



Urban RAASTA Resilient & Accelerated Advancement with Sustainable & Transformative Actions

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1. Background

In the present times when discourses around climate change are at the forefront, India has exhibited deep commitment towards a low carbon, climate resilient future. India through its Intended Nationally Determined Contributions (INDCs) paved the way for futuristic goals of reducing emissions Intensity of its GDP by 45 percent by 2030, from 2005 level by propagating a healthy and sustainable way of living based on traditions and values of conservation and moderation. With its ambitious target of being net-zero by 2070, India has a unique opportunity to promote clean energy, better adapt the vulnerable regions and sector, build capacities and undertake environmentally sustainable, low carbon initiatives that are underpinning all key sectors of the Indian economy for an inclusive, equitable and sustainable future.

India's commitment to Sustainable Development Goals (SDGs) is exhibited in its multi-pronged programmatic interventions like the Swachh Bharat Mission aiming at promoting universal access to sanitation, Housing for All aiming to enhance universal access to housing, Atal Mission for Rejuvenation and Urban Transformation aiming to enhance access to potable water amongst others. Being home to over 17% of the global population the actions and results from India will be of significant importance for the world to achieve the SDGs.

Due to the sheer size and scale of its cities, India is home to one of the largest urban systems in the world. Even when the pace of urbanization has been moderate in India, in absolute numbers Indian cities are home to more people than some of the most highly urbanized countries/regions across the globe. As of 2011, 377 million people amounting to 31% of the total population lived in urban centers, however, The United Nations estimates that India will add 164 million people to its urban base between 2015 and 2030. Further, the Government of India estimates that 73% of the total population growth between 2011 and 2036 will take place in urban areas (MoHFW).

2. India's Urban Challenge

Parallel to the growing urban system of the country are the growing challenges of climate change faced by Indian cities. While on one hand, the Economic Intelligence Unit (2020) in their survey of the fastest growing cities identified three cities from India, viz. Mallapuram, Kozhikode and Kollam in the list of top ten cities of the world, on the other Indian cities are highly vulnerable to climate change. As per the OECD's ranking of the world's cities most exposed to coastal flooding today and in the future (2007) Chennai and Kolkata are most vulnerable to coastal flooding. Further, cities in the Himalayan belt are extremely vulnerable to incidents of climate change like flash floods, landslides, heavy rains, etc. while cities in the plains have issues of air pollution, rising temperatures, and irregular rainfall patterns. Therefore, to mitigate the impacts of climate change and adapt for an equitable, sustainable future, there is a need to adopt a whole-system approach to urban development coupled with climate financing to implement the solutions. However, in reality there is immense stress on the infrastructure of several cities. Overall, the urban system is facing issues, such as:

2.1 Distribution of population

The urbanization in India has its own unique characteristics, the urban system is diverse and does not follow a uniform size-population composition pattern throughout the country. As per Census 2011, on one hand, Class I urban agglomerations (population more than 100,000) account for 44.7% of the total geographic urban area and house over 70% of the total urban population. While on the other hand, Class II urban agglomerations (population between 50,000 and 99,999), Class III (population between 20,000 and 49,999), Class IV (population between 10,000 and 19,999), Class V (population between 5,000 and 9,999) and Class VI (with population below 5,000) account for the remaining 55.3% of the geographical urban area and only 30% of the total urban population.



2.2 Urban Economy

Overall, cities in India occupy 3% of the total geographical area of the country but contribute to about 60% of the total GDP. This contribution is expected to increase to 75 per cent by 2031. However, the economic potential of the cities is yet to be leveraged to the fullest. Creation of an economic vision for the urban agglomeration, integration of economic activities with the master plan, creating new investment opportunities, enhancing availability of land are some of the ways in which economic potential of the cities can be enhanced.

