

# INTEGRATING CLIMATE SENSITIVITY INTO URBAN PLANNING FOR FUTURE RESILIENCE

WHITEPAPER



**Urban-Act**  
Integrated Urban Climate Action  
for Low-Carbon & Resilient Cities

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# Executive Summary

Urban areas now accommodate over 55% of the global population and contribute more than 70% of greenhouse gas emissions. Cities, while being engines of economic growth and cultural activity, face critical environmental challenges, including rising greenhouse gas emissions, energy consumption, and susceptibility to climate-induced disasters like floods, droughts, and wildfires. These challenges, especially in the Global South, where urbanization is accelerating, demand a shift in urban planning strategies to prioritize resilience and sustainability. The increasing vulnerability of marginalized urban populations, alongside habitat degradation and ecosystem loss, calls for a more integrated and forward-looking approach to urban development.

This whitepaper emphasizes the critical role of integrating both mitigation and adaptation strategies into urban planning frameworks. The paper showcases global best practices to demonstrate how these approaches, when properly integrated into urban planning, can create low-carbon cities while building resilience against climate hazards. Based on desk research and findings from stakeholder consultations, a set of strategic policy opportunities has been formulated to provide actionable guidance for cities in the Global South, particularly in India.

A fundamental opportunity lies in adopting an integrated, cross-sectoral approach to urban planning. Research findings

consistently emphasized that urban systems cannot be addressed in isolation - transport, energy, housing, and water management are inherently interconnected. The paper brings forward innovative solutions in data-driven planning for informed decision-making, nature-based solutions and blue-green infrastructure, community-centered planning, and decentralized approaches to energy and resource management. These strategies are supported by institutional strengthening through horizontal and vertical integration across government departments, alongside robust capacity building programs and dedicated financing mechanisms.

This whitepaper is part of The Integrated Urban Climate Action for Low-Carbon and Resilient Cities (Urban-Act), a regional project funded by the International Climate Initiative (IKI) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The Urban-Act project is implemented in India, Philippines, Thailand, China and Indonesia. In India, at the national level, the project supports the Ministry of Housing and Urban Affairs (MoHUA) in creating an improved institutional environment for climate-sensitive urban development and enabling conditions for urban climate finance. The Energy and Resources Institute (TERI), National Institute of Urban Affairs (NIUA), and GIZ India are the key implementing partners in India, working collaboratively to strengthen climate action in Indian cities through research, capacity building, and policy support.

# Introduction - Need for Climate Sensitive Urban Planning

Urban planning has been a fundamental aspect of human civilization, evolving in response to the dynamic needs of societies and their environments. The first human settlements arose when people transitioned from hunting-gathering to agriculture, necessitating proximity to water sources for irrigation. This led to the development of ancient cities such as Harappa and Mohenjo-Daro in the Indus Valley, Mesopotamia near the Tigris, and Euphrates and Egypt along the Nile during the Bronze Age (3000 BC – 150 BC). As societies evolved into complex networks, cities and towns were then planned according to social, cultural, and religious hierarchies.

The advent of industrialization and globalization marked a significant shift in urban planning. Cities became the fulcrum of economic growth, expanding rapidly in population and complexity. This rapid urbanization required new planning approaches to manage industrial activities, migration, and infrastructure demands. By the late 20<sup>th</sup> and early 21<sup>st</sup> centuries, modern and postmodern perspectives brought significant changes to urban planning theories, research and practice, addressing the challenges of urbanization in an increasingly interconnected world. To this date, urbanization continues at an unprecedented pace. Cities are now home to more than 55% of the world population, with estimates by the United Nations suggesting that by 2050, this figure will rise to 66%.



