is made to study spatial planning initiatives under taken through the flagship national urban missions.

The components of Atal Mission for Rejuvenation and Urban Transformation (AMRUT) comprise of water supply, sewerage, septage, storm water drainage, urban transport, green spaces and parks, in addition capacity building and reforms management and support. In fact AMRUT mandates a set of 11 Reforms, which have to be implemented by all states and 500 Mission Cities, which include: e-governance; constitution and professionalization of municipal cadre; augmenting double entry accounting; urban planning-city level plans, which includes preparation of Master Plans using GIS; devolution of funds and functions; review of building by-laws; setup financial intermediary at state level; municipal tax and fees improvement; credit rating; energy and water audit and Swachh Bharat Mission. Thus, Reforms Agenda under AMRUT focus on formulation of GIS based Master Plans for AMRUT cities under a sub-scheme, with the objective to develop common digital geo - reference base maps and land use maps using Geographical Information System (GIS) and Master Plan Formulation. It is presumed that GIS based Master Plans will help in different types of planning exercise i.e. preparation of master plan, development plan, infrastructure plan, etc., and is to be simplified by using I.T. tools. However, priority is proposed to be given to the towns which do not have master plans, and to those cities, whose Master Plans are about to expire by 2021. The final base maps and thematic base maps including the existing land use maps are prepared at the scale of 1:4,000 having defined layers as per design standards, which is pre-requisite for preparation of master plans and other plans to be made available under the scheme. The Town and Country Planning Organization (TCPO) will monitor and coordinate the scheme, while MOUD will coordinate the satellite data acquisition and final base map preparation at the scale of 1:4,000, which will be undertaken by NRSC, Department of Space. While AMRUT State Mission Directorate will be the nodal agency for implementing the Reforms at state level. Urban Local Bodies will create the data base sectorwise and prepare analysis report and will also be responsible not only for attribute data collection but also for vetting of maps in association with State Mission Directorate. It is encouraging to note that for supporting reform activity Rs. 515.00 crore has been set aside, of which geo-spatial database creation is about Rs. 115.90 crore. Cost of plan formulation including data collection and analysis is Rs. 388.25 crore and capacity building is Rs. 10.85 crore to be provided by the government of India, as central assistance.

The Ministry of Housing and Urban Affairs, Government of India, has approved Rs. 411.58 crore projects and released Rs. 111.40 crore. 35 states and UT (456 towns) are on board. For Geo - Database Creation; implementing Agencies are NRSC and State Governments, so far 21 states and UTs (242 towns) have opted NRSC for



geo - database creation of 53,500.00 sq km; accordingly, the Ministry has directly released first installment Rs. 7.36 crore and second installment of Rs. 7.46 crore to NRSC. And for geo - database creation through in-house or out sourcing; 13 states and UTs (215 towns) have opted. In total, 30 States have acquired the satellite images for 330 towns, draft geo - database has been created in 28 States in 339 towns, vetting and attribute data collection has been completed in 14 States in 158 towns and final geo - database has been delivered to 9 States for 119 towns. Towards GIS Based Master Plan Formulation; implementing agencies are State Governments out which of 34 states and UTs, two States are formulating Master Plans in-house, and remaining through outsourcing.

Realizing the significance of planned development in brown field and green field area, a separate pilot on 'Formulation of Local Area Plan' and 'Town Planning Scheme' for selected cities was launched, under which the existing areas can be redeveloped by preparing Local Area Plans (LAPs), while at the same time, the Town Planning Schemes (TPS) can be implemented for planned urban expansion in the peripheral green field areas. The Scheme encourages the cities to formulate Local Area Plans (LAPs) and Town Planning Schemes (TPS) for which central assistance would be made available, based on which prioritization of urban infrastructure projects would be taken up. Rs. 50 crore for identified 25 cities have been earmarked as 100 percent central assistance i.e. Rs 2.00 crore per city for preparing LAP or TPS. Town and Country Planning Organization (TCPO) is to provide handholding support to the state nodal agency. This scheme has been also extended to few towns of Smart Cities Mission under convergence concept.

Under Smart Cities Mission (SCM) the strategic components of area based development include (i) Retrofitting for more than 500 acres in existing built up areas to make existing areas more efficient and liveable; (ii) Redevelopment for more than 50 acres for replacement of existing built up environment and to enable co-creation of new layouts with enhanced infrastructure by using the concept of mixed land use and increased density, higher FISI and high ground coverage; (iii) Green field in a previously vacant area of more than 250 acres by using innovative planning, plan financing and plan implementation tools (land pooling and land reconstitution) for provision of affordable housing to poor around cities in order to address the needs for expanding population; and (iv) Pan city development envisages application of selected smart solutions to existing city wide infrastructure. It is important to note that under SCM it is mandatory to compete in 'City Challenge' process to get selected in the Smart Cities Mission. In fact National Commission on Urbanization already identified 77 National Priority Cities (NPCs) as GEMs for priority development, it would have been more appropriate to take up these cities for priority development instead of devising the process of 'City Challenge' for getting included in 100 cities to be covered under SCM.

The prime objective of City Development and Augmentation Yojana (HRIDAY) is to preserve the character and soul of the heritage city and facilitate inclusive



heritage linked urban development. Accordingly, the components to be undertaken include development of core heritage infrastructure projects which shall include revitalization of urban infrastructure for areas around heritage, cultural and tourists sites. The scheme mandates to prepare HRIDAY Plan for a city focusing on existing situation assessment and infrastructure gap analysis and preparation of Civic infrastructure Development Plan for Heritage Zone.

Pradhanmantri Aawas Yojana (Urban) Housing for all mission targets to provide central assistant for in-situ rehabilitation of exiting slum dwellers through four verticals i.e. (i) land as a resource through private participation; (ii) credit linked subsidy; (iii) affordable housing in partnership; and (iv) subsidy for beneficiary led individual house construction and enhancement. Thus, the main focus of the scheme is to provide financial assistance to promote construction of houses. However, the ULBs are required to prepare an integrated city wide housing project in accordance with the City Development Plan (CDP) or other such plan of the city to ensure that the construction of proposed houses are as per planning norms of the city. Accordingly, states needs to prepare or amend Master Plan for earmarking land for affordable housing.

Swachh Bharat Mission (SBM) was initiated to ensure hygiene, waste management and sanitation across the nation. Accordingly, the objectives focus on elimination of open defecation, eradication of scavenging, municipal solid waste management, however, it is mandatory to prepare Comprehensive Sanitation Plan, at city level. The Quality Council of India has been assigned the task to map all public toilets in the city on Google Map.

The Urban Transport Planning Scheme provide for taking up comprehensive traffic and transportation studies for preparation of complete Mobility Plan, integration of land use and transport planning, Intelligent Transport (IT) Master Plan, etc. It has been mandatory not only to prepare Comprehensive Mobility Plan (CMP) but to notify it under relevant state Town and Country Planning Acts, that too as part of Master Plan for respective local planning area. The scheme also desires to have Comprehensive and Integrated Urban Transport Plan, as an outcome of the study under the Scheme.

Metro rail Policy 2017, while recommending following system approach, lays emphasize to adopt comprehensive approach to planning for urban land use and transport infrastructure; by super imposing matching transport networks on land use zones. And further stipulates that a Comprehensive Mobility Plan (CMP) is mandatory prerequisite for planning metro rail in the city. In addition the policy dwells on metro projects in metro regions, which transcend state boundaries that is to say the regional planning has also been brought into focus.

From Table - 1, it can be observed that in AMRUT, HRIDAY and SBM the major objectives are to provide physical infrastructure like sewerage, water supply,

Table 1: Spatial Planning Initiatives Under National Urban Missions

S. No.	National Missions and Schemes	Objectives	Components	Spatial Planning Initiatives	Observations
1.	Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	<ul style="list-style-type: none"> • Every household to have access to tap with, assured supply of water • Develop greenery and increase amenity value of city by well-maintained open spaces, and • Reduce pollution by switching to public transport 	<ul style="list-style-type: none"> • Water supply, • Sewerage, • Septage, • Storm water drainage, • Urban transport, • Green spaces and parks, • Reforms management and support, and capacity building 	<ul style="list-style-type: none"> • Sub-Scheme under Reforms Agenda for Formulation of GIS based Master Plans for AMRUT cities by using geo - spatial technologies to help in different types of urban planning exercises, • Formulation of Local Area Plans for redevelopment, and Town Planning Schemes for planned urban expansion in the peripheral green field areas. • Above Two sub-schemes extended to SCM through convergence 	<ul style="list-style-type: none"> • Emphasis on preparation of Master Plans using geo - spatial technologies, • Priority is to be given to towns which do not have Master Plan or to towns, whose Master Plan is likely to expire by 2021. • Provides for preparation of TPS and LAPs
2.	Smart Cities Mission (SCM)	<ul style="list-style-type: none"> • Promote cities that provide core infrastructure • Provide decent quality of life to citizen • Provide clean, and sustainable environment, and • Application of smart solutions 	<ul style="list-style-type: none"> • Strategic components: <ul style="list-style-type: none"> - City Improvements (Retrofitting) - City Renewal (Redevelopment) - City Extension (Green field development) - Pan city initiatives • Core infrastructure element are: <ul style="list-style-type: none"> - Adequate water supply, - Assured electric supply, - Sanitation - Solid waste management - Efficient urban mobility and public transport - Affordable housing for poor - Health and education - Sustainable environment - Robust I.T. connectivity 	<ul style="list-style-type: none"> • Focus on Area Based Development • Formulation of Local Area Plan for redevelopment and Town Planning Schemes for planned urban expansion in the peripheral green field areas is extended to some cities of SCM through convergence under AMRUT • Preparation of Master Plans using geo - spatial technologies also extended to some towns of SCM through convergence under AMRUT 	<ul style="list-style-type: none"> • Preparation of Master Plan using geo - spatial technology extended to some towns of SCM through convergence under AMRUT • LAP and TPS for redevelopment and green field areas respectively extended to some SCM towns through convergence under AMRUT.
3.	Heritage City Development and Augmentation Yojana (HRIDAY)	<ul style="list-style-type: none"> • Preserve the character and soul of Heritage City • Facilitate inclusive heritage linked urban development. 	<ul style="list-style-type: none"> • Provision of basic services i.e. sanitation, drinking water, parking solid waste management, parking, traffic 	<ul style="list-style-type: none"> • To prepare the city HRIDAY Plan which includes <ul style="list-style-type: none"> - Existing situation assessment and Infrastructure gap 	<ul style="list-style-type: none"> • The concept of the scheme also underlines that heritage cannot be carried out without linkages with the city urban planning process,



S. No.	National Missions and Schemes	Objectives	Components	Spatial Planning Initiatives	Observations
		<ul style="list-style-type: none"> The specific objectives are planning, development, and implementation of heritage sensitive infrastructure Focus on four theme areas for reviving and revitalizing the soul of heritage city i.e. physical, institutional, economic, and social infrastructure 	management, etc. <ul style="list-style-type: none"> Improvement of roads / pathways, public transportation, etc. Revitalization of civic infrastructure around heritage structures and facade improvement 	analysis <ul style="list-style-type: none"> Delineation of Heritage Zone, and Preparation of Civic Infrastructure Development Plan for Heritage Zone 	but ground realities are different <ul style="list-style-type: none"> Focus is not on whole town approach, in spite of the fact that the concept admits heritage is not about development of few monuments but to develop and plan the entire city Major focus is on preparation of City HRIDAY Plan, for Delineation of Heritage Zone Heritage issues are included in PRASAD Mission and scheme is transferred to Ministry of Tourism
4.	Pradhan Mantri Awas Yojana (PMAY) - Housing for All (Urban)	<ul style="list-style-type: none"> Provide housing to all by 2022 	<ul style="list-style-type: none"> In situ slum redevelopment Affordable housing through credit linked subsidy Affordable Housing in partnership; and Subsidy for beneficiary led individual house construction 	<ul style="list-style-type: none"> Provides for preparation of City wide housing project in accordance with City Development Plan Prepare / amend Master Plan for earmarking land for affordable housing 	<ul style="list-style-type: none"> Provisions of City Development Plan needs to be taken into account for HFAPoA The Mission is silent on preparation of Development Plan for whole town, except mentioning that Master Plan prepared and amended for earmarking land for affordable housing.
5.	Swachh Bharat Mission (SBM)	<ul style="list-style-type: none"> Elimination of open defecation, Eradication of manual scavenging, Modern and scientific municipal solid waste management, To effect behavioral change, and create awareness about sanitation, and Capacity augmentation of ULBs. 	<ul style="list-style-type: none"> Household toilets including conversion of insanitary latrines into pour-flush latrines; Community toilets; Public toilets and urinals; Solid waste management; IEC and public awareness; and capacity building 	<ul style="list-style-type: none"> To have comprehensive Sanitation Plan at city level. Mandatory to prepare DPR for solid waste management which should emanate from city plan. 	<ul style="list-style-type: none"> Concept emphasizes that without a proper City Sanitation Plan comprehensive planning cannot be achieved nor attain the objectives of SBM. However, Mission is silent on preparation of City Development Plans Under the component of Capacity Building and Administrative and Office Expenses, it is suggested to engage Quality Council of India to map all public toilets, which in fact is the function of urban local bodies.
6.	Urban Transport Planning Scheme	<ul style="list-style-type: none"> To ensure safe, affordable, quick, comfortable reliable and sustainable access 	<ul style="list-style-type: none"> Take up comprehensive traffic and transportation studies for: <ul style="list-style-type: none"> Integrated land 	<ul style="list-style-type: none"> Provide for taking up studies for integration of land use and transport planning 	<ul style="list-style-type: none"> In fact the Development Plan takes into account land uses of various sectors like: residential, trade and commerce,

S. No.	National Missions and Schemes	Objectives	Components	Spatial Planning Initiatives	Observations
		to city residents to jobs, education, and recreation within the city.	use and transport planning - Public transport planning - Preparation of Comprehensive Mobility Plan - Non - motorized transport system - Intelligent transport system master plan		industries, recreation, besides physical and social infrastructure. Thus, transport issues are very well taken care in Master Plans • It is not only mandatory to prepare Comprehensive Mobility Plan, but notify it under State Town Planning Act as part of Master Plan, which is quite encouraging. • The Intelligent Transport System Plan needs to be super imposed in Land Use Plan under Master Plan
	Metro Rail	<ul style="list-style-type: none"> • City moves away from sprawl development to compact and sustainable city • Lowers travel distance, reduce energy consumption, and lowers emission • Faster mode of transport • Facilitate easy and quick movement of people 	<ul style="list-style-type: none"> • Provide metro rail having high capacity of 40, 000 to 80, 000 passengers per hours per direction • Provide feeder system to metro rail • Adopt Transit Oriented Development (TOD) 	<ul style="list-style-type: none"> • Compact and sustainable development envisaged • Adopt comprehensive approach to planning by integrating urban land use and transport infrastructure • Super impose transport network on Land Use Plan • Preparation of Comprehensive Mobility Plan is mandatory for planning metro rail in the city. 	<ul style="list-style-type: none"> • Policy lays emphasis to have comprehensive approach to planning by integrating urban land use and transport infrastructure • Metro rail policy 2017 lays emphasis on undertaking metro projects in Metropolitan Regions which transcend the state boundaries to synergize Comprehensive Transport System. Thus regional concept has been brought into focus. • Metro rail facilitates city to move away from sprawl and encourage compact and sustainable development

and septage. AMRUT in addition also focus on urban transport, green spaces and parks; while major plank of SBM is provision of toilets and solid waste management. HRIDAY also in addition to sanitation and solid waste management also focus on traffic management, improvement of roads and pathways, and public transportation. The focus of Smart Cities Mission even though on retrofitting, redevelopment, greenfield development, and pan city incentives the core infrastructure elements includes assured water and electric supply, sanitation, solid waste management, urban mobility, public transport, and affordable housing specially for the poor; in addition health and education has also been brought into focus. Under HRIDAY objectives mentioned are economic and social infrastructure but no specific projects have been identified. PMAY (Urban) specifically focus on housing for all by 2022, and accordingly focus on



projects for housing including slum redevelopment, which is also included in SCM under the component of Redevelopment. The scheme of urban transport planning provides for taking up the comprehensive traffic and transportation studies; while Metro rail project, in addition to provision of Metro rail also emphasis on transit oriented development.

The spatial planning initiatives under AMRUT Mission, includes preparation of Master Plan using geo - spatial technology, which will be very much useful in taking up different types of urban planning exercises and it is important to note that the priority is to be often to the towns which do not have Master Plan or to the towns for which Master Plan is likely expire by 2021. In addition there is provision under sub-scheme to encourage preparation of Town Planning Schemes (TPS) for planned urban expansion in the peripheral green field areas. In addition there is also provision for preparation of Local Area Plans for redevelopment. The SCM focus on area based development for Retrofitting, Redevelopment, Greenfield development and pan city initiatives, which will be facilitated under convergence, as the TPS and LAP has been extended to 25 towns of SCM. Thus, both AMRUT and SCM has taken initiatives for spatial planning however, under HRIDAY concept it is mentioned that heritage cannot be carried but without linkages with the city urban planning process but no provision has be made for preparation of City Development Plan and it has been limited only to delineation of heritage zone.

In fact AMRUT follows a project based approach and Smart Cities Mission follows an area based strategy while HRIDAY follows program based approach rather than project based approach. However, HRIDAY scheme has been discontinued and heritage components are included in National Mission on Pilgrimage Rejuvenation and Sprinted Augmentation Drive (PRASAD) and transferred to Ministry of Tourism.

PMAY (urban) recognizes that the provisions of City Development Plans need to be taken into account for preparation of Housing For All Plans of Action (HFAFPoA) but no provision has been made for preparation of City Development Plan, except mentioning that the Master Plan, be amended to earmark land for housing. In this reference it needs to be mentioned that in Master Plan no specific areas are earmarked for EWS, LIG, HIG categories but are generally provided under the category of Residential Area. While in the concept of SBM it is laid down that without the City Sanitation Plan comprehensive planning cannot be achieved nor can the objectives of SBM be achieved. However, it needs to mention that the Master Plans take the cognition of water supply and sanitation under physical infrastructure. It is interesting to note that Quality Council of India has been assigned the task to map all public toilets, which in fact is the function of Municipal local bodies.



The Urban Transport Planning Scheme provides for taking up comprehensive traffic and transportation studies. In fact land use planning is the basic purpose of the master plan and transport planning is one of the aspects of land use planning. However, it is encouraging to note that under the scheme it is not only mandatory to prepare mobility plan, but it is required to be notified under the state town and country planning acts that too as a part of master plans. Similarly under guidelines of metro rail project, it is suggested to super impose transport network on the land use plan which is invariably done in master plans. It is also important to observe that the scheme has also brought into lime light the regional approach, while taking metro rail projects in metro regions, transcending the state boundaries.

From the above discussions it needs no emphasis to mention that the initiatives have been taken to address certain spatial planning issues. But adopting the piecemeal approach may not lead to achieving the desired results. Therefore, it needs to follow the whole town approach by integration of all sectors instead of following project based approach to planning. It is also important to mention that all these missions focus on providing physical infrastructure, which invariably forms the part of master plan through various layers. However, except the Smart Cities Mission, all these missions are silent on prevision of social infrastructure, because SCM also includes health and education to certain extent.

5. CONCLUSIONS

All the national urban missions and schemes basically focus on provision of infrastructure for the growth of economy, employment opportunities and to achieve sustainable and inclusive development of urban areas. The investments under these missions are of a huge magnitude, which will attract more people from rural areas and also from small and medium towns, specifically urban poor. In fact promoters, contractors and builders may or may not provide housing to workers near their projects, if not they will settle in fringe areas by encroaching on the nearby vacant lands near their workplaces, which could result in incidence of slums, blights, unplanned, haphazard, unauthorized development. Therefore, there is a need to prepare a master plan to accommodate this outgrowth by adopting proactive measures. Various other ministries have also launched national missions like Delhi - Mumbai Industrial Corridor (DMIC); Bengaluru - Mumbai Economic Corridor (BMEC); Chennai- Bangalore Industrial Corridor (CBIC); Vizag- Chennai Industrial Corridor (VCIC); Amritsar- Kolkata Industrial Corridor (AKIC); Defence Industrial Corridors; National Manufacturing and Investment Zone (NMIZ); Special Economic Zone; East Coast Economic Corridor (ECEC); Dedicated Freight Corridor (DFC); etc. All these missions and schemes are not being implemented within the city boundary but also outside the city



boundary. Therefore, in order to have balanced development within and outside the city, preparation of regional plans is necessary because not only urban and rural areas will have the impact of these schemes and missions, but the whole region will also get impacted. In this direction, the National Commission on Urbanization identified 49 Spatial Priority Urban Regions (SPURs) for taking up for priority development which would substantially change to great extent the urban settlement pattern and imbalances of present metro - dominated urban system of India, therefore these recommendations of NCU merits serious consideration.

In fact cities are the living entities and therefore are prone to age and decay by the passage of time and this can be witnessed in the form of degradation of not only of buildings but also of physical and social infrastructure, quality of life and environment. Therefore there is a need to have 'whole body check-up' of the towns and cities so that the deficiency in terms of physical and social infrastructure, including traffic and transportation are ascertained. And accordingly, measures are taken to remedy these ailments. In this direction, it needs no emphasis to mention that master plans are prepared after in depth studies of all the sectors like residential, trade and commerce industry, traffic and transportation in addition to physical and social infrastructure. Thus, integrated and concerted approach super imposing all sectoral plans over land use plan would address the problems of our towns and cities in totality, which ultimately could result in orderly and planned development of our towns and cities.

REFERENCES

- Ministry of Urban Development (January 2015) *Operational Guidelines for HRIDAY: Heritage City Development and Augmentation Yojana*, Ministry of Urban Development, Government of India, New Delhi.
- Ministry of Urban Development (June 2015) *Atal Mission for Rejuvenation and Urban Transformation: Mission Statement and Guidelines*, Ministry of Urban Development, Government of India, New Delhi.
- Ministry of Housing and Urban Affairs (2017) *Guidelines for Swachh Bharat Mission - Urban*, (Revised on 5 October 2017), Ministry of Housing and Urban Affairs, Government of India, New Delhi.
- Ministry of Housing and Urban Poverty Alleviation (2015) *Pradhan Mantri Awas Yojana - Housing for all (urban) Scheme Guidelines - 2015*, Ministry of Housing and Urban Poverty Alleviation, Government of India, New Delhi.
- Planning Commission (1988) *Report of the National Commission on Urbanization, Volume - II*, August 1988, Planning Commission, New Delhi.
- Town and Country Planning Organization (November 2015) *A sub-scheme under Atal Mission for Rejuvenation and Urban Transformation, Reform Agenda; Formulation of GIS Based Master Plan for AMRUT Cities*, Town and Country Planning Organization, Ministry of Urban Development, Government of India, New Delhi.



Spatial Planning in the Times of National Missions and Guidelines

Ashok Kumar, Ph.D.

Abstract

This paper identifies two parallel developments in spatial planning. First of these include those changes, which are clearly non-plan based spatial planning practices having a specific focus on economic growth in a globally connected market led environment, for instance, the Jawaharlal Nehru National Urban Renewal Mission, and Special Economic Zones. This is considered as a part of the larger aspirational agenda of the country being pursued through growth centric spatial planning practices. The second development is antithetical of the first development, which clings on to the historically developed institutional arrangements such as state level town and country planning organizations by feeding and supporting the existing system of spatial planning practices with planning guidelines. This trend promotes status quo in terms of spatial plans and governing institutions. The author argues that both trends are neoliberal in nature due their heavy reliance on the global and local private sector.

1. INTRODUCTION

Large scale transformations are being experienced in the field of town and country planning since July 1991 when structural changes were first introduced in the Indian economy. Most notably, spatial planning backed by central government funding changed planning practice from plan-led development to program-led development. Program-led development initiatives, whilst focussed on economic concerns, took the form of missions with the principle of efficiency located at their core. For the first time, Government of India appeared to be in a hurry to undertake infrastructure development missions and poverty alleviation missions together, clearly with greater emphasis placed on the development of infrastructure in cities and regions. Most prominent missions from the point of view of funding are the Jawaharlal Nehru National Urban Renewal Mission, which was implemented from 2005-2014 and currently ongoing the Smart Cities Mission. Other significant missions include the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), the Heritage City Development and Augmentation Yojana (HRIDAY), and more recent the Swachh Bharat Mission. One thing common in all these missions is that these are steered by central government initiatives and funding, where state governments and local bodies largely play the role of implementers.

Urban areas, missions are either project based like the Smart Cities Mission, which seeks to prepare smart city proposals or sectoral like the Atal Mission

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for Rejuvenation and Urban Transformation, which seeks to implement the program for water supply and sewerage through service level improvement plans. However, in rural areas and in the interstices of urban and rural areas, an innovative program, appropriately titled Rurban, was launched in 2016 by the Ministry of Rural Development. Based on the principle of convergence - pooling funds from all relevant sectors of development allocated by all government levels for the development of selected clusters - this mission is the only program, which is being implemented through spatial plans popularly, known as Integrated Cluster Action Plans (ICAPs).

Spatial planning witnessed the third critical transformation when policies and programs purely underpinned by economic concerns were started. Ongoing Special Economic Zones under the SEZ Act 2005 was initiated in the same year by the Ministry of Commerce and Industry. Special economic enclaves were developed in cities and regions for export led industrial development. Several hundred SEZs were developed by the private sector throughout the country including export and trade promoting infrastructure like ports. Highly successful Mundra SEZ became the largest private sea port.

Fourth notable transformation in spatial planning is the development of various corridors connecting prominent cities, for example, Delhi Mumbai Industrial Corridor, Bengaluru Mumbai Economic Corridor, Chennai Bengaluru Industrial Corridor, Vizag-Chennai Industrial Corridor, and Amritsar Kolkata Industrial Corridor. Besides, India is also developing its first 2,500 km long East Coast Economic Corridor with the financial assistance from the Asian Development Bank. However, we should be mindful of the fact that the phenomenon of corridor development is a global episode of neoliberal globalization and similar corridors are being developed in Asia, Africa, South America and the Middle East with investments from China and U.S., the two competing global powers at the world stage (Schindler, and Kanai, 2019). Ministry of Railways and Ministry of Tourism are also engaged in similar development activities. Several states have formulated land pooling policies as a reaction to the comparatively egalitarian 'The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act', 2013.