2.3 Urban Inequalities

Even though the cities contribute significantly to the GDP, the distribution of wealth in cities is not equitable. The Ministry of Finance (2021) noted that one- in-three poor people are living in urban areas, which was about one-in-eight in the early 1950s. The income inequalities get spatial materialized within the cities where one part becomes formal, equipped with urban services, organized roads & streets network, while the other becomes informal with disorganized streets & roads, negotiating for basic urban services. As per Census 2011, about 17.4% of the total urban population lived in slums/ informal settlements. These informal settlements in the cities tend to be more vulnerable to natural disasters, calamities due to climate change, pandemics, etc.

2.4 Absence of Master Plan/ Strategic Plan

Master Plans are critical for planned, organized, strategic urban development. They are also critical from the perspective of resource distribution and optimization. In India, they are statutory instruments which guide and regulate the present and future utilization of land, resources, and expansion for the next 20-25 years. However, the master plan process faces several challenges like delays, land disputes, stay orders from courts, lack of data mapping the ground realities, lack of coordination among various departments, etc. Further, as per NITI Aayog's study on Urban Planning in India (2021), 65% of the 7933 urban settlements do not have any master plan to guide their growth and infrastructural investment.

2.5 Inadequate avenues for Municipal Finance

Cities in India have very limited sources to make their own revenues, Majorly, most of the self-generated revenue of a Municipal Body comes from property taxes, parking charges (in case of bigger cities) and a limited portion comes from Value Capture Financing. Reserve Bank of India (2022) highlights that due to limited sources of generating own revenue, cities are dependent on programmatic and other grants from the central and state governments. Each of the programmatic grants comes with its own set of targets/ outputs which does not leave the room for municipal bodies to finance their own priority list.

2.6 Availability of Data/Evidence base for Decision Making

Most of the cities formulated their development control norms several decades ago and since then there's no empirical spatial evidence of their impacts. Moreover, the dashboards of various urban programs maintained by various levels of government are displaying outputs in numbers, there is no relevant spatial data available.

2.7 Capacity

Urban planning requires a multidimensional approach to understand and respond to complex issues which are closely interconnected. Especially, in a transitioning and emerging urban system like that of India,

there is an increased need for skilled professionals such as urban planners, architects, urban managers, finance specialists, amongst others. However, ULBs across the country are severely understaffed and under-skilled.

2.8 Lack of participatory approaches in planning

The diversity in the urban population presents a challenge to the decision makers in their attempt to meet the needs of each of the groups living in the city. Sustainable and inclusive cities are outcomes of enhanced public participation in the planning process coupled with adequate financing.

3. Urban Planning and Financing Gaps

The urbanization in India is not evenly distributed, there is higher concentration of population in larger cities than smaller. This uneven distribution of population is posing stress on the existing infrastructure in the bigger cities. To optimize resource distribution, there is a need to institutionalize robust systems in place for planning and management, so that urbanization is evenly spread, reducing the stress on the ecology and infrastructure of Class I cities. As per an advisory committee for reforms in urban planning capacity in India, constituted by NITI AAYOG (2020), 52% of the statutory towns and 76% of the census towns do not have any master plan to guide their spatial growth and infrastructure investments. Considering the climate emergencies faced by cities at large in India and the need to develop adequate adaptation & mitigation strategies, there is a need to plug this gap of planning by undertaking spatial diagnostics of the prevailing urban challenges and opportunities complemented with climate resilient nature-based solutions.

Secondly, the master plan process as adopted by cities has the potential to guide infrastructure investment but lacks clarity on financial plans and investment pipelines. Though, the National Investment Pipeline, flagship missions of central and state governments provide output-oriented funds to the cities, the scope for cities to investigate, develop strategic projects and implement them remains a challenge. Therefore, there is an immense potential for cities to identify local challenges and develop climate-smart, resilient projects based on the local requirements and finance them.

Master plans in India are made for a 20-25 years period. However, it is often debated that within the implementation period of the master plan, the socio-economic and spatial characteristics of the city are transformed. In practice, master plans rarely address the dynamic needs of the city. There is a need for the master plans to be broken down in smaller projects with achievable timelines. These smaller projects will not only address the dynamic needs of the city but also provide a feedback loop for the master plan to strategize and plan future projects.