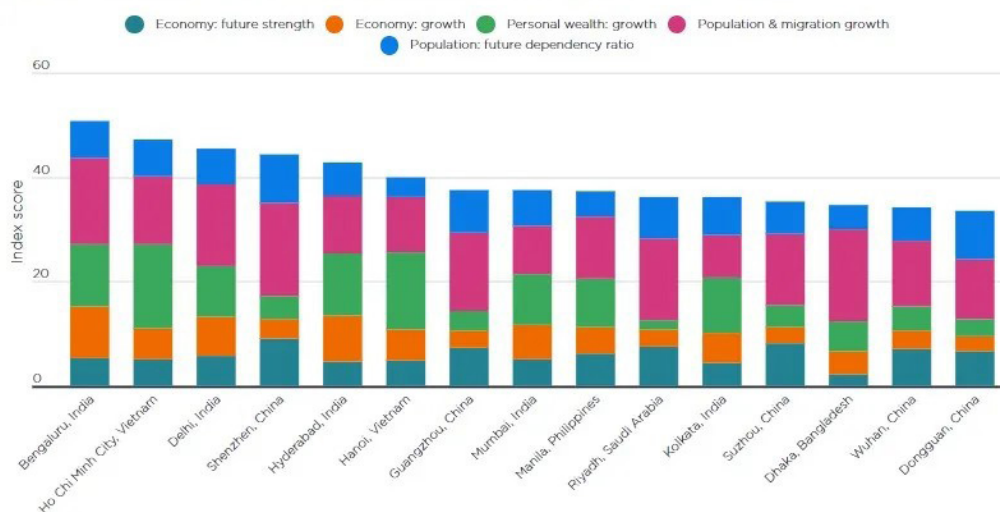
While urban areas are centers of economic, social, and cultural activities, they also face growing environmental challenges. Cities are responsible for more than 70% of greenhouse gas emissions and 75% of global primary energy consumption. Additionally, urbanization often leads to the degradation of natural ecosystems, resulting in habitat loss, and diminished biodiversity. Cities are particularly susceptible to climate impacts, experiencing the severe consequences of disasters such as floods, droughts, cyclones, and wildfires, which result in substantial economic losses. Furthermore, urban residents, especially the urban poor and marginalized populations—are increasingly vulnerable to these impacts, exacerbating inequality and social disparities. Current urban planning and development models frequently prove inadequate for addressing the complexities of creating sustainable and resilient cities. Moreover, in the Global South,

where many cities are yet to be planned and developed, following a climate resilient pathway while pursuing development and prioritizing the provision of accessible and adequate infrastructure is often perceived as an added challenge. These multifaceted challenges necessitate a significant shift in urban planning approaches—one that adopt a holistic and long-term perspective on designing, planning, and managing urban built environments, infrastructure, and functions.

## Global Push for Urban Climate Action Planning

Effective and integrated urban planning can significantly mitigate climate risks, reduce greenhouse gas emissions, and enhance cities' adaptive capacities in the face of climate change. The importance of urban planning in promoting sustainability

**Figure 1: Fastest-growing major cities by 2033, based on their economy, population and wealth**



Source: Savills Research





and enhancing resilience has also been underscored in many international agreements and frameworks.

The Paris Agreement (2015), adopted under United National Framework Convention on Climate Change (UNFCCC), is a landmark treaty that has aimed at limiting global warming and recognizes the role of urban areas and urban climate action through Nationally Determined Contributions (NDCs). It also supports the low-carbon urban development by promoting the utility of renewable energy and energy efficient infrastructure. The 2030 Agenda for Sustainable Development, also initiated in 2015, specifically focused on the sustainability and resilience of cities with its Sustainable Development Goal (SDG) 11. Goal 13 of the agenda simultaneously focusses on climate action, including elements of climate change related planning and management, and achieving climate resilience.

Subsequently, the New Urban Agenda (NUA), adopted in 2016, highlights the need for inclusive and resilient cities. Urban Planning and Design is given due focus in the NUA, while climate change on the other hand is included in terms of building urban resilience and reducing disaster risks by mitigating and adapting to climate change. The agenda is committed to national, subnational and local climate action, and has majorly been consistent with the goals of the Paris Agreement.

Moreover, the Sixth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC) identifies urban regions as critical areas requiring urgent action to address climate change risks, further noting that the planning of urban infrastructure—such as transportation, water, sanitation, and energy systems—has been compromised by climate change. The upcoming Seventh Assessment Cycle will include a Special Report on Climate Change and Cities.