This paper identifies two parallel developments in spatial planning. First of these include those changes, which are clearly non-plan based spatial planning practices having a specific focus on economic aspects in a globally connected market led environment. Two programs that started in 2005 fall in this category, which include the Jawaharlal Nehru National Urban Renewal Mission, and Special Economic Zones. I call this a part of the larger aspirational agenda of the country being pursued through growth centric spatial planning practices. This agenda largely has a neoliberal streak, where prominent role of the private sector stand out along with the state actively creating enabling institutions. The second



development is antithetical of the first development, which clings on to the historically developed institutional arrangements such as state level town and country planning organizations by feeding and supporting the existing system of spatial planning practices with planning guidelines. UDPFI, 1996, URDPFI, 2015 and RADPFI (Rural Area Development Plan Formulation Implementation), 2016 Guidelines fall in this category. Unlike the unsettling neoliberal agenda, the second development promotes status quo in terms of spatial plans and governing institutions. However, the second trend is also neoliberal in nature due its heavy reliance on the global and local private sector. Both trends hit hard at deep devolution that the country aspired for through the 73rd and 74th amendments to the Constitution of India with rural areas still showing some hope. I begin with the first trend.

2. ASPIRATIONAL AGENDA: GROWTH CENTRIC SPATIAL PLANNING PRACTICES

In this section, I explore three mission programs including JNNURM, SEZ and SCM. This analysis shows that all the three programs demonstrate growth agenda centric spatial planning practices.

2.1 JNNURM, 2005: A Program for Uneven City Development

The year 2005 became the landmark year when cities were increasingly viewed as critical elements in furthering the ends of country's economic growth. Most of those agencies, which impacted economic reforms, one way or the other, were also involved in influencing urban reform programs. Closely involved in framing the JnNURM, the late K.C. Sivaramakrishnan wrote: "The multilateral and bilateral agencies, like the World Bank, Asian Development Bank (ADB), Department of International Development (DFID) and USAID, involved in urban projects had their own ideas to propagate and found in the Mission an opportunity to get these ideas reflected in its formulation" (Sivaramakrishnan, 2011: 14). The ideas that found a place in the JnNURM notably included public-private partnerships, a lesser role for civic agencies in the direct provision of services, and use of market led pricing for the provision of services.

But JnNURM was much more than the development of modern urban infrastructure. Its larger canvas was reflected in its wider scope. JnNURM had four sub-missions to be implemented by two central ministries along with state governments, parastatal agencies, and urban local bodies. The four submissions of the JnNURM were: aimed at the development of modern infrastructure. The sub-mission for Urban Infrastructure and Governance (UIG) was administered by the Ministry of Urban Development and covered 65 mission cities. Not only provision but also governance of infrastructure by urban local bodies were considered equally critical for economic growth.



Meant for integrated development of slums, the sub-mission Basic Services to the Urban Poor (BSUP) was administered by the Ministry of Housing and Urban Poverty Alleviation. It covered all the 65 UIG cities. In this sub-mission, urban slums were viewed as a hindrance to modernization and globalization of urban India aspiring to create cities of global standards, where capital and innovative people would desire to live and work.

Focused on the planned urban infrastructure development and improvement, the sub-mission titled Urban Infrastructure Development of Small and Medium Towns (UIDSSMT) was also administered by the Ministry of Urban Development and intended to cover all towns and cities mentioned in 2001 Census excluding the 65 cities covered under the UIG sub-mission. This Program subsumed the earlier IDSMT Program aimed at generating economic opportunities by improving infrastructure for prospective immigrants from small and medium towns.

Sub-mission Integrated Housing and Slum Development Program (IHSDP) were also administered by the Ministry of Housing and Urban Poverty Alleviation. The main concern of the IHSDP was to carry out the comprehensive development of slums in all towns and cities listed in 2001 Census excluding the 65 cities covered under the UIG and BSUP submissions.

The second reason why JnNURM is regarded as the most significant urban development project by far is the largest allocation of funds of Rs. 120,536 crore over a period of seven years beginning 2005, out of which Rs. 62,933 crore was committed by the central government. Never before large sums of central funds were invested to improve cities; mostly cities were used as tax-havens from where funds could be generated for investments in rural areas. Some scholars of urban policy view this as “anti-urban bias of the political regime” (Ahluwalia, 2019: 86).

The third important aspect of the JnNURM was that state governments and urban local bodies were required to carry out far reaching market centric mandatory and optional reforms. JnNURM contained seven mandatory reforms to be actuated by state governments and six mandatory reforms to be implemented by urban local bodies. Additionally, three optional reforms were to be undertaken by state governments and 7 optional reforms were to be carried out by urban local bodies.

Property tax reforms were successfully carried out in 30 cities only. Restrictive Urban Land (Ceiling and Regulation) Act, 1976 was repealed in several states. However, there is no evidence of opening up of land markets, as claimed by JnNURM, due to the repeal of this statute. It must also be highlighted that rationalization of stamp duty for transfer of property has been largely successful. Other mandatory reforms were either partially implemented or not implemented at all. For example, adoption of the 74th Constitutional Amendment Act was



half - heartedly implemented at best. Most notably important functions listed in the Twelfth Schedule of the Indian Constitution such as town planning were not transferred to urban local bodies; metropolitan planning committees were largely not set up; and district planning committees were not empowered. Community Participation Law has not been framed, which continues to stand as a bill. Similarly, Public Disclosure Law is not framed yet. It appears that most reforms directly affecting the economic reforms agenda were implemented, while governance and community engagement reforms could not be implemented.

Priorities of government become clear from the nature of mandatory and optional reforms. The focus of the UIG sub-mission was firmly placed on efficiency in urban governance with the ultimate objective of making cities ready as levers of economic growth. It reminds us of 1980s British planning policies, which moved “from urban managerialism to urban entrepreneurialism” (Harvey, 1989), and ‘reform urbanism’ “... where urban infrastructure projects serve as the conduit for the liberalization of the economy (Roy, 2014: 134). Although inclusion of urban poor was mentioned in the Mission document, mostly it was assumed that once cities begin to grow economically at higher GDP rates, growth will have positive impacts on the urban poor, through ‘trickle down’ processes. This is evident from the fact that major portion of JnNURM funds was spent implementing the UIG sub-mission meant for creating modern infrastructure in selected 65 cities.

The fourth important aspect of the JnNURM was that preparation of City Development Plans and Detailed Project Reports by urban local bodies was mandated for accessing JnNURM funds. Additionally, a commitment to carrying out mandatory and optional reforms within a specific time frame was also required. An evaluation carried out by Grant Thornton found that quality of CDPs and DPRs was low and for several projects, DPRs were not prepared. CDPs particularly became ‘investment plans’ rather than development plans aimed at comprehensive planning and development of cities as they did not connect well with statutory master development plans (Grant Thornton India, 2011: 36 and 72). Consultants were hired to prepare City Development Plans and Detailed Project Reports for all mission cities because of lack of capacity in urban local bodies. What eventually emerged was hurriedly prepared poor quality CDPs, which were nothing but a collection of projects randomly picked up from the existing master plans of relevant cities. Makers of the CDPs were not careful in integrating them with master plans. The new planning system involving CDPs and DPRs was time-efficient but not spatial. While the master plan “details the spatial planning, the other (CDP) is a vision document and perspective plan for the city. For the economic and social development of a city, both these aspects need to be interlinked. However, as per the present status of the CDPs, there appears to be a disconnect between the two and CDP merely becomes an investment plan with a focus on projects as opposed to a holistic development document”



(Grant Thornton India, 2011: 36). We also bear in mind that CDPs emerged out of an earlier initiative - City Alliance and City Development Program - supported by the World Bank and UN-Habitat. This Program required preparation of City Development Strategy (CDS). Notably, cities like Vijayawada, Bangalore, Pune, Ahmedabad, etc. were already in the process of preparation of CDS when JnNURM mandated CDPs, these became the requirement for accessing mission funds.

Another important aspect of the JnNURM is that there was a clear large city as well as economically advanced states bias. For example, out of the total allocation of funds committed by the central government, UIG and BSUP received the largest share compared to smaller cities and towns. UIG and BSUP together received 70 per cent of central funds while UIDSSMT and IHSDP - both meant for small and medium towns - received only 30 per cent of the central assistance. Similarly, economically advanced states received more central funds than economically backward states. Maharashtra, Andhra Pradesh, and Gujarat together received 43 per cent of central funds although they accounted for only 28 per cent of the total urban population. Comparatively backward states like Madhya Pradesh, Rajasthan and Uttar Pradesh got only 18 per cent of total central funds although they accounted for 22 per cent of total urban population (Khan, 2014: 11-12). Further, state-wise funds proposed by the Planning Commission and amounts that were actually released by the government are substantially low. The top seven states of Maharashtra, West Bengal, Andhra Pradesh, Gujarat, Delhi, Tamilnadu and Uttar Pradesh received maximum funds and the states like Bihar, Punjab, and Goa have merely received only 10 per cent of the funds. Although it was not clearly stated by policy makers in the JnNURM, when investing significantly more funds in large cities, the end result is further promoting economies of agglomeration and economies of scale to enhance efficiency and productivity and also make these cities more attractive for capital flows and inward movement of what Richard Florida calls 'the creative class' (Florida, 2012).

Now that JnNURM has run its course from 2005 to 2014 including two years of extension meant for the completion of the on-going projects, we need to know how far it has been effective in delivering on its promises of providing modern infrastructure, streamlining urban governance, looking after the urban poor, and carrying out mandatory and optional reforms. An internal review of the JnNURM undertaken in December 2010 revealed that the Mission did not even succeed on its own terms. Most of the reforms, for example, could not be carried out and only fewer projects were implemented. Over 84.5 per cent of funds were spent on transportation and physical infrastructure including water, sewerage, storm water drainage, bridges and roads. Delhi spent its share of funds i.e. Rs. 5,243 crore on the redevelopment of Connaught Place, purchase of low floor buses, and construction of 9,000 houses for the urban poor on the periphery of the city (Sivaramakrishnan, 2011: 40-41). Ministry of Housing and Urban Poverty



Alleviation's own report points out that the Mission suffered from a number of 'shortcomings' and 'constraints'. By March 2012 the actual release of funds just exceeded 39 per cent of the total approved project costs and "only 10 per cent or less of the projects had been completed ..." (Ministry of Housing and Urban Poverty Alleviation, 2014: 15).

Seventy-Fourth Amendment to the Constitution of India was a radical reform undertaken to strengthen urban local bodies by providing them with constitutional status like state government and central government. JnNURM indeed provided impetus to carry out urban local reforms, but these reforms at best remained partial. Nonetheless, "apparently successful metropolises like Bengaluru do not have control over their water supply and sewerage, their electricity, their land allocation or even their public transportation. Each one of these is under the control of an agency of the Karnataka state government. Apart from Maharashtra and to some extent Gujarat and some of the larger cities in other states, few Indian cities can undertake actions that would enable them to function as engines of growth" (Mukhopadhyay, 2018: 8; also see Ahluwalia, 2019).

Another important point has three parts and it relates to the non-mission cities and towns. First, whatever number of houses for the urban poor has been constructed, in several cities including Delhi, a vast majority of these houses has not been handed over to the legitimate owners even months and years after their completion. Second, housing for the urban poor is located at the margins of the cities, for example, Delhi and Chandigarh. Third, the size of dwelling units (300 sq feet) is too small for a family of five or six persons. From these markers, one can conclude that this policy rhetoric does not pave the way for obtaining the right to shelter.

On recapitulation, we could say that the building of modern infrastructure, and modernization of governance particularly, and urban local bodies generally, was the primary focus of the JnNURM. Addressing the concerns of the aspiring classes, slums were viewed as a roadblock to the globalizing India, and cities were to be made 'slum-free'. The narrative of the comprehensive development of slums did not end with the folding of the JnNURM in 2012 as it could be seen from the Slum Free India mandate of the Rajiv Awas Yojana, trying to make the Indian cities slum-free within ten years (from 2013 to 2022). Under the JnNURM, cities were envisaged as spaces meant for living and work. As far as the emphasis on modernization and improvement of infrastructure was concerned, a wider net was cast to cover not only 65 cities under the UIG but also all remaining small and medium towns and cities under UIDSSMT.

Another significant aspect of the JnNURM was to structurally transform urban local bodies by carrying out urban reforms. Slow moving wheels of municipalities were to be made efficient through technology-led e-governance. Archaic



acts such as ULCRA must be abolished and markets should determine land transactions. To enhance market transactions, several reforms were undertaken including lowering of stamp duty, sealing for which was also set. Streamlining of property titling, internet-based grant of building permissions and other approval processes, and full cost recovery for the provision of services to the consumer-citizen was further expected to make urban local bodies efficient. The JnNURM was the first ever urban reforms program that was backed with equal vigor with financial support. A total of Rs. 120,536 crore were allocated over a period of 7 years. As shown above, although partially implemented, the JnNURM succeeded in improving the urban condition in India in terms of infrastructure and governance. However, economically and socially advanced states benefitted more than backward states. This trend has continued in the case of special economic zones, another flagship project aimed at the export promotion that I examine presently.

2.2 Special Economic Zones - An Instrument of Uneven Regional Development

The Special Economic Zone Act was passed by the Indian Parliament in 2005 and SEZ Rules were framed in 2006 to enforce the provisions of the Act. Through the SEZ Act, 2005, Government of India intended to achieve the four objectives including export promotion, inward investment, employment generation, and creation of global quality infrastructure. As per article 5 (1 a) of the SEZ Act, 2005, the first objective of the 2005 Act was to fuel rapid economic growth by increasing exports from the country. This was in line with economic reforms' emphasis on export promotion instead of an earlier policy of import substitution. The second objective was to generate large-scale employment opportunities in order to tackle increasing unemployment. The third objective of the SEZ Act, 2005 was to create a global level infrastructure through private sector investment. The fourth objective was to attract foreign and domestic investment in SEZ areas. In order to attract investors to SEZ zones, Government of India offered a number of inducements such as tax exemptions and facilitation in land acquisition. Additionally, a simplified administrative regime or single window operations for approvals was created for the grant of speedy approvals. In brief, through the SEZ Act 2005, Government of India visualized special economic zones as engines of economic growth and not merely a policy to support export promotion (Sharma, 2009: 18). Another related concern was that SEZ would be located throughout the country, away from major urban agglomerations, leading to a reduction in regional imbalances. Two SEZs in and around Mumbai were set up by the Reliance. It appears that balanced regional development was not listed as one of the objectives of the SEZ Act 2005.

History and context of SEZ policies could be traced in two ways. One is by looking at policy efforts made by central government by adopting the EXIM



policy in 2000 (culminating in the framing and approval of SEZ Act, 2005 by Indian Parliament) and various states notably Uttar Pradesh, Tamil Nadu and Karnataka framing their own SEZ policies. Another way and more fruitful way is to examine industrial policies adopted by central government for developing and producing various spaces under the name of steel towns, industrial estates and industrial areas.

Entry for establishing SEZs was kept open. Any entity including a private or public company, joint or exclusively state-owned, and even foreign-owned company could set up an SEZ in India. States actively encouraged global investors to invest in new SEZs. Government saw three kinds of SEZs with different land requirements. A multi-product SEZ is required to have a minimum size of 1,000 hectares and a maximum of 5,000 hectares of land while a sector-specific SEZ can be set up with as little as 100 hectares or more land. An SEZ specially meant for electronics hardware and software and ITES only needs 10 hectares or more land (SEZ Rules, 2006). Out of the total area of an SEZ, 35 per cent previously and now 50 per cent could be utilized for industrial development while the rest of the area can be put to other uses such as residential, services, institutions, parks, etc. The provision that a half of the SEZ area could be used for non-industrial purposes makes SEZ policy highly attractive to real estate developers who could develop 50 per cent land for any use that provides the highest economic returns on investments. With hindsight we could say that residential and commercial developments are often preferred by real estate developers due to higher market returns from such spaces.

As indicated above, policy for establishing the Special Economic Zones offered a number of incentives to the private sector. Production units were offered tax exemptions for 15 years. For the first five years developers could avail 100 per cent tax exemptions, for the next five years they could benefit from 50 per cent tax exemptions, and for the last five years developers would pay only 50 per cent taxes on export profits. Within the first 15 years of operations, developers could avail 100 per cent tax exemptions for any 10 years. Developers and units were also offered exemptions from customs duties, central excise duty, service tax, securities transaction tax, and central sales tax. If units with 100 per cent FDI were set up, they were allowed to retain 100 per cent foreign exchange receipts. They were also exempted from import and industrial licenses and they could repatriate profits without any dividend-balancing requirement. Goods moving from SEZ to any outside area within India (domestic tariff area) would be treated as exports and on similar lines goods moving into SEZ from any other part of India would be considered imports (Ananthanarayanan, 2008: 39). This has changed the meaning of 'exports' and 'imports', creating confusion about data. The main idea appears to be balancing the books, showing higher export figures temporally.



These financial inducements did indeed work and attracted a large number of developers to set up SEZs in several states. SEZ policy generated a lot of enthusiasm among developers. Within one year of the SEZ Act, 2005, Government of India gave 212 approvals and 152 in-principle approvals across 21 states (Ananthanarayanan, 2008: 42). High enthusiasm was sustained over the next 12 years. As of December 2017, after 12 years of implementation of SEZ Act 2005, India has 356 notified SEZs, 31 in-principle approvals, and 423 formal approvals. Out of a total of 356 notified SEZs, only 222 (62 per cent) SEZs are exporting goods and services. Out of the 222 exporting SEZs, a vast majority of 179 (81 per cent) SEZs are located in economically advanced seven states, which have a higher than the national level of urbanization. These states include Tamilnadu, Telangana, Maharashtra, Karnataka, Andhra Pradesh, Kerala, and Gujarat.

Although not an objective of SEZ policy, it is expected that the concentration of exporting SEZs in fewer states may reinforce further uneven regional economic development, encouraging further uneven development and also paving the way for the further concentration of economic activities in already advanced states. Most recent figures show a sustained interest in SEZs. As of 4 June 2018, India has 419 SEZ with formal approvals, 355 notified SEZs (7 central government SEZs and 11 state governments and private sector partnerships, and remaining private SEZs), 32 SEZ stand with in-principle approvals. As of 31 March 2018, there were 223 operational SEZs with 5,146 approved units (<http://sezindia.gov.in/#> accessed on 20 June 2018). Significantly, of the total notified SEZs, 63 per cent are functional.

The primary objective of SEZ policy was to expand exports from SEZs. In 2005-2006 total exports from SEZs were US\$ 5.1 billion i.e. 5 per cent of the total exports. In 2013-2014, total exports from SEZ zones increased several fold to US\$ 82.4 billion or 26 per cent of the total exports (Jenkins et al, 2015: 4). However, these export figures are much lower than contribution of SEZ exports in countries like China (50 per cent in 2009), Vietnam (42 per cent in 2008), the Philippines (78 per cent in 2005) and Thailand (20 per cent in 2012) and Bangladesh (17 per cent in 2009) (Mukherjee et al, 2016: 34-35). India is only ahead of Thailand and Bangladesh and a lot more needs to be done to catch up with China and other Asian economic giants. Another important point is that a large share (87 per cent of non-IT/ITES exports) of these exports is made up of petroleum produced by Reliance Jamnagar Refinery (Jenkins et al, 2015: 4). This skewed distribution of exports is not helpful in establishing a broad industrial base in the country. From spatial planning standpoint, SEZ Rules 2006 do emphasise the need for balanced development, which means economic activities are broadly distributed among various economic sectors. Government figures show that exports from SEZs in India have “touched Rs. 425,000 crore in



2014 [from] Rs. 22,000 crore in 2005 (Comptroller and Auditor General of India, 2012: 10). Fact sheet on Special Economic Zones on Ministry of Housing and Urban Affairs website claims that exports from SEZs were worth Rs. 467,337 crore in 2015-16, which increased to Rs. 523,637 crore and further rose to Rs. 581,033 crore.

The second objective of the national SEZ policy was to attract investment from global and local investors in SEZ zones. Has the SEZ policy succeeded in attracting investment in SEZ zones? Before answering this question, we need to point out that FDI started to increase in India after July 1991 economic reforms. As a consequence, India has become one of the major FDI destinations ranking among the top ten countries of the world. Like location and number of SEZs, economically advanced states have been able to attract a major share of FDI inflows. The top six states included Maharashtra, Delhi, Karnataka, Tamil Nadu, Gujarat and Andhra Pradesh, which “together accounted for over 70 per cent of FDI equity flows to India during the period April 2000 to June 2012 reflecting distinct signs of FDI concentration at the state level” (Mukherjee et al, 2016: 100). “The presence of agglomeration economies is reflected in terms of prior foreign investment presence, prior concentration of manufacturing plants, number of enterprises in a region, presence of various economic zones (SEZ, EPZ etc.), industrial parks, industrial clusters, etc.” (Mukherjee et al, 2016: 114). This indicates that SEZ, however insignificant it may be, is a factor for attracting FDI into a state.

Overall however FDI inflows into Indian SEZs were only 6.9 per cent of all FDI inflows in the country during 2011-12 (Mukherjee et al, 2016: 36). According to a report produced by the independent watchdog, investment into SEZs was “Rs. 284,000 crore in 2014 in comparison to Rs. 4,000 crore in 2005 (Comptroller and Auditor General of India, 2012: 10). From February 2006 to March 2018, total investment has increased by nearly 118 times. This is no mean feat. Creation of large scale employment opportunities was the third major concern of SEZ policy. Government of India claims that SEZ and EPZ employed only 134,704 persons in 2006. This number jumped to 19,77,216, which is an increase of nearly 15 times.

Modern infrastructure development was another objective of the SEZ policy. According to the SEZ Rules, 2006 “infrastructure means facilities needed for development, operations and maintenance of a Special Economic Zone and includes industrial, business and social amenities like land, roads, buildings, sewerage system and effluent treatment facilities, solid waste management facilities, parking including jetties, single point moorings, storage tanks and interconnecting pipelines for liquids and gases. An SEZ can have Inland Container Depot or Container Freight Station, warehouses, airports, railways, transport system, generation and distribution of power, gas and other forms of energy,



telecommunication, data transmission network, information technology network, hospitals, hotels, educational institutions, leisure, recreational and entertainment facilities, residential and business complex, water supply, desalination plant, sanitation facilities (SEZ Rules, 2006). Government expects that the private sector would create high quality infrastructure within an SEZ, which would be superior to that available outside.

In EPZs exclusive arrangements were not made for the provision of power, water or telecommunications by the zone authorities. Only Cochin and Madras SEZs has reported having an effluent treatment plant and a water purifier. In SEZs that got established after the enactment of SEZ Act, 2005, zone authorities could own captive power plants. The units in most of the SEZs have their own backup arrangements for power supply. While the old SEZs were not properly connected with good quality roads and there were no transport facilities available within a zone. Poor streetlights and poor security systems created further problems especially for the staff working during night shifts. Although physical infrastructure was improved gradually since the SEZ policy came into being in 2000, infrastructure remained far from satisfactory. Only in Kandla and Surat in certain areas social facilities such as canteens were made available while elsewhere facilities like fire stations, guest houses, hospitals, etc.; were not available. However, new generation SEZs being built mainly by the private sector are expected to develop world-class infrastructure. Amongst the facilities provided to the employers include a well-stocked library, a cafeteria, a double-storied lunchroom, which provides food at a very subsidized rate, a well-furnished gymnasium with state of the art equipment, a spacious mediation centre, a well-functioning nursery and separate rooms for male and female workers. Power availability is rated as satisfactory in most of the zones except in Noida where the units do not get a regular supply of power for more than three to four hours daily. Most of the respondents have expressed concern against high electricity charges making the cost of production relatively high. They also rate other facilities such as warehousing, container handling, banking and port as poor. Nearly half of the respondents said that these infrastructure facilities are improving since 2000 but the pace of such improvement is very slow. Water supply in most of the zones is average but there is a concern about high water charges. According to the SEZ Act 2005, the SEZ authorities do not require Environmental Impact Assessment because these zones are only permitted to have non-polluting industries and facilities. Neither do they have provision for any public hearing so that affected people could discuss their views and issues.

In the public imagination, SEZs are known for protestations against acquisition of large swathes of land with or without the involvement of farmers and other land owners. From planning point of view land acquisition also remains an important issue. A total of 48,556.84 hectare of land is acquired under



the SEZ policy as of 1 December 2017. The largest share of land is acquired in Gujarat. Other top 8 acquirers of land are Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka, Telengana, Odisha, Madhya Pradesh and Kerala. Together these nine states have acquired 93.38 percent of all land acquired under SEZ policy.

According to Comptroller and Auditor General of India, about half (52.81 percent) of all land acquired under SEZ regime is lying idle. Some states like Odisha 96.58 per cent, West Bengal 96.34 per cent, Maharashtra 70.05, Karnataka 56.72, Tamil Nadu 49.02 per cent, Andhra Pradesh 48.20 and Gujarat 47.45 land is still lying idle (Comptroller and Auditor General of India, 2012: 37). In some of the states, land was acquired as late as 2006. The great land grab remain a real charge.

Both JNNURM and SEZ were aimed at enhancing economic growth by improving city governance, provision of world class infrastructure, and looking after the urban poor. Both programs have partially succeeded and helped increase GDP growth. Another mission mode program - The Smart Cities Mission - focussed on 100 selected cities is yet another attempt by Government of India to enhance economic productivity by making cities smart by embedding high technology into built environment.