Cities do not exist in isolation, they are largely influenced and impacted by the region surrounding them. The regional linkages play a vital role in maintaining the ecology and economy of the city. Therefore, there is a need for planning to be undertaken at a scale larger than cities for coordinated management of resources, development of infrastructure, efficient mobility, etc.

Though on one hand cities need development plans as statutory tools to guide their growth and investment needs, on the other they often struggle with effective implementation of the prepared plans. This may be caused due to multiple factors, some of them being- lack of accurate land records with the city administration, legal disputes and stay orders from courts, lack of coordination between multiple implementing departments, lack of specialized professionals. The opportunity here is to develop spatial evidence bases for master plan which support the making of development plans, set a monitoring framework for the entire duration of master plan and create feedback loops through smaller projects, prioritizing strategic areas.

In 1992, the 73rd and 74th Amendments to the Indian Constitution institutionalized the structure and delegated powers and responsibilities to the local bodies for both rural and urban areas. The 74th Amendment is exclusively for urban local bodies; it lists 18 functions which respective state governments may assign to local bodies. Simultaneously, the Amendment also entrusted the Finance Commission with

the task of reviewing the financial health of local bodies and recommend newer revenue streams based on local taxes, sharing of taxes between state and local bodies and provisioning grants-in-aid to the ULBs from the respective Consolidated Funds of the states.

Over the years, financing urban infrastructure and sustainable city strategies has emerged as one of the most critical aspects faced by the ULBs in India. Lack of funds for municipal services and subsequent inadequacy in delivery has seriously hindered the cities from unleashing their maximum economic potential. Responding to the growing need of infrastructure, the Government of India launched Jawaharlal Nehru National Urban Renewal Mission (JnNURM) in 2005. The mission has two components: Urban Infrastructure & Governance (UIG) for shortlisted 65 cities and Urban Infrastructure Development Scheme for Small & Medium Towns (UIDSSMT). It was launched with an aim to improve urban infrastructure in the cities by linking it to incentive-based reforms for States/ULBs. With a total investment of more than Rs 1,00,000 cr with a central share of nearly Rs 66,000 cr, 539 projects were identified under UIG, and 806 projects were identified under UIDSSMT. However, till January 2014, only 226 projects were physically completed under UIG and 448 were completed under UIDSSMT. The projects under JnNURM were planned to be implemented by States through Urban Local Bodies (ULBs) and Parastatal agencies. Lack of capacity of ULBs and land acquisition were two of the major reasons highlighted for the non-completion of the projects (PIB, 2014).

As per World Bank (2022) India's cities require an estimated capital investment of USD 840 billion in urban infrastructure and municipal services till 2036 (in 2020 prices), equivalent to 1.18% of estimated Gross Domestic Product (GDP) over this period, roughly translating into USD 108 per capita per annum. Further, overall adapting to climate change will require an investment of about USD 850 billion by 2030 (Reserve Bank of India, 2023). The ability of cities to finance urban infrastructure is based on their financial health, capacity, creditworthiness, grants from central and state governments, donor agencies, and private investment.



Figure 1: Sources of Municipal Revenue

Fifteenth Finance Commission (FC XV): opportunities to finance climate smart projects: Acknowledging that over 60% of the urban population in India lives in 'urban agglomerations which include urban local bodies, census towns and outgrowths, the FC XV has categorized urban areas in two broad categories: Category I- urban agglomerations with over one million population and Category II- cities other than million plus cities.

For category I cities, FC XV has recommended a corpus of Rs. 38,196 crores between 2021-22 to 2025-26 in the form of Million Plus Challenge Fund (MCF). Grants are linked to performance of these cities in improving their air quality and meeting the service level benchmarks for urban drinking water supply, sanitation and solid waste management. For category II cities, FC XV has earmarked Rs. 49,716 crores for supporting and strengthening the delivery of basic services in sanitation & solid waste management (attainment of star ratings as developed by MoHUA and enhancing drinking water, rainwater harvesting and water recycling services in the cities.

Further, FC XV has recommended additional grants for health sector to be channelized through local government, shared municipal services grants for national data centre and competition. based grants for incubation of new cities.

