



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Embassy of Switzerland in India and Bhutan



CapaCITIES

LOW CARBON • CLIMATE RESILIENT • CITY DEVELOPMENT



Facilitating the Transition of Cities in India Along a Low- Carbon Pathway

Enabling the Flow of Finance: A White Paper

July 2026





Facilitating the Transition of Cities in India Along a Low-Carbon Pathway

Enabling the Flow of Finance: A White Paper

July 2026

This paper has been prepared as part of the CapaCITIES project supported by The Swiss Agency for Development and Cooperation

Prepared by

South Pole AG (South Pole)

Technoparkstrasse 1 · 8005,
Zurich, Switzerland

southpole.com

Hans Peter Egler

Senior Director, Sustainable Infrastructure/Public Finance

Subhabrata Haldar

Manager, Sustainable Infrastructure

Samiksha Dhingra

Lead Specialist, Sustainable Infrastructure

Gurvinder Singh

Consultant, Sustainable Infrastructure

National Institute of Urban Affairs (NIUA)

1st & 2nd Floor, Core 4B,
India Habitat Centre,
Lodhi Road, New Delhi – 110003

niua.in/

Dr Debolina Kundu

Director

Md Asif Raza

Lead - City Planning & Engagement
Climate Projects Preparation Facility

IIFCL Projects Ltd.

Plate A & B, 5th Floor, Office Block 2, NBCC
Towers, East Kidwai Nagar, New Delhi-110 023

iifclprojects.in/

Palash Srivastava

Deputy Managing Director, India Infrastructure Finance Company
Limited (IIFCL)

Mehul Patwari

CEO & Director, IIFCL Projects Ltd.

Shashwat Kumar Pal

Assistant General Manager, IIFCL Projects Ltd.

With inputs from:

ICLEI South Asia

C-3, Lower Ground Floor,
Green Park Extension, New Delhi – 110016
southasia.iclei.org

econcept AG

Gerechtigkeitsgasse 20
CH-8001 Zürich
econcept.ch/de/

Review and expert inputs:

Dr. Dhruba Purkayastha, Sustainable Development and Climate Finance Expert

Dr. Ranjana Ray Chaudhuri, TERI School of Advanced Studies

Dr. Akshaya Kumar Sen, HUDCO

Contents

Abbreviations/Acronyms

Executive Summary

1. Introduction

2. Current experiences on climate planning and implementation in cities

3. Financing urban climate actions - the present situation

4. Recommendations - accelerating urban India's transition to a low carbon pathway

5. Conclusion

Annexure: Template for the Preparation of a City Climate Investment Plan

Abbreviations/ Acronyms

Acronym	Definition
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BAU	Business-as-Usual
C-Cube	Climate Centre for Cities
CapaCITIES	Capacity Building Project on Low Carbon and Climate Resilient City Development in India
CAP	Climate Action Plan
CCAP	City Climate Action Plans
CCTS	Carbon Credit Trading Scheme of India
CESL	Convergence Energy Services Limited
CIP	Climate Investment Plan
CITIIS	City Investments to Innovate, Integrate and Sustain
CPPF	Climate Projects Preparation Facility
CRCAP	Climate Resilient City Action Plan
CSCAF	Climate Smart Cities Assessment Framework
CSR	Corporate Social Responsibility
DFI	Development Finance Institution
EIB	European Investment Bank
EU	European Union
EV	Electric Vehicles
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India
GCC	Gross Cost Contract
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GoI	Government of India
HUDCO	Housing & Urban Development Corporation
IIFCL	India Infrastructure Finance Co Ltd
IRFC	Indian Railway Finance Corporation
LT-LEDS	Long-Term Low Carbon Development Strategy
MNRE	Ministry of New and Renewable Energy
MoHUA	Ministry of Housing and Urban Affairs
MOP	Ministry of Power
NAPCC	National Action Plan for Climate Change
NaBFID	National Bank for Financing Infrastructure and Development
NDC	Nationally Determined Contributions
NIUA	National Institute of Urban Affairs
NMSH	National Mission on Sustainable Habitat
NULP	National Urban Learning Platform
NRW	Non-Revenue Water
PSGF	Payment Security Guarantee Fund

Acronym	Definition
PFC	Power Finance Corporation
PM e-DRIVE	PM Electric Drive Revolution in Innovative Vehicle Enhancement
PPP	Public-Private Partnerships
RBI	Reserve Bank of India
RE	Renewable Energy
RESCO	Renewable Energy Services Company
SBM	Swachh Bharat Mission
SCM	Smart Cities Mission
SDC	Swiss Agency for Development and Cooperation
SEAP	Sustainable Energy Action Plans
SEBI	Securities and Exchange Board of India
SFC	State Finance Commission
TA	Technical Assistance
TNUIFSL	Tamil Nadu Urban Infrastructure Financial Services Ltd
ULB	Urban Local Body
UCF	Urban Challenge Fund
VGF	Viability Gap Funding

Executive Summary

India's urban transition will play a defining role in shaping the country's long-term climate and development trajectory. Urban centres are major drivers of economic growth, infrastructure demand, energy consumption, and greenhouse gas emissions, while simultaneously facing increasing climate risks from floods, heat stress, water scarcity, and environmental degradation. As India advances towards its developmental aspirations under Viksit Bharat, cities will need to evolve along a low-carbon and climate-resilient pathway that balances economic growth with sustainability and resource efficiency.

Globally, urban climate action has moved from isolated sectoral interventions towards integrated city-level planning frameworks. International experiences such as the European Union's (EU) '100 Climate-Neutral and Smart Cities' mission and the C40 Cities network demonstrate the importance of combining long-term Climate Action Plans (CAPs) with structured climate investment planning, technical assistance, and access to finance mechanisms. These approaches recognise that urban climate transition requires not only policy ambition, but also institutional capacity, project preparation support, and access to public and private capital.

In India, climate considerations are gradually being integrated into urban development policy through the National Mission on Sustainable Habitat (NMSH), flagship urban programmes such as the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Swachh Bharat Mission (SBM), as well as renewable energy and electric mobility initiatives. The NMSH has established broad thematic priorities across energy, buildings, mobility, waste, water, and urban planning, while the Climate Smart Cities Assessment Framework (CSCAF) has been benchmarking progress in cities. However, integrated approach to addressing climate, starting with preparation of CAPs remains limited to a few cities, let alone logical follow-up actions of investment planning and integration of climate considerations into municipal governance, budgeting or infrastructure planning.