2.3 Smart Cities Mission

The smart city idea was adopted during the 2014 general elections in India when the presently ruling political party presented it as part of its election manifesto as well as the development discourse and style of governing cities. With opposition political parties failing to present any credible new alternative urban vision, the smart city imagination got accepted and adopted as a policy instrument central to city planning and physical development in India. Expectedly the business classes lapped up the Smart City Mission as a huge business opportunity whereby urbanization is directly being used as a site for accumulation of wealth. To critics, the Smart City Mission in India appears to be deployed as an innovation by the state and capitalist classes to invest in the city for endlessly creating surplus value through built form.

In June 2015 the Smart City Mission Transform-Nation was launched from Delhi by the Indian Prime Minister. Under the Smart City Mission, Government of India pledged to create one hundred smart cities by 2020 by way of regenerating existing areas through retrofitting, redevelopment, and pan-city application of certain smart solutions to existing infrastructure, and also by developing new areas or green fields (Ministry of Urban Development, 2015: 5-8). For this Mission, comprehensive city planning and development is a long-term goal and cities are advised to work towards this end in an incremental manner. What is to be done presently is to build foundations for achieving that long-term goal



by creating the ‘layers of smartness’ with a focus on ‘sustainable and inclusive development’. However, simultaneously the Smart Cities Mission policy clearly states that “the purpose of the Smart Cities Mission is 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” (Ministry of Urban Development, 2015: 6). Smart city objectives of inclusivity, sustainability and improved quality of life through accelerated economic growth are laudable but problematic at the same time because these are not prioritized giving few clues about how far economic growth will take priority over inclusivity and equitable distribution of material resources created under the Smart Cities Mission. As the policy document stands today, the emphasis appears to be placed on economic growth at the cost of inclusivity and sustainability. If this is found to be true, the Smart Cities Mission could end up achieving ‘exclusionary urbanization’ whereby people are more prone to displacements and evictions, and the primary questions about urban poverty and unemployment, inadequate shelter, access to basic infrastructure and services, and clean environment remain unaddressed. The Smart City Solutions further mask the contradictions of the Smart Cities Mission. The Smart Solutions include six aspects - E-governance and Citizen Services, Waste Management, Water Management, Energy Management, Urban Mobility, and others involving Tele - Medicine, etc. The main point is that these smart solutions may not touch the lives of the urban poor as the poor do not have access to smart technologies and even if they have the ability to use smart technologies, they simply will not be able to afford such solutions.

Coverage of Smart Cities Mission is uneven and limited to large existing cities and new developments. Small and medium towns and cities remain untouched by the Smart Cities Mission. Increasingly it is becoming clear that cities in India are no longer purely perceived as places to live, work, educate and entertain, they are simultaneously envisioned as commodities to be innovatively conceived, produced, packaged, branded, and marketed before being sold in the marketplace like any other commodity. Involvement and commitment of the private global companies in partnership with local investors in this endeavour clearly show that a decisive step has been taken by the state whereby cities have become the primary arenas of accumulation of surplus value. The high surplus value will arise largely out of the integration of a complex of high technology and the city’s built environment. This policy production and expected policy outcome easily fit the earlier discourse of the city as an engine of economic growth.

Although political economy discourse has dominated politics, academia and the media, through JNNURM, the national five year plans and housing policies like the Rajiv Awas Yojana (RAY), Government of India has been reluctant to abandon the urban poor. In the next section, we review emergence of welfare policies and programs even in the lap of neoliberal economic environment.



2.4 Missions and Urban Welfare Policies

Government of India never completely abandoned its welfare policies owing to its socialist commitments enshrined in the Constitution of India and the legitimacy of governing a large and growing population that remains both urban and poor. As discussed earlier, one major part of the JNNURM - the Program that ended in 2012 - was focused on poverty alleviation by providing housing and infrastructure to the urban poor. Two submissions under the JNNURM particularly underpin the welfarist nature of the Indian state with a neoliberal twist.

A total of 1,517 projects with 499 BSUP projects and 1,018 IHSDP projects were approved till March 2011. Out of the 1,517 projects, the Comptroller and Auditor General of India audited 82 projects with 53 projects under BSUP and 29 under IHSDP. Out of 82 projects 7 could not be started and 1 project was abandoned. Significantly, the auditors found that only “one selected project i.e. housing for urban poor at Bawana, Narela and Boragarh, BSUP Delhi, sanctioned in 2007-08, was reportedly completed. The remaining 73 projects were still incomplete” (Comptroller and Auditor General of India, 2012: 41). Evaluating from another perspective, the auditors found that overall only 26 per cent of the dwelling units could be completed by the end of JNNURM in 2012.

Two issues become evident. First, out of a total of over 16 lakh approved dwelling units only one fourth i.e. 4.18 lakh DUs could be completed, which is not very encouraging performance. More significantly, all completed dwelling units were not allotted to the beneficiaries. Overall only 53 per cent of the completed houses were occupied. Several states have been found to be slow in implementing these sub-missions. For example, in Turbhe Mandale Mankhurd in Mumbai, 735 DUs for EWS were constructed under the BSUP with the cost of Rs. 29.85 crore and 93 DUs for LIG were built with an expenditure of Rs. 6.39 crore. All 838 DUs were completed in January 2010 but none of the houses were allotted till June 2011. In a reply of April 2012, the state government of Maharashtra stated that these houses would be allotted after the completion of approach road, and obtaining occupancy certificate from the Municipal Corporation of Greater Mumbai. In Chandigarh 25,728 houses were built under the BSUP out of which 10,560 DUs were completed and work was progressing well for the completion of 2,304 DUs. A total expenditure of Rs. 258.87 crore was made. However, only 1,520 DUs were allotted. Improper identification of beneficiaries and overlapping functions were cited as reasons for delay in allotment (Comptroller and Auditor General of India, 2012: 51-52). Similarly in Puducherry 262 houses were completed in December 2010 but not handed over to the beneficiaries till July 2011 due to non-availability of infrastructure. In Tirupati under IHSDP 4,087 houses were supposed to be constructed out of which only 528 houses were completed. Out of the completed 528 houses merely 124 houses were handed over till August 2010 (Comptroller and Auditor General of India, 2012: 52).



JNNURM and its four sub-missions are considered to be better implemented in Surat, Gujarat and Kochi, Kerala. Lalitha Kamath and Yacoub Zachariah examined the mission program in 2015. Here we focus only on BSUP and IHSDP in these two cities. Surat got nearly half of Gujarat's total projects undertaken under BSUP and completed 77 per cent of approved dwelling units. It does not end here. Surat Municipal Corporation was also able to complete and allot 50 per cent (31,173 DUs) of all the approved dwelling units to the beneficiaries. Crucially, however, "these are all the houses build for resettlement on the outskirts of the city. What is striking about Surat BSUP projects is that they have been used to provide housing to slum dwellers that have been evicted from central city lands and those who had settled on river banks, in order to make space for UIG projects" (Kamath and Zachariah, 2015: 19-21). In other words this is a process of making Surat, a slum free city by evicting and resettling slum dwellers on the periphery. The real motivation appears to be not the provision of decent housing to the urban poor but making space available for implementation of the UIG projects. Moreover, this is also in violation of the guidelines of the BSUP-JNNURM, which seeks to provide in-situ housing to the poor. Like Surat, Kochi is also able to complete over 52 per cent of all approved dwelling units. The approach to provide housing to the poor in Kochi is distinctly unique. Kochi Municipal Corporation has followed three approaches - resettlement in new houses, financial contribution for in-situ improvement, and housing subsidy of Rs. 1,20,000 to each family who owns 450 sq feet of land. In-situ improvement with financial support and financial contribution to land owning families has been successfully implemented, benefitting 7,560 families out of a total of 8,153 families (Kamath and Zachariah, 2015: 24). Due to civil society participation and political pressure by stronger urban local bodies, resettlement based approach involving displacement and evictions leading to exclusion have made slow progress.

Reach of housing provision for the urban poor could also change due to uneven central government fund allocations. Small town urban poor could lose out due to more funds being allocated to larger urban settlements. Like in the case of UIG, large city bias and economically advanced states bias persists even for allocation of central funds under the BSUP and IHSDP. For example, Class I received 37 per cent and Class II settlements received 25 per cent of the total central funds released under the IHSDP, which means Class I and Class II settlements together received a whopping 62 per cent of the total funds. Distribution of funds further gets skewed if we add Class III settlements, making a total per cent fund allocation of 81 per cent for the three categories of settlements (Khan, 2014: 16-18). Similarly, economically advanced states tend to get more central funds than other states. For instance, the top four states of Maharashtra, West Bengal, undivided Andhra Pradesh, and Delhi got 54 per cent of the total central fund allocation under the BSUP. Under the IHSDP, the states of Maharashtra, Uttar



Pradesh, West Bengal and undivided Andhra Pradesh got 50 per cent of the total central fund allocations. With the exception of Uttar Pradesh, all other states are economically advanced states. However, all states are large states in terms of population (Kamath and Zachariah, 2015: 4-5).

3. STATUS QUO AGENDA: SPATIAL PLANNING BY GUIDELINES

Public sector planning agencies and organizations emerged in independent India during the 1960s and 1970s (Shaw, 1996). Delhi Development Authority was set up under the parliament approved Delhi Development Act, 1957. A slew of development authorities of various hues, some at state level like in the states of Punjab and Haryana and others at city level like in Uttar Pradesh, Rajasthan and Madhya Pradesh were established. All the top mega cities got their own development authorities some of which got integrated with regional planning and development authorities, for example, DDA with National Capital Region Planning Board, Mumbai and Navi Mumbai with Mumbai Metropolitan Regional Development Authority. Bangalore, Calcutta, Chennai, and Hyderabad all got their own planning and development authorities.

Another important institution building effort was undertaken by the states by establishing town and country planning organizations or TCPOs. Today most states have TCPOs. TCPOs were made responsible for preparing development plans backed by state level statutes with a town planner placed in each district of the state looking after towns and cities located in that state. The third step in institution building was establishment of slum boards in the states. Slum boards were created to produce low income housing for the urban poor. In some states, relics of the institutions created by the British for achieving imperial ends still exist. Some states still have improvement trusts.

Town and Country Planning Organizations, slum boards, and development authorities have survived throughout the last seven decades in spite of the fact that the mission programs are also running alongside since the last 20 years after the structural reforms of July 1991. A majority of the planning and development work is still being carried out by these three institutions. One major change the TCPOs are witnessing is that they are increasingly outsourcing preparation of master plans and zonal plans to the private sector. Punjab and Himachal Pradesh are two recent examples. Another important change being witnessed today is that large development authorities and states like Uttar Pradesh are not able to appoint city planners. On reading these development plans, it is hard to imagine that the quality plans have improved in comparison to plans being prepared by the TCPOs. Mission programs may build infrastructure and provide housing for the poor, their coverage remains sparse and existence temporary. Some states have recently started either abolishing slum boards or changing their responsibilities.



In the states like Kerala, discursive practices have a highly noticeable impact on planning. Kerala has development authorities in only few prominent cities such as Thiruvananthapuram Development Authority, Greater Cochin Development Authority, Goshree Islands Development Authority, and Hill Area Development Agency. Other development authorities were set up for the cities of Kozhikode, Kollam, Thirussur and Valluvanad. Minister for Local Administration K.T. Jaleel said that the state will abolish and merge these development authorities with urban local bodies except Thiruvananthapuram Development Authority, Greater Cochin Development Authority (Chitharanjan, 2016). Most of the development work in Kerala is already undertaken through participatory processes based on state-level statutes enacted after the promulgation of the 74th Constitutional Amendment Act. This requires a complete evaluation of devolution of powers arising as a direct consequence of the 74th Constitutional Amendment Act.

Another set of organizations have been built by all states for infrastructure development and industrialization under separate state acts. These organizations have produced cities and townships. Private sector has been playing an important role in spatial planning since the last several decades by building industrial townships like Jamshedpur. Most recently the private sector has invested in building brand new cities like Magarpatta, Lavasa, etc.

Government of India has not given up on the formal planning system built jointly by state and central governments. Government of India has been actively supporting the formal planning system by adopting planning guidelines. For the first time national level comprehensive guidelines for planning and implementation in urban settlements were framed by the Institute of Town Planners India, which were adopted by Government of India in 1996. In spite of structural reforms of July 1991, Government of India continues to provide inputs for the improvement of formal planning system. For example, the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2014 was prepared by a private consulting firm Mott MacDonald Consultants, a global engineering, management and development consultancy with offices in 150 countries. Ministry of Urban Development, Government of India largely accepted and adopted these proposals after various rounds of stakeholder consultations. From the URDPFI Guidelines 2014, the Ministry of Urban Development expects that these Guidelines will be used by state governments, development authorities, planning agencies, as well as the private sector. As is clear from the URDPFI Guidelines, these are primarily prepared to influence planned development in Indian cities and urban regions. In order to achieve this main objective, a hierarchy of development plans has been proposed starting with a 'Perspective Plan' at the top and ending with a 'Project/Research' plan at the lowest level (Ministry of Urban Development, 2015b: 6). Now we provide a brief account of this hierarchy.



3.1 UDPFI and URDPFI Guidelines

Ministry of Housing and Urban Affairs, as it is currently known, has consistently provided enabling environment to state governments for carrying out city and regional planning activities. Prepared by the Institute of Town Planners India, Urban Development Plans Formulation and Implementation (UDPFI) Guidelines were approved by the Ministry of Urban Affairs and Employment in August 1996. The Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2014 were approved and issued by the Ministry of Urban Development in 2015. The URDPFI Guidelines were prepared by a private consulting firm Mott MacDonald. State governments are free to follow these guidelines, if they wish to do so. Another set of guidelines is provided by the Bureau of Indian Standards, which was set up under the Bureau of Indian standards (BIS) Act 2016 and notified on 22 March 2016 and came into force on 12 October 2017. Even before getting statutory backing, the BIS prepared the National Building Code of India 2016.

Both the UDPFI and URDPFI Guidelines recommend a planning system, which is capable of producing orderly and planned cities in India. The Guidelines are decidedly modernist. Both Guidelines begin by outlining a hierarchy of development plans. The UDPFI Guidelines recommend a hierarchy of development plans, which include four types of plans - Perspective Plan, Development Plan, Annual Plan, and Plans of Projects/Schemes. Both sets of guidelines imagine Perspective Plans as long range plans for 20-25 years. According to the UDPFI Guidelines, the main function of a Perspective Plan is to set out goals and policies for economic, social and spatial development of a settlement. This plan lays out the context within which lower order development plans will be prepared. The URDPFI Guidelines also propose a tall hierarchy of development plans. Perspective Plan proposed in the URDPFI Guidelines is a state level plan and not a city level plan as proposed in the UDPFI Guidelines. In the URDPFI Guidelines, the Perspective Plan would include the State Urbanization Policy and State Land Utilisation Policy. It would map resources of the state and provide an assessment of potential resources. It addresses the long term policies for 20-25 years regarding development of infrastructure and resource mobilisation. Basic purpose of this plan is to provide a framework within which other development plans will be prepared. Regional Plan is the next in the hierarchy of plans proposed in the URDPFI Guidelines. Stressing the need for regional planning, the URDPFI Guidelines also propose to establish regional planning authorities. Regions are perceived as interdependent contiguous areas. Regional planning authorities would be headed by senior civil servants. Constitutional provisions as enacted through 74th CAA are ignored. Since the UDPFI Guidelines were only about urban areas, regional level development plans are not recommended.

Next in the hierarchy of plans is the Development Plan, which finds mention in both the UDPFI and URDPFI Guidelines. In the UDPFI Guidelines, the Development



Plan is a medium term plan for an urban settlement and is meant to last only for 5 years. Unlike the Perspective Plan, Development Plan will contain strategies, physical planning proposals, norms and standards, and development promotion rules and regulations within the framework provided by the Perspective Plan. A Development Plan must be prepared within the framework of a Perspective Plan. The Development Plans will have its duration coterminous with the duration of municipalities. The Development Plan will be prepared by the Development Integration Committee (Ministry of Urban Affairs and Employment, 1996: 17 and 45). According to the URDPFI Guidelines, the Development Plan will be prepared drawing on the framework provided by the Perspective Plan and Regional Plan. The Development Plan will be implemented through local area plans and projects. Development Plan in the URDPFI Guidelines has a time horizon in the form of phases of 5 years, and is expected to be coterminous with the state five year plans and State Finance Commission recommendations. In both cases, the Development Plan is a statutory plan.

Local authority will prepare the Annual Plans, which according to the UDPFI Guidelines will seek to identify new schemes and projects for implementation after due consideration of physical and fiscal resources and also the framework set out in the Development Plan. Schemes and projects are imagined like implementation or layout plans. In the URDPFI Guidelines, another four forms of plans complete the hierarchy. These plans include Local Area Plans, Special Purpose Plans, Annual Plans and Projects and Research. Among others, Local Area Plan will “guide the development or re-development of land, conservation of buildings and physical features, providing improvements in the physical layout, making infrastructure and amenities available and managing the area to enhance health and safety of the residents to support economic development as well as to enhance the quality of living, environment, and for area specific regulatory parameters ...” (Ministry of Urban Development, 2015b: 10). This form of plan will be prepared within the context of 74th CAA, requiring decentralized decision making through public participation. Special Purpose Plan will be prepared for specific development sector like heritage, and specific areas. Annual Plan will provide details of the ongoing and new projects to be implemented by a local authority.

Both sets of guidelines imagine orderly and tightly directed development of towns and cities. In terms of approach, the UDPFI Guidelines read like a chapter from the book by John Brian McLoughlin, a great believer in the Systems View of Planning (McLoughlin, 1969). The URDPFI Guidelines on the other hand recommend a Comprehensive Planning Model. Both show great affinity towards blueprint planning through tall hierarchies of plans.

Both sets of guidelines, to a large extent, sidestep the 74th CAA including provisions of Metropolitan Planning Committees and the District Development



Planning Committees. However, at places these guidelines do link up with the provisions of the 74th CAA. For example, the UDPFI Guidelines recommend that a Standing Planning Committee will prepare and implement development plans. Chairperson of the local authority will be the chairperson of this Standing Committee. The Committee will have two elected members from the local authority plus chief administrative officer with municipal planner as its secretary (Ministry of Urban Affairs and Employment, 1996: 25). According to the URDPFI Guidelines, the Perspective Plan will be prepared and approved by the state government. Regional Plan will be either prepared by the state government or regional planning authority. Development Plan, Annual Plan and Projects/ Research will be formulated by a municipal corporation, development authority or an MPC. This is a highly confused scenario as all three bodies are very different from one another (Ministry of Urban Development, 2015b: 32). Central and state governments may be willing to implement the devolution agenda in letter, but they appear to be reluctant to implement the devolution agenda in spirit, which we discuss next.

4. MOVING BACK ON SPATIAL PLANNING WITH DEVOLVED GOVERNANCE AGENDA

Economic reforms pumped in additional funds into cities and towns through a number of central public policies and programs in the free market environment. As the state became facilitator in the economic sphere, it also became enabler in the planning sphere. While national highways were being built by the National Highways Authority of India with private participation, housing and real estate sector was largely dominated by the private sector. By building roads in the peripheries of mega cities of Kolkata, Hyderabad and Bangalore, the state was clearly creating environment for faster development of real estate projects, sometimes even full-fledged cities like HITEC in Hyderabad, Magarpatta in Maharashtra, and Rajarhat in Kolkata.

Clearly the nature of city planning in India was profoundly changing in spite of the fact that TCPOs, development authorities and infrastructure agencies continued to work in their respective areas of master development plan preparation and implementation, and infrastructure development. Private consultants made way for the preparation of draft master development plans in the states of Punjab, and Rajasthan, consequently all cities and towns got covered with master plans. Elsewhere, in the states of Maharashtra, Telangana, and West Bengal private cities were built.

Second, new governing regimes were being established in various large cities with diverse consequences for the citizens. Bangalore Agenda Task Force (BAFT) and Agenda for Bengaluru Infrastructure and Development Task Force (ABIDs) demonstrated this trend. But if we take a broader view of plans being dynamic and purposive, we could argue that plans are relentlessly being prepared. As



Vidyarthi (2018) has argued that presently a diverse set of players are making plans and shaping Indian cities. He identified four types of plans including state sponsored plans, sectoral plans, project plans and informal plans (Vidyarthi (2018: 14).

4.1 Spatial Planning and Governance

Indian economy is now open to the world, which implies Indian cities would have to perform within the free market parameters embedded in the global economic and geo - political context. Therefore, if state governments intend to attract much needed foreign direct investment in Indian cities, they must meet global expectations of making available world class physical and social infrastructure, hindrance free transportation systems, and modern but affordable housing. After the onset of structural economic reforms of the early 1990s, decentralized decision making regimes (in the midst of economic reforms) were viewed as efficient ways of decision making. Under the rhetoric of deepening democracy, devolution of powers from state governments to urban local bodies was regarded equal to democratization of urban local bodies. Purportedly it was believed that international investors would invest in the Indian cities only if cities become efficient, safe and secure, and provide state of the art infrastructure, mobility and housing. In this line of thinking it was also presumed that there was a need to devolve powers and authority to lower tiers of governments or municipal bodies for providing infrastructure, mobility and housing. Furthermore, it was also believed that decentralization would enhance transparency by involving local communities in planning and implementation of schemes and programs effectively due to increased local accountability.

At the heart of the decentralization debate is the devolution of powers and functions from state governments to urban local bodies, resulting in the greater transparency, efficiency and local community participation. The primary objective of decentralization therefore was to strengthen urban local bodies administratively and financially so that they could function as effective units of local self-government. Urban policies made in the period from mid-1980s to mid-1990s were covered by seventh and eighth five year plans. These schemes and programs emphasized direct investment in small and medium towns by financial assistance through IDSMT. The Seventh Five Year Plan (1985-90) argued for the need for greater devolution of funds (and hence powers) to urban local bodies for the revitalization of civic bodies and for greater 'community participation'. It was also emphasized that there should be more private initiative and investment in urban development because "the delivery of basic public services to everyone is simply not feasible without such an approach" (Shaw, 1996: 227). Eighth Five Year Plan further emphasized that metropolitan development should be financed through internal financial resources because it provides sustainable way of funding. Seeing the link between weak urban



local bodies and the existence of a highly subsidized and inequitable supply of various urban services, the five year plans made a strong case for “strengthening the regulatory/organizational base of urban local bodies” (Shaw, 1996: 227). During the Seventh Five Year Plan, for the first time, serious attempts were made to grant constitutional status to urban local bodies. On 7 August 1989 for the first time a bill was introduced in Lok Sabha to strengthen urban local bodies. This bill was referred to as 65th Constitutional Amendment Bill, 1989. The bill looked forward to creating the third tier of urban local government below union and state governments. But the bill could not be passed in the Rajya Sabha as it was seen as an attempt by central government to interfere in the domain of state governments. This bill also could not be passed by the Parliament because several law makers thought that the bill allowed little discretion to state governments in shaping structure and functions of local government. After some modifications, the bill was reintroduced and passed as the 74th Constitution Amendment in 1992.

Eventually the status of constitutionally mandated urban and rural local bodies was granted through the 74th and 73rd amendments to the Constitution of India in 1992 after over half of the state assemblies also ratified these constitutional amendments. These two amendments to the Constitution of India were enforced from 1 June 1993 through the Government of India gazette notification. The 74th amendment made provision for three types of municipalities including municipal corporations, municipal councils and *nagar panchayats*. In addition, the amendment also provided for the establishment of ward committees for one or more municipal wards for cities having population of 300,000 or more. Twelfth Schedule to the Constitution of India listed areas, which could be handed over to urban local bodies but it was once again left at the discretion of state governments. The Joint Parliamentary Committee that drafted the July 1992 version of the bill was concerned about the devolution of powers in mega and large cities due to large population sizes of these urban settlements:

There is a growing feeling that in the larger municipal bodies the citizens do not have easy access to the elected representatives since the ward-sizes become very large. The Committee therefore is of the view that within the territorial area of Municipalities having a population of three lakh or more, Wards Committees should be constituted. The details relating to the composition and the territorial area of the Wards Committees and the manner of filling seats in such Committees can be left to the state legislatures (as quoted in Sivaramakrishnan, 2004: 11).

Governance of urban areas was therefore expected to be handed over to three types of municipalities along with ward committees to which elections would be also held every five years. However, structure of functions and finances were left to the discretion of state governments. Nevertheless, soon after the



enforcement of the constitutional amendments, state assemblies amended their local government acts or passed new legislation in order to conform to the provisions of the 73rd and 74th amendments to the Constitution of India. Seventy third amendment proposed a three tier system of local government - village *panchayat*, block *samiti*, and *zilla parishad* - in rural areas, and 74th amendment established three types of municipalities generically known as municipal corporations, municipal councils, and *nagar panchayats*. Municipal corporations were the largest urban local bodies and *nagar panchayats* were the smallest urban local bodies, transitioning from rural to urban characteristics. These bodies would be directly elected bodies by the eligible citizen-voters. Like central government and state governments, state election commissions would hold regular elections for the constitutionally mandated urban local bodies.

Due to these constitutional amendments, city planning got a new lease of life. Apart from other significant provisions, district planning committees (Article 243ZD) and metropolitan planning committees (243ZE) were also to be mandatorily set up under the 74th Amendment Act 1993. These two planning committees were tasked with the responsibility of preparing draft district development plans and draft metropolitan development plans to be approved by respective state governments. Government of India clearly appeared to be making efforts for dismantling some its apparatuses that centralized power in state governments. However, article 243Q (1) in the 74th Amendment Act 1993 left a large loophole in the form discretion to the state governments: "Provided that a Municipality under this clause may not be constituted in such urban area or part thereof as the Governor may, having regard to the size of the area and the municipal services being provided or proposed to be provided by an industrial establishment in that area and such other factors as he may deem fit, by public notification, specify to be an industrial township". Notably, the state governments of Karnataka in Bangalore and erstwhile Andhra Pradesh in Hyderabad have used this constitutional provision to establish industrial townships. Similar provisions are used for SEZs in order to govern through unelected bodies (Kennedy and Sood, 2019).