Moreover, the financing landscape does not provide cities with adequate access to financing suited to low carbon, low emission, climate resilient infrastructure. Damages caused to physical infrastructure of the cities caused by climate change induced disasters are likely to pose increased costs for cities. The challenge for cities is to generate a wide range of financing options that can attract additional investment and engage both public & private sectors. Funding climate change adaptation measures will also require additional investment. There is a need to devise innovative methods to enable ULBs for undertaking climate smart strategic projects & investments. This could be achieved through viability gap funding, climate smart funds, central/state government performance-based grants on lines of recommendations of 15th Finance Commission, public private partnerships, climate investment pipeline, etc.

4. Resilience of urban Advancements Accelerated with Sustainable and Transformative Actions (RAASTA)— Pathway to Urban Transformation in Amrit Kaal

With an aim to embed climate and resilience, adaptation and mitigation in the masterplan, there is a need for strategic planning and urban management functions to be aligned with the overall objectives of achieving carbon neutrality by 2070. RAASTA adopts an integrated and whole system approach for achieving urban sustainability. It targets systemic barriers to advance sustainability solutions which include institutional, political, and financial strategies. RAASTA encourages convergence of central and state government policies & it's resources, being a spatial evidence-based approach, it promotes equitable distribution of resources and access. It also enhances capacity and technical knowledge at municipal level, facilitates collaborations through extensive stakeholder consultations, creates a scope for innovative funding mechanisms & motivates decision makers to shift from business-as-usual path towards sustainable urban transformation based on context specific, nature-based solutions. The approach to employing the RAASTA to craft sustainable city strategies has been illustrated in figure 2. The implementation of RAASTA is a four-step process, each of the step is briefly described in the subsequent section and illustrated in figure 3.





Figure 2: Approach to Sustainable Urban Planning and Management

4.1 Evaluation through RAASTA

Rooted in the principles of evidence- based planning and management of urban areas, RAASTA is intended to identify strengths and weaknesses in multiple thematic areas or sectors of sustainable urban planning for each city wherever the framework is being applied. By gathering spatial evidence, RAASTA has the potential to orient city's priorities and directing its resources to meet the desired vision and goals of the city's master plan. RAASTA collects data across 131 indicators with around 235 data points out including spatial indicators. Each indicator is scored on a seven-point scoring gradient which encourages cities to undertake continuous self-evaluation and improve their scoring against the indicators. Further, there are six mandatory maps that are prepared as part of the spatial indicators under RAASTA. These maps are useful in assessing spatial equity, essentially in case of municipal amenities and their catchment areas. The results from the application of RAASTA are captured in an Urban Sustainability Indicators (USI) report which provides output on multiple scales of implementation. Figure 4 depicts the overall sectors captured by RAASTA and a sample city sectoral performance assessment.



Figure 3: The four steps of RAASTA

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Figure 4: Sectors under RAASTA and Sample city sectoral performance assessment

4.2 City Profile & Diagnostics

With the wealth of information gathered through the USI report, a comprehensive, evidence based, sectoral profile of any city can be developed. It captures insights from all relevant documents, policies and programs governing city's planning and undertakes critical assessment of these documents. Based on the outcomes of RAASTA, the process yields critical analysis of the least and best performing sectors of the city and has the potential to direct the city planners and managers to determine the city's development trajectory. As a next step- a key diagnostic issues faced by a city can be identified along with the interlinkages in the implementing departments and other stakeholders. Overall, the steps in the process yield a multisectoral roadmap of the issues faced by the cities which pave way for a spatial strategic plan to reduce the GHG inventory of the city.

4.3 Spatial City Strategies

This step recognizes and address specific issues as identified by the city profile and diagnostic. It recognizes and addresses specific opportunities and constraints while supporting institutions in evidence-based policy and decisions, including fostering institutional partnerships. By encouraging cities to devise spatial city strategies, the step facilitates cities to devise an action oriented, plan of action to encourage equity amongst distribution of resources as well as reduce the GHG inventory of the cities

through strategic interventions. Along with devising the spatial strategies, the step encourages cities to undertake financial planning based on innovative mechanisms such as climate investment pipeline (CIP).