The Capacity Building Project on Low Carbon and Climate Resilient City Development in India (CapaCITIES) programme supported by the Swiss Agency for Development and Cooperation (SDC) has been pioneering holistic urban climate transition in multiple Indian cities over the last ten years. Through technical assistance (TA) cities are being supported to develop Climate Resilient City Action Plans (CRCAPs), multi-year Climate Investment Plans (CIPs), design of bankable pilot projects and institutional strengthening. These city CAPs forecast about 40 per cent emission reductions by 2030 through interventions in renewable energy, energy efficiency, public transport, water and waste management, urban greening, etc. However, as per the CIPs, the estimated investment requirements by 2030 are substantial (INR 20-500 billion), varying depending on the city size, infrastructure gaps, and climate ambitions. As per international practices, like the ongoing NetZeroCities programme in Europe, the total costs of climate action in cities must be distributed across multiple stakeholders based on the source of emissions and/ or allocated to those who are best placed to manage them. Applying this principle to the CapaCITIES studies, government entities may be responsible for about half of these investments, while the remaining is allocated to private organisations and city residents. The direct share of urban local bodies (ULBs) ranges between 15-20 per cent.

Municipal budgets are generally prepared on an annual basis and are rarely linked to long-term infrastructure or climate transition strategies. The CapaCITIES 2030 Climate Investment Planning studies show that of the CRCAP costs, only a modest share is currently reflected in existing municipal budgets, requiring major capital investments over and above their regular activities. Given the systemic challenges of municipal finances, most cities are constrained in their ability to raise additional resources. Only the large cities are able to generate some surpluses that can be used to fund climate action after meeting their Business-As-Usual (BAU) needs. It would therefore be imperative to integrate climate into normal developmental actions as far as possible through climate tagging or budgeting, thereby reducing the need for supplementary funds. If possible, surpluses may also be strategically leveraged to raise debt or design public-private partnership (PPP) projects. Additionally, ULBs would need to be supported by the central and state governments through grants to address the remaining financial gaps.

Although the Government of India has significantly expanded support for urban infrastructure through AMRUT, SBM, PM Surya Ghar: Muft Bijli Yojana, Smart Cities Mission (SCM), electric mobility programmes like Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME) and PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM e-DRIVE), and the recently launched Urban Challenge Fund (UCF), many ULBs face difficulties in providing matching funds, undertaking long-term operation and maintenance, preparing bankable projects, and accessing market-based finance. Municipal bond markets and PPP frameworks are evolving but remain limited in scale. At the same time, private investors continue to perceive municipal projects as financially and operationally risky due to uncertainties related to revenue recovery, governance, and contract management.

Based on learnings from international and domestic case studies, and an assessment of the current situation in India, a set of suggestions have been evolved for governments at the national, state and city levels. This is summarised in the following graphic. The detailed narrative explanations are provided in the main report.



Accelerating Urban India's Transition along a Low Carbon Pathway



VISION OUTCOMES: Actions to enable the flow of capital to cities for Low-Carbon & resilient urban development



POLICY & INSTITUTIONAL ROADMAP

1 STRENGTHEN THE NATIONAL MISSION ON SUSTAINABLE HABITAT



- NMSH goals & CSCAF indicators may be enhanced to ensure climate action is institutionalised in core municipal processes. Performance review and upgradation may be undertaken every 5 years with annual CSCAF reporting.

Possible Roadmap for strengthening CSCAF:

- MoHUA may consider encouraging all State/UT capitals and 80 NMSH cities to prepare GHG inventory baselines by Dec 2027 and CCAPs by Dec 2028.
- These cities may also prepare Climate Investment Plans (CIPs), introduce climate tagging of CCAP-linked projects in municipal budgets, and align funding for climate action with AMRUT, SBM and UCF.
- Climate cells may be operationalised/strengthened in all States and NMSH cities by Dec 2027.

- MoHUA may issue standardised guidelines, templates and toolkits (hosted on NULP) for planning, financing and monitoring climate action.
- If possible NMSH may be provided dedicated budget; else NMSH linkages may be explicitly articulated in AMRUT, SBM, UCF operating guidelines for funding climate action.

2 STRENGTHEN INSTITUTIONAL CAPACITY FOR URBAN CLIMATE ACTION



CITY LEVEL

- MoHUA may encourage ULBs to establish/strengthen dedicated climate cells with adequate staff and recurring budgets (to lead CCAP preparation and updates; help integrate climate considerations into budgeting, project preparation, monitoring and reporting).



STATE LEVEL

- State Governments may consider establishing/strengthening urban climate cells within Municipal Administration Departments (to support ULBs with technical assistance, project aggregation, reforms and capacity building).



NATIONAL LEVEL

- MoHUA may establish a Programme Management & Knowledge Support Unit (to institutionalise training on climate planning, finance, PPPs, carbon markets and resilience; NIUA CPPF and HUDCO UIWIN may become one-stop Technical Assistance platforms for project preparation, financing and capacity building).



FINANCING FRAMEWORK

3 STRENGTHEN MUNICIPAL FINANCES



ULBs may

- Enhance tax & non-tax revenue collection.
- Rationalise user charges & municipal taxes.
- Explore new sources like land value capture, road ROW and asset monetisation (develop digital asset inventories with market potential assessments).



GoI & State Govt. may incentivise cities for improved own-source revenues and innovative use of their surpluses for climate outcomes.

4 INTEGRATE CLIMATE PARAMETERS INTO FISCAL TRANSFERS



State Governments may:

- Integrate climate-related indicators into State Finance Commission devolution principles.
- Link transfers to measurable sustainability indicators.
- Incentivise achievement of climate outcomes by ULBs (Performance grants)

5 CONTINUE & REORIENT EXISTING MISSIONS WITH CLIMATE AT THE CORE



- Missions like AMRUT, SBM etc. may be extended beyond current timelines to allow cities to transition from grant support to market finance under UCF.
- Handholding support may be provided to cities to transition to the UCF paradigm.
- Climate objectives may be more deeply embedded in funded urban programmes (AMRUT, SBM, etc.) and directly linked with NMSH goals.

6 ENABLE ACCESS OF CITIES TO CLIMATE FINANCE



- A Sustainable finance window (blended finance pool) may be set up amongst domestic Infra Financing Institutions, MDBs, climate & philanthropic funds.
- Pooled financing frameworks may be encouraged for smaller ULBs.
- Partial credit enhancement mechanisms may be expanded through multiple Infra Financing Institutions; States may set up own guarantee funds.
- The National Infra Pipeline may allow tagging with climate or sustainability labels to improve visibility for climate funds & impact investors.
- ULBs may be extended support to explore voluntary carbon markets and Article 6 mechanisms.



MARKET & TECHNOLOGY ENABLERS

7 PROMOTE STANDARDISATION, TECHNOLOGY SUPPORT & INNOVATION



The Government and competent authorities may:

- Develop repository of technical standards, specifications, performance standards, business and procurement models for sustainable technologies/services (RE systems, energy efficiency, water & waste recycling, etc.).



- Publicise model bidding documents, empanelled list of vendors & service providers in different technologies/services.



- Support pilot projects in emerging sectors (district cooling, circular economy, etc.)