At about the same time however central government also initiated a number of development programs and established a direct line of communication with urban local bodies, which were implicitly intended to bypass state governments to fund city level projects. State governments thus always remained suspicious about central government's devolution intentions (Sivaramakrishnan, 2004). This was also the time when government was beginning to accommodate planning violations carried out by middle income groups. While precipitously condoning middle class violations (Kumar, 2006), government did not spare planning violations undertaken by urban poor, resulting in large scale demolitions in mega cities (Bhan, 2009; Bhan and Shivanand, 2013).



So, how far has the 74th amendment to the Constitution of India been successful in decentralizing decision making and devolution of powers from state governments to urban local bodies? First, state governments have not been very generous in transferring the Twelfth Schedule functions to municipalities. Except the state of Kerala, devolution of functions (powers) to urban local bodies have been partial at best. For example, land use planning - the first item listed in the Twelfth Schedule to the Constitution of India - remains under the control of parastatals like development authorities, and industrial development authorities fully controlled by state governments. It was only in Kerala that land use planning function was transferred to urban local bodies after 1993. In Maharashtra, land use planning function is being performed by municipalities traditionally, and has little to do with the 74th constitutional amendment. So, limited functional scope of municipal work has constrained the full development of urban local bodies as institutions of local self-government. Municipal functions are generally transferred by several states to the state parastatals. Functions like city planning, regional planning, physical infrastructure like provision of water, power, and transportation are performed by the parastatals. T.R. Raghunandan argues:

Urban spatial planning, which is a critical service that out to be provided by LGs [local governments], is often retained in powerful parastatals such as the urban development authorities. Public utilities, such as those engaged in water and sanitation, are vested with utility companies or authorities, which operate outside the control and superintendence of the LGs. Another pervasive arrangement in the urban context is the positioning of parastatals as service providers to the municipalities, without providing any scope for the municipalities to hold parastatals accountable for their performance (Raghunandan, 2017: 479).

Second, metropolitan region level planning requires an overarching vision and coordination, the functions Metropolitan Planning Committees were required to perform. The non-establishment (making them operational) of Metropolitan Planning Committees in all states except West Bengal and Maharashtra that appeared to have contributed to non-coordination at a metropolitan level. As far as the preparation of the draft metropolitan development plans is concerned, the state governments have not shown much enthusiasm in setting up metropolitan planning committees. But under JNNURM, all states were compelled to create enabling laws for MPCs. As is well known that before 2008 there was only one functional metropolitan planning committee i.e. Kolkata Metropolitan Planning Committee, which was set up under the West Bengal Metropolitan Planning Committee Act, 1994. Kolkata Metropolitan Planning Committee (KMPC) was constituted by government order on 19 October 2001 of



Urban Development Department, Government of West Bengal. There are sixty members out of which forty members are elected and twenty are nominated members in the KMPC. With similar kind of division of members between elected and nominated members, in Maharashtra MPCs were set up in 2008 for the metropolitan regions of Mumbai, Pune and Nagpur (see Sivaramakrishnan, 2013: 91-92).

Third, district planning committees are largely non-functional because most of the powers remain vested in the appointed bureaucracy. Draft district plans socio - economic development plans as these are robbed of their spatial content. Fourth, ward committees also do not instill hope for devolution. Except West Bengal, Kerala, and Karnataka, functional domain of ward committees has been left vague, faltering the idea of complete devolution as envisaged by the Joint Parliamentary Committee. In Kerala and West Bengal, modest funds are allocated to ward committees. No arrangements have been made to secure feedback from ward committees in order to seek inputs for making development policies and city budgets (Sivaramakrishnan, 2004: 13-14).

Fourth, after Constitutional Amendment Act 1993, hundreds of local leaders have been elected at municipal level through regular elections after every five years as mandated by the Constitution of India. A number of elected representatives come from socially marginal groups including women. Financially however urban local bodies could not be empowered due to lack of funds at central and state level, and small tax base of urban local bodies (Pethe and Lalvani, 2006). There exists tension between state and local urban bodies as former are unwilling to decrease their control over urban settlements, slowing down the process democratization of urban local bodies as units of self-governance. Until there is a transition made from state to local, policy making will remain rhetorical with very little impact on the conditions of cities.

Fifth, constitutional recognition of municipalities is not similar to recognition of federal and state governments because the Constitution of India still regards state governments to be the smallest units of government, leaving transfer of powers to ULBs solely at the discretion of state governments. Articles 243W and 243X do not make it mandatory for state governments to bestow law making and taxing powers on urban local bodies. As the Supreme Court of India in *Shanti G Patel versus State of Maharashtra* (2006) case held that these are 'enabling provisions' (Kumar, 2019: 10). As urban local bodies do not enjoy political decentralization, this has led to democratic deficit in terms of under-representation of urban population in state and central legislatures, and irregular holding of elections of ULBs in several states, Odisha being the latest case. In order to directly vest taxing and law making powers with the urban local bodies, distinct list in the Seventh



Schedule of the Constitution has to be inserted, similar to the lists of subjects under the jurisdiction of central and state legislatures. Another possibility is that another concurrent list may be also considered under the Seventh Schedule including subjects alternating between urban local bodies and state governments (Kumar, 2019: 11).

Sixth, private local governments are being introduced in the peripheries of large cities. One striking example of the private local government is that of the Electronics City located over 23 km away in peri - urban Bengaluru. The Electronics City is governed by the Electronics City Industrial Township Authority since March 2013 established by the state government under the exception provided under the 74th constitutional amendment Clause 1C of Article 243Q to designate certain areas as 'industrial townships'. Article 243Q Clause 1C reads: "Provided that a Municipality under this clause may not be constituted in such urban area or part thereof as the Governor may, having regard to the size of the area and the municipal services being provided or proposed to be provided by an industrial establishment in that area and such other factors as he may deem fit, by public notification, specify to be an industrial township". Now the Electronics City has the authority to levy taxes and performs functions that are normally performed by a municipality. These functions include urban planning, regulation of buildings, water supply and solid waste management (Idiculla, 2016: 102-103). Even the oldest private townships are being brought under the provisions of Article 243Q Clause 1C. For example, Telegraph newspaper on 21 July reported that the Supreme Court disposed of the matter on December 2016 after state government and Tata Steel reached an agreement on Jamshedpur to become an industrial township under Article 243Q Clause 1C. Private governance has given rise to 'corporate urbanism' whereby private enclaves such as SEZs and National Investment and Manufacturing Zones are governed by corporate interests throughout the country (Sood, 2015: 1360). This is a major setback to the local self-government in Indian cities.

Corporate urbanism on one hand and weaknesses in the framing and implementation of the 74th constitutional amendment has excluded marginalized communities, particularly farmers through compulsory land acquisition, slum dwellers through strategic policies like redevelopment via public private partnerships, and informalization of labour. These changes have transformed the political economy of the country, leaving working classes in the cold.

5. CONCLUSIONS

Spatial planning in India is neither entirely neoliberal nor completely traditional planning; it is located somewhere in the middle. Our analysis shows mixed



results. Even the missions have egalitarian components like the JNNURM and AMRUT. Privatization of spatial planning practices has been largely accepted even in the traditional planning system of town and country planning organizations. Even private municipalities have been established though in few states only with potential for pan India spread.

ENDNOTE:

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REFERENCES

- Ahluwalia, I. J. (2019) Urban Governance in India, *Journal of Urban Affairs*, Vol. 41, No. 1, pp. 83-102.
- Ananthanarayanan, S. (2008) New Mechanisms of Imperialism in India: The Special Economic Zones, *Socialism and Democracy*, Vol. 22, No. 1, pp. 35-60.
- Bhan, G. (2009) “This is no longer the city I once knew”. Evictions, the urban poor and the right to the city in millennial Delhi, *Environment and Urbanization*, Vol. 21, pp. 127-142.
- Bhan, G. Shivanand, S. (2013) (Un) settling the City: Analysing Displacement in Delhi from 1990-2007, *Economic and Political Weekly*, Vol. 48, No. 3, pp. 54-61.
- Chitharanjan, S. (2016) Government to disband four development authorities, *Times of India*, Kozhikode, 11 September 2016.
- Comptroller and Audit General of India (2012) *Report of the Comptroller and Auditor General of India on Performance Audit of JNNURM*, Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation, New Delhi.
- Florida, R. (2012) *The Rise of the Creative Class Revisited*, Tenth Anniversary Edition, Basic Books, New York,
- Grant Thornton India (2011) Final Report: *Appraisal of Jawaharlal Nehru National Urban Renewal Mission (JnNURM)*, Grant Thornton India, New Delhi.
- Harvey, D. (1989) From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism, *Geografiska Annaler: Series B, Human Geography*, Vol. 71, No. 1, pp. 3-17.
- Jenkins, R., Kennedy, L., Mukhopadhyay and Pradhan, K. (2015) Special Economic Zones in India: Interrogating the Nexus of Land, Development and Urbanization, *Environment and Urbanization Asia*, Vol. 6, No. 1, pp. 1-17.
- Kamath, L. and Zachariah, Y. (2015) *Impact of JNNURM and UIDSSMT/IHSDP Programs on Infrastructure and Governance Outcomes in Cities/Towns in India*, TISS Working Paper 7, Tata Institute of Social Sciences, Mumbai.
- Kennedy, L., and Sood, A. (2019) Outsourced Urban Governance as a State Rescaling Strategy in Hyderabad, *Cities*, Vol. 85, pp. 130-139.
- Khan, S. (2014) *The Other JnNURM: What does it mean for Small Towns in India*, Centre for Policy Research, New Delhi.
- Kumar, A. (2006) Condoning Unplanned Development, Reviewing the Khanna Committee Report, *Economic and Political Weekly*, Vol. 41, No. 39, pp.4105-4108.



- Kumar, A.P. (2019) The City in the Constitution, *Economic and Political Weekly*, Vol. 54, No. 3, pp. 10-11.
- McLoughlin, J.B. (1969) *Urban and Regional Planning: A Systems Approach*, Faber and Faber, London.
- Ministry of Urban Affairs and Employment (1996) *Urban Development Plans Formulation and Implementation Guidelines (UDPFI), Volume I*, Ministry of Urban Affairs and Employment, Government of India, New Delhi.
- Ministry of Housing and Urban Poverty and Alleviation (2014) *Inclusive Urban Planning: State of the urban poor report 2013*, Oxford University Press, New Delhi.
- Ministry of Urban Development (2015a) *The Smart Cities Mission*, Ministry of Urban Development, Government of India, New Delhi.
- Ministry of Urban Development (2015b) *Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Volume I*, Ministry of Urban Development, Government of India, New Delhi.
- Mukherjee, A., Pal, P., Deb, S., Ray, S., Goyal, T.M. (2016) *Special Economic Zones in India: Status, Issues and Potential*, Springer, Singapore.
- Mukhopadhyay, P. (2018) *Engines without Drivers: Cities in India's Growth Story*, Centre for Policy Research, New Delhi.
- Raghunandan, T.R. (2017) 'Re-energizing Democratic Decentralization in India', in Devesh Kapur, Pratap Bhanu Mehta and Milan Vaishnav (eds.) *Rethinking Public Institutions in India*, Oxford University Press, New Delhi.
- Roy, A. (2014) 'The Inclusive City: A new paradigm for urban planning in India', in MHUPA (ed.) *Inclusive Urban Planning: State of the urban poor report 2013*, Oxford University Press, New Delhi.
- Schindler, S. and Kanai, J.M. (2019) Getting the Territory Right: Infrastructure-led development and the re-emergence of spatial planning strategies, *Regional Studies*, DOI: 10.1080/00343404.2019.1661984.
- Sharma, N.K. (2009) Special Economic Zones: Socio-economic Implications, Vol. 44, Issue No. 20, pp.18-21.
- Shaw, A. (1996) Urban Policy in Post-Independent India: An Appraisal, *Economic and Political Weekly*, Vol. 31, No. 4, pp. 227-228.
- Sivaramakrishnan, K.C. (2004) *Municipal and Metropolitan Governance: Are they relevant to the Urban Poor?* A paper presented at the 'Forum on Urban Infrastructure and Public Service Delivery for the Urban Poor, Regional Asia', sponsored by the Woodrow Wilson International Centre for Scholars and the National Institute of Urban Affairs, New Delhi. 24-25 June 2004.
- Sivaramakrishnan, K.C. and Maiti, A. (2009) *Metropolitan Governance in India, An Overview of Selected Cities*, A paper presented at Kathmandu, Kathmandu.
- Sivaramakrishnan, K.C. (2011) *Re-visioning Indian Cities: The Urban Renewal Mission*, Sage, Delhi.
- Sivaramakrishnan, K.C. (2013) Revisiting the 74th Constitutional Amendment for better Metropolitan Governance, *Economic and Political Weekly*, Vol. 31, No. 13, pp. 86-94.
- Sood, A. (2015) Industrial townships and the policy facilitation of corporate urbanisation in India, *Urban Studies*, 2015, Vol. 48, No. 8, 1359-1378.
- Vidyarthi, S. (2018) Spatial plan in post-liberalization India: Who is making the plans for fast-growing Indian urban regions? *Journal of Urban Affairs*, pp.1-18.



Seeking Solutions for Polluted and Climate Challenged Cities in Urban Design and Planning

Anumita Roychowdhary

Abstract

India as an emerging economy is on a rigorous development trajectory. However, this trajectory has raised several environmental challenges in our cities related to air pollution, climate change and resource inefficiency. In the climate challenged world cities have also become more vulnerable to extreme and intense weather events leading to urban flooding on the one hand and heat island effects on the other. Extreme weather events magnify health burden several times. In this way, urban environmental degradation of this magnitude erodes developmental gains. To exacerbate this, India has adopted the SDGs to stimulate, align and accomplish action by 2030 in areas of critical importance. Yet city level planning is still fragmented and is not cohesive enough to align with all these policies to allow resource efficient, inclusive, and sustainable urban growth. This paper puts forward a guidance framework that integrates and aligns a wide gamut of central and state-level policies for improving liveability, health and climate response of cities.

1. INTRODUCTION

Cities, home to half of world's population, collectively consume enormous natural resources, and generate astounding amount of waste. Cities have been identified to produce 75 per cent of the world's greenhouse gas emissions and use more than 70 per cent of world's energy, while they occupy just 3 per cent of planet's land. But at the same time, cities contributed 82 per cent of global GDP in 2016, which will rise to 88 per cent by 2025, according to United Nations Development Program (United Nations Human Settlements Program, 2011). Cities will continue to grow and this is precisely why it is critical to address the challenges related to this growth at the early stages of development itself.

What is even more worrisome is that cities have grown about twice as fast spatially as they have grown in terms of population. While average city population densities are declining, urban sprawl is increasing. Population is growing faster on the peripheries of major cities that too in an unplanned way. Today, cities are facing the multiple environmental challenges related to air pollution, climate change and resource inefficiency. These challenges are even more pronounced in cities of the emerging economies. According to the World Bank 90 per cent of the world's urbanization is going to take place in the emerging economies. This puts cities of the emerging economies on a higher risk towards the impact of changing

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climate. This includes extreme and intense weather events leading to urban flooding on the one hand and heat island effects on the other. Extreme weather events magnify health burden several times. Urban environmental degradation of this magnitude erodes developmental gains. These challenges are likely to persist in the absence of a cross-cutting and comprehensive urban strategy.

Given these challenges, it has become necessary to debate and intervene in order to create the integrated governance framework that can provide safeguards for the city to deal with these challenges and align with the Sustainable Development Goals (SDGs) and the New Urban Agenda. This framework should enable greater efficiency in resource use and lead to conservation of water, energy, materials and biodiversity; recycling and reduction in waste and pollution; and allow equitable access to resources. This requires the key guiding principles of both national and state-level policies related to resource efficiency and savings, and draw upon the lessons from best practices. The new template has to integrate the key principles of the SDGs and the 2030 Agenda for Sustainable Development (United Nations Human Settlements Program, 2016).

Government of India has adopted the SDGs to stimulate, align and accomplish action by 2030 in areas of critical importance. The SDGs are being integrated with central government policies and schemes. State governments are also aligning their visions and plans with the Goals for implementation. Out of the 17 Goals, several have a direct bearing on sustainable urbanization.

Government of India has already adopted several policies that have a strong bearing on local action for sustainability. These include the Smart Cities Mission; Housing for All; National Urban Transport Policy; Liveability Standards; Transit-oriented Development Policy; renewable energy targets and solar city provisions; decentralized environmental clearance procedure for buildings; the Energy Conservation Building Code; National Forest Policy and Forest Conservation Act; air quality standards and regulations; the National Climate Action Plan; the Waste Management Rules; and the water policy. Several of these interventions are backed by legislation to make them legally binding.

Yet city level planning is still fragmented and is not cohesive enough to align with all these policies to allow efficient use of resources, inclusive, and sustainable urban growth.

2. AN ARRAY OF URBAN CHALLENGES

At this stage there is no clear mechanism to align the multi-sector interventions to maximise resource efficiency and liveability aspects of urban development. This paper explores these aspects and challenges in the built environment, particularly related to mobility, energy efficiency and water management. The following section gives a sector by sector drill down of challenges faced by the



country. The concluding section will discuss guidelines circumscribing these issues but in a more action-oriented approach that can be integrated with the existing urban design and planning interventions.

2.1 Reducing Energy Imprint of Cities

According to the GHG Platform, India's report titled Trend Analysis of GHG Emissions in India (2005-13), 68 percent of India's emissions came from the energy sector (Vasudha Foundation (2017)). The report also claims that within the energy sector, around 77 percent of the emissions come from electricity generation, mainly due to India's over-reliance on fossil fuels - mostly coal - for energy generation. As shown by the Energy Statistics 2019, released by Ministry of Statistics and Program Implementation (2019), the share of coal in India's energy mix has only increased over the past years. NITI Aayog's report Energizing India (2017) claims that coal will remain the mainstay of India's future energy mix with a share of 50 per cent in the business as usual scenario and coming down not too far to 42 per cent in an ambitious effort scenario by 2047.

In its Intended Nationally Determined Contributions (INDC), India has pledged to improve the emissions intensity of its GDP by 33 to 35 per cent by 2030 below 2005 levels (Anon, 2019). Moreover, it has also pledged to increase the share of non-fossil fuels-based electricity to 40 per cent by 2030. This target has enormous implication for urban planning and built environment.

2.2 Buildings as Large Scale Consumers of Energy Need Taming

India is yet to build 60 per cent of its infrastructure needed for 2030. Buildings sector currently is responsible for more than 30 per cent of the country's annual energy consumption, according to the Bureau of Energy Efficiency (BEE). McKinsey Global Institute (2010) states that in order to meet its needs, India will build a new Chicago every year and the building sector of the country will grow explosively in the coming decade. NITI Aayog's India Energy Security Scenarios (IESS) 2047, aim to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors leading up to 2047 (Anon, 2018). According to it, the demand share of the energy consumption by the building sector will continuously rise till 2047 - in all three projected energy security scenarios - least effort, determined effort and aggressive effort.

Buildings consume energy mainly due to their lighting, heating or cooling needs, while other appliances form a small component. Around 70 per cent of India's climate is warm and requires cooling major part of the year. Mechanical cooling on the other hand forms the highest share of energy consumption in buildings, according to BEE. In a warming climate, India's space cooling needs, in particular, are going to soar, according to the India Cooling Action Plan. Ministry of Environment, Forest and Climate Change (MoEFCC) states that buildings will



not be able to provide thermal comfort to its inhabitants by 2038 with current building practices.

This challenge can be addressed if a clear action agenda is made available to combine the strategies for energy efficiency and thermal comfort. At the building construction stage, informed architectural design and choice of materials are important. Passive design techniques enable response to the sun, wind, light and native climate (and micro-climate) conditions to increase adaptability of a building. This means decisions about building form, orientation, shading, insulation and ventilation can reduce mechanical heating, cooling and lighting requirement in the building and can substantially cut down energy consumption. Government of India has launched Energy Conservation Building Code for commercial buildings and Eco Niwas Samhita for residential buildings that inform these decisions. But so far only 18 states have ratified ECBC 2017, according to the Ministry of Power. These evolving codes and norms will need further refinements to be more effective. But passive design and material choices need to be guided in a regulatory sphere that is mandatory. Affordable housing sector will require special attention to deliver on both resources efficiency and thermal comfort.

Renewable energy is another strategy for energy sufficiency in the built environment. A report titled State of Renewable Energy in India 2019 notes that the potential of solar rooftop has not been exploited (Bhushan et al (2019)). On top of being a key contributor to India's ambitious targets, solar rooftop offers a unique set of benefits: lower electricity bills and reduced transfer and distribution losses along with consumers doing away with polluting diesel generating sets for their backup supply.

With the national initiatives, solar energy is now being sold in the country at highly competitive prices. The average rates being offered by various renewable energy service companies (RESCOs) is in the range of Rs 2-3 per unit according to various bid documents available with the Solar Energy Corporation of India (2019). Moreover, many states have their own solar policies offering subsidies. For example, the Delhi state government has the Mukhyamantri Solar Power Scheme, which offers five-year subsidies on electricity bills for group housing societies and individual consumers installing rooftop solar panels. Under the scheme, the Delhi government will provide a generation-based incentive (GBI) of Rs 2 per unit against the initial solar power generation cost of Rs 3 per unit. In effect, the consumer will pay just Rs 1 per unit for five years (Delhi Government, 2019). In order to push solar energy further, the country needs to make provisions for creating more demand.

2.3 Urban water security and water sensitive urban design

According to the Composite Water Management Index brought out by the NITI Aayog in 2019, it argues that by 2030, 40 per cent of Indians will have no access



to drinking water and 21 cities will have run out of groundwater with the current practices (NITI Aayog, 2019).

Even so, cities are not actively developing in a manner that reduces fresh water demand by harvesting rainwater, recycling and reusing treated wastewater. On one hand, there is water scarcity during summers; on the other hand, cities are water logged after one downpour. This is primarily because cities are undergoing frenetic construction that is indiscriminate and does not follow the local hydro-geomorphology, which eventually severs the water bodies. Kolkata, for instance, have lost 53 per cent of its peri - urban wetlands due to concretization from 2005 to 2015, according to a study by South Asian Forum. This increases Kolkata's vulnerability and places it third on the list of cities prone to flood risks and climate disasters according to a World Bank and University of Leeds study. The story is same for most of our cities witnessing spatial transformations.

Currently in India, only one third of urban dwelling units are connected to the sewerage network, while on the other hand, there is centrally installed capacity to treat only 37 per cent of the total sewage generated, according to the Ministry of Environment, Forests and Climate Change, (2019). Under the Ministry of Housing and Urban Affairs' schemes like AMRUT (Atal Mission for Rejuvenation and Urban Transformation) and Smart Cities Mission, various cities are taking up sewage and septage management and constructing sewer lines to connect urban areas to the sewerage system. But there are issues such as lack of proper data regarding the layout of the sewerage networks and even if more areas are connected to sewers lines, the centralised sewage treatment plants (STPs) are already running over capacity at present. Moreover, the centralised waste water treatment systems are capital and energy intensive and need even more money for their operation and maintenance.

This means we need to look at alternative treatment technologies that are faster, cost-effective, sustainable, and require less effort and money for operations and upkeep. Cities need to make this transformation with more decentralised and localised solutions to create a water prudent society.

2.4 Addressing urban air quality and public health risk

Air pollution is a health emergency in India today, and actions need to be fast tracked for transformative changes. According to the State of Global Air 2019 estimates, over 1.2 million Indians died early due to exposure to unsafe air in 2017 (Roychowdhury et al, 2017). Air pollution is now the third-highest cause of death among all health risks, ranking just above smoking, in India. This public health challenge is a combined effect of outdoor PM2.5, ozone and household air pollution. Long-term and comprehensive measures are required to lift the disease burden of the cities and the larger regions due to worsening air quality.



Large scale use of inefficient and polluting technologies in industry, power plants and transportation sectors as well as poor waste management resulting in open burning of municipal solid waste and industrial waste and dust from construction and roads are causing air pollution in cities and the larger regions. Urban sprawl and car centric road infrastructure that is increasing average travel distances and vehicle use is locking in enormous pollution.

Delhi is fighting one of the oldest pollution battles, which demonstrates how difficult it is to bend the pollution curve. Delhi has shifted all big polluting industrial units out, banned use of dirty industrial fuels including coal, petcock and furnace oil, moved public transport and commercial vehicles to compressed natural gas, phased out older vehicles, controlled truck numbers and reduced share of diesel cars, introduced Bharat Stage VI fuels, among others. During smog episodes it takes emergency action to spot polluting activities. While this has helped Delhi to reduce particulate pollution by about a quarter during the decade ending, it still has to cut particulate pollution (particles less than 2.5 micron size) by yet another 65 per cent to meet the national ambient air quality standard. This brings out the daunting challenge of the scale of transformations needed to meet clean air targets.

The National Clean Air Program (NCAP) of Government of India has asked for a 20-30 per cent reduction in particulate pollution nationally by 2024. It requires about 122 cities that currently do not meet the clean particulate standards to implement clean air action plans to meet the reduction target. This is possible only with the disruptive and transformative changes that include massive clean energy and technology transformation in industrial, transportation and household sectors; mobility transition to ensure more than 90 per cent of the daily travel trips are made by public transport backed by walking and cycling; and paradigm shift in waste management.

2.5 Cities Drowning in their Own Waste: Need Zero Waste Paradigm

Solid waste in cities is increasing more than twice the rate of growth of the urban population. Currently India generates 62 million tones of waste each year, of which less than 60 per cent is collected and around 15 per cent processed (Swaminathan, 2018). Most of the municipal solid unsegregated waste gets transported and dumped in landfills on the outskirts of city limits. Swachh Bharat Mission since 2014 has shown positive results whereby door-to-door collection of solid waste has increased from 53 per cent in 2016 to 89 per cent in 2019. However, much work is required towards source segregation and treatment while only 40 per cent of total solid waste collected is segregated and 30 per cent is treated.