Like the New urban Agenda, climate change is considered as one of the drivers of disaster risk in the Sendai Framework for Disaster Risk Reduction 2015-2030. While these frameworks acknowledge the importance of climate action mostly associated with disaster management, they often lack a comprehensive approach to effectively integrate the same in urban planning systems. Disaster Management is crucial to the planning of any city across the globe, but it frequently overlooks the urban planning components necessary for effective response and preparedness during climate risks. This gap often leads to inadequate strategies for urban planning and climate action. The integration becomes essential to address the complexities of rapidly urbanizing cities.



Figure 2: Various Frameworks for Addressing Urban Climate Action



# Adaptation and Mitigation through Urban Planning

Integrating climate action into urban development and planning involves two primary strategies: mitigation and adaptation. Mitigation strategies constitute systematic interventions aimed at reducing or preventing greenhouse gas emissions through multiple pathways. These interventions incorporate energy-efficient urban development, carbon reduction in construction materials, implementation of low-carbon thermal systems, deployment of renewable energy infrastructure, enhancement of public transportation networks, facilitation of electric vehicle adoption, promotion of active mobility, and strategic urban density optimization. Adaptation, on the other hand, encompasses defense strategies to reduce the impact of climate hazards and enhance the adaptive capacity of urban systems and communities. It includes interventions such as the development of robust flood defense systems, implementation of sustainable urban drainage, and integration of heat-resistant materials in construction.

The integration of both adaptation and mitigation strategies in urban planning is crucial to create low carbon cities with built resilience to climate hazards. Despite the ambitious mitigation targets established by the Paris Agreement to limit global temperature rise to 1.5°C above pre-industrial levels, locked-in climate warming will continue to intensify extreme weather events over the next several decades. Therefore, cities must simultaneously pursue carbon neutrality while building adaptive capacity to manage inevitable climate impacts. The table below explains



certain adaptation and mitigation strategies through urban planning adapted from various research and reports across the globe.

**Table 1: Mitigation and Adaptation through Urban Planning**

Mitigation through Urban Planning		
1.	Mixed Use, Compact and Transit Oriented Development	<ul style="list-style-type: none"> <li>Minimizing emissions through reducing commute and promoting public transport systems</li> <li>Reducing the carbon footprint of Built areas by integrated physical and social infrastructure planning</li> <li>Reducing energy consumption for Heating, Ventilation and Air Conditioning Systems</li> </ul>
2.	Sustainable Land Utilization and Spatial Planning	<ul style="list-style-type: none"> <li>Enhancing Carbon Sinks</li> <li>Greenfield and Brownfield areas development to facilitate reduced energy consumption</li> <li>Improved Environmental Guidelines and Monitoring for Construction</li> </ul>
3.	Energy Efficient Building	<ul style="list-style-type: none"> <li>Integrating Renewable energy systems in Urban Areas such as solar and wind energy</li> <li>Retrofitting existing built structure</li> <li>Promoting net zero energy buildings, green buildings etc.,</li> </ul>
4.	Sustainable Transportation Systems	<ul style="list-style-type: none"> <li>Devising Solutions for improved public transit</li> <li>Walking, Cycling and Non-Motorized Transport</li> <li>Electric Vehicle Infrastructure for Public Transports</li> </ul>
5.	Others	<ul style="list-style-type: none"> <li>Encouraging Circular Economy initiatives for waste management</li> <li>Water Conservation and Management</li> </ul>



## Adaptation through Urban Planning

1	Blue-Green Infrastructure Planning	<ul style="list-style-type: none"><li>• Trees Plantation, indigenous species</li><li>• Urban Forests, Green Roofs, parks etc.</li><li>• Local Water Body Rejuvenation, Desilting etc.</li><li>• Managing Stormwater and Drainage Mechanisms</li><li>• Enhancing Biodiversity</li><li>• Nature Based Solutions</li></ul>
2	Climate Resilient Design	<ul style="list-style-type: none"><li>• Flexible Infrastructure</li><li>• Temporary Shelters and Rehabilitation Centers</li><li>• Enforcing zoning and planning regulations</li><li>• Disaster Resilient Construction</li></ul>
3	Disaster Risk Reduction	<ul style="list-style-type: none"><li>• Judicial construction and development in vulnerable zones</li><li>• Hazard Mapping and Risk Assessment</li><li>• Vulnerability Analysis</li><li>• Enhanced Coping Mechanisms</li></ul>