- Develop national framework for Environmental Product Declaration (EPDs); promote use of low-carbon construction materials in public infrastructure.

8 INDUCE INVESTMENTS BY CITIZENS



BUILDINGS

Tax / stamp duty / user charge rebates or subsidies may be provided for green buildings or sustainable practices by citizens;



MOBILITY

Cities may introduce preferential parking for non-fossil fuel vehicles; define low-emission zones in certain areas.



WASTE

Cities may incentivise self management of bulk waste by communities/societies.



ENGAGEMENT

Cities and states may promote awareness of various GOI and state missions to induce behavioural change and investment on sustainable alternatives for private assets.



Effective implementation will require collaborative action by MoHUA, State Governments, Urban Local Bodies, Financiers, Technical Institutions and Citizens.

Chapter 1: Introduction

The Sustainability Pivot: Aligning Urbanisation with India's Developmental Goal

India aspires to transition to a developed nation (Viksit Bharat) with USD 30 trillion economy by 2047 and achieve Net Zero emissions by 2070. Balancing these ambitious, yet seemingly conflicting goals represents a unique challenge in our development history. Urban areas contribute 66 per cent to the national Gross Domestic Product (GDP), and this is expected to increase to 80 per cent by 2050¹. While cities will remain the engines of this economic transformation, as hubs responsible for the majority of greenhouse gas (GHG) emissions they would also be the focal point of India's decarbonisation challenge. Thus, sustainability of urban growth will, to a large extent, define India's climate future.

India's strategic climate roadmap

India has been moving aggressively to align its development with climate responsibility. It has progressively updated its Nationally Determined Contributions (NDC) targets, showcasing a proactive shift toward a low-carbon economy.

Goal	NDC Target: 2030	Current Status (2025/26) ²
Share of non-Fossil fuel-based Energy	50% of cumulative electric power installed capacity	Achieved and surpassed in 2025
Carbon Intensity of the economy	Reduce intensity by 45% (from 2005 levels)	On Track: 36% up to 2020
Carbon Sink	Create additional sink of 2.5 to 3 billion tonnes of CO ₂ e through forest and tree cover	Significant Progress (2.29B tonnes of CO ₂ e created between 2005-21)

Beyond these near-term targets, India's 2070 Net Zero goal is guided by the Long-Term Low Carbon Development Strategy (LT-LEDS), focusing on interventions in energy, transport, urban systems, and industry.

The resource challenges

Finance would be one of the most critical ingredients to meet India's ambition of economic development in a sustainable manner. NITI Aayog estimates cumulative investment requirement of USD 22.7 trillion by 2070, i.e. USD 500 billion per year for climate mitigation activities (adaptation needs

¹ Press Information Bureau. (2023, October 9). *Investment on urban schemes increased significantly since 2014: Housing & Urban Affairs Minister Hardeep S. Puri* [Press release]. Ministry of Housing and Urban Affairs, Government of India.

² Press Information Bureau. (2025, December 8). *Parliament question: Reduction in carbon dioxide emission: Minister of State for Environment, Forest and Climate Change, Shri Kirti Vardhan Singh* [Press release]. Ministry of Environment, Forest and Climate Change, Government of India.

are being estimated separately)³. The current flows are about a quarter of this demand, which gives an indication of the magnitude of the gap in funding.

In terms of sectoral demand, about 50 per cent of this capital is needed for power and energy, 25 per cent for industry, and 20 per cent for transportation. Urban areas provide the spatial and structural context where these sectors operate like integrated systems; and due to these dynamics separate investment estimates for urban development aligned to India's climate targets are not available.

The urban climate paradox

While India is making significant progress towards its net zero goals, our urban areas are facing increasing challenges with regard to the impact of climate change on settlements. Rapid urbanisation is leading to increased energy consumption, higher waste generation, intense pressure on land, infrastructure and resources, the impacts of which are being felt the most across our cities and towns.

Most Indian municipalities depend on state and national funding for sector-specific urban development. However, except for the metropolises and some large cities, ULBs generally have limited capacity to transition from service delivery to comprehensive climate action.

Objective of this paper

The scale of the climate crisis in Indian cities demands a shift from general urban rejuvenation to integrated climate action approach. This paper analyses the systemic constraints hindering effective urban climate action, evaluates the current finance landscape, and outlines strategic recommendations to facilitate urban transition along a low carbon pathway.

³ Niti Aayog: Scenarios Towards Viksit Bharat and Net Zero, Financing Needs. (Vol 9)

Chapter 2: Current Experiences on Climate Planning and Implementation in Cities

Global examples of coordinated climate planning and action for cities

Prior to analysing the Indian context further, it may be useful to examine international initiatives for climate action in cities. To address the urban climate challenge, global frameworks have shifted from fragmented initiatives to integrated, multi-sectoral strategies at a city level. Two primary models offer critical lessons for the Indian context: the EU's mission-driven approach and the C40 network's climate action.

Europe's Net Zero programme: A blueprint for mission-led action

Europe has promised to become the first climate-neutral continent in the world by 2050. Towards this goal, the EU has codified climate neutrality into law, targeting 55 per cent emissions reduction from 1990 levels by 2030. This law is binding on EU member countries. Recognising the important role cities would need to play to achieve these ambitious goals, the EU has launched the **"100 Climate-Neutral and Smart Cities by 2030"** mission. The 100 cities selected through a challenge route have to implement measures to reduce their emissions by at least 80 per cent and manage the residual 20 per cent (maximum) through carbon sinks or carbon offsets. Subsequently, these cities would act as innovation hubs to inspire all European cities to follow by 2050.

Cities have formulated comprehensive CAPs and CIPs defining their roadmap and plans to climate neutrality by 2030. After detailed scrutiny of the proposals by the European Commission, 112 cities have been granted the 'Mission' label.

The array of projects being explored includes renewable energy for public buildings, social housing, development of district heating powered by green energy, improving energy efficiency of buildings through retrofits, electric mobility, nature-based solutions for cooling and flood protection, and use of alternate building materials.

Delivering climate action requires a blend of public and private funding. To implement these plans, cities are being encouraged to diversify beyond grant funding and leverage financing from development banks, including the European Investment Bank (EIB), as well as private capital. To support them in this endeavour, through a Mission Cities Capital Hub, TA support is being made available to interested cities for project preparation, innovative business modelling, investor outreach, procurement support, etc. which could be potentially replicated across Europe. Many European cities are taking the TA support of the Capital Hub and the EIB.

C40 Cities-led climate action

C40 is a global network of mayors of about 100 cities. All C40 member cities have to develop CAPs that align with the Paris Agreement. Close to 80 cities globally have prepared such CAPs in accordance with specified frameworks. The C40 Cities Finance Facility helps cities turn climate strategies into 'bankable' projects, attracting both public and private capital. It has supported the development of about 40 projects in about 30 cities in electric buses, solar farms, energy efficiency improvements,

sustainable waste systems and river restorations and mobilised over €1 billion in climate finance. Some of the notable actions catalysed by C40 include implementation of Local Law 97 in New York that limits carbon emission in buildings, centralised municipal district heating and cooling systems in Copenhagen, Ultra Low Emission Zone in London, underground storm-water storage nodes in Tokyo, among others.