Unsegregated waste does not only increase the volume of waste to be transported, adding to associated costs, but also pose environmental and public health threats



during and post disposal. Emission of methane gas and formation of leachate pose the gravest dangers. Methane gas, formed due to accumulation of waste, leads to fires in landfills. Moreover, methane, is particularly problematic as its impact is 34 times greater than carbon dioxide over a 100 - year period, according to the fifth IPCC Assessment Report (United Nations Climate Change, 2014). Further, un-engineered landfill sites allow 'leachate' to seep into the ground, contaminating the soil as well as groundwater. This is extremely harmful for people living in the vicinity of the landfill and detrimental to human health in the long term.

3. A BLUEPRINT FOR IMPROVING LIVEABILITY, HEALTH AND CLIMATE RESPONSE OF CITIES

Cities need a cross-cutting guidance framework that integrates and aligns a wide gamut of central and state-level policies to deliver on clear indicators related to resource conservation and efficiency, waste management and recycling, pollution and mobility management, energy efficiency and renewable energy, and environment clearance requirements and protection of biodiversity. This can create opportunity for integrated multi-sector urban planning and design that presents a big gap.

Need compact city design: Urban planning today is increasingly moving away from the compact city design towards urban sprawl. The new urban design is all about super-size blocks of mass housing, gated communities, segregated land use, poor public transport connectivity, etc. India is investing heavily in metro rail and bus rapid transit systems; their influence zones must be exploited for compact urban renewal and uplift. Cities must integrate land use with transport; encourage high density, mixed use and transit-oriented development. Appropriate zoning should be identified and enforced through master plans and building byelaws.

The older compact urban form of the established city of Kolkata or southern Mumbai illustrates the legacy of a best practice in urban planning and design. According to a CSE analysis of 14 cities in India, urban commute in Kolkata (per-trip emissions and energy consumption) contributes the least to the air quality of the city, while it has the maximum population density and lowest average trip length and highest share of public transport ridership among those cities (Roychowdhury and Dubey, 2018). A compact city design reduces travel distances, it allows more walk and public transport trips. Good walking and cycling infrastructure and public transport can transform the city and reduce pollution.

Treat wastewater in decentralised setups using nature based solutions: Already choked centralised waste treatment facilities are not a solution anymore in our cities facing infrastructural deficit. Decentralised sanitation systems at building and colony level need to be prioritized. All new construction will have to ensure separation of grey and black water with dual piped plumbing system or single stack system with separate recirculation lines for flushing. Emerging



technologies for wastewater treatment based on natural systems are not only cost-effective but are also better for the environment as the treated water is often reused on site instead of being treated and discharged into a natural water body (see 'Septage Management: a Practitioner's Guide'). All these methods are natural systems using natural filtering and bio - sorption mechanisms of various microbes and plants. Building byelaws must provide for these measures for mandatory action. Industries and construction sector to be mandated to reuse treated water.

Conserve water by using water sensitive urban design and planning and water efficient fixtures: All new and existing building complexes and colonies must implement an area-wide plan for rainwater harvesting. Mandate water sensitive urban design and planning features including swales, berms, retention ponds, etc. These passive features respond to the native hydro-geomorphology and aid water filtration, percolation and channelization to enable harvesting of rainwater by recharging groundwater or storage. At least 20 per cent of open spaces in a building complex or colony should be pervious. Cities need to set up online register of tubewells and borewells, database of water bodies (existing, encroached and polluted) and conduct hydrological assessment of city-wide aquifers to keep a track of quality of water resources. This will enable development of high water recharge zone maps and contamination zone maps. Demand side strategy should aim at meeting per capita daily water requirement targets from a judicious mix of municipal supply, locally harvested rainwater and treated wastewater. Mandate use of water-efficient fixtures like aerators, low-flow shower heads and flushing systems, which can reduce water consumption by about 80 per cent. These could be incentivized in new construction.

Maximise rooftop solar energy use in buildings: Model Building Byelaws 2016 provide for rooftop solar energy installation to the tune of meeting minimum 5 per cent of the connected load in buildings from solar energy. A number of states such as Andhra Pradesh, Haryana, Punjab and Gujarat have adopted this guideline. However, considering more than 60 per cent of rooftop space mostly remains non-utilized by any activity, this minimum percentage can be elevated. In a solar rich country, states should mandate at least 15 per cent of the connected load in group housing, institutional buildings, commercial complexes to be met by rooftop solar energy.

Mainstream climate-appropriate design of buildings for adaptive comfort, energy efficiency: Building design should be regulated by the local body through building byelaws and incorporate basic passive design techniques such as the longer building façade facing north and south and/or most buildings oriented along east-west axis. Building envelope is most responsible for heat/cold ingress/ egress in a building with the exposed external surface area, window-wall ratio, shading devices and the thermal properties of material used. ECBC and Eco



Niwas Samhita guide reduction of heat/cold ingress/egress in buildings. These should be adopted and mandated as per the native climate conditions to combine strategies for energy efficiency and thermal comfort especially in affordable housing sector.

A dense and compact building typology increases efficiency in terms of usage of land and distribution of services. Studies show that the taller a building, the higher are the emission per square meter due to higher steel and cement loading per unit area. Taller buildings need additional services such as lifts and water pumps. There is a recurring need to invest money into their operations and maintenance and to place adequate efforts in their upkeep. Therefore, new construction should abstain from high-rise buildings, as it may under perform on sustainability, affordability and adaptive comfort, and must follow a high density and low to mid-rise building typology.

4. MANAGE AND CAPITALIZE ON SOLID WASTE FOR A CIRCULAR ECONOMY

Solid waste management requires most action at the level of waste generators. Primarily to segregate, building (residential, commercial and institutional) complexes and colonies need to dedicate space for composting of bio-degradable waste to the tune of 300 g per capita per day or as per local building byelaws. Urban local bodies to make a waste management plan and build public awareness programs that include reuse and recycling of plastic and construction and demolition waste. Stringent actions must be taken against open waste burning. Cities must aim at a zero landfill waste management plan.

REFERENCES

- Bhushan, C. Priyavrat Bhati, Priya Sreenivasan, Mandvi Singh, Pratha Jhavar, Shweta Miriam Koshy and Swati Sambyal (2019) *The State of Renewable Energy in India*, Centre for Science and Environment, New Delhi
- Delhi Government (2018) *Eco-Niwas Samhita (Energy Conservation Building Code for Residential Buildings)*, Bureau of Energy Efficiency, New Delhi. Available at https://www.beeindia.gov.in/sites/default/files/ECBC_BOOK_Web.pdf, as accessed on December 30, 2019
- Delhi approves state subsidies for rooftop solar. Available at <https://ieefa.org/delhi-approves-state-subsidies-for-rooftop-solar/>, as accessed on December 30, 2019
- India announces its INDC, pledges to cut emission intensity of its GDP by 33-35 per cent by 2030. Available at <https://www.downtoearth.org.in/coverage/climate-change/climate-change-package-51338>, as accessed on December 30, 2019
- National status of waste water generation & treatment. Available at http://www.sulabhenvi.nic.in/Database/STST_wastewater_2090.aspx, as accessed on December 30, 2019
- NITI Aayog (2017) *Energizing India: A Joint Project Report of NITI Aayog and IEEJ*, NITI Aayog, New Delhi. Available at <https://niti.gov.in/writereaddata/files/Energizing-India.pdf>, as accessed on December 30, 2019



NITI Aayog (2019) *Composite Water Management Index*, NITI Aayog, New Delhi. Available at http://social.niti.gov.in/uploads/sample/water_index_report2.pdf, as accessed on December 30, 2019

Roychowdhury, A. Vivek Chattopadhyaya, Gaurav Dubey, Swati Singh Sambyal, Avikal Somvanshi, Shambhavi Shukla and Tanushree Ganguly (2017) *5 June: At the Crossroads*, Centre for Science and Environment, New Delhi.

Roychowdhury, A. and Dubey, G. (2018) *The Urban Commute: And how it contributes to pollution and energy consumption*, Centre for Science and Environment, New Delhi. Available at <https://www.cseindia.org/the-urban-commute-8950>, as accessed on December 30, 2019

Solar Energy Corporation of India: Limited Selection of 1200 MW ISTS-connected Solar PV Power Projects (ISTS-VI). Available at [https://seci.co.in/web-data/docs/SECI%20ISTS-Solar%201200%20MW%20\(ISTS-VI\)%20result%20website%20upload.pdf](https://seci.co.in/web-data/docs/SECI%20ISTS-Solar%201200%20MW%20(ISTS-VI)%20result%20website%20upload.pdf), as accessed on December 30, 2019

Swaminathan, M. (2018) *How Can India's Waste Problem See a Systemic Change?* Available at <https://www.epw.in/engage/article/institutional-framework-implementing-solid-waste-management-india-macro-analysis>, as accessed on December 30, 2019

United Nations Climate Change (2014) *Why Methane Matters*. Available at <https://unfccc.int/news/new-methane-signs-underline-urgency-to-reverse-emissions>, as accessed on December 30, 2019

United Nations Human Settlements program (2011) *Cities and Climate Change: Global Report on Human Settlements*, United Nations Human Settlements program. Available at <http://www.zaragoza.es/contenidos/medioambiente/onu/538-eng-ed2011.pdf>, as accessed on December 30, 2019

United Nations General Assembly (2015) *SDG 11: Sustainable Cities and Communities*. Available at <https://in.one.un.org/page/sustainable-development-goals/sdg-11/>, as accessed on December 30, 2019

United Nations Human Settlements Program (2016) *Sustainable Urbanization Strategy: UNDP's Support to Sustainable, Inclusive and Resilient Cities in the Developing World*, United Nations Development Program, New York. Available at https://www.undp.org/content/dam/undp/library/Sustainable%20Development/Urbanization/UNDP_Urban-Strategy.pdf, as accessed on December 30, 2019

Vasudha Foundation (2017) *Trend Analysis of GHG Emissions in India (2005-2013)*. Available at http://www.ghgplatform-india.org/Images/Publications/GHG%20Trend%20Analysis%20Report_2005-13.pdf, as accessed on December 30, 2019

Anon (2019) *Energy Statistics 2019*, Ministry of Program Implementation and Statistics, New Delhi. Available at http://www.mospi.gov.in/sites/default/files/publication_reports/Energy%20Statistics%202019-finall.pdf, as accessed on December 30, 2019



Mission of Livable Cities - Planning of Metropolitan Regions: A case of Kolkata Urban Agglomeration

Joy Sen, Ph.D. and Arpan R. Paul

Abstract

A study and understanding of the history and morphology of a metropolis is critical to comprehending the uneven development of a large metropolis like Kolkata. After presenting a brief overview of the literature on livability and urban development, this paper provides an analysis of historical development of Kolkata since the last 300 years. Through a brief discussion of urban missions, the paper shows that these missions do not take into account historically developed built environments and consequently ignore historical, economic, political, and in the case of Kolkata, even the colonial processes. It is argued that a-historic missions cannot improve livability in metropolitan areas.

1. INTRODUCTION

In India, only two cities i.e. New Delhi and Mumbai have ranked 118 and 119 out of 140 cities (The Economist Intelligence Unit's Global Liveability Index, 2019). It does not imply a good optimism in global standards. The survey is based on indicators including physical domain like infrastructure and environment, socio-economic aspects like stability, healthcare, education, and last, the normative side like culture and social contexts. Vienna, Melbourne and Sydney are the top three cities while Damascus, Lagos and Dhaka rank at the bottom. The index assesses locations around the world in order to provide the best or the worst livable situation. But there is another side too. Today, in urban planning, there is a toggle of smart-structured IT and ITES driven infrastructure planning on the one hand, and a whole range of inclusive socio-cultural strategies looking at the emotive side of social development, on the other hand. So, there is a need to strike a balance. Planning for livable cities offers this critical balance.

The present paper offers an insight about the aforesaid balance and underscores the immense significance of livable cities as opposed to just smart cities or even happy cities. The paper first offers a brief literature on the idea of urban agglomeration, a required mosaic of any city system and its relationship with livability as a balanced development agenda. Secondly, it probes into the need of looking at city as a double i.e. spatially as a mosaic and also temporally, thereby understanding its growth dynamics over time. Only then the balance between the positive-structural and normative-social sides can be targeted. A case study of Kolkata Urban Agglomeration (KUA) is inducted to verify the goal. Third and finally, it offers an understanding

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of contemporary Planning Missions, through the very window of livability, and the whole objective of a balanced metropolitan development carefully poised between the toggle, and thereby transcending the imbalance.

2. LITERATURE REVIEW

2.1 Conceptions of Urban Agglomerations

One of the early conceptions of urban agglomerations was initially prescribed by the British urban planner Ebenezer Howard (1898). Primarily, he suggested the concept of the “town cluster” in his book ‘Garden Cities of Tomorrow’ (Moir, Moonen, and Clark, 2014). He perceived the dynamic relationship between the city core and its adjoining countryside as an integrated approach. Eventually, the concept turned into the garden city approach. In the same fashion, sociologist Patrick Geddes recommended an inclusive regionalization framework for exploring the inherent dynamics of cities and the process of urbanization (Jacobs, 2012). Geddes observed the coexistence of urban sprawl and the over-concentration of cities with industrial and economic bases. Geddes argued that urban sprawls are the results of the disassociation between the city core and its adjoining peripheral areas (Dickinson 1962).

2.2 Importance of Urban Agglomerations in Urban Geography

At present, urban agglomerations are the prime economic growth and innovation drivers. They are characterized by the maximum concentration of population, economic and administrative influences and political supremacies. The ability to behave in coordination is essential to stimulate domestic policies and contribute to decisive worldwide agendas. The evolution and extension of urban agglomerations are a worldwide phenomenon for policy initiatives. These also exhibit the rising degree of urban poverty, social division, and social segregation within them.

In recent times, the world has become more than one-half urban in nature. Nearly all metropolitan regions and their associated urban agglomerations are characterized by extensive suburbs of relatively low-density exterior and compact core areas. According to Demographia World Urban Areas (2018) Asia gradually leads the position of world’s most crowded continent. Tokyo-Yokohama remains the world’s most populous MUA with habitation of 37.8 million. Jakarta is the second largest MUA with 30.5 million population. The third-largest MUA is Delhi with 24.9 million population. Mumbai held the 13th position with 17.7 million population and Kolkata held the 20th position with 14.7 million population. The largest MUA positions are shown in the global map.

2.3 Livability as a Mission

Livability is an ensemble embracing notions such as quality of place and sustainability. Livability stands on the three legs of livability (social, economic, ecological) while accounting for politics and personal values that evolve over time



and includes community and quality of life (National Research Council). But such an ensemble is not one dimensional and cannot be generated by a single policy.

Since the term 'livable cities' back in the 1980s was used to describe quality of life and characteristics of cities that made them livable, IMCL traced countless ways to describe standard of living, rather than quality of life and looked at the shortcomings in understanding a pattern of growth over time. Every city wants to be considered the most livable, a title that can attract new business and investments, boost local economies and real estate markets, and foster community involvement and pride. But such entries fail to understand how the mosaic has evolved. Hence, it is imperative to see the dynamics of urban growth to reach the level of balance between the analytical and the normative; and between the standards of livelihood and quality of life (IMCL, 2019). Livability provides this balance to place development missions holistically over time.

It will be significant to see how a very large city has evolved over time. The case of KUA provides such an insight. The following section provides the same.

3. HISTORICAL EVOLUTION OF KUA AND ITS IMPACT ON LIVABILITY VARIATIONS

The physiographic and regional connectivity features of KUA's metropolitan geography have evolved over a span of 300 years. The evolution of metropolitan geography of KUA, which once formed as an initial interspersed and disintegrated landscape, has now transformed to a relatively cohesive form with its evolving pattern of livability. The chronology of the transformation may be understood in four phases.

3.1 Phase - I: Pre-colonial Period (Before 1757)

The earliest settlement phase (prior to 1600) of the metropolitan geography began during the Islamic period (1526-1857). This was in the outer periphery of the northern boundary of present KUA (Hall, 1996). The northern region and its settlements had then centered on a place called Tribeni, which flourished with a predominant medieval mix of local and Islamic culture and civilization. A marginal level of utilities and facilities within the northern region along with a limited and slow mode of maritime connectivity had then characterized the earliest form. These settlements provided a socio - economic base that was primarily agricultural in nature and the economic base afforded relatively a better but a very slow pace of livelihood and associated livability. The predominant side of livability was mostly guided by the socio - cultural and the emotive based on an interspersed semi-rural, semi-urban continuum.

Rapid colonization was initiated by the Portuguese (1517), then the French (1673), the Danes (1679) and finally, the British came in 1690 (Shaw and Satish, 2007; Shaw, 2012). With the British, the gravity shifted to the southern parts of



the landscape (Banerjee, 2005). The river was then established as the principal maritime network, moving up to the dense mangrove belt (Sundarbans) in the Delta (Shaw and Satish, 2007; Shaw, 2012).

A different pattern of livelihood began to emerge with the colonial-industrial processes that were governed by trade activities in the new southern port-settlements (Lapierre, 1986). Rapid industrialization induced faster networks of accessibilities to reinforce trade opportunities and amenities thereby reshaping the livability pattern. As a result, the primitive form disappeared and the nascent form of a future metropolitan geography emerged with a fair level of integration with the southern parts of the present metropolis (Mitra and Mitra, 2015).

3.2 Phase - II: Early-colonial Period (1757-1857)

A great transformation took place after 1757 with two distinct features. On the one hand, the non-British settlements, which were mostly temporary and located on the West Bank continued to have an impact, although not significant. On the other hand, the British settlements consolidated and shaped the way forward of the initial form of the metropolis by operating from the East Bank. The British settlements were actively dependent on port facilities, which were carved out of the three original villages of Sutanati, Gobindapur and Kalikata. The activity was further strengthened by the colonial-industrialization pattern where core Kolkata continued to play a complementary role to enhance the industrialization processes. Eventually, the port city of Kolkata emerged based on higher accessibilities between new zones of activities, rapid maritime infrastructure and trade across overseas.

Around the year 1800, two chains of settlements consolidated further along both banks of the river in response to the two stretches of roads parallel to the banks. The two roads eventually became two national highways, namely the Grand Trunk Road on the West Bank and the Barrackpore Trunk Road on the East Bank. The twin network linked the chain to the growing advantages in the port city of Kolkata. As a result, the linear pattern of settlements was further consolidated with the introduction of railways in 1857.

This form appeared to be just a linear conurbation, enjoying the fruits of the maritime channel, but far from a mature form of a metropolis. Still livability was well balanced between a green riverine on the metropolitan community on the one hand, and an emerging urbanization on the future brown fields of riverside commerce and industries.

3.3 Phase - III: Late-colonial Period (1857-1947)

The period from 1890 to 1930 was characterized by the permanent British rule in India till 1947. With it, higher standards of living in the core Kolkata evolved (Banerjee, 2005). The rapid development of physical infrastructure, new



housing areas, organized green spaces, and other civic amenities raised Kolkata's overall livability standard based on the colonial features of urban development (Sengupta, 2013; Sadashivam and Tabassu, 2016).

However, the level of development in the remaining portion of the metropolitan geography continued to remain low for the West Bank and more so in the other remote northern regions of the metropolitan periphery (Karmakar, 2015). Therefore, urbanization continued to increase in core Kolkata. In the year of 1921, the population of Kolkata had already crossed a million (KMDA Report, 1984).

People living in the core began to enjoy the advantages of the two railway stations. The first one was at Howrah, which provided important national linkages to distant parts of the country including Delhi, the capital city in the north, to Mumbai (or Bombay), the largest trading center and port city in the country in the west coast and also to Chennai (or Madras), the then-largest urban center in southern India (Kundu, 2003; Yadav and Bhagat, 2015; Karmakar, 2015). The second was at Sealdah, which had begun to serve the suburban linkages, thereby consolidating some loose form of metropolitan linkages. Also, highways, which later became National Highways (NH) like, NH 2 (to Delhi), NH 6 were augmented, accelerating the growth of urban settlements and cohesion of an emerging metropolitan geography (Pal, 2006).

Finally, in the year of 1924 with the introduction of airways and the making of an international airport at Dum Dum, the global lifestyle of high-income groups and business class residents emerged in core Kolkata and began to consolidate the colonial urbanism in new ways (Bhagat 2004). However, a high level of standard of living in core Kolkata contrasted as imbalanced settlement pattern into the relatively under-developed periphery. As a result, a certain level of imbalance in the metropolitan geography of KUA aggravated (Chatterjee, 1991). At the same time, the imbalance provided a choice to urban dwellers to shuttle, shift and share between the 'hustle and bustle', and the 'quieter and greener' parts of the metropolis.

By 1950s, there was a need for planning machine to deal with these problems of imbalanced development across the metropolitan geography, which began to affect a desired distribution of livability (Bose, 2015). At the same time, there emerged a need to balance large city governance with development in the inner to outer periphery. A bounded livability guideline for a metropolis was yet to emerge. A new definition of larger urban infrastructural coverage was still far from being present. A holistic mission was still missing.

3.4 Phase-IV: Post-colonial Period (1947 Onwards)

Metropolitan planning was then needed and it began in 1961 with the establishment of the Calcutta Metropolitan Planning Organization (CMPO). The objective of CMPO



was to secure balanced metropolitan development through the 'Basic Development Plan' (BDP). The BDP, 1971 identified the various 'missing linkages' leading to imbalances between the two banks. The BDP also attempted the first planning initiative to redress the negative impact of the two major waves of rapid refugee influx and overall high urbanization trends. The impacts were the problems of very high density, infrastructure decay, increasing slums and associated health problems, and rising pollution levels in areas within and near the core sub-regions. These problems began to reverse livability potentials of the core (CMDA Report, 1984).

In the intervening years (1940-1990), the metropolitan geography succumbed to unprecedented impacts of:

- Trans-border migration due to the Bangladesh liberation war of 1971 from West Pakistan, the present-day Bangladesh;
- The rapid obsolescence and decay in the existing and relatively older industrial base of Kolkata; and
- A diversion of major trade and industrial activities from Kolkata to Delhi, Mumbai and other emerging cities.

4. CONCLUSIONS

Though a defined form of the metropolis was delineated in 1979 by the Kolkata Metropolitan Development Authority (KMDA), the planning agencies inclusive of KMDA now have contrived to face a tremendous task of achieving:

- A balanced distribution of linkages and urban services at the overall metropolitan level covering Mission for trans-municipal armatures of governance and linkages; and
- A higher focus on livability across all ULBs leading to a cohesive KUA's metropolitan geography.

The case of KUA has provided insights that national missions for spatial planning at a very large scale cannot be just imposed as a planning monolith or be modernized all of a sudden by a high-tech agenda. Instead, it should be based on implementation initiatives that embrace both traditional flows and inheritance over time, and the pulses of modernity in contemporary outlook to smart amenities and services updated at any latest point of time. The mission should also be holistic to embrace an older course of apparent loose natural *laissez faire* in a multi-ethnic urban society, on the one hand, and the acceptance of structured and smart order driven policies by fast paces of technological progress and consumption patterns of living, on the other. Finally, the mission has to strike balance between recoveries of green emotive surges in the outlier living styles of the metropolis with the advanced mosaic of a rapidly changing pace of urban economy. Only livability can provide such a bridge and such a balance. So, we need to initiate new livable missions as policy alternatives.



REFERENCE

- Banerjee, T. (2005) 'Understanding planning cultures: the Kolkata paradox', in Sanyal, B. (ed.) *Comparative Planning Cultures*, Taylor and Francis, New York: pp. 145-164. Available at: <https://ostromworkshop.indiana.edu/library/node/53829>.
- Bhagat, R.B. (2004) Dynamics of Urban Population Growth by Size Class of Towns and Cities in India, *Demography India*, Vol. 33, No. 1, pp. 47-60.
- Bose, P.S. (2015) *Urban Development in India Global Indians in the Remaking of Kolkata*, Routledge, London.
- Demographia World Urban Areas (2018) *Demographia World Urban Areas*, Wendell Cox, St. Louis.
- Dickinson, R.E. (1962) The City in History, *Association of American Geographers*, Vol. 52, No. 3, pp. 300-306. Available at: <https://www.jstor.org/stable/2561390>.
- Hall, P.G. (1996) *Cities of Tomorrow: An intellectual history of urban planning and design in the twentieth century*, Blackwell Publishers. Oxford. doi: 10.3828/tpr.61.4.d6807431t0581840.
<https://www.nap.edu/read/10262/chapter/4>
<http://www.livablecities.org/blog/value-rankings-and-meaning-livability>
- Jacobs, J.M. (2012) Urban Geographies I : Still thinking cities relationally, *Progress in Human Geography*, Vol. 36, No. 3, pp. 412-422.
- Karmakar, J. (2015) Retrospect of post-colonial metropolitan planning in India: Critical appraisal, *Journal of Geography and Regional Planning*, Vol. 8, No. 6, pp. 166-173. doi: 10.5897/JGRP2015.0494.
- Kundu, N. (2003) *Urban slum reports-the case of Kolkata, Institute of Wetland Management and Ecological Design*, Kolkata. Available at: http://www.ucl.ac.uk/dpu-projects/Global_Report/pdfs/Kolkata.pdf.
- Lapierre, D. (1986) *The City of Joy*, Warner Books, New York.
- Mitra, T. and Mitra, S. (2015) Region, Periphery and the City Core: Transformations in Morphology and Growth Symbiosis: A Case of Kolkata City and Region, A paper presented at the *RSA Conference*, pp. 1-15.
- Moir, E., Moonen, T. and Clark, G. (2014) *What are Future Cities? Origins, Meanings, Future cities Catapult*, (June).
- Pal, A. (2006) Scope for Bottom-up Planning in Kolkata: Rhetoric vs reality, *Environment and Urbanization*, Vol. 18, No. 2, pp. 501-521. doi: 10.1177/0956247806069628.
- Sadashivam, T. and Tabassu, S. (2016) Trends of Urbanization in India: Issues and Challenges in the 21 St Century, *International Journal of Information Research and Review*, Vol. 3, No. 5, pp. 2375-2384. Available at: <http://www.ijrr.com/sites/default/files/issues-files/1142.pdf>.
- Sengupta, U. (2013) Inclusive development? A state-led land development model in New Town, Kolkata, *Environment and Planning C: Government and Policy*, Vol. 31, No. 2, pp. 357-376. doi: 10.1068/c1103.
- Shaw, A. (2012) Metropolitan City Growth and Management in Post-liberalized India, *Eurasian Geography and Economics*, Vol. 53, No. 1, pp. 44-62. doi: 10.2747/1539-7216.53.1.44.
- Shaw, A. and Satish, M. K. (2007) Metropolitan restructuring in post-liberalized India: Separating the global and the local, *Cities*, Vol. 24, No. 2, pp. 148-163. doi: 10.1016/j.cities.2006.02.001.
- Yadav, V. and Bhagat, R. B. (2015) *Urban Development Challenges, Risks and Resilience in Asian Mega Cities*, Springer. doi: 10.1007/978-4-431-55043-3.