4.4 Actions & Interventions

As a result of the spatial city strategies identified in the previous step, this step equips the cities to identify the core planning principles and design strategic interventions based on the planning principles. Based on the GHG emissions reduction potential, the interventions are ranked for prioritization in implementation. For example, if principles like transit-oriented development are identified as an outcome of the analysis of the previous three steps, then actionable interventions like developing street sections, developing a well designated transit system, and developing multimodal hubs could be a few interventions to respond to the needs of the city.

5. Outcomes of Implementation of RAASTA

The requirements and needs of the cities are not constant over a given period of given time. Several factors like changing demography, climate, political & policy factors determine the priority of the action plans city's devise to respond to their needs. In such a scenario, it becomes imperative for cities to have a benchmark for gauging its achievements and improving upon its shortcomings. These benchmarks are also important from the perspective of equitable distribution of resources as it helps the cities to decide their own short- & medium-term priorities, outputs and outcomes. The four-step implementation process of RAASTA facilitates periodic review of the all the 131 indicators listed under RAASTA.

Secondly, master plans in a business-as-usual scenario severely lacks on monitoring and evaluation parameters. Over the period of master plan, RAASTA provides evidence based spatial diagnostics which facilitate review, monitoring of implementation of the master plan. This process has the potential to form a strong feedback loop and create a revision mechanism for the master plan.

Timely identification of priority areas through spatial evidence bases promote efficient resources allocation in the deprived pockets of the cities. This also has the potential to enhance the coverage and effectiveness of already implemented policies/programs of center and state governments by facilitating resource pool through convergence. Also, knowledge of exact pockets and strategies to be implemented, gives ULBs an opportunity to take financial planning and decisions. Further, the entire process of RAASTA is extensively consultative and deliberative in nature, the projects formulated as outcomes of the process have the consensus of the implementing departments at the ULB level.

Vijayawada: In the case of Vijayawada, the city diagnostic stage identified key issues such as: suboptimal urban mobility and access to public transportation, inadequate public green spaces and fragmented blue-green network, sprawling and scattered development patterns and vulnerable informal settlements. In order to solve each of these key issues, core planning principles were identified, like: low carbon development, transit oriented development, complete streets approach and sponge city approach. Subsequently, each of the planning principles were further broken down into implementable projects. For example, responding to the sub-optimal mobility and access to public transportation, revitalizing urban transit system was developed as a strategic response which was further broken down into three implementable interventions: complete streets, well designed transit systems and multimodal hubs.

Mysuru: In the case of Mysuru, the city diagnostic stage identified key issues such as: sub optimal use of non-motorized transportation, vulnerable environment, and ecology, increase in low density urban sprawl and lack of digital governance initiatives. In order to solve each of these key issues, core planning principles were identified, like complete streets, eco – sensitive city, compact city approach and data – driven city approach. Subsequently, each of the planning principles were further broken down into implementable projects. For example, responding to the sub optimal use of non-motorized transportation, strategically increase NMT infrastructure for the city was developed as a

strategic response which was further broken down into four implementable interventions: connecting neighbourhood centres with improved NMT network, increase multi-modal infrastructure at neighbourhood centres, pedestrianised 'market street' at neighbourhood centres and policy/financial incentives to increase NMT use.

Bhopal: In the case of Bhopal, the city diagnostic stage identified key issues such as: sprawling urban development pattern, endangered natural assets, vulnerability in informal settlements, and high dependence on fossil fuel and sub-optimal use of non-motorized transport (NMT). In order to solve each of these key issues, core planning principles were identified, like compact cities, ecosystem restoration and enhancement approach, adequate housing for all and complete streets approach. Subsequently, each of the planning principles were further broken down into implementable projects. For example, sprawling urban development pattern, urban core revitalization for the city was developed as a strategic response which was further broken down into two implementable interventions: revitalize urban core through densification and revitalize urban core via urban retrofitting. These two interventions were further divided into two subparts each, infill development or redevelopment, promote and generate affordable housing stock and enable seamless integration of multi-modal transport systems, improve the coverage of urban amenities.