C40 in the Indian context

C40 is currently supporting the CAPs for Mumbai and Chennai and various sustainability initiatives in other mega cities like e-truck pilot project, Renewable Energy for bus depots, TA to develop project concept notes for urban climate infrastructure in Maharashtra and Gujarat aligned with the UCF goals.

Overview of Climate Action in Indian Cities and Sectoral Interventions

The national context

Historically urban development in India has focused on the improvement of basic urban services like water supply, sanitation, waste management, transportation, environmental improvement, housing for the poor, etc. Following India's commitment to the Paris Agreement goals, climate change also came to be recognised as an important theme in the urban sector. The NMSH 2.0, a sub mission of India's National Action Plan for Climate Change (NAPCC), helmed by the Ministry of Housing & Urban Affairs, focusses on five thematic areas of (i) Energy and Green Building, (ii) Urban Planning, Green Cover and Biodiversity, (iii) Mobility and Air Quality, (iv) Water Management, and (v) Waste Management. Strategic priorities have been recommended by the mission for each of these themes.

The NMSH also recommended that City Climate Action Plans (CCAPs) should be prepared for million-plus cities and integrated with Master Plans. To nudge cities towards action, the CSCAF has also been established where ULBs are assessed against 28 indicators within the five thematic areas of NMSH. About 226 cities are currently covered under the framework.

The financing and implementation of NMSH was envisioned to be delivered through linkages with existing schemes like AMRUT, SBM, SCM, schemes of MNRE, etc.

To help cities with the transition, a Climate Centre for Cities (C-Cube) and climate data observatory has been established at the National Institute of Urban Affairs (NIUA). C-Cube operates as a centralised repository for knowledge retention and technical capacity-building to mainstream climate resilience into localised urban planning.

To specifically focus on urban waste management and circularity MoHUA-NIUA along with a few development financing agencies launched the City Investments to Innovate, Integrate and Sustain (CITIIS) 2.0 programme). Spanning a four-year implementation cycle (2023-2027), the programme is supporting 18 municipal waste management projects across the country. Under CITIIS 2.0, states are also being supported through capacity building and institutional strengthening initiatives, alongside the development of context-specific CAPs. These efforts help identify priority climate interventions and create a pipeline of projects for implementation.

While the strategic direction was laid out in the NMSH, climate action planning has not been mainstreamed even amongst the larger cities of India. A significant structural gap remains at the local level: the vast majority of ULBs and parastatal agencies lack defined climate goals, awareness of the tools and methodologies and specialised technical capacity required to develop integrated climate neutrality and resilience plans. Only a handful of cities have defined their climate action roadmap and plans so far.

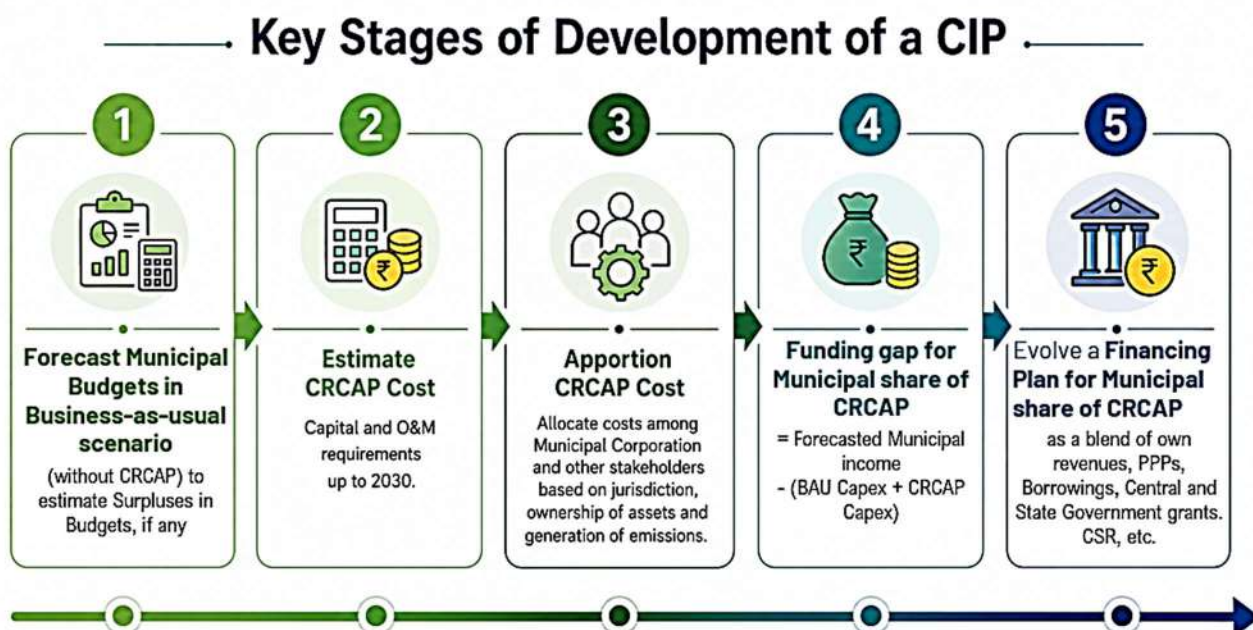
The CapaCITIES programme

As central frameworks mature gradually, a subset of pioneer cities in India has accelerated their decarbonisation trajectories through international technical cooperation. The Capacity Building Project on Low Carbon and Climate Resilient City Development in India (CapaCITIES), supported by the Swiss Agency for Development & Cooperation (SDC) has been championing climate transition in India's urban sector since the last ten years, bringing in good practices from abroad and adapting them to the local context.

A distinctive feature of CapaCITIES is its integration of climate action and investment planning, project preparation and implementation of pilots as well as evolving an investment pipeline of bankable projects to actualise the transition. The programme is also supporting the institutionalisation of climate action into regular planning, budgeting, project preparation, and monitoring systems, strengthening climate investment planning, and anchoring methodologies, tools, and learnings within state and national institutions to ensure sustainability beyond the project lifecycle. This integrated approach not only strengthens the technical and policy foundation for climate-resilient urban growth, but also mobilises additional resources for implementation.

Climate Resilient City Action Plan (CRCAP): Using a standardised methodology customised for India, comprehensive climate neutrality plans and localised mitigation and adaptation frameworks aligned with India's national Net Zero 2070 goal were developed for eight cities. The CRCAPs target high-impact sectors – energy and built environment, transport, waste management, water supply, wastewater and drainage, and biodiversity, and sets progressive goals for emission reduction for the years 2030, 2050 and 2070 from the BAU baseline.

