The intent of this document is to review and make recommendations on approaches to Urban Climate Resilience to the Central Government, i.e. Government of India, with particular focus on and attention drawn of the Ministry of Housing & Urban Affairs (MoHUA), Govt. of India. This brief draws from work done under the CapaCITIES project, supported by the Swiss Development Corporation (SDC), and implemented by a consortium of partners, in four cities of India, followed up by a National-level Dialogue on Climate Resilience in India.

Introduction: Climate Change in India and need for action

Climate change effects globally, which also stand true for India, include shocks such as extreme rainfall, drought, heat waves, wildfires, cold waves, landslides, tsunamis, sandstorms, and others, and stresses such as water scarcity, poor air quality, flooding (due to rain or sea ingress), water scarcity, inefficiency of public infrastructure systems, disease outbreaks, and others. In rapidly growing urban areas, there is further risk of depleting green cover, open areas, pervious surfaces and man-made pollution (e.g. construction dust, traffic smoke, etc.) that enhance some deleterious effects. All these have consequential effects in terms of migration, civic unrest, failing health, inequity, crime and shifting economic trends. These effects are compounded in India, with nearly half a billion people in urban areas (as per statutory definitions), where cities are already struggling to keep up with complete coverage of even basic infrastructure. Cities act as economic drivers, with productive synergies of citizens, who in turn expect a better quality of life with access to better service provision and infrastructure.

Indian cities with their rates of urbanization, struggle particularly and visibly to manage shocks of increasing recurrence like urban floods. Two examples in consecutive years are: In 2015, heavy rainfall in Chennai costed the city Rs. 14,000 crores in damages and losses (and 280 lives), with infrastructure damages alone over Rs. 9,800 crores; while in 2014, Cyclone Hud Hud in Vishakapatnam cost Rs. 21,000 crores (and 40 lives). There are other examples due to other shock events, sufficiently documented. Heat waves are estimated to increase 75-fold, with 21 major cities including Delhi, Bengaluru, Chennai, and Hyderabad racing towards zero groundwater levels by 2020, affecting access for 100 million people. Such trends due to climate change are expected to cost the Indian economy $1.178 trillion by 2050. The cost of poor planning for Indian cities is estimated between 1.2% and 6.3% of the GDP by 2050.

In six key National Urban Missions launched by MoHUA in 2014, an overall investment of Rs. 6,85,758 crores, has been proposed for urban infrastructure development in 4,041 ULBs across the country, and when one sees that 124 AMRUT mission cities and 18 Smart Cities are prone to high risk of just one climate change effect, i.e. flooding, one gets an idea of the magnitude of investment risk, not to mention other losses. The case is established for national efforts to enhance climate change understanding and build climate resilience in urban India and as cities grow, urban governance and planning systems need to incorporate the principles of climate resilience to ensure quality of living.

Current Framework for Action and Key challenges faced in Urban Climate Action

As per the Allocation of Business Rules, updated 2019, Climate change is a responsibility under the Ministry of Environment, Forests and Climate Change (MoEFCC). “Climate Change” does not find a mention in the Union, State or Concurrent list of subjects. Under the National Action Plan for Climate Change (NAPCC), the National Mission on Sustainable Habitat (NMSH) was launched to cover various aspects to combat climate change, with specific committees for action-plans, e.g. Urban Transport. Knowledge from the work done under the project in the four cities under the prioritized themes of solid waste management (SWM), air quality and transportation (AQ & T) and waste and waste water management (WWWM), are captured and can be referred in the Thematic Briefs published separately; while State-level policy recommendations to Tamil Nadu and Gujarat for scaling and replication of lessons from CapaCITIES across the States are captured and can be referred to in the State Policy Briefs.

1Allison, S. 2016. Disaster Risks Grow, As India’s Cities Flood, IndiaSpend, 15 January
5http://mohua.gov.in/upload/uploadfiles/files/NMSH_parameters_v4_1.pdf
in several thematic areas that cut across domains of several State Departments and and central Ministries, hence Urban Climate Change hence remains a difficult area for direct recommendations to a single Ministry at the Central Government.

This brief does not need to dwell on current policies and climate resilient actions in each of the thematic areas, as they have already been brought out in the Thematic Briefs. The Gujarat and Tamil Nadu State Policy Briefs also bring out roles and status of Centre and State policies, missions and schemes, many of which are generic to all States. Typically, Central Ministries direct, mandate and support the execution of policies, programmes and schemes, while the State Govt. in turn works with Urban/Rural Local Bodies to action interventions at the ground level ensuring improvement measures. The role of the Central Ministry then is limited to National Policy and guidelines in general and particularly for the Centrally funded and sponsored schemes in the thematic areas under Climate Resilient Action.

However, it is worthwhile to list the top few key challenges faced by cities in the main thematic areas under the project, with an intent to draw particular attention at Central Government level. These are:

**Current Approaches at Central Government level**

Climate Resilience presently finds mention in mission guidelines of both the AMRUT and Smart City Missions under the MoHUA, while particular guidelines have also been evolved for particular aspects such as Urban Flooding, Faecal Sludge and Septage Management, Urban Water Conservation, etc. in addition to the Acts mentioned previously. The CRCAP process followed in the CapaCITIES project can work as a reference.

The ClimateSmart Cities Assessment Framework (CSCAF) developed under the Smart Cities Mission, forms the single most comprehensive tool for urban climate action. Covering indicators in five key thematic areas and giving level-wise scores that cities can self-assess and report on, it deserves acknowledgement for its simplicity, objectivity, focus and effective Plan-Implement-Assess cycle. However, it is a voluntary disclosure mechanism, heavily reliant on data and proof collection that are understandably in different departments. While the CSCAF is an assessment tool developed by the Central Ministry, where attention is now required is to build understanding, capacity, collaboration and action at the local level, in order to see substantial improvement.