6. Application of RAASTA Recommendations

India's ambitious targets and trajectories to reduce carbon emissions depend upon local actions. The approach undertaken by the government, must be local" in principle- localizing the implementation of sustainable development goals by enhancing local actions to achieve national and global targets. Climate Smart CIP has the potential to direct and guide investment toward fulfilling INDCs. It provides the local governments with a method to evaluate alternatives for each proposed project through carbon/ GHG reduction potential and cost effectiveness, empowering the local governments to decide on having a lower carbon output while meeting the infrastructure requirements of the cities.

Cities are finally gaining recognition as the centers of action for achieving the global sustainable development agenda and responding to the triple planetary crisis. With an urban system of more than 4,000 city jurisdictions, and another 3,000 on the brink of being recognized as urban, India has strong impetus for planning, governance, and financing of cities. An urban future will pave the way for sustainable LiFE complemented with achieving the USD 5 trillion economic milestone. The country's need of the hour as articulated by the Union Budget as well is to have well-planned cities that are "garbage-free, water-secure and climate-resilient."

Therefore, city-urban ecosystem needs to be reimagined and local actors empowered to translate national visions into local realities. This requires dynamic, integrated urban development frameworks and instruments, including policy, master planning, bye-laws, codes, projects, and financing models. Local stakeholders must understand these instruments to participate equally and contribute meaningfully to their city's development future. In the given scenario, RAASTA is an effective tool to guide the urban transformation of India in the Amrit Kaal:

- **a. Climate Action Plan:** Climate action planning is a strategy that helps city governments and partners address environmental change while promoting socio-economic development and environmental protection. It aims to reduce greenhouse gas emissions, adopt low emission development, and build local climate resilience. The process is based on mainstreaming climate action planning, which is crucial for developing a vision of a climate resilient city. The success of the plan depends on implementing prioritized actions and mainstreaming environmental sustainability in city development. The methodology of RAASTA may be used by the city governments to prepare climate action plans. The process undertakes diagnostic of the city's existing scenario, map the main stakeholders, assess the performance on pre-defined criteria, suggest sustainable city strategies and overall provide a pipeline of projects for the city governments to implement. The entire process of RAASTA has greenhouse gas emissions calculations embedded in it. The project pipeline is prepared and prioritized according to the impact on carbon emissions and mitigations.
- **b.** Effective implementation of Masterplans: The process of RAASTA undertakes a thorough analysis of the masterplan of the city while also linking it to the zonal plan. An action and interventions pipeline coming out of a thorough evaluative process would facilitate an incremental approach to implementation of masterplan and would guide the city's developmental efforts for

¹ https://pib.gov.in/PressReleasePage.aspx?PRID=1903260

the coming five years. Since RAASTA is a continuous process and can be regularly updated by the city officials, the process provides for a periodic review of the masterplan and make room for an evidence-based feedback loop.

- c. Convergence of State and Central Government Urban Development Initiatives: On ground spatial evidence collected by RAASTA, create a wider scope for convergence of resources and implementation strategies. The spatial evidence created also help the city administrators to identify the deprived pockets in the cities and create specific strategies for them. Further, the sustainable city strategies identify all the pool of resources which are available with the city government for the specific strategy. Subsequently, the actions and interventions develop actionable interventions based on the resources identified in by the sustainable city strategies.
- **d. Green Finance:** India's green bond market has been growing steadily, reflecting the country's commitment to addressing environmental issues. Both government and private sector entities are involved in issuing green bonds, which are used to fund projects related to renewable energy, energy efficiency, and green infrastructure. The market has been particularly active in supporting the renewable energy sector, with many issuances funding solar and wind energy projects. RAASTA can be an instrumental tool in creating a project pipeline not only for green bonds but for broader sustainable finance initiatives while integrating environmental, social, and governance factors into financial decision-making.



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