Climate Investment Plan (CIP): As per international good practice, the CRCAP needs to be followed by a strategic financial plan with a visibility of the next five years to help cities plan the resources for the medium term (say 2030) targets. It estimates the additional capital required for climate-specific projects above BAU municipal budgets, allowing cities to prioritise project pipelines against viable funding sources. A CIP template developed in CapaCITIES is attached in the annexure.



Key achievements in CapaCITIES

- **Climate Resilient City Action Plans (CRCAPs)** developed for eight cities, namely, Ahmedabad, Rajkot, Vadodara Coimbatore, Tiruchirappalli, Tirunelveli, Udaipur and Siliguri.
- **Climate Investment Plans (CIPs)** are being developed for six cities, aligned with City Action Plan 2030 targets.
- **Over 25 quick-win and co-financing pilot projects implemented; 17 pilot and bankable climate projects prepared**, namely, green mobility: integrating BRT with electric last-mile connectivity; renewable energy: captive and floating solar; Sustainable Energy Action Plans (SEAPs) combining wind and solar for municipal High-Tension load; waste-to-energy (bio CNG), etc.
- **Institutionalisation:** Climate budgeting practices supported in project cities through operationalisation in Ahmedabad and Coimbatore, other cities in process. Six cities supported in establishing institutional Climate Action Cells.
- **Over 1,500 city and state government officials trained** on climate finance and project structuring; developed various toolkits on waste management, renewable energy and e-mobility.

Key findings of the CRCAPs and CIPs

Major Emission Drivers

In general, the **buildings and energy sectors** are the largest contributors, accounting for roughly **40–50 per cent** of total urban GHG emissions, followed by **transportation**, contributing **20–25 per cent** of emissions.

Mitigation Potential

Significant Reductions: Executing the phased strategies and investments outlined in the CRCAP can reduce GHG emissions by **40–50 per cent** from BAU over the next five years.

Investment & Budgetary Gaps

Magnitude of Investment: Depending upon the scale and initiatives of the city, the cost of climate action may vary between **INR 20–500 billion** per city.

Cost Sharing: Based on the source of emissions, total investment costs must be divided across multiple stakeholders, including municipal, state, and central governments, private citizens, businesses, and PPP investors.

Municipal Share: ULBs are directly responsible for about 15–20 per cent of the required investments, related to the services for which they are directly responsible.

The Budget Gap: Currently, **10–40 per cent** of the required climate interventions are accounted for in existing municipal capital budgets.

Financial & Institutional Support

Inter-governmental Aid: All cities require financial backing from central and state governments to fund these additional climate projects.

City Size Disparities: Larger cities can strategically leverage their own revenue surpluses to raise additional capital through borrowings for climate investments, whereas smaller cities are hardly able to break even, and require much higher levels of state/central support.

Capacity Building: Technical and structural success depends on institutional strengthening, which includes setting up dedicated municipal climate cells and training human capital.

Constraints faced by Indian cities for climate action

Based on the experiences of CapaCITIES and our understanding of the overall city operations ecosystem, following key constraints emerge:

Policy adoption gaps

NMSH delivery challenges: The Sustainable Habitat sub-mission is being delivered on ground through linkages with other funded programmes of MoHUA, and also has linkages with programmes of other ministries for transitions in energy, mobility, etc. This is structurally more complex than single-focus NAPCC initiatives like the Solar Mission or Energy Efficiency Mission. Because its multi-thematic mandates rely on intersecting programmes across different institutions, its execution is constrained by availability of municipal funding and execution capacity, coordination, and slow public behavioural transitions. Furthermore, localised CCAPs have been formulated by only a fraction of target cities.

Financial constraints

Lack of multi-year financial planning: Indian cities follow year-on-year budgeting practices instead of a strategic multi-year vision, which is a necessary tool to accomplish medium-term climate objectives.

Funding for capital works in cities is not well diversified and is predominantly dependent on public budgets: Being unable to strengthen their own revenue bases and with low revenue surpluses, cities depend on central and state government transfers for about 75 per cent of their BAU capital budgets. In this scenario, the requirement of additional capital investments for climate action beyond a ULB's BAU activities often acts as a deterrent.

Even for public budgets, climate action in cities gets less priority: Though the NMSH is the dedicated sub-mission for urban climate action under the NAPCC, it lacks a dedicated budget; achievements are dependent upon the other funded schemes of MoHUA. Further, there is no existing practice (including the devolution of Finance Commission grants) to incentivise ULBs for their initiatives to address climate issues.

Underutilised financial frameworks for diversification: While several frameworks for attracting finance beyond public sources have been developed, cities have not yet been able to utilise them to their potential. This is manifested by the low adoption rate of municipal bond and green bonds, PPPs, etc.

Institutional weaknesses

Climate sensitivity needs to be enhanced in urban institutions: Climate is not a central theme of municipal and parastatal processes, budgeting and decision-making. Only a few states and cities have recently started integrating climate rationale into their day-to-day functioning.

Capacity gaps: The vast majority of ULBs do not have capacities to plan for climate action and mobilise finance for the same from budgetary and non-budgetary sources.

- Standardised methodology and templates for the preparation of CAPs and CIPs are not available to most cities.
- Climate is a relatively new field, and cities require handholding with regard to climate action planning, investment planning and access to finance, project preparation, technology assessment, financial structuring, project management and monitoring of outcomes. Other than NIUA and some externally funded programmes, not much mentoring and handholding support is available to cities for these critical activities.

Coordination and approval friction: Urban climate actions involve multiple public and private stakeholders across different sectors. However, in the absence of a policy or statutory mandate at the city level, commitment, coordination and convergence (including funding) amongst different sector and departments is quite challenging.

Stakeholder consultations

As a part of the climate investment planning activities undertaken in CapaCITIES, consultations were held with key financial stakeholders, including international Development Finance Institutions (DFIs), domestic institutions and banks. It was felt that cities should transition away from grant dependency by optimising own-source revenues to become market-ready institutions capable of securing investment. Availability of dedicated institutional support is necessary for realising the importance of blended financing options for urban infrastructure projects. A collaborative funding ecosystem comprising domestic infrastructure finance companies, commercial banks, and DFIs may be set up to identify investment opportunities in the urban climate sector and provide dedicated institutional support to foster a financially viable project pipeline. Use of de-risking mechanisms, such as Viability Gap Funding (VGF) and credit enhancements, to improve project bankability and bridge commercial gaps were also emphasised.

Key takeaways for India from case studies

Considering the deficiencies cited above, certain learnings may be drawn from international and domestic experiences.