# Global Best Practices for Climate Sensitive Urban Planning

Cities across the globe must align local mitigation and adaptation efforts with national and international climate goals. These efforts involve policies, strategies, and measures designed to reduce greenhouse gas emissions and enhance resilience to climate-induced disruptions. Integrating climate concerns into urban planning is a crucial step to reduce vulnerability and boost urban resilience. The Global South generally represents the geographical classification of nations and territories who are struggling with the varying inequalities in terms of fundamental services, income disparity, etc. This disparity, when compared to the Global North in the context of climate change vulnerability, reveals the South as being most susceptible to hazard risks and associated negative impacts. These cities are facing extreme issues due to poor basic infrastructure facilities, inadequate policies etc. Megacities in middle- and low-income countries have been facing these unique threats from climate change as they constitute high risk areas with residing vulnerable population and concentrated infrastructure.

While the struggle from vulnerable to resilient continues, cities across the globe have practiced contextual interventions to address climate change in one way or another. Various methodologies and processes have been adopted globally to integrate climate proofing and resilience into urban planning. The approach to devising solutions for sustainable urban planning lies with the regulatory framework of various cities across the globe. Global North is particularly focusing on the



mitigation aspect with energy grid planning, decentralization of renewable resources consumption to reduce greenhouse gas emissions at a larger scale. These cities are also taking a more digital approach by enhancing the monitoring, reporting and verification structures for emissions and climate mapping. Global South is more focused on adaptation strategies. It involves creating urban hazard analyses, developing city risk profiles, and ensuring that adaptation strategies are incorporated into conventional urban planning. This proactive approach helps cities to anticipate

and mitigate potential climate risks. Many countries have mainstreamed climate proofing based on National Adaptation Strategies. This involves identifying climate impacts and introducing measures for spatial planning and related sectors. The process emphasizes the importance of multi-disciplinary perspectives and the consideration of co-benefits for joint adaptation and mitigation efforts. The climate lens varies in the policy interventions taken up by the global cities. A few of the key takeaways can be shown on the table below.

**Table 2: Best Practices for Climate Integrated Urban Planning Interventions**

Cities	Urban Planning and Policy Interventions	Key Features
<b>Global North Cities</b>		
<b>Seoul, South Korea</b>	Climate Analysis Maps being used in Spatial Plans; Urban Master Plans	<ul style="list-style-type: none"> <li>• Urban ventilation strategies</li> <li>• Air Quality improvement measures</li> <li>• Thermal stress reduction strategies</li> </ul>
<b>Kielce, Poland</b>	Planned Public Intervention for Climate Adaptability at Local Scale, Municipal Plans	<ul style="list-style-type: none"> <li>• Integrated technology for climate risk prediction and management</li> <li>• Coordinated intergovernmental collaboration for climate adaptation</li> <li>• Focus on multi-benefit solutions such as blue and green infrastructure.</li> </ul>



Cities	Urban Planning and Policy Interventions	Key Features
<b>Spain and Portugal</b>	<p>Territorial Action Plan for Green Infrastructure</p> <p>Strategic plan combining climate change adaptation with local planning</p>	<ul style="list-style-type: none"> <li>• Land Use restrictions</li> <li>• Delineating area for strict and conditional protection</li> <li>• Coastal prevention</li> <li>• Enhanced coastal zone protection</li> <li>• Sustainable land use</li> </ul>
<b>German Cities</b>	<p>Urban Climatic Recommendation Maps with Planning Instructions</p> <p>Urban Climatic Analysis Maps</p>	<ul style="list-style-type: none"> <li>• Division of open and settled site as per climatic activity</li> <li>• Implication of the climate maps from federal to building site level planning</li> <li>• Urban Framework Plan</li> <li>• Local Design Plan etc.</li> </ul>
<b>Rotterdam, Netherlands</b>	Climate Adaptation Strategy in City Planning	<ul style="list-style-type: none"> <li>• Water plazas, floating pavilions to manage excess water and sea-level rise</li> </ul>
<b>New York City, USA</b>	Zoning and Building Code Adaptation Plans	<ul style="list-style-type: none"> <li>• Higher construction standards in flood-prone zones</li> <li>• Regulations for building zones and codes</li> </ul>