Disruptive Development Strategy for Reconnecting the Settlement Planning in India

N. Sridharan, Ph.D.

Abstract

Spatial Planning is an important instrument to redirect a country's development and to position itself as a global leader. Spatial planning strategy can achieve a balanced development in the urban and regional space. However, in the Indian scenario, archaic spatial planning that is often concentrated at the micro level often shies away from national and global linkages. Unfortunately, the National Urbanization Commission that chartered a new spatial policy for the country was ignored by Government. Similarly, interlinking rivers was scaled down. In contrast, the Suez Canal, and the Panama Canal benefitted the countries around that region through international and national spatial policy initiatives and strategies that leap frogged their development. Exploring the future by seeking disruptive strategies, this paper attempts an alternative strategy for settlement planning. It deviates away from the existing discourses or piecemeal development strategies that focus on micro level.

1. INTRODUCTION

Indian spatial planning since its inception has been busy directing its attempts to solving the day to day administrative problems than to focus on the future. Even master plans and regional plans meant to focus on the future attempted with piecemeal way, the implementation lagged behind making the plans irrelevant. Except metropolitan cities that became mega cities, lower level settlements were ignored in the spatial development. Although many of our cities emerged from a group of villages, they later became mega cities with infusion of economic activities, especially service sector propelled cities. No attempt was made to integrate various sectors either within the city or in the region or attempt to come out with a nationalized settlement strategy. Exploring the future by seeking disruptive strategies, this paper attempts an alternative strategy for settlement planning in India. It deviates away from the existing discourses or piece meal development strategies that focus on micro level (either city or mega city level). It is important to delve into unchartered areas that may include employment, and spatial development in areas not addressed presently. Economic benefits may also be enhanced through global connectivity.

The paper starts with the review of some of the major policy initiatives that were attempted at national level in the form of settlement policies and

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strategies earlier. It dissects the national level policies and strategies, such as National Urbanization Policy, Interlinking of rivers, RURBAN Mission, National Highway Roads, etc. Based on these earlier attempts, this paper leaps into future projections through alternative settlement structures to make a dent towards globalization and global strategy.

2. SETTLEMENT POLICIES: PAST AND PRESENT

2.1 Pre - 1980

India with a focus on rural development strategy started in 1948 with Industrial Policy and later since 1950 when it started with planned development. This pro-rural bias was corrected in the beginning of the Second Five Year Plan in 1955, but this moved away from rural areas and dent towards industrialization. However, the industrial policy at that time was focusing on developing growth poles, backwash effect and taking away from the British directed metro cities of Calcutta, Delhi, Mumbai and Madras. This 'mono - centric vision', focusing on 'the state' and 'seeing like a state' and assuming the existence of a unique center of power and authority (Aligica and Boettke, 2011) was deeply rooted in the development discourses. Central Government as a 'state' controlled two facets: (a) pushing the Industrial policy for growth poles, and, (b) urbanization or regional development strategy in other areas were to address the in-migration issues.

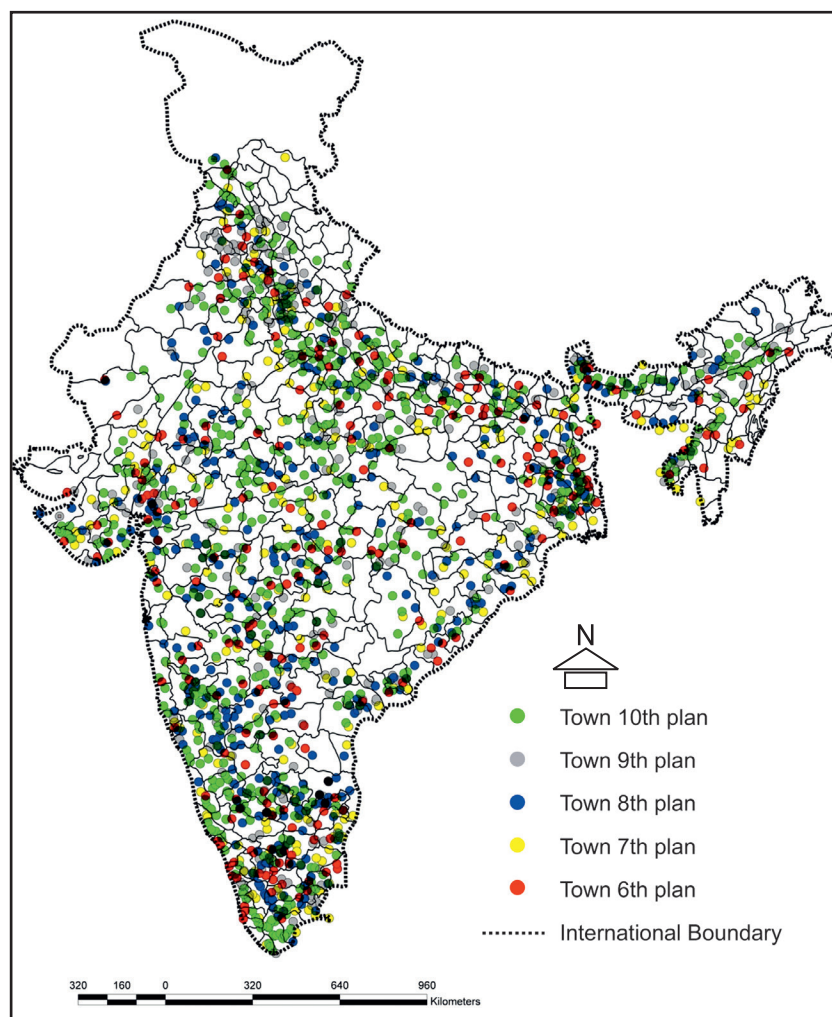
In contrast, historically, the Indus Valley system though had a network of urban and rural settlements, it promoted various scales of development that existed among the drainage basin system. The network of urban system inter-twined with rural spaces to achieve industrial valley system. Unfortunately, this rich knowledge of spatial planning was ignored in the pre-independence period. After two decades of experimentation with rural, and industrial and balanced development approach, the whole process of metro-bias came back to planning. Till late 1980s there was a drift from rural to urban areas propelled by metro-centric focus supported with World Bank funding. This drift has created economic or spatial inequality throughout the country.

2.2 Post 1980s

The mono - centric vision that continued till 1979-80, urbanization or regional inequality perpetuated, slowing down the economic development to the lowest level. The year 1979 ignited a new era in India's spatial policy, a decentralization urbanization process in India, called 'Integrated Development of Small and Medium Towns (IDSMT)'. "Investment in the development of small urban

centres would help in reducing migration to large cities and support the growth of surrounding rural areas as well” (IDSMT: HUPA, 2016). Among other identified objects, the program had objectives such as (a) Improving infrastructural facilities and helping in the creation of durable public assets in small and medium towns; (b) Decentralizing economic growth and employment opportunities and promoting dispersed urbanization; (c) Increasing the availability of serviced sites for housing, commercial and industrial uses, etc. Unfortunately, even this massive urban decentralized program was short of addressing lower level urban settlements. The population size was restricted to a minimum of one lakh population to a maximum of five lakh population cities and towns. Probably economic scale might have been the reason for not reducing the minimum population size to a level below one lakh for funding conditionality. The main purpose of decentralized spatial development, especially along with economic development was defeated. Even the new phase in 2004-2005, in the rechristened ‘UIDSSMT’ could not achieve the decentralization Fig. 1. Although the IDSMT and its subsequent IDSSMT under the Five Year Plans (from 6th to 10th Plan - almost 50 years) and rechristened several time later, could have triggered decentralized spatial development and balanced urbanization. But the IDSMT and its new *avatar* concentrated on projects mode than on spatial planning for the medium towns only. Even in this program, there was no attempt made to build the capacity of the municipal level officials in terms of spatial planning.

Fig. 1: IDSMT in 6, 7, 8,9 and 10th Five Year Plans



Source: Ministry of Housing and Urban Affairs, Government of India, 2014, & graphics by the Author.



Ministry of Urban Development in the 1980s also brought in growth pole strategy around the metro cities in selected cities. However, some of the cities did try to achieve the growth pole in and around metro cities such as Jaipur, Mumbai, Chennai, Bangalore, Hyderabad, etc. Growth poles around metro cities finally have led to conurbation as in the case of Delhi with its Gurgaon, Faridabad, NOIDA, Ghaziabad, Meerut, etc. In other words, even the polycentric strategies that came up in the post 1990s also failed to generate economic momentum as envisaged.

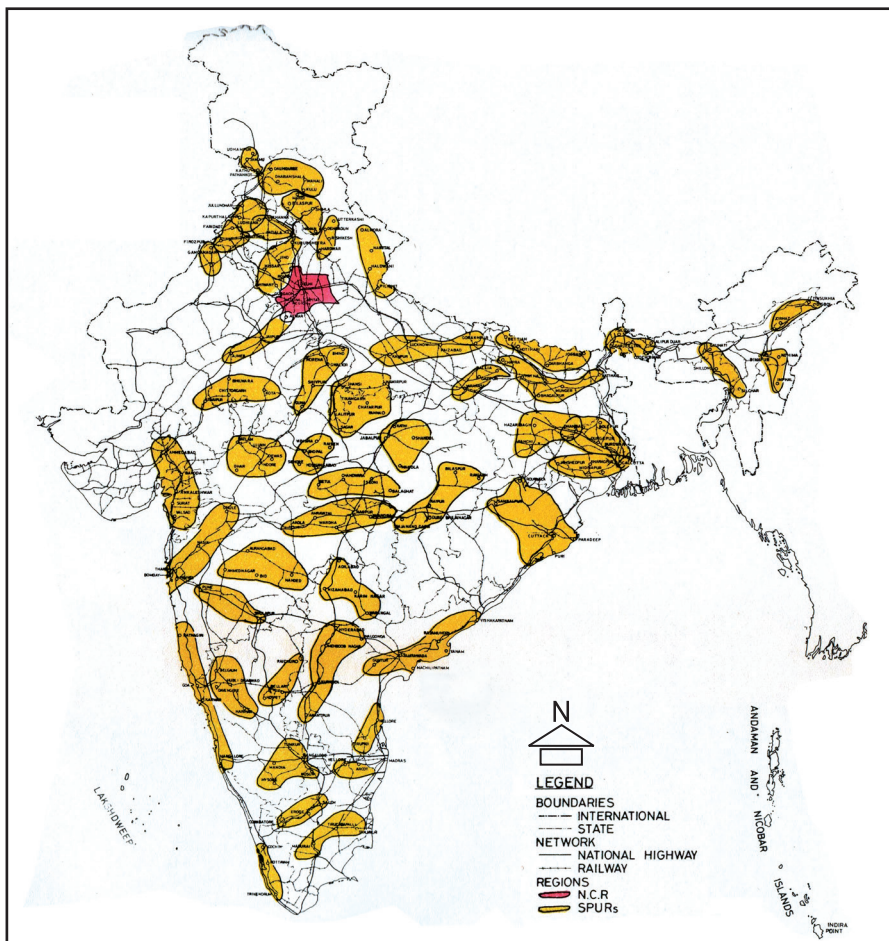
National Commission on Urbanization (NCU) (1998) under the Chairpersonship of Charles Correa came up for the first time with a country level spatial strategy. The NUP suggested, though biased towards urban settlement structure, Spatial Priority Urban Regions (49- SPURS), and Generator of Employment Moments (329 cities as GEMS) (Fig. 2). National and State Priority Centers were suggested by the NCU and

also 78 detailed recommendations were given. Besides NCU suggested areas on land, housing, water and sanitation, transport, urban poverty, urban form and urban governance (Batra, 2009).

2.3 Post 1990s and Post 2000

Spatial policy through infrastructure development such as National Highway Development Program, were initiated in 1992 that had a far reaching significance. National Highway Development Program for the first time identified the link between the East to West and North and South on the one hand, and on the other the major

Fig. 2: Spurs in India as per NUC



Source: National Commission on Urbanization (1988)

Fig. 3: National Highway Program



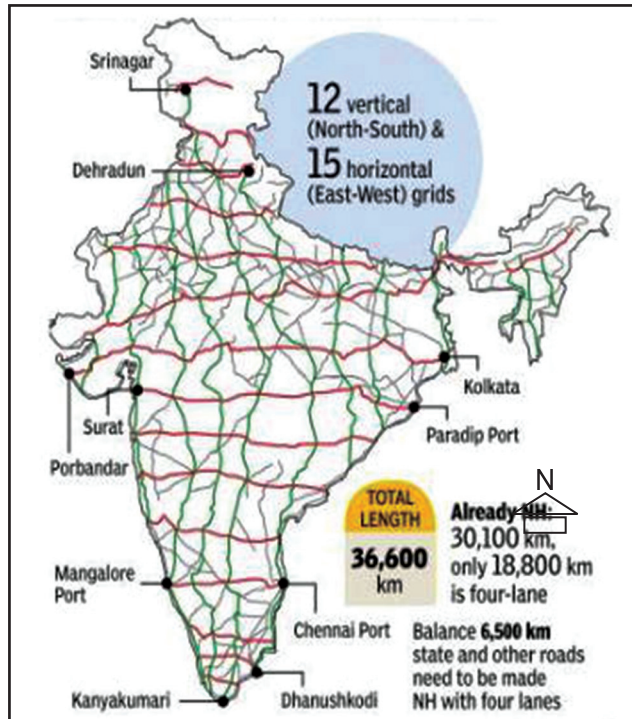
Source: NHA

ports and mega cities namely Delhi, Mumbai, Chennai and Kolkata (Fig. 3). It is expected that the National Highway Authority is planning the entire country through network of roads across India with 12 vertical and 15 horizontal grids (Fig. 4).

Similarly Capitan Dastur suggested in 1977 (Fig. 5) but slowly Government of India started implementation in the post 1990s and 2000s. It had a grandeur objective of linking majority of the river networks so as to reduce the water crisis in the

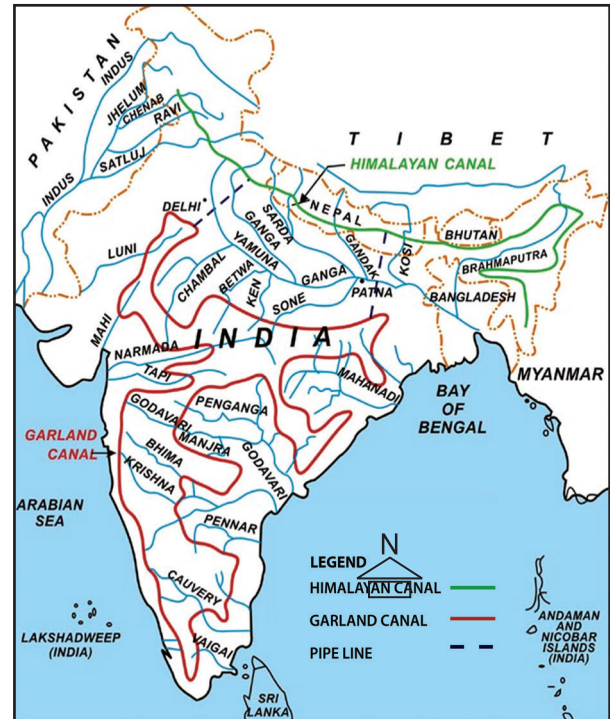


Fig. 4: Expected Road Networking Grids



Source: Vilangil, Abijith (2016)

Fig.: 5: Dastur's Garland River Network

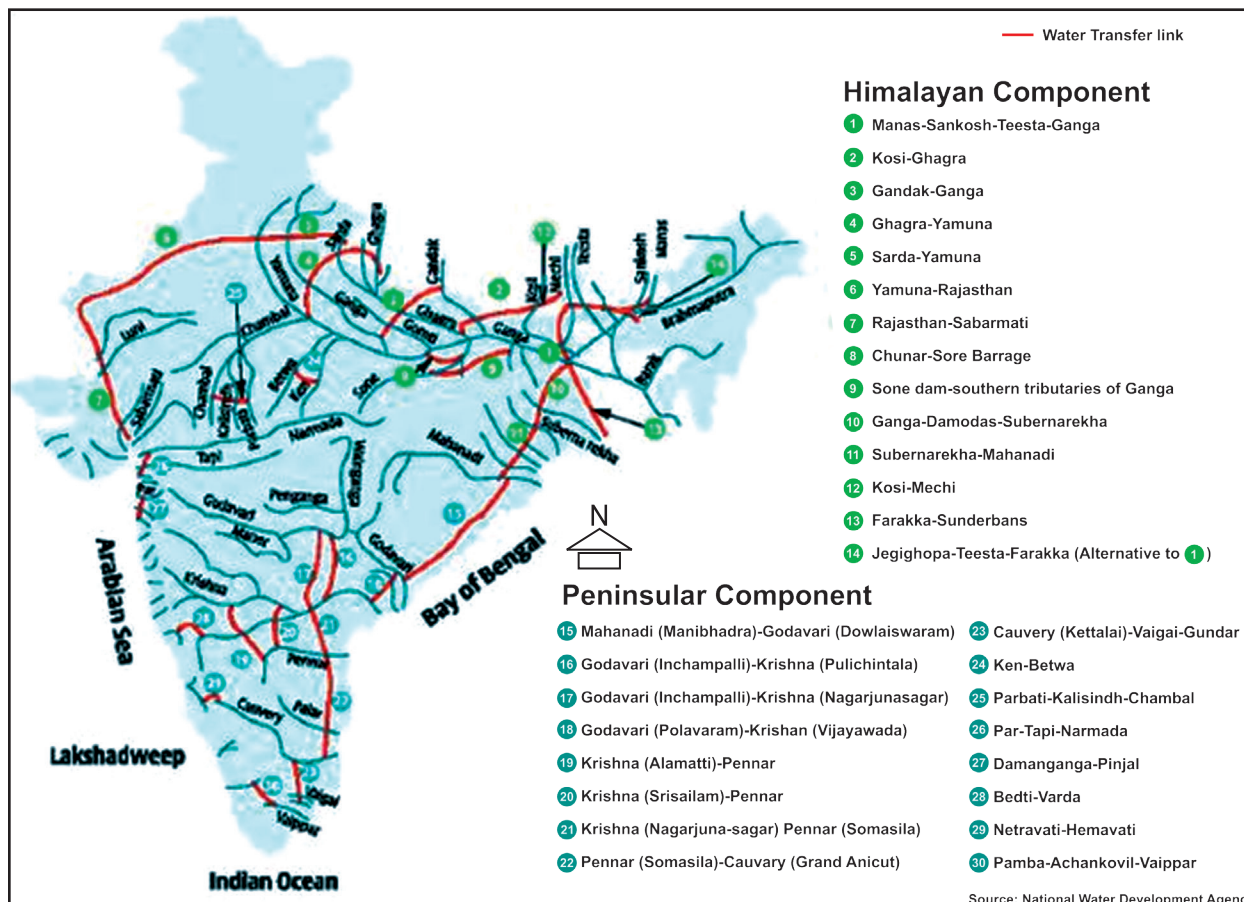


Source: National Water Way Authority, 2019.

long run and to ensure irrigation system for agriculture. Dastur's plan envisaged Himalayan drainage basin and a Garland canal and linked the Himalayan and garland through piped line through network. "The transfer and distribution of water in the Garland Canal Scheme takes place purely by gravity and no energy is needed whatsoever. There are three points shown on the map in the Yamuna basin from where the surplus water can be also re-cycled into the Central and Southern Garland Canal is required by means of unlimited hydro-electric power we will be having at our disposal once the garland canal project is constructed thus retarding the progress of the water flowing into the sea and dissipating itself. In order to supply water to the plains under controlled conditions at every two miles interval on the main canal are positioned subsidiary canals. They form part of the system, known as the herringbone system of drainage and irrigation" (NWWA, 2019).

Dastur's Garland plan was not taken up in full form, mainly because of inter-state river disputes and cold shoulder by central government. However, post 2000s, central government initiated efforts to implement parts of the Dastur's plan. Fig. 7 provides the progress in this disjointed Garland plan, and changed its name to Inter Basin Water Transfer Link. This transfer link, such as Indira Gandhi Canal in Rajasthan, changed the agricultural land use system and propelled urbanization

Fig. 6: Inter Basin Water Transfer Link



Source: National Water Way Authority, 2019

process. New census towns emerged thanks to agricultural productivity in the command areas of the Canal.

3. DISRUPTIVE FUTURE SPATIAL PLANNING STRATEGIES

Exploring the future by seeking disruptive strategies, this paper attempts an alternative strategy for the settlement planning in India. It deviates away from the existing discourses or piecemeal development strategies that focus on micro level (either City or Mega city level). It is important to delve into uncharted areas that may include employment, and spatial development in areas not addressed presently. Economic benefits may also be enhanced through global connectivity.

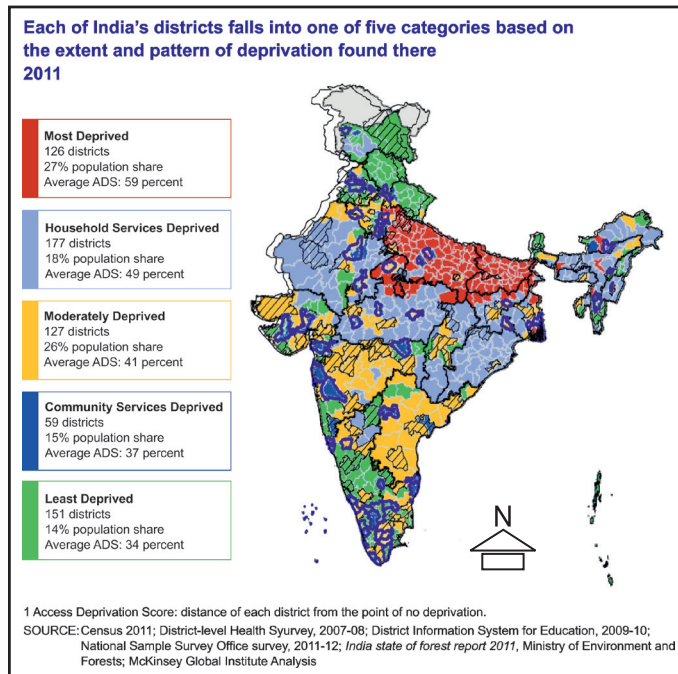
We could change the strategy to increase the economic advantage of the canal by receiving foreign direct investment through shipping across Arabian Sea to Bay of Bengal. This will reduce the freight charges for the foreign shipping lines and by using the canal on the lines of Suez and Panama Ca-



Fig. 7: Disruptive Strategy and Deprivation



Fig. 8: Disruptive Spatial Strategy



nal. This opens up the spatial development in the low deprived districts, and opens up urban and surrounding regions through shipping related activities and transport.

Through the option strategy 'A' that is 'Tapi - Pan-ganga - Godavari River Basins', the states of Gujarat, Maharashtra, Madhya Pradesh, Chhattisgarh, Telangana, and Andhra Pradesh will get the benefits. In the case of Option 'B', three states of Karnataka, Maharashtra and Andhra Pradesh will get the benefits inducing the backward districts of these states. It is obvious that urbanization will be increased due to canal and flow of goods and services triggering allied activities. As a result of national highway linkages and this canal strategy, the country will get the push in terms of increased domestic product both from internal sources and because of foreign investments. Using the Mahatma Gandhi National Urban Employment Guarantee (MGN-REA) to construct this canal will improve the unskilled labour, and in-



crease the employment productivity in the long run. The cost and the time for this strategy need to be worked out in detail. We assume that this disruptive strategy is the need of the hour, and this will leap frog our urbanization and related economic development.

4. CONCLUSIONS

Disruptive strategy can be creative in bringing the desired spatial development process, if regulated at desired levels. This spatial strategy will induce regional development and spruce up urbanization with desired effects. Resultant economic development, especially in backward districts, will trigger economic development, employment, and canal related transport services. This spatial strategy can bring in the 'globalization from below: Small Town transformation in the Regions' (Sridharan, 2017). Disruptive development always receives its criticism as it challenges the existing development paradigm. As we see in the long run, disruptive technologies as in the case of mobile phone, bio - technology, and space that received criticism and low budget allocation, became some of the leading driving sectors in country's development. In the same way, this disruptive strategy of canal construction in the long run will benefit the country's socio - economic and spatial development.

REFERENCES

- Aligica, P.D. and Boettke, P. (2011) 'The Two Social Philosophies of Ostroms' Institutionalism', *Public Studies Journal*, Vol. 39, No. 1.
- Mistri, A. (2015) *Estimation of Internal Migration in India, 2011 Census based on Life Table Survival Ratio (LTSR) Method*, MPRA Paper No. 61577, posted 26 Jan 2015 10:56 UTC
- Batra, L. (2009) *A Review of Urbanisation and Urban Policy in Post-Independence in India*, Working Paper Series, Center for the Study of Law and Governance, Jawaharlal Nehru University, New Delhi.
- Mukhopadhyay, P. (2018) *Engines without Drivers: Cities in India's Growth*, Working Paper Series, Center for Policy Research, New Delhi.
- National Highway Authority of India (2018) *Annual Report*, New Delhi.
- National Water Way Authority (2018) *Annual Report*, NOIDA.
- Ray, S.N. and Pradhan, C.K. (2017) *Census Towns in India: Current Patterns and Future Discussions*, Working Paper Series, Center for Policy Research, New Delhi.
- Sridharan, N. (2017) 'Globalisation from Below: Productive Spaces and Small Town Transformation', in *Subaltern Urbanisation*, Springer, India.