1. Shifting from fragmented to integrated climate planning

Globally, frameworks have shifted from isolated initiatives to integrated, multi-sector strategies to tackle climate change impacts. Since cities are responsible for 70 per cent of GHG emissions, it is necessary to have a vision and strategic goal for climate mitigation and resilience at a city level. As the context, scale and capacities to mobilise finance and execute differ greatly amongst ULBs, to start with cities may set their own goals and roadmaps to attain the same. To implement the vision Indian, cities need to move from piecemeal projects to developing comprehensive CCAPs that cover high-

impact sectors like energy, buildings, transport, waste, water, biodiversity and environment. This aligns clearly with NMSH recommendations and CSCAF Indicators.

2. Bridge the strategy-to-finance gap

Climate investment planning: A CCAP must be paired with a strategic multi-year financial or investment plan. CIPs with a minimum five-year visibility could help cities to define the responsibility of the ULB and other stakeholders, estimate the additional capital required by the ULB for its share beyond standard BAU municipal budgets, and identify potential sources of finance.

Project structuring: To attract capital, urban climate strategies must be converted into project pipelines that can attract debt and equity investment. This includes launching pilots and scaling up replicable business models for electric mobility, captive/ floating solar, bio-CNG, and energy efficiency retrofits. Adaptation projects may be designed around a mix of government grants, development finance, Corporate Social Responsibility (CSR) and philanthropic funds.

Diversifying beyond government grants, leveraging surpluses to access private and market capital: Relying primarily upon national or state government grants is insufficient for the scale of climate transition needed, even in developed countries. ULBs and parastatals must venture to access capital markets, commercial banks, DFIs and PPPs, and use blended finance approaches wherever feasible.

3. Mainstreaming climate in local governance

Institutionalisation: To ensure continuity, climate considerations must be embedded in regular municipal workflows. Setting up dedicated Climate Cells within ULBs, or at the state level, defining clear Standard Operating Procedures, frameworks, and toolkits helps anchor and drive these initiatives coherently across line departments. Climate Cells can also function as knowledge hubs that help build capacities within the ULBs.

Climate budgeting: Integrating climate rationale into planning and budgeting systems can help ULBs assess overlaps with BAU funding and prioritise climate action especially during resource crunch.

4. Building local capacity and awareness

Addressing the structural capacity gap: A significant bottleneck for Indian ULBs and parastatal agencies is the lack of defined climate action policy goals, awareness of technical tools, and specialised expertise for mobilising finance. Creation of centralised repositories and guidance like the C-Cube, National Urban Learning Platform (NULP), CPPF at NIUA, and similar institutional set ups at state level is essential for localised capacity-building and technical training.

Technical Assistance (TA): Availability of specialised TA is vital to help cities with project preparation, investor outreach, and procurement support to cities for implementing climate projects.

Chapter 3: Financing Urban Climate Actions – the Present Situation

Municipal Corporations are at the forefront of implementing climate initiatives in cities, complemented by parastatal agencies in some sectors. However, barring the top tier cities, ULBs are generally financially constrained and struggle with basic service delivery, much less address climate change. Even in the large cities climate action or sustainability initiatives remains in the nature of add-ons to basic service delivery.

India does not yet have a specific urban climate funding framework apart from municipal green bonds. Hence an assessment of urban climate finance essentially amounts to a review of the general municipal finance landscape in the country.

Dependency of ULBs on national and state governments

Various studies have documented the condition of municipal finances in India. Of particular importance is the capital budget, as it relates to the creation and upgradation of basic infrastructure assets such as water supply, drainage, sanitation, and transportation. Capital investments are financed primarily through grants from the central and state governments under various schemes, supplemented by limited internal resources, borrowings, PPPs, and concessional DFI loans for select projects. Further, as a practice, ULBs typically do not forecast their medium to long-term infrastructure and capital needs based on infrastructure service delivery gap. Hence, capital investment estimates and financing plans are not available beyond annual budgets.

An assessment of 166 municipalities by the National Institute of Public Finance and Policy⁴ and other studies highlight the following:

- Revenue expenditure exceeds revenue receipts for more than half of ULBs, limiting their ability to generate surpluses for new development. The RBI Report on Municipal Finances 2024 observes that more than 50 per cent of the ULBs can meet less than half of their revenue expenses from their own-source revenue.
- On average, around 70 per cent of total capital receipts comprise grants from central and state governments. Dependency exceeds 80 per cent for smaller ULBs, while it is around 63 per cent for larger corporations. Janaagraha⁵ similarly estimates that 72 per cent of urban infrastructure is financed by the central and state governments.
- Borrowings account for around 22 per cent of capital receipts for larger ULBs, but only 6.6 per cent for smaller municipalities.
- The remaining capital receipts comprise miscellaneous deposits and proceeds from the sale of assets.

⁴ Gupta, M., Gupta, A., & Gupta, N. (2025). A deep dive into the finances of municipal corporations in India. *Economic & Political Weekly*, 60(39), 40–47. <https://doi.org/10.71279/epw.v60i39.45071>

⁵ Janaagraha. (2025, January). Financial management of municipal bodies [Presentation]. https://www.janaagraha.org/wp-content/uploads/2025/02/Janaagraha_Financial-Management-of-Municipal-Bodies.pdf

Financial devolution and transfers

Since cities enjoy limited financial autonomy, intergovernmental fiscal transfers remain the backbone of urban development financing. Successive Finance Commissions have increased grant allocations for ULBs, with the 16th Finance Commission recommending INR 3.58 trillion for 2026–31, a sharp increase over the previous cycle. However, urban climate considerations remain limited, apart from allocations linked to grants for wastewater management for 22 cities and disaster relief funds.

The actual devolution of Finance Commission grants to cities is further shaped by State Finance Commissions (SFCs). In practice, there are systemic issues with SFC functioning and state governments continue to retain substantial control over the distribution of funds.

Public-funded flagship central missions

India's urban climate action strategy increasingly relies on flagship national missions that combine urban development objectives with environmental outcomes. At present, climate action in cities is expected to be delivered largely through existing urban development schemes of MoHUA and other ministries, as there is no dedicated urban climate funding framework apart from green bonds.

Over the past two to three decades, the Government of India has been implementing large nation-wide programmes with large budget outlays such as JNNURM, SCM, AMRUT and SBM to improve urban infrastructure and basic services. AMRUT has focused on water supply, sewerage, drainage, and green spaces, while SBM has significantly expanded sanitation coverage, waste management, and public awareness regarding cleanliness and waste segregation.

Although the primary aim of these schemes is universal access to urban services, some climate objectives have been incorporated in the current versions. AMRUT 2.0 promotes energy-efficient water management and climate resilience through reduction of non-revenue water to below 20 per cent, wastewater recycling to meet 20 per cent of urban water demand, rejuvenation of water bodies, and urban green spaces. SBM-U 2.0 promotes waste segregation, scientific waste processing, remediation of legacy dumpsites, and waste-to-energy initiatives, helping to reduce methane emissions and improve public health outcomes.