Cities	Urban Planning and Policy Interventions	Key Features
<b>Global South Cities</b>		
<b>Kigali, Africa</b>	Addressed National Framework Limitations  Thematic content analysis  (Awareness, Action and Action)	<ul style="list-style-type: none"> <li>Integrating flood risks</li> <li>Cognitive limitations in data and risk planning addressed</li> <li>Regulatory frameworks mainstreaming climate action</li> </ul>
<b>Durban, South Africa</b>	Integrated Development Plan  Climate Impact Assessment	<ul style="list-style-type: none"> <li>Project evaluation and adaptation</li> <li>Urban management at municipal level</li> <li>Ecosystem protection</li> <li>Managing ecological infrastructure</li> </ul>
<b>Medellin, Columbia</b>	Green Infrastructure and Territorial Planning  (Territorial Organization Plan)  Delineation of protection and transition zones	<ul style="list-style-type: none"> <li>Spatial territorial planning</li> <li>Zoning and Building Codes</li> <li>Demonstration projects (public spaces/transportation)</li> <li>Improved green infrastructure</li> <li>Strategic adaptation</li> <li>Protection of urban spaces</li> </ul>
<b>Dhaka, Bangladesh</b>	National Adaptation program  Structure Plans and Detailed Area Plans	<ul style="list-style-type: none"> <li>Better building codes</li> <li>Waste Management for industries</li> <li>Better warning systems</li> <li>Identified vulnerabilities</li> <li>Coordination in municipalities</li> </ul>



Cities	Urban Planning and Policy Interventions	Key Features
<b>Global South Cities</b>		
<b>Chile, South America</b>	Local Climate Zoning in Urban Plans	<ul style="list-style-type: none"> <li>• Local climate zone identification</li> <li>• Comparing surface temperature and vegetation</li> <li>• Analyzed spatial distribution of climatic behavior</li> </ul>
<b>Delhi, India</b>	Inclusion of adaptation strategies in Delhi Master Plan 2041	<ul style="list-style-type: none"> <li>• Green-blue infrastructure, air pollution control, multi-modal transport</li> </ul>



# Strategic Opportunities for Climate-Sensitive Urban Planning in the Global South

The preceding sections have highlighted the essential role urban planning plays in promoting climate resilience and facilitating low-carbon transitions in cities, drawing on theoretical foundations and evidence-based global best practices. As discussed, urban planning is a crucial tool for mitigating climate risks, reducing greenhouse gas emissions, and fostering long-term environmental sustainability. Additionally, TERI, through the Urban-Act Project supported by the International Climate Initiative (IKI), conducted stakeholder consultations in three Indian cities: Coimbatore, Shimla, and Panjim. These consultations engaged a diverse group of stakeholders, including municipal authorities, urban planners, community leaders, academics, and technical experts, who provided valuable insights into how local planning processes can better integrate climate considerations and align with global sustainability goals.

Building on both global research and the findings from stakeholder consultations, a set of strategic policy opportunities has been formulated to provide actionable guidance for cities in the Global South, particularly in India. These strategies aim to enhance climate resilience and promote sustainable urban development, offering a cohesive framework for integrating climate-sensitive approaches into urban planning processes. These strategies should be prioritized according to the evidence-based requirements of the cities. It is important to note that this list of indicators is not final or exhaustive; it is designed to be built upon and



refined over time. As new data, technologies, and methodologies emerge, these indicators can be updated and expanded to ensure they remain relevant and effective in guiding urban climate strategy integration.