Role of Urban Planning in Achieving SDG - 11 in India

Chetan Vaidya

Abstract

Looking at the most recent literature on the evaluation of SDG 11, this paper presents a review of the sustainable goal, directly relevant to urban planning. The paper shows that some progress in detailing out SDG 11 is made in India including the efforts made by the NITI Ayog. The paper also shows that urban planners must change according to the changing contexts and focus on new areas of concern that did not exist few decades ago. These emerging areas include energy efficiency, climate change, urban economics, urban finance, etc. Participation, engagement and partnerships with citizens, community groups, public agencies, private sector, academic institutions, etc.; are claimed to help realize implementation of SDG 11.

1. INTRODUCTION

The United Nations adopted Sustainable Development Goals (SDGs) in 2015. There are 17 SDGs with 169 targets. They place the principles of 'leave no one behind', aiming to ensure the inclusion of marginalized, disempowered and excluded groups. This is about first reaching people that are at risk of being left behind in the development process. Recognizing the rapid rate of urbanization, the then UN Secretary General, Ban Ki-moon sent a clear message about "our struggle for global sustainability [which] will be won or lost in cities" (www.un.org/press/en/2012/sgsm14249.doc.htm). Most relevant SDG to urban planning is SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable. Role of urban planning in achieving this SDG is focus of this paper. Pursuant to the background section, the second section of this paper describes planning initiatives in urban missions. This is followed by specific discussion on monitoring the SDG with specific reference to potential role of urban planners in this process. The final section suggests a way forward.

2. INTRODUCING SUSTAINABLE DEVELOPMENT GOALS (SDGs)

SDG 11 focuses on making cities and human settlements inclusive, safe, resilient and sustainable. To achieve this goal, there is a need for a paradigm shift in which cities of today are planned and managed (Vaidya and Vaidya, 2018).

As far as sustainability is concerned, in the proposed urban planning approach, land use should be integrated with public transport, there should

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be higher, variable floor space index (FSI), and marketable FSI. Moreover land should be reserved for affordable housing and provide for mixed land use. There should be special focus on planning and management of public spaces in urban areas. Area based re-densification, re-development and green projects should not be isolated projects based approach but part of city level plans. Impact on ICT on urban development needs to be extensively researched.

Our cities are under high risks from natural, man-made and climate change impacts. Urban planning with environmental concerns could address many of these issues. Integration of a climate resilience agenda has the potential to systematically build resilience of cities and its systems, reduce vulnerability and achieve the desired development goal.

Moreover, planning of our cities should be inclusive. A more inclusive city is not without slums and poverty, but it does manage to help poor to face poverty (Glसार and Jhosi - Ghani, 2018). It would mean recognizing in formal economic activities and integrating informal and slum settlements in the city planning and management process.

3. PLANNING INITIATIVES IN URBAN MISSIONS

The overall objective of urban development in India is creation of sustainable and inclusive urban development. To meet these objectives, the Government has launched five urban missions: Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities, Housing for All (Urban), Housing for All (urban), National Urban Livelihood Mission (NULM) and Swachh Bharat Mission (urban). Urban planning has direct link with achieving SDG 11 through implementation of urban missions. In AMRUT, urban planning is an integral component of the Mission in terms of preparation of GIS - based city development plan, simplification of building bye laws, design of public transport and non-motorized transport (walking and cycling), and design of open space/park (Vaidya, 2016). The States/Cities under Housing for All Mission have to agree to implement certain reforms such as to simplify procedure and obviate the need for separate non-agriculture permission in areas earmarked for residential purpose in Master Plans; earmark areas for affordable housing in Master Plans; ensure single-window and time bound layout building permission, introduce system of deemed building and layout permission for pre-approved layouts and building plans for EWS / LIG housing; amend rental laws and provide additional FSI / TDR and relaxed density norms for slum redevelopment schemes. Urban planners have a major role in area-based development projects under Smart City mission.



Moreover, a Pilot Formulation of Local Area Plan (LAP) and Town Planning Scheme (TPS) have been introduced in the AMRUT to promote this technique (Srinivas, undated). It covers 25 cities and key objectives of the scheme are: to establish a framework for the redevelopment of existing areas through the development of LAPs; to enable planned expansion in peri - urban areas through TPSs; to support value capture techniques to finance infrastructure investments; and create enabling legal framework where required.

All urban missions need appropriate and integrated urban planning approach. In AMRUT Mission guidelines, urban planning in terms of preparation of city development plan, simplification of building bye laws, design of public transport and non-motorized transport (walking and cycling), and design of open spaces and parks are integral components. In Smart Cities Mission guidelines, urban planning in relation of planning mixed use compact city, area-based projects and pan city projects will be essential part of the approach. Cities under HRIDAY Mission were required to prepare Heritage Management Plan, which is to be part of the overall urban planning process. Moreover, in Housing for All Mission, reforms such as simplification of conversion process from agriculture to non-agriculture land use, earmarking areas for affordable housing in master plans; ensure single-window and time bound layout building permission, pre-approved layouts and building plans, and provision of additional FSI / TDR and higher density are essential part of urban planning process. Thus, implementation of the Missions has strong linkages with urban planning and achieving SDG 11 in India.

4. MONITORING SDG 11

Monitoring progress of achieving SDGs is very important. This includes finalizing of set of sub-indicators; identifying data sources; identifying key or nodal agencies for providing data; setting baseline data; collecting data and finally reporting and disseminating the information. Such measurements should be carried out at the city, state and central levels on a regular basis.

4.1 SDG 11 Indicators as Per UN Habitat

UN-Habitat had prepared a Monitoring Framework for SDG 11 and it is listed in the Monitoring Framework: A guide to assist national and local-governments to monitor and report on SDG Goal - 11 indicators. Indicators and targets for this goal are given in Table 1. There are 10 targets and 10 indicators. It can be seen that planners could potentially play critical role in assessing 6 fully and 2 partially out of 10 indicators.

Table 1: Targets and Indicators for SDG 11 as per Monitoring Framework by UN Habitat

No.	Target	Proposed Indicators	Role for Urban Planners
11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Proportion of urban population living in slums, informal settlements, or inadequate housing.	Yes
11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	Proportion of the population that has convenient access to public transport disaggregated by age group, sex and persons with disabilities	Yes
11.3	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	Ratio of land consumption rate to population growth rate. Percentage of cities with a direct participation structure of civil society in urban planning and management which operate regularly and democratically	Yes
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed, World Heritage Centre designation), level of government (national, regional, and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector, sponsorship)	-
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	Number of deaths, missing and persons affected by disaster per 100,000 people Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services	Partially



No.	Target	Proposed Indicators	Role for Urban Planners
11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	Percentage of urban solid waste regularly collected and with adequate final discharge with regards to the total waste generated by the city Annual mean levels of fine particulate matter (i.e. PM 2.5 and PM 10) in cities (population weighted)	Partially
11.7	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	The average share of the built-up area of cities that is open space in public use for all disaggregated by age group, sex and persons with disabilities Proportion of persons victim of physical or sexual harassment, by sex, age, disability and place occurrence in previous 12 months	Yes
11.a	Support positive economic, social and environmental links between urban, peri - urban and rural areas by strengthening national and regional development planning	Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	Yes
11.b	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030. Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.	Yes
11.c	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials	-

Source: Adapted from "A Guide to Assist National and Local Governments to Monitor and Report on SDG Goal 11 Indicators" UN Habitat, March 2016, Nairobi.

4.2 SDG 11 Indicators as per GOI

Ministry of Statistics and Program Implementation, Government of India has prepared a SDG National Indicator Framework Baseline Report in 2015. As per this report indicators for SDG 11 in India are given in Table 2. This framework has identified 16 indicators for 10 targets. Urban planners can help in assessing 11 fully and 3 partially out of a total 16 indicators.

Table 2: Targets and Indicators for SDG 11 as per National Indicator Monitoring as per Government of India

Target No.	Proposed Indicators	Potential Role for Urban Planners
11.1	11.1.1 Percentage of slums /economically weaker sections (EWS) households covered through formal /affordable housing	Yes
	11.1.2 Percentage of slum area covered with basic services (11.1.2)	Yes
	11.1.3 Proportion of urban population living in slums, informal settlements or inadequate housing (11.1.3)	Yes
11.2	11.2.1 Proportion of cities with efficient mobility and public transport	Yes
11.3	11.3.1 Proportion of cities with integrated development plans	Yes
	11.3.2 Share of mixed land use area in overall city land use	Yes
	11.3.3 Net density	Yes
11.4	11.4.1 Restoration and reuse of historic buildings	-
11.5	11.5.1 Number of deaths, missing persons, directly affected persons attributed to disaster per 100,000 people	Partially
11.6	11.6.1 Proportion of urban solid waste collected and adequate final discharge out of total urban solid waste generated by cities	Partially
	11.6.2 Annual mean levels of fine particulate matter (i.e. PM2.5 and PM10) in cities (population weighted)	Partially
11.7	11.7.1 Per capita availability of green spaces	Yes
11.a.1	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	Yes
11.b	11.b.1 Weather country adopted and implemented national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2031	Yes
	11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	Yes

Source: Adapted from "SDG National Indicators Framework Baseline Report 2015-16", Ministry of Statistics and Program Implementation, Government of India, 2019, New Delhi.

4.3 SDG India Index

Given the importance accorded by Government of India to achieving SDGs, NITI Aayog has decided to estimate the progress through a single measurable index that would serve as an advocacy tool and trigger action at the state level. NITI



Aayog has constructed the SDG India Index. Spanning the Index tracks the progress of all the states and UTs on a set of 62 priority indicators will be measured, measuring their progress on the outcomes of the interventions and schemes of the Government of India. The SDG India Index is intended to provide a holistic view on the social, economic and environmental status of the country and its states and UTs. The SDG India Index is an aggregate measure, which can be understood and used by everyone – policy makers, businesses, civil society and the general public. It has been designed to provide an aggregate assessment of the performance of all Indian states and UTs, and to help leaders and change makers evaluate their performance on social, economic and environmental parameters.

In India SDG Index, Goal 11 to measure India's performance towards Sustainable Cities and Communities, four national level indicators have been identified. These indicators capture two out of ten SDG 11 targets. These were selected based on availability of data at national and state levels ensuring comparability across the states and UTs. These are based on analysis of these indicators, Goa is the front runner, and Sikkim, Chhattisgarh, Gujarat, Jharkhand and Andaman and Nicobar are performers. All other states and UTs are aspirants. It is needless to say that these four indicators do not reflect actual picture of urban sustainability in the country.

Table 3: Targets for SDG 11 Indicators

Indicator	National target value for 2030 (Per Cent)
Houses completed under Pradhan Mantri Awas Yojana as against the net demand assessed for houses	100
Percentage of urban households living in slums	0
Wards with 100 per cent door-to-door collection	100
Waste processed	100

Source: "SDG Index Baseline Report", NITI Ayog, 2018, New Delhi

4.4 ISS Study Indicators

The Institute of Social Science (ISS) has conducted a study on SDG 11 (Mathur, 2019). It has identified eight indicators for three targets of SDG 11. The selection is guided by goals that require countries to ensure: access to basic services and affordable housing to upgrade slums; provide access to affordable and sustainable transport systems; enhance inclusive and sustainable urbanization and create capacities for integrated and sustainable human settlements planning; reduce the adverse per capita environmental impact of cities and provide safe and inclusive green and public spaces. At city level the study focused on two goals and five

indicators (Table 4). Emphasis is placed on the selection of indicators that are quantitative and therefore measurable; and for which comparable official data is available.

Table 4. Targets and Indicators for SDG 11 as per ISS Study (City Level)

Goal No.	Goal	Indicator
11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Percentage of households having access to tap water within premises
		11.1.2 Percentage of households having latrine within premises
		11.1.3 Percentage of households having electricity
		11.1.5 Percentage of households with three or more members living in one room
11.a	Support positive economic, social and environmental links between urban, peri - urban and rural areas by strengthening national and regional development planning	11.a.1 Urban population density (persons per sq km)

Source: Mathur, O.P. (2019)

5. CONCLUSIONS

Urban planning needs reforms in planning process, system to measure land-related indicators and capacity building, and partnership to be able to play a crucial role in achieving SDG 11 in India. For urban planning to play a crucial role in achieving SDG 11, the way forward can be noted in terms of reforms needed in urban planning process; system to measure land-related SDG indicators; and capacity building and partnerships. Urban planning processes have to mainstream sustainability, inclusiveness and resilient oriented processes. This will require changes in Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2014 (Ministry of Urban Development, 2015).

Urban planners have to set up a system where information is available on a regular and comparable basis at city and state levels. Four SDG 11 indicators will require spatial information available with urban planners (Table 5). This will require use of GIS - based Master Plans being prepared for 500 cities in India under AMRUT Mission and city spatial data is regularly collected by National Remote Sensing Agency, Hyderabad.



Table 5: Selected SDG 11 Indicators for Monitoring through Geo - Spatial Information Data Base

11.3.1 Proportion of cities with integrated development plans
11.3.2 Share of mixed land use area in overall city land use
11.3.3 Net density
11.7.1 Per capita availability of green spaces

Final and most important point is about capacity building and partnership of urban planners. Focus of planners in India is still predominantly on physical planning. In today's context where the pace of change is rapid and problems are complex, the need for planners to be able to successfully work in an interdisciplinary environment with diverse teams is important. There are many emerging areas that did not exist few decades ago that need attention of planners, for example, energy efficiency, climate change, urban economics, urban finance, etc. Planners will have to increasingly operate in an environment requiring continuous engagement and partnership with citizens, community groups, public agencies, private sector, academic institutions, etc. Thus, SDG 11 offers challenges as well as opportunities to urban planners.

REFERENCES

- Glsear, E. and Jhosi-Ghani, A. (2018) 'Rethinking Cities' in Glsear, E. and Jhosi-Ghani, A. (eds.) *The Urban Imperative- Towards Competitive Cities*, Oxford University Press, New Delhi.
- Mathur, O.P. (2019) *Cities and SDG 11*, Institute of Social Science, New Delhi.
- Ministry of Urban Development (2015) *Urban and Regional Development Plans Formulation and Implementation Guidelines*, Ministry of Urban Development, Government of India, New Delhi.
- Vaidya, C. (2016) Urban Planning Approach in AMRUT, Smart City, HRIDAY and Housing For All Missions, *Spandrel Journal of SPA Bhopal*.
- Vaidya, H. and Vaidya, C. (2018) Role of Urban Local Bodies in Achieving SDGs in India, *Urban Update Journal*, May 2018.
- http://mohua.gov.in/upload/uploadfiles/files/3_LAP_TPS_R_Srinivas.pdf.
- <https://www.localizingthesdgs.org/library/60/SDG-Goal-11-Monitoring-Framework-A-guide-to-assist-national-and-local-governments-to-monitor-and-report-on-SDG-goal-11-indicators.pdf>



A Review of the Pradhan Mantri Awas Yojana (PMAY) Urban: Housing for All

P. S. N. Rao, Ph.D.

Abstract

Housing remains one of the critical challenges facing Government of India and the various state governments. It is lack of affordable housing for the poor, more particularly access to housing for the urban poor, that Indian cities are populated with slums. Government of India has been formulating various housing policies from time to time. This paper considers the issue of housing by examining the latest housing policy of Government of India by carrying out a review of the Pradhan Mantri Awas Yojana - Urban. Before conducting the policy review, an analysis of housing in India is also provided.

1. INTRODUCTION

Housing is an important sector of the Indian economy. As per an estimate of the Central Statistical Organization (CSO), the Housing Sector in India contributed 4.5 percent to India's Gross Domestic Product (GDP) in 2003-04 at current prices. The contribution of housing in urban areas to the GDP in 2003-04 was 3.13 percent. Further, the spotlight is focused on the fact that 16 percent of the Indian work force is engaged in Construction and Transport Sectors. It is estimated that overall employment generation in the economy on account of additional investment in the construction and housing sectors is eight times the direct employment. In view of the substantial use of cement, steel, marble / ceramic tiles, electrical wiring, PVC pipes and various types of fittings; construction activity has a multiplier effect on industrial demand for these items. It can therefore be seen that housing is a sector which has forward and backward linkages with as many as over 260 industries and therefore has a significant role to play in national development.

While housing is a major contributor to the economy, there is a huge shortage in the country. The official urban¹ housing shortage in India has been pegged at 18.78 million dwelling units at the beginning of the Twelfth Five Year Plan in the year 2012. Although housing shortage has reduced from 24.7 million in the year 2007 to 18.78 million in the year 2012, it is still a huge number to

¹ 'Urban' is defined as a human settlement with a minimum population of 5000 persons, with 75 percent of the male working population engaged in non-agricultural activities and a population density of at least 400 persons per sq km. Further, all statutory towns having a Municipal Corporation, Municipal Council or Nagar Panchayat as well as a Cantonment Board are classified as 'Urban'.

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contend with. While there is absolutely no room for doubt that the housing requirement in the country is homogenous, in the problem is more acute in urban areas rather than the rural areas. Further, the question becomes more complex when we look at the kind of population segment which is more in need of housing than the others. As per the Government of India Technical Advisory Group, 95.62 percent of the housing shortage is in the EWS and LIG segment. A large number² of low and middle income families need housing which is reasonably priced while a relatively small number of families can afford to pay for large or high priced housing. Therefore, the demand is more for budget housing products while the affordability is limited. Unfortunately, the reality is that the housing being produced in the market is actually the other way round; very little produce of budget housing and plenty of housing options for high income housing.

As a result of this, there is a huge housing shortage, particularly for the low income population and consequent spread of slums. As per the latest estimates under the Pradhan Mantri Awas Yojana (PMAY), the urban housing shortage is estimated to be 11.2 million dwelling units. Further, the demand - supply gap only helps in pushing the prices higher and higher. The outcome of this spiral is that people, particularly the low-income and the poor³ have no other choice but to take to illegal options.

The low income and the poor get embroiled in a vicious cycle and find it very difficult to come out of it. Their low incomes, coupled with lack of formal housing options, make them take recourse to cheaper options, often illegal and substandard. Even so, lack of credit worthiness⁴ makes them borrow at high rates in the informal market and the struggle for shelter continues.

2. STATE OF HOUSING PROVISION IN INDIA

The Indian housing story over the last sixty years has moved from strong state interventions in the early years of independence from the 1950s onwards towards

² Out of the 18.78 million urban housing shortage, 95.62 percent is at the economically weaker section (EWS) and low income group (LIG) segments as per MoHUPA, Government of India.

³ 26.7 percent of the total poor in the country live in urban areas. In terms of numbers, the number of urban poor in India totals to 80.7 million persons. In fact, as per the National Sample Survey Organization (NSSO) 61st Round, the number of urban poor has risen by 4.4 million persons in the ten year span between 1993-94 and 2004-05. It is believed that while the urban poor numbers are increasing, the rural poor numbers are actually decreasing.

⁴ Banks and Housing Finance Institutions (HFIs) lend to home buyers provided several criteria are fulfilled, some of them being a stable source of income from formal sector employment. Almost all the low income and poor therefore do not qualify for accessing home loans.



a liberalized regime of private sector initiatives and partnerships towards the end of the century. In more recent times, however, housing development in India is being perceived more and more as an activity which cannot be without the active participation of the private sector, be it entrepreneurs, corporate companies, cooperative societies or individuals themselves. Whilst this realization has dawned on the Government of India several decades ago, it is only in the recent past that some concerted efforts have come by. Going back in time briefly, the Government of India observed, perhaps for the first time, in its Fourth Five Year Plan that “the experience of housing so far is that ... it is not possible for public operations to touch even the fringe of the problem” (Planning Commission, 1969: 402). Ironically, this statement remains very true today too, perhaps more than ever before.

Almost three decades ago, it was realized that the state alone cannot shoulder the task of housing its citizens, everyone has to participate. Subsequent Plan documents have more or less echoed the idea, which came into sharp focus only in the Seventh Plan and later, in the National Housing Policy of the year 1984 which was approved by both Houses of the Parliament; the government should act more as a facilitator of housing development, not a provider. The recent National Housing and Habitat Policy of the year 1998 reiterate this fact in a similar tone, “The Government has to create a facilitating environment for growth of housing activity rather than taking on the task of building” (Government of India, 1998: 2). This policy further states that one of its aims is “forging strong partnerships between private, public and cooperative sectors ...” (Government of India, 1998: 6). The intention of the Government of India is apparent from the repeated assertions on the role of the private sector in housing and the need for forging partnerships.

Housing policy and action in India has been influenced to a considerable degree by international funding agencies and global ‘think tanks’. Whilst the *participative* approach to housing had been strongly advocated as early as in the first UN Habitat Conference in Vancouver in the year 1976, with further reinforcements from the International Year of Shelter for the Homeless 1987 and the adoption of the Global Strategy for Shelter to the Year 2000 in the year 1988, it was the Habitat Agenda which emerged from the Habitat II held in Istanbul in the year 1996 which firmly lodged the *partnership* approach on the global housing scene.

The public sector housing agencies which were created to provide reasonably priced housing viz. state housing boards and development authorities have left much to be desired. The housing supply of these agencies has declined over the years. These agencies were mostly funded by the Housing and Urban



Development Corporation (HUDCO)⁵ and over the years, got embroiled in various difficulties in servicing the loans taken. To add to the misery, these agencies have actually taken to developing high priced housing, obviously catering only to the high income high affordability groups of the population. The large number of public-private-partnerships created in the last few decades has mostly catered only to the upper incomes and precious little housing has been created for the low income population. On the other hand, state governments have been actually promoting high end housing through township policies and public private partnerships. In fact, even the entire housing finance system in India is thriving on providing mortgage housing loans to the well to do salaried formal sector employees. Therefore, state commitment to housing the large majority has come down drastically. To summarize, the trends of the day are:

- Little low income housing provision by state agencies;
- State township policies catering mostly to high income groups;
- Public Private Partnerships catering mostly to high income groups; and
- State encouragement to real estate developers to provide for the high income groups

As a result, there is a glut or over supply of housing for the high income population and the middle and low income population has to put up with the burden of the burnt. Invariably, they end up in high priced rental housing at good locations (to save on commuting time and money for transportation), far off locations which are within their affordability (but difficult on commuting time and transportation) or end up in informal / quasi-legal settlements where the prices are more affordable, albeit the lack of services. Low income housing projects were hardly being developed in the last decade in the formal sector.

3. PMAY - A PARADIGM SHIFT IN HOUSING PROVISION IN INDIA

This Pradhan Mantri Awas Yojana (PMAY) program was launched in the year 2015 with the estimate that the urban housing shortage in the country is around 11.2 million dwelling units and that the same should be met with fully by the year 2022 which would also mark the 75th year of Indian independence.

The Government of India Ministry of Housing and Urban Affairs has adopted a 4 pronged strategy to tackle the peculiar situation of urban housing shortage, popularly referred to as the 4 verticals. These are as follows:

⁵ *The housing loans released by HUDCO over the last few years has shown a decline - Rs.807 cr. in 2007-08, Rs. 800 crore. in 2008-09 and Rs. 771 in 2009-10. The scenario has subsequently improved with introduction of PMAY.*



- **In-situ Slum Redevelopment (ISSR):** the idea here was to promote redevelopment of slum dwellings in the same location by way of giving incentives and also by involving the private entrepreneurs. Under this scheme, private partners/developers for redevelopment are to be selected thru' a transparent bidding process. Incentives for additional density/FAR/TDR to be given if required making project viable. Grant of Rs. 1 lakh/house on an average for eligible slum dwellers on public land is envisaged. Eligibility cut off dates, beneficiary contribution, system of allotment, etc.; to be decided by the respective State governments. All tenable slums are to be identified and a viable project is to be prepared with REHAB component and FREE SALE component. Consultations are to be held so as to involve the residents. Transit accommodation is to be provided during the in situ slum redevelopment period. The free sale component is to be linked to project completion and the State Government agency to make allotments. Also, a single project account is to be created and approval process is to be streamlined so that there are no delays.
- **Credit Linked Subsidy Scheme (CLSS):** This is a scheme where financial subsidy is given to households who purchase dwelling units below a certain price so that affordable housing purchase by middle and low income householders can be encouraged. This way, housing becomes more affordable and demand is generated. Credit linked subsidy on home loans taken by EWS / LIG is to be given at interest rate of 6.5 percent, repayment up to 15 years and loan amount up to Rs. 6 lakh. The sizes of dwelling units have been kept at 30 sq m carpet area for EWS and 60 sq m carpet area for LIG. The subsidy is channelized thru' HUDCO / NHB and the PLIs to register with HUDCO / NHB. The beneficiary identification is done thru' Aadhar / Voter ID, etc.; and self-certification / Affidavit as proof of income is to be given.
- **Affordable Housing in Partnership (AHP):** In order to ensure the supply side of the market, particularly in the affordable housing segment, this has been created where funds are provided along with incentives for promoting affordable housing projects by state housing supply agencies in partnership with private developers. Financial assistance for EWS housing projects is provided in this vertical by way of Central assistance @ Rs. 1.5 lakh / EWS house. The final Sale price to be decided by local agencies based on affordability, viability, etc. Other concessions can also be given by states. The Project can be a mix of various income groups but at least 35 percent EWS houses. Projects can be by public sector alone or in partnership with private sector.



- **Beneficiary Led Construction (BLC):** Here, where ever households are in possession of land and need funds to construct a house on their own, funds are provided. To assist individual EWS families, a Central assistance of Rs. 1.5 lakh is provided for either a new house or improvement of existing house. This is based on an integrated city wide housing project for such individual beneficiaries. The progress tracking is done with geo - tagging.

The implementation process involves several steps viz.:

- States to sign a Memorandum of Agreement with Centre;
- States to send proposals to the central Ministry;
- States to carry out demand survey and prepare a Housing for All (HFA) Plan of Action (PoA) as per formats given;
- Unique identification details of intended beneficiaries to be integrated in data base after validation;
- Annual Implementation Plans (AIPs) to be prepared;
- Demand survey, PoA and AIP to be discussed with local representatives incl. MLAs and MPs;
- Get HFA PoA and AIP approved by State Level Sanctioning and Monitoring Committee (SLSMC) and submit to Ministry for approval;
- Prepare Detailed Project Reports (DPRs) and get them approved by SLSMC; and
- A beneficiary will be eligible for availing only a single benefit under only one option.