On clean energy and transport transition, schemes promoting renewable energy and low-carbon mobility are directly contributing to urban climate mitigation. PM Surya Ghar: Muft Bijli Yojana supports rooftop solar adoption, while schemes such as FAME and PM E-DRIVE have accelerated the adoption of electric buses, two-wheelers, and charging infrastructure in urban areas. These measures are important for reducing urban air pollution and transport-related greenhouse gas emissions.

Together with several smaller initiatives, these programmes are gradually integrating sustainability concerns into India's urban governance and infrastructure delivery.

Financing: The scale of urban infrastructure financing required remains extremely large. The central government provides catalytic funding through major budgetary schemes, while states and ULBs finance the balance through their own resources, borrowings, and PPPs.

The cost-sharing pattern varies across schemes and states. Under AMRUT 2.0, the central government generally finances between 25–50 per cent of project costs, and up to 90 per cent for hilly states. The balance is shared between state governments and ULBs.

Under SBM-Urban, central support for processing facilities generally ranges between 25–33 per cent, while states and ULBs finance the remaining components including collection, transport logistics, and PPP participation.

The financing structure differs for energy-transition schemes. PM Surya Ghar: Muft Bijli Yojana scheme primarily provides direct capital subsidies to households for rooftop solar installations, while the beneficiaries finance the remaining cost through own funds or loans. Several states have schemes to supplement the GoI subsidy with additional grants to further encourage residents to make the transition.

In electric mobility programmes, the central government supports demand incentives and charging infrastructure, while states contribute through EV policies, tax exemptions, and supporting infrastructure. City governments bear costs related to integration of electric buses into public transport systems. The Gross Cost Contract (GCC) model has emerged as a viable PPP structure, enabling cities to avoid large upfront procurement costs. Demand aggregation through CESL has also helped achieve economies of scale.

State-funded Schemes

Apart from central missions, most states operate their own schemes to support urban infrastructure development. For example, Gujarat's Swarnim Jayanti Mukhya Mantri Shaheri Vikas Yojana (SJMMSVY) has been financing water supply, sewerage, sewage treatment, and renewable energy integration in municipal facilities since 2010.

Some states have also experimented with participatory cost-sharing schemes involving communities. Examples include the Namakku Naame Thittam (NNT) scheme in Tamil Nadu and the 70:20:10 model in Gujarat, under which communities co-finance a small share of project costs.

Transitioning to Capital Markets and Alternative Financing

To bridge the widening infrastructure financing gap, mobilisation of extra-budgetary resources is essential. The instruments currently available for the same include municipal bonds, green bonds, PPPs, and blended finance structures.

Bonds: Although municipal bond frameworks have existed for some time, the market remains underdeveloped. Around INR 45 billion has reportedly been raised through municipal bonds over the last nine years and some more issuances are expected in the current financial year⁶. Bond issuances in recent years have largely been driven by incentives under AMRUT, with total amount of fund raised by

⁶ Reuters (2026, May 20), India's muni bond market expands as nearly dozen cities set for debut issues.
<https://www.reuters.com/world/india/indias-muni-bond-market-expands-nearly-dozen-cities-set-debut-issues-2026-05-20/>

a single ULB not exceeding INR 2 billion. To encourage greater market access by ULBs, the current year's Union Budget has announced an additional incentive for bond issues exceeding INR 10 billion.

Urban Challenge Fund: The Government of India has also recently operationalised the UCF to encourage greater use of market-based financing. With a planned central assistance outlay of INR 1 trillion over five years beginning FY 2025–26, the UCF seeks to catalyse about four times total investment primarily through borrowings and PPPs. Central assistance is capped at 25 per cent of project cost, requiring cities to mobilise at least 50 per cent through loans, bonds, or private participation. The programme covers climate-linked themes such as circular economy, integrated waste management, transit-oriented development, non-motorised transport, and urban flooding.

PPP models have long been used in transport, water supply, and solid waste management and are now being extended to climate-related sectors such as electric buses, renewable energy, waste-to-energy, etc. Deployment of e-buses for public transport is being rapidly scaled up across the country primarily on the GCC model. In the area of solid waste, Tamil Nadu provides an example where a small waste-to-Bio-CNG pilot project in Coimbatore has been scaled up and replicated across multiple cities on PPP.

Non-fund-based support for municipal borrowing: Investment-grade credit ratings remain a pre-condition for ULBs to access bond markets. However, many institutional investors are unable to invest in infrastructure bonds or municipal bonds below AA grade. To help improve the credit rating, the Reserve Bank's revised Partial Credit Guarantee Scheme allows regulated entities to provide guarantee cover for up to 50 per cent of bond issuances. In line with this the National Bank for Financing Infrastructure and Development (NaBFID) launched a Partial Credit Enhancement facility in 2025, and other infrastructure finance institutions are expected to follow. At the state level, Tamil Nadu uses a Payment Security Guarantee Fund (PSGF) managed by TNUIFSL to provide liquidity support to municipalities for debt servicing during revenue shortfalls.

Stimulating investment by private citizens and businesses: More than 90 per cent of urban buildings and a large share of vehicles are privately owned. Encouraging private investment towards sustainability is therefore essential for urban decarbonisation. The Government of India has launched schemes such as PM Surya Ghar: Muft Bijli Yojana, PM E-DRIVE, and UJALA to support adoption of rooftop solar, electric mobility, and energy-efficient appliances. Several state governments complement these schemes with additional subsidies. Some ULBs also provide incentives such as property tax rebates for green buildings and rainwater harvesting systems. Such measures help catalyse investment by households and businesses in low-carbon assets, contributing to gradual urban decarbonisation.

Weaknesses and structural gaps: What could be better for cities

Despite substantial support from central and state governments for asset creation, significant fiscal and institutional gaps continue to limit the long-term effectiveness of these initiatives. The key issues are summarised below.

Climate action as an add-on rather than a core objective: As mentioned earlier, most urban schemes remain focused primarily on the provision of basic services, with limited sustainability components.

The implementation of such components most likely depend on availability of funds after basic service coverage requirements are met. While the core objective of universal coverage etc. are getting addressed rapidly, implementation of the more challenging sustainability aspects like non-revenue water (NRW) reduction, recycling and reuse of wastewater at scale may require more investment and time beyond the current programme.

Dependence on ULB capacity: Project outcomes ultimately depend on the capacity of states and ULBs to provide matching funds, land, operations and maintenance costs, and long-term operations. Weaker ULBs frequently struggle to finance or sustain infrastructure assets.

Weak own-source revenues: The low buoyancy of urban revenues, lack of surpluses and challenges in borrowing by most ULBs has been emphasised over and over again. Apart from systemic issues with regard to property tax, user charges, the potential of non-tax instruments such as land value capture, right-of-way monetisation, and carbon finance also remain under-utilised. Most cities also lack the asset registers/ land inventory and GIS-based databases which are necessary to develop proper asset monetisation strategies.