The proposed strategies are as follows:

### **Cross-System Integration for Holistic Planning**

A fundamental opportunity lies in adopting an integrated, cross-sectoral approach to urban planning. Research findings consistently emphasized that urban systems cannot be addressed in isolation - transport, energy, housing, and water management are inherently interconnected. Climate-sensitive planning demands the integration of mitigation and adaptation strategies across these sectors to enhance overall urban resilience. For example, the widespread adoption of electric vehicles (EVs) requires more than just transportation infrastructure - it necessitates comprehensive grid modernization, enhanced power distribution networks, and integrated charging infrastructure. This, in turn, affects urban land use patterns through the spatial distribution of charging stations, influences building codes through charging requirements in new developments, and impacts urban energy systems through increased electricity demand and potential grid stress.

Cities in the Global South should therefore adopt this cross-sectoral systems approach to both analyze challenges and design solutions. The approach is particularly crucial in resource-constrained environments

where interventions must deliver multiple benefits to justify investment. Facilitating mechanisms should be provided to cities to achieve this larger systems transformation.

### **Data-driven Risk Assessment and Planning**

Currently, many cities in the Global South lack comprehensive climate-relevant data to inform their planning processes. Current urban governance frameworks lack robust climate vulnerability profiles, leading to inadequate assessment of climate risks and their implications for urban populations. Addressing these data deficiencies requires a multifaceted approach to urban planning reform. For rapidly urbanizing regions in the Global South, incorporating spatial planning tools that factor in climate risks—such as urban heat islands and water scarcity—will be vital in promoting climate-sensitive growth. However, integrating data-driven approaches in cities would require the data infrastructure, capacity building for data analysis, and the development of decision-support tools that can translate complex climate data into actionable planning insights.

Climate-resilient urban planning must work together with spatial master planning. This requires incorporating landscape suitability analysis, science-backed zoning, and regional resource mapping based on scientific evidence about current and future resource needs. Such an approach aligns with evolving IPCC recommendations while acknowledging the unique challenges faced by each city.



## Nature-Based Solutions and Blue-Green Infrastructure

Nature-based solutions (NBS) and blue-green infrastructure (BGI) represent a particularly promising opportunity for climate-sensitive urban planning. Stakeholder consultations highlighted the immense potential of integrating natural systems into urban infrastructure. Cities like Singapore have demonstrated how blue-green networks can enhance ecological resilience while improving urban livability. Chinese cities are also utilizing the blue-green infrastructure in various planning processes such as in neighborhood retrofit, revival of infrastructure, in new constructions, etc. There are multifunctional aspects of NBS and BGI as it shows progress in stormwater related functions, rainwater utilization etc.

These approaches include the strategic development of wetlands, green roofs, permeable pavements, and urban forests, which collectively help manage stormwater, enhance biodiversity, and naturally cool urban areas. While these approaches remain underutilized in many Indian cities, there are significant opportunities to scale up local NBS efforts, especially in regions prone to flooding and water scarcity.

## Community-Centered and Participatory Planning

Community-centered, participatory planning emerged as a critical strategy during stakeholder consultations, particularly for addressing climate vulnerabilities. Engaging local communities ensures that urban interventions are responsive to both

the needs of vulnerable populations and climate challenges, especially in informal settlements and areas exposed to climate risks like flooding, urban heat islands, and water scarcity.

Addressing the ongoing challenge of master planning requires integrated discussions across departments to identify gaps and opportunities. Climate resilience projects, which span multiple sectors, need strategic drivers to navigate compartmentalized governance structures for effective execution and funding. Public participation is key in climate-sensitive planning, yet community involvement often occurs too late, after plans are developed.

Successful implementation requires robust community engagement mechanisms, from climate vulnerability mapping to participatory scenario planning. The process leverages local expertise, including historical knowledge from elderly residents about flooding patterns and indigenous practices for sustainable resource management. This collaborative approach ensures that technical solutions are both socially acceptable and environmentally sustainable, creating climate-resilient neighborhoods while addressing social equity concerns.

## Strengthening Spatial Planning

This includes revising master plans and local area development plans to incorporate climate considerations explicitly. The promotion of compact, mixed-use developments within a 15-minute framework can reduce urban carbon footprints while improving climate



resilience by limiting heat islands and promoting active transport. These spatial planning reforms must be accompanied by appropriate regulatory frameworks and enforcement mechanisms to ensure effective implementation. Additionally, integrating climate considerations into land-use planning can help guide urban growth away from high-risk areas and toward more resilient development patterns.