Some of the salient features of the PMAY are as follows:

- Providing security of tenure and empowerment of women;
- Better quality of life and securing sustainable development goals (SDGs);
- Permanent shelter units with water, electricity, kitchen and toilet;
- Support physical and social infrastructure; and
- Generation of employment, both direct and indirect, to over 100 lakh persons.

The paradigm shift is also in the fact that robust accountability systems have been put in place viz.

- Demand validation by the local body;
- Aadhar seeding of beneficiaries;

- Geo Tagging of houses / projects;
- Electronic fund transfer with PFMS;
- Digitization of beneficiary database with bank account; and
- Web-enabled demand capture process

4. OVERALL PROGRESS SO FAR

The overall progress of PMAY so far can be seen from the (Fig. 1 and 2) 9 million dwelling units have been approved and are in various stages of completion. It

Fig. 1: Progress of PMAY as on 25th November 2019

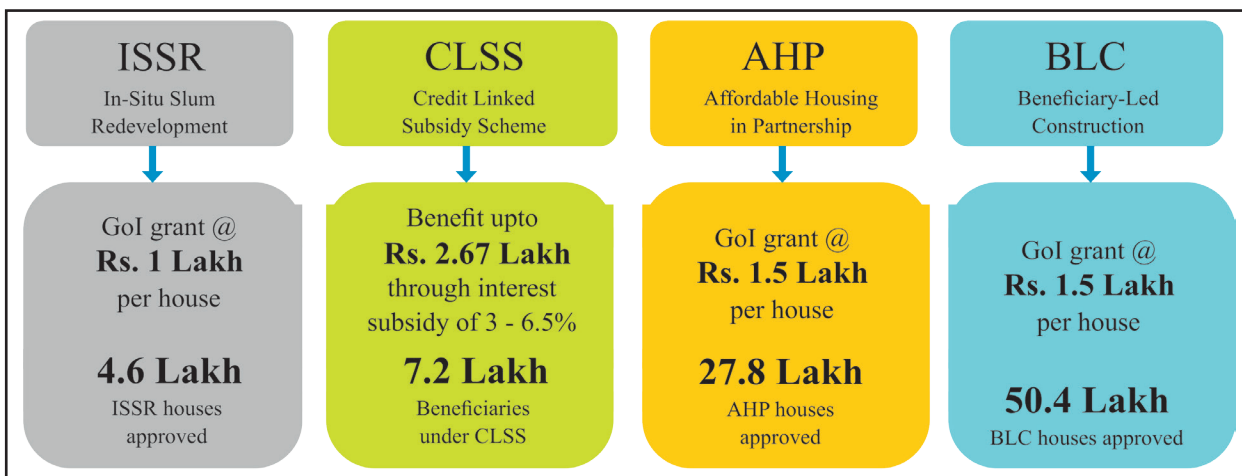
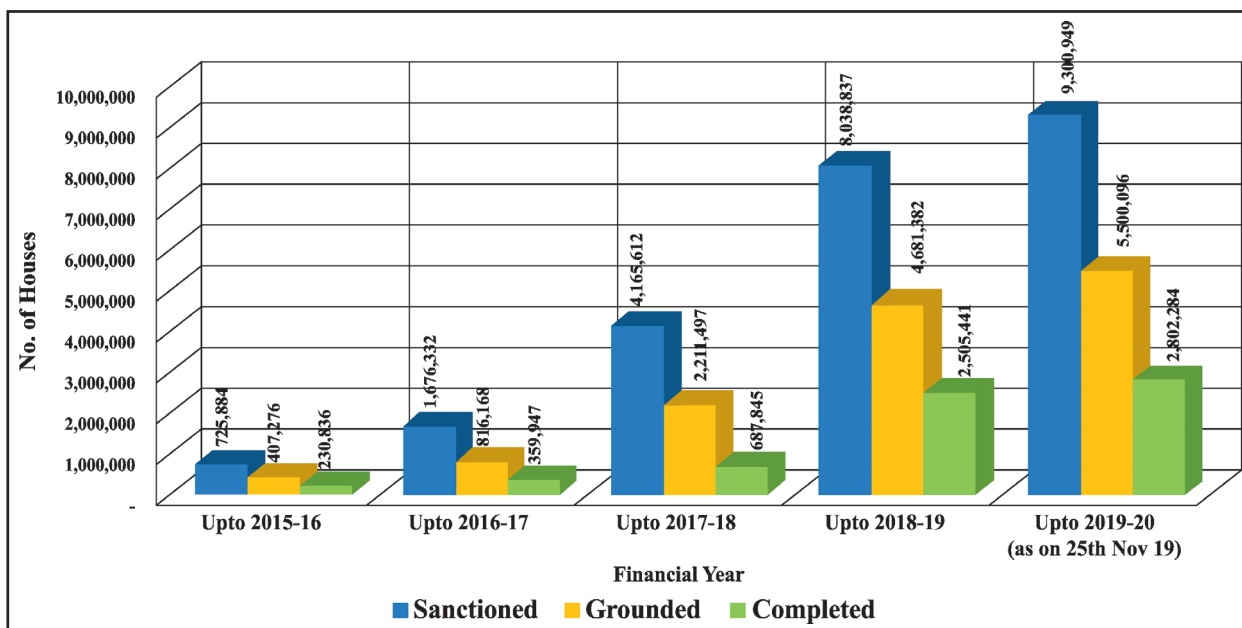


Fig. 2: Cumulative Progress of PMAY Urban





can be seen that the maximum approvals have happened in the BLC where over 5 million houses have been done. Similarly, the ISSR has witnessed only 0.46 million due to various reasons.

Under the CLSS, a total of 8.1 lakh beneficiaries have been served, out of which 5.54 lakh are EWS / LIG and 2.55 lakh are MIG. It can therefore be seen that, by and large, the PMAY has been quite successful in adding the numbers within the time frame given and soon, by the year 2022, the numerical urban housing shortage is likely to be wiped out.

In addition to the above discussed four verticals, the PMAY has also envisaged a Technology Sub Mission which has brought about the use of alternative construction technologies for housing projects. As many as 24 emerging technologies have been identified, evaluated and promoted. Out of these, for 16 technologies the Schedule of Rates have been issued by the CPWD and over 14 lakh houses have been constructed under PMAY using these alternative technologies. The advantages of these technologies are energy efficiency, reduction in pollution, safety at construction site, increased speed of construction, better quality, standardization and enhanced productivity of the occupants.

5. CONCLUSIONS

Although the PMAY has made fast strides and has been able to add substantially to the urban housing stock, it is not without challenges. Some of these are:

- **In Situ Slum Redevelopment (ISSR):** The ISSR vertical has had the minimum number of dwelling units as its contribution. This has been mostly due to problems related to land, court cases, manipulation by slum lords and a complex document verification process. Further, there has been a lack of detailed guidelines in the PMAY document regarding the role of the state governments for slums on private and government lands. Further, this vertical has been successful in the larger cities where the land value is high and could be monetized for in-situ slum redevelopment. Slum dwellers also expect that free housing should be provided and do not contribute. Often, the role of the private developer is very crucial in the successful implementation and is often not informed or are kept in of this vertical.
- **Credit Linked Subsidy Scheme (CLSS):** Since the CLSS is a central sector initiative wherein the nodal national level agencies such as the HUDCO and



NHB deal directly with the beneficiaries through a portal, the states have no information as to who all are applying under this vertical. There is a need to devise a mechanism whereby states also get involved in the process. As per the Scheme, the Central Nodal Agency (CNA) submits a report on a fortnightly basis to the State Level Nodal Agency (SLNA) finalizing the list of beneficiaries under the scheme. As and when the beneficiary loan gets sanctioned by the bank, it should be informed to the state so that the beneficiary does not get the benefit under any other vertical. This can be done by linking the Aadhar card of the beneficiaries to a digital system. Further, the interest rates charged by the banks under this vertical are high. This has been discouraging the beneficiaries from participating in the scheme and hence there is a need to have a cap on the interest rates, particularly for the EWS. Also, under CLSS, the nodal agencies have very little staff as against the huge demand received. As a result, the state is compelled to handle all the public grievances. This is a problem that needs to be resolved.

- **Affordable Housing in Partnership (AHP):** Under this vertical, it has been observed that beneficiaries often withdraw their share after two or three installments because of various reasons such as land being on the outskirts of the city or having their loan sanctioned under CLSS or buying a plot at a nearer location. On account of this, the local bodies find it difficult to finalise their list of beneficiaries which leads to either an overall delay in the project or the dwelling units remain vacant. As per the PMAY mission guidelines, the last installment of 20 percent can be drawn after the project is completed. However, if the beneficiary list keeps changing, it becomes difficult.
- **Beneficiary Led Construction (BLC):** In most of the instances, in case one beneficiary is unable to construct his house, the other beneficiaries who have completed their houses suffer since the next installment is not released. Therefore, the success of this program depends on the overall success of each and every plot owner. Further, the funding under BLC is inadequate in many instances and there is no other mechanism for them to get additional loans. This has also been hampering the completion of projects.

As has been stated above, despite the fact that huge numbers have been achieved in terms of approvals, actual completion numbers have been lagging due to various challenges. Some of the ways these can be addressed are as follows:



- Permitting shifting across verticals;
- Increased Government of India share of funding;
- System integration so that the MIS, PFMS and other systems are better integrated;
- Incorporating NGO hand holding;
- Convergence of other central schemes such as NULM, SBM, etc.;
- Additional financial support for beneficiary contribution in AHP and BLC;
- Issuing loans in joint names rather than only in the name of the women; and
- Infrastructure improvement for projects in far off locations.

By incorporating the above suggestions, the overall reach and depth of the mission can certainly be improved and a better quality of life for the families can be achieved.

REFERENCES

- Bharne, V. and Khanderkar, S. (2019) *Affordable Housing, Inclusive Cities*, ORO Editions, China.
- Bloom, N.D., Lasner, M. and Lasner, G. (2016) *Affordable Housing in New York*, Princeton University Press, New Jersey.
- Government of India (2007) *National Housing and Habitat Policy*, Ministry of Housing and Urban Poverty Alleviation, New Delhi.
- Government of India (2015) *Housing for All (Urban) Scheme Guidelines*, Ministry of Housing and Urban Poverty Alleviation, New Delhi.
- Planning Commission (1969) *Fourth Five Year Plan: 1969-74*, Planning Commission, Government of India.

What I should like in regard to every city is a clear plan of what the city will be like, say, twenty or thirty years later, and then you can work by that plan slowly, gradually. Nothing should be allowed to come in the way of that plan, as has happened, for example, in our city of Delhi. Amazing structures have been put up in a haphazard manner all over Delhi and they come in our way now and in future.

Pandit Jawaharlal Nehru...



Spatial Analytics for Urban and Regional Planning

S. Surendra

Abstract

Speedy master plan preparation based on credible data and information is viewed as an essential requirement for handling the major challenges being faced by cities and towns in India. Credible information could be gathered only by use of modern geo-spatial technologies. The paper provides a discussion of various missions being run by Government of India's for faster and effective implementation of housing, employment and infrastructure programmes. Technology centric planning appears to be necessary for better and quicker turnover of master / development plans, which still cover only one third of urban settlements.

1. INTRODUCTION

As per Census 2011, there were 7,933 towns and cities comprising of 4,041 statutory towns and 3,892 census towns accommodating around 376.40 million urban population in India. Urban settlements of the country have experienced relatively rapid growth and percentage of urban population has more than doubled from 14 per cent at the time of Independence to 31.16 per cent in 2011 (Census of India, 2011). This trend is expected to continue in line with world trends and it is expected that the urban population of India will increase to more than 50 per cent by 2050. This huge population growth will be accommodated across size classes, but since small and medium towns have registered high population growth in the decade 2001-11, this trend is expected to sharpen for small and medium towns. For example, the share of urban population of Class I towns to total urban population dropped from 68.61 per cent in 2001 to 60.35 per cent in 2011 while share of urban population of small and medium towns to total urban population scaled up from 31.42 per cent in 2001 to 39.65 per cent in 2011 (Table 1).

Urban growth has not been able to keep pace with planned urban development. Even after 60 plus years of Independence, master plans and development plans could be prepared for only about 34 per cent towns in the country. Out of 7,933 towns and cities as per Census of India 2011, only 2,231 urban settlements have approved master plans in force and 507 master plans are in the process of being formulated. This is as per information obtained from State Town and Country Planning Departments by the Town and Country Planning Organization, Delhi.

S. Surendra; Additional Chief Planner, Town and Country Planning Organization, Government of India

**Table 1: Class-wise Distribution of Towns/Cities as per Census 2001 and 2011**

Sl. No.	Class	Population Range	2001 Census		2011 Census		Decadal Growth Rate (%)
			No. of Towns	Population (millions)	No. of Towns	Population (millions)	2001-2011
1	Class I	1 lakh plus	441	196.3	505	227.10(60.35%)	15.7
2	Class II	50,000- 99,999	496	27.8	605	41.3(10.97%)	48.6
3	Class III	20,000- 49,999	1388	35.2	1905	58.2(15.46%)	65.3
4	Class IV	10,000-19,999	1563	19.5	2233	31.9 (8.39%)	63.6
5	Class V	5,000-9,999	1041	6.7	2187	15.9(4.22%)	137.3
6	Class VI	Below 5,000	232	0.7	498	2.0(0.53%)	185.7
	Total		5161	286.1	7933	376.40	31.6

Source: Census 2011

Consequently, towns and cities continue to suffer from multiple problems related to planning, governance, infrastructure provision, management issues, spiraling land prices, shortage of housing, etc. Most of the urban settlements, especially smaller urban settlements, are characterized by haphazard and unplanned growth, non-conforming land uses, mushrooming unauthorized colonies, and land conversion from agriculture to urban land uses resulting in environmental degradation and poor quality of life. These problems and issues in urban areas emerge due to lack of proper urban information system for decision-making and planning.

2. URBAN INFORMATION SYSTEMS

Proper management of urban areas calls for accurate and vital information to be available on a regular basis in order to formulate a spatial planning framework. Future trend of urban areas and growing urban issues and problems calls for conceptualization and implementation of a plan and scheme for developing an urban information system to provide accurate and vital information on a regular basis in order to formulate a spatial planning framework. Development of urban information system using state of art geo - spatial technologies and latest methods of data acquisition like remote sensing, GIS, drone, LIDAR, GPR, GPS and Total Station will provide updated information and spatial maps for channelizing future urban growth and attainment of sustainable urban goals.

The most crucial information for the formulation of a master plan is an accurate and updated base map of a planning area showing roads and building layouts, spatial extent of development and information on the use of each parcel of land, etc. Use of satellite images and GIS can support this very effectively and also help in quick analysis of land form, soil, vegetation, settlement pattern, etc.; on the basis of which strategies and proposals for a horizon year could



be developed. Satellite images and GIS correlated with socio - economic data contribute immensely in monitoring and management of urban areas. Maps at 1:4,000 scale using Cartosat - II, Quickbird, Worldview or other high resolution images are required for the formulation of master plans, and at 1:2,000 scale using aerial photography for zonal plans, at 1:1,000 scale for layout plans and 1:500 scale for site plans using Total Station.

There exist inter-urban and intra-urban disparities in development. In order to get a clear picture with regard to the urban scenario, compilation of urban indicators has to be given overriding priority. Urban indicators help to assess the quality of life in urban areas by revealing the position of various services and facilities available in urban areas. Data pertaining to urban indicators will help to improve targeting and operational performance of services in order to make inter-urban and intra-urban comparisons and will go a long way in developing appropriate physical and economic plans. Urban indicators in time series and for different locations will create an effective information system.

3. ICT IN URBAN PLANNING

Information and Communication Technologies (ICTs) are increasingly recognized as an integral part of urban planning and development. A number of areas have been recognized as necessary in order to produce an ICT - enabling environment. ICTs can provide opportunities to strengthen democratic engagements by offering services enabling citizens to engage in public decision making. The emergence of cloud-based services, more powerful mobile devices, sensors, big data and analytics present a huge opportunity for cities to enter a new phase of technological development and enable new ways to deliver services to citizens. Intelligent sensor networks will become increasingly critical to the basic functioning of cities around the world. In the near future, we expect to see smart cities with buildings that are net producers of renewable energy, connected and optimized transport systems, electric cars that drive a zero emission economy and a range of e-services such as e-health, e-education, e-commerce and e-governance resulting in major changes across society. These examples also highlight areas in which ICTs are expected to have significant impact.

ICTs can promote better informed decision-making by providing city stakeholders with appropriate, up to-date and actionable intelligence. This could improve the efficiency, operation and transparency of physical infrastructure, roads, water, wastewater, emergency and other services. For the collection of data, urban sensors and advanced analytics have the potential of providing city leaders within different departments with access to a rich range of real-time spatial and environmental information about cities. For example, technologies for monitoring, analysis and automation are valuable when managing physical infrastructure and operation by providing city stakeholders with appropriate,



up to-date and actionable intelligence. This could improve the efficiency, operation and transparency of physical infrastructure, roads, water, wastewater, emergency and other services. For the collection of data, urban sensors and advanced analytics have the potential of providing city leaders within different departments with access to a rich range of real - time spatial and environmental information about their cities. For example, technologies for monitoring, analysis and automation are valuable when managing the physical infrastructure and operation of different urban sectors such as traffic management. ICTs also offer new and improved ways of ensuring citizen participation in planning decisions, for example, through the use of e-consultations and engaging virtual communities.

4. SPATIAL ANALYTICS IN URBAN AND REGIONAL PLANNING

Ministry of Housing and Urban Affairs (MoHUA) is promoting use of state-of-art technologies such as Geographic Information System, Remote Sensing, Aerial Photography and ICT in urban and regional planning since the last three decades. Application and integration with planning of these technologies helps in strengthening governance for urban development and management. MoHUA aims for a geo - enabled, resilient, inclusive, sustainable and dynamic approach for planning and management of urban settlement. The state of art technologies such as geo - tagging and development of apps, etc.; are being used in all flagship programs such as Smart Cities, AMRUT, Swachh Bharat Mission, HRIDAY and PMAY Housing for All. Some of the important initiatives taken by MoHUA are discussed below:

4.1 Sub-Scheme on Formulation of GIS - based Master Plans for AMRUT Cities

Formulation of GIS - based master plans for 500 AMRUT cities is one of the important reforms under the AMRUT Mission launched in October 2015 with an outlay of Rs. 515 crore out of which Rs. 97.31 crore has been released. Major components of the mission are Geo Database Creation at 1:4,000 scale using space and drone/UAV technologies, GIS based master plan formulation and capacity building. All the 34 states and UTs with 456 towns are covered under the sub-scheme. An MoU has been signed between the National Remote Sensing Centre (NRSC), Department of Space and MoHUA for geo - database creation for 241 towns and cities and the rest of 215 towns are creating geo - database through state resources and consultants. As on date, 221 cities have created draft base maps, 23 cities have formulated draft master plans and 1,300 officials from various state governments have been trained in 37 training programs under capacity building component of the sub-scheme.

4.2 Sub - Scheme on Local Area Plans and Town Planning Schemes

The Sub-Scheme was launched in July 2018 with the objective of supporting the preparation of Local Area Plans (LAP) and Town Planning Scheme (TPS) and build



capacity with an outlay of Rs. 50.0 crore covering 25 cities. Technologies such as drone, Total Station and GIS are proposed to be used for preparation of detailed survey drawings and geo - database creation at 1:500 or 1:1000 scales. All cities have submitted the preliminary proposals and the first installment of Rs. 6.0 crore have been released to 15 cities. Five capacity building programmes have been organized and 210 officers have been trained.

4.3 Smart City Mission

The objective of the Mission is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, clean and sustainable environment and application of 'smart' solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a lighthouse to other aspiring cities. GIS is being used in asset mapping and utility mapping, transport network mapping, etc. At present, 63 Integrated Command and Control Centres have been set up and 73 mobile app - based projects for the states have been approved using Mobile GIS, GPS, geo - tagging, etc.

4.4 AMRUT

Providing basic services such as water supply, sewerage, urban transport to households and build amenities in cities, which will improve the quality of life for all, especially the poor and the disadvantaged, is a national priority. Urban assets generated under the Mission have been geo - tagged. Today 5,446 projects (water supply - 1,254, sewerage and septage management - 701, storm water management - 701, non-motorized urban transport - 343, and parks and green spaces - 2346) have been completed.

4.5 HRIDAY

The main objective of HRIDAY is to preserve the character and soul of a heritage city and facilitate inclusive heritage linked urban development by exploring various avenues including involvement of the private sector.

In the Scheme, GIS is used to establish digital heritage and mapping of historical location, tourist maps and routes. GIS can be used in the planning, development and implementation of heritage sensitive infrastructure and asset mapping. The ICT tools are being used for making cities informative and communicative and secure with installation of modern surveillance and security apparatus. Under the scheme, today 77 projects have been completed and geo - tagged.

4.6 Swachh Bharat Mission

To accelerate the efforts to achieve universal sanitation coverage in the country and to place focus on safe sanitation, Government of India launched the Swachh



Bharat Mission on 2 October 2014. As on date, a total of 5,60,000 public toilets and 60,96,000 household toilets have been constructed and geo - tagged under this Mission.

4.7 Pradhan Mantri Awas Yojana (Housing for All-Urban (PMAY-U))

Housing for All for urban areas is to be implemented during 2015-2022 in order to provide central assistance to the states and UTs for providing houses to all eligible families by 2022. States will be required to develop a system for tracking construction progress of such houses through geo - tagged photographs. Under this scheme, presently 28,36,000 houses have been constructed and geo - tagged.

4.8 Deendayal Antyodaya Yojana (DAY - NULM)

National Urban Livelihoods Mission (DAY - NULM) aims at providing permanent shelters equipped with essential services to urban homeless in a phased manner under the Scheme of Shelters for Urban Homeless (SUH). Under this Scheme, as on date, 1,00,486 shelters have been constructed and geo - tagged.

4.9 National Urban Information System

National Urban Information System (NUIS) Scheme was launched in March 2006 in order to develop GIS databases for 152 towns and cities at two scales i.e. 1:10,000 and 1:2,000 using satellite images and aerial photographs. The work of spatial data was undertaken by the Survey of India, Dehradun and NRSC, Hyderabad. Total outlay of the scheme was Rs. 66.28 crore of which 75 per cent was borne by central government and the remaining 25 per cent by the state governments. Spatial and attribute databases thus generated were used for preparation of master or development plans, town planning schemes, etc., which serve as decision support for e-governance purposes. GIS database has been hosted on ISRO's geo - spatial platform Bhuvan for accessing, editing and managing NUIS database. The scheme was completed in 2018.

4.10 NATIONAL CAPITAL REGION (NCR) REGIONAL PLAN - 2021

Space-based geo - spatial technology was extensively used for the preparation of the NCR Regional Plan - 2021, which was notified in 2005. Revision of the Regional Plan - 2021 was taken up in 2012 whereby the regional land use has been updated with Resources at - 2 LISS - IV images of 2012 and land use change analysis between 1999 and 2012 has also been carried out.

4.11 Urban Mapping Scheme

A pilot scheme for preparing large scale urban maps at the scale of 1:2,00 using aerial photography for 53 towns was taken up during the Eighth Five Year Plan with an outlay of Rs. 20.19 crore through NRSC. The deliverables were used for urban planning applications.



4.12 Design and Standards for application of Drone / UAV Technology for Formulation of GIS based Master Plans for Small and Medium Towns

Ministry of Housing and Urban Affairs (MoHUA) has constituted a committee in 2018 for Framing Design and Standards for application of Drone / UAV Technology for the Formulation of GIS based master plans for small and medium towns comprising of experts from NRSC, DOS, SOI State CTPs under the Chairmanship of Surveyor General of India. The committee has prepared the draft Design and Standards documents and circulated to all stakeholders for suggestions and comments.

5. CONCLUSIONS

Application of the state of the art technologies in urban and regional planning increases the efficiency in plan formulation, implementation, monitoring and helps in transparency and decision making. Since, the cities are growing very fast and the expectation of people is very high; with the support of application of technologies, it would be possible to improve the quality of life of people in towns and cities.

REFERENCES

- Ministry of Urban Development (2014) *Urban and Regional Development and Plan Formulation and Implementation (URDPFI) Guidelines Vol. 1 and Vol. 2*, Ministry of Urban Development, Government of India, New Delhi.
- Ministry of Urban Development (2013) *National Urban Livelihoods Mission - Mission Document*, Government of India, New Delhi.
- Ministry of Urban Development, Government of India (2015) *Atal Mission for Rejuvenation and Urban Transformation (AMRUT) - Mission Statement and Guidelines*, Government of India, New Delhi.
- Ministry of Urban Development, Government of India (2015) *Smart City Mission Transformation - Mission Statement and Guidelines*, Government of India, New Delhi.
- Office of the Registrar General and Census Commissioner (2011) *General Population Tables, India*, Census of India, Delhi.
- Town and Country Planning Organization (2006) *National Urban Information System (NUIS) Scheme - Guidelines for Implementation*, Ministry of Urban Development, Government of India, New Delhi.
- Town and Country Planning Organization (2016) *Sub-Scheme on Formulation of GIS based Master Plan for 500 AMRUT Cities - Design and Standards*, Ministry of Urban Development, Government of India, New Delhi.
- Town and Country Planning Organization (2016) *Sub-Scheme on Formulation of GIS based Master Plan for 500 AMRUT Cities - Reform Agenda*, Ministry of Urban Development, Government of India, New Delhi.
- UN-Habitat, for a better Urban Future, The Role of ICT in the Proposed Urban Sustainable Development Goal and the New Urban Agenda. Available at <https://unhabitat.org/sites/default/files/download-manager-files/Role%20of%20ICT.pdf>



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