**Key Recommendations to the Central Government**

1. **Integrated Planning:**
   - The Centre can set out guidelines towards major climate change impacts. The Guidelines can:
     - Set out easy steps for integrated planning for each type of cities (coastal, forested, industrial, etc.), looking at the major climate change impacts and target specific climate adaptation and mitigation measures. The CRCAP process followed in the CapaCITIES project can work as a reference.
     - Ensure that existing infrastructure projects and their Detailed Project Report (DPR) factor in long-term climate resilience measures. An example in flood management is to upgrade to 30-year high flood calculations instead of the current practice of 10-years.
     - Incorporate of climate change in the city planning, with demand management linked to accurate projections that include climate scenarios
     - Develop City Climate Resilience Strategy or Climate Resilient City Action Plans, with Climate analysis being used in informing city projects, including risk & vulnerability assessments and resilience planning
   - Consider Life-cycle and total cost thinking as against capital expenditure focussed thinking only
   - Develop Separate pan-city or systemic actions, such as preparation of the plans with necessary background studies, surveys, mapping and analysis, from particular solutions to shocks or local critical problems
   - Prepare DPRs with strategic positioning, risk mitigation and scenario planning
   - Focus on project implementation preparedness phase during DPRs

2. **Institutionalization:**
   - There are no alternatives to sustained engagement, city authorities buy-in, political will, and alignment between city, state and Centre. However, few critical areas for Central support to institutionalize Climate Action in urban local bodies:

   - More at www.capacitiesindia.org/1

   - The CRCAP methodology is grounded in empirical and sound qualitative data analysis allows cities to design their own strategies in coping with and mitigating negative climate change to foster urban climate resilience. Coimbatore generated its greenhouse gas (GHG) inventory, identified the most vulnerable hotspots, and generated climate fragility statements, based on which the city identified the best interventions to mitigate climate change. (Figure 3)

   - As demonstrated in the CapaCITIES project as CRCAPs. More at www.capacitiesindia.org/
Helping to build a cadre of technical resources at the State & City level for Urban Climate Action

Identifying good data sources, making data available, learning how to use data emerged as a common point for implementation-based organizations as well as Cities.

Linking the data-users with the sources for successful decision making and planning of projects.

Identifying a common platform for sharing: Peer to peer learning, sharing of best practices, site visits and feedback from cities, such as the SmartNet portal

Building a network of local and technical training institutions, and conducting training of trainers

Planning targeted training at the city level, instead of generic training workshops on topics across cities

'Match-making' for technical assistance and resources including network and cooperation with cities, experts, national and international agencies

Some immediate knowledge products that can be made at Central level are:

- Compendium of climate issues and possible solutions contextualized to Indian conditions
- Use cases for climate adaptation and mitigation
- Data frameworks, protocols to develop 'data observatories' and decision support systems
- Establishment of urban observatories with improved weather, infrastructure and disease monitoring and early warning systems for shock events that can affect efficient functioning
- City disaster management plan and establishment of city disaster management cell
- Providing technical assistance for cities to implement the policies, with guidelines and toolkits for implementation
- Identifying channels to communicate the above in simpler terms and regional languages

3. Financial Planning:

Cities need substantive infrastructure investments for transformative climate action thus additional financial resources are needed. In India, the capacity of cities to raise resources is limited and they depend on national and state government transfers for implementation of large-scale projects, leave alone climate resilient projects. Project developers too are not used to design and implement climate-resilient infrastructure. Apart of the state level sectoral funding lines, global climate finance resources have increased and voluntary climate financing has fast emerged as a reliable source.

Central government can frame toolkits for financial approach for Climate Action. These are broadly:

- Suggesting requisite changes or convergence steps in SAPCCs and Climate Action Plans to benefit from Central Missions and Schemes, listing applicability and incentives
- Listing potential funding from special Climate Funds (like GEF, Urban Climate Fund, etc.), funds from Environment and Climate focussed agencies, and SOPs for applying for the same, making them more accessible and available.
- Separating Climate Action from point of view of financing into:
  - Generic: related to systemic actions, (e.g. strategy / plan preparation with necessary studies, surveys, etc.; which can be funded through regular budget lines in city budgets, through A&OE budget lines of particular Missions / Schemes, and through technical assistance funding from bi-lateral and multi-lateral organizations for this purpose.
  - Particular: related to specific projects in thematic areas related to Climate Change.

These can be classified as per financial size into:

- those that can be met solely through city project budgets (prioritized annually as per urgency) or under State and Central schemes, and
- those that need external financial leveraging. These would typically be longer-term, cross-thematic, complex and larger impact projects, needing feasibility studies and detailed workings

- to look carefully at long tenure projects (project life of 25-30 years) financing with lower interest rates instead of the more expedient shorter tenure project loans with high rates of interest

Central Government can also carry out special capacity building particularly on Climate Finance:

- Leveraging different financial mechanisms and instruments, including alternative financial mechanisms such as Blended Finance from various donors, Combination of Loan and Technical Assistance, Green Masala Bonds, etc.
- How financial workings should consider capital and recurring (O&M) expenses and indicate budgetary sources and viabilities, including any project revenues or savings in current expenses. The bankable projects developed under the CapaCITIES project13, and inclusion of quick-win projects under city budgets provide a template for the same.
- Choosing the correct channels for application with State / Centre as Convenor or Guarantor, and sharing the repayment liability.