Climate action priorities, like addressing urban heat islands and integrating heat mapping, should be embedded in master plans. There is a critical link between transport and urban planning and reducing transport demand could cut national emissions by 10-15%. Master plans should also incorporate concepts like green logistics, moving away from siloed approaches. Instead of separate plans for each sector, a unified, comprehensive master plan is suggested for more effective city planning.

## **Institutional Strengthening and Governance Reforms**

In the Global South, climate-responsive strategies call for critical revisions in the Town and Country Planning Acts and similar policies, mandating master plans to incorporate hydrological, ecological, and climate perspectives. Guidelines like those in some cities, addressing passive measures for plot sizes, should be standardized across all cities. Urban planning must integrate key criteria for buildings, industries, and transport, with legal backing to ensure effective enforcement. Simplifying land

acquisition for climate-sensitive projects, like green zones, is essential, alongside incentivizing such proposals. Consistent methodologies for preparing master plans, establishing climate change cells, and setting standard Terms of Reference (TOR) to promote compact city principles are recommended. Decision making authorities and institutions should prioritize monitoring city masterplan revisions and encourage smaller cities to develop proactive, climate-aligned master plans, supported by local-level planning measures. Decentralized planning, especially at local/municipal scale, must cater to public participation. The monitoring of the climate sensitive initiatives must also be taken care of by the local or municipal authorities to ensure implementation at various scales in the city.

Moreover, institutional strengthening is essential. Stakeholders emphasized the need to address institutional fragmentation, where responsibilities for urban planning, climate adaptation, and disaster risk management are often divided across multiple departments. Strengthening coordination between different levels of government, as well as with civil society and the private sector, can significantly improve climate action outcomes. This requires both horizontal integration across sectors and vertical integration across government levels to ensure policy coherence and effective implementation. Building institutional capacity and establishing clear accountability mechanisms are crucial for sustained progress in climate-sensitive planning.



## Financing Climate-Sensitive Infrastructure

Financing remains both a significant challenge and a critical opportunity for climate-sensitive urban development. Analysis identified public-private partnerships and innovative financing mechanisms, such as green bonds and climate funds, as key enablers for scaling climate-sensitive infrastructure. For municipalities in the Global South, particularly those with limited resources, unlocking green financing will be essential for supporting the high upfront costs of climate-sensitive projects. In the context of master plans in India, Central government funds provided to states should be accompanied by mandatory guidelines to ensure proper utilization. A proposed strategy includes creating a dedicated budget line for master plans, aligning departments with master plan goals, and utilizing technology to improve transparency in land use changes.

International climate finance mechanisms, combined with domestic resources and private sector investments, can help bridge the significant funding gaps for climate-resilient infrastructure.

## Capacity Building and Knowledge Sharing

Effective climate action in cities requires a comprehensive capacity building approach that reaches across all levels of urban governance. Global platforms like the World Urban Forum (WUF) and the United Nations Climate Change Conferences (COP)

play a crucial role in facilitating knowledge sharing, enabling cities to exchange insights on climate action, policies, and innovations. Furthermore, city networks such as the Global Covenant of Mayors for Climate & Energy (GCoM) and the C40 Cities Climate Leadership Group are instrumental in fostering collaboration among cities, allowing them to share climate solutions and drive collective action.

However, the core challenge lies in translating this knowledge into actionable strategies at the municipal level. This necessitates targeted capacity building that extends beyond senior leadership to include mid-level planners, technical staff, and local administrators who implement climate initiatives daily. The nature of capacity building must align with specific roles and responsibilities within city governments. Senior officials require strategic understanding of climate policy integration and decision-making frameworks, while mid-level technical staff need practical training in data analysis and climate-sensitive planning tools.

Developing a centralized repository of best practices is essential to support cities in effectively addressing climate change. This repository would not only share successful case studies but also provide easy access to relevant climate data, tools, and methodologies for urban planning. By combining global knowledge resources with localized capacity building, cities can better equip their entire administrative workforce to implement effective climate action strategies.





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