Mismatch between scheme timelines and climate horizons: Most flagship missions are designed for five-year horizons. The grant based AMRUT 2.0 and SBM-2.0 are currently valid until FY 2026-27. Although the UCF has been operationalised this year, cities may require time to transition towards its more market-oriented financing model. This may affect their ability to formulate basic as well climate-oriented infrastructure strategies for the medium term.

Nascent municipal bond market and credit constraints: Although policy support and enabling frameworks for municipal bonds exists, Indian cities have traditionally been conservative borrowers due to fiscal and creditworthiness concerns. Even financially strong ULBs have been restrained with limited access to bond markets. Compliance requirements under capital market regulations also make bond issuance more complex than conventional loans. As a combination of all these factors, the market is yet to realise its potential.

Limited direct access to climate finance: Municipalities are generally unable to directly access long-term international finance on their own. Access to concessional and climate finance from international financial institutions is decided by the central and state governments.

Barriers to private investment: While PPP frameworks exist for several sectors, many ULBs lack the expertise to structure bankable projects or manage complex contracts, especially for emerging technologies. From the private sector perspective, municipal projects are often viewed as risky due to payment uncertainty, user-charge recovery issues, and contractual disputes. Hybrid annuity and VGF models therefore find greater acceptance because they distribute risks more evenly. The overall experience suggests that PPPs can supplement public resources, but require stronger municipal capacity and governance systems.

Chapter 4: Recommendations – Accelerating Urban India's Transition to a Low Carbon Pathway

Introduction

Urban centres account for a major share of economic activity, energy consumption, infrastructure demand, and greenhouse gas emissions. As India advances towards becoming a developed economy, cities will play a central role in ensuring that economic growth remains resource-efficient, low-carbon, and climate resilient.

Towards the development of low carbon and resilient cities, the strategies laid down by the NMSH across the five thematic pillars are being slowly implemented in the country. A few Indian cities have prepared CAPs integrating the different sub-sectors and defining their mitigation targets. Through schemes like AMRUT, SBM, SCM, PM Surya Ghar: Muft Bijli Yojana, FAME-PM e-drive, the plans in different sectors are being gradually implemented on the ground. Overall, however, climate action across India's urban sector remains fragmented, varying significantly based on the ambition, capacity, and resources of ULBs. Thus, a more integrated national framework is needed to align urban planning, infrastructure financing, and climate transition objectives.

Urban climate action also presents significant economic opportunities. Investments in renewable energy, electric mobility, resilient infrastructure, resource efficiency, and circular economy systems can reduce dependence on imported fossil fuels, strengthen energy security, improve urban productivity, create employment, and attract private investment. Climate-resilient infrastructure is expected to reduce economic losses arising from floods, heat stress, and other climate-induced risks.

An analysis of some CAPs indicates that ULBs are expected to contribute 15–20 per cent of their cities' overall climate investment targets, particularly in water supply, sanitation, public transport, waste management, and energy-efficient operations. However, aside from a few major cities, most ULBs lack the technical and financial capacity to independently develop investible climate-integrated project pipelines or mobilise market-based finance as envisioned by the UCF. To accelerate transformative action, national and state governments will need to provide targeted financial and non-financial support beyond existing schemes.

This section outlines the city-level interventions needed to mobilise climate finance and develop sustainable infrastructure. It also details the critical financial and non-financial support required from state and central governments to enable these initiatives.

Strengthen the National Mission on Sustainable Habitat

The NMSH holds significant potential to advance India's broader sustainability agenda, complementing core initiatives like the National Solar Mission and the Mission on Enhanced Energy Efficiency. To maximise and scale this impact the goals of NMSH and CSCAF indicators need enhancement to ensure climate action outcomes are deeply institutionalised into the core municipal process and monitoring. Since the impact of climate change is felt in reference to the evolving urban landscape, the climate

action indicators for development need to be dynamic in nature and evolve as per the national commitment and local needs. Five yearly performance review and upgradation of the scheme can be taken up along with annual CSCAF reporting.

Crucially, achieving these outcomes hinges on robust funding. While a dedicated budget for the NMSH would be ideal, currently it appears to be constrained by the generic funding principles applied across all NAPCC missions. Therefore, to improve the harmonisation between NMSH goals and existing funded urban schemes like AMRUT, SBM, UCF, the interlinkage between the NMSH and these schemes may be explicitly acknowledged and articulated within the respective schemes/ programmes.

In addition, to ensure that NMSH mission goals are reinforced and achieved at a nationwide scale in a time-bound manner, climate considerations must be brought to the core of urban planning, governance, and financing. MoHUA may wish to consider the following broad roadmap and advise state governments and cities on adopting some good practices.

- **Climate Action Planning:**
 - All state and Union Territory capital cities and the proposed 80 cities in the NMSH indicative list, should prepare their GHG emissions inventory baseline by Dec 2027.
 - Using the baseline assessment, all such cities should prepare their CCAP by Dec 2028. Initially, each city may be allowed to set its own goals and define the pathway to attain the same.
- **Institutionalisation:** To improve internal capacities of ULBs, all states and NMSH ULBs should operationalise or wherever existing, strengthen Climate Cells by Dec 2027.
- **Financing:**
 - All cities which prepare CCAPs should follow them up with a CIP for the next five years to get an idea of the magnitude of investment required and define a strategy for its mobilisation. This would help them to translate the medium-term estimates into annual municipal budgets and lead to project implementation.
 - All NMSH ULBs should introduce climate tagging of projects linked to CCAP in their budgets from FY 2027-28, and link it to the funding sources like AMRUT, SBM, UCF, etc. This would help them to harmonise climate actions with their BAU budgets as much as possible, and in so doing optimise the need for additional funding.

To help cities, MoHUA, in collaboration with technical agencies, may issue standardised guidelines, templates, and toolkits adapted to Indian urban conditions. These resources may be hosted on the NULP for wide dissemination.

Essentially, these tools would enable cities to prepare baseline greenhouse gas emissions inventories, identify mitigation and adaptation priorities, estimate investment requirements beyond BAU budgets, develop medium-term financing and execution strategies and monitor climate outcomes and resilience indicators post implementation. Through a cyclic evaluation every five years, the city will be able to identify and scale successful strategies that enhance infrastructure circularity—such as low-

carbon mobility, which cuts emissions across both transport and waste sectors—to assess progress toward its net-zero and equilibrium targets.

Strengthen institutional capacity for urban climate action

Urban climate action requires institutional structures that can coordinate across multiple municipal functions and departments. Component 2 of CITIIS 2.0 is dedicated to the establishment of Climate Cells and data observatories in states and Municipal Corporations which could serve this role. To facilitate the expeditious roll out of the institutional frameworks and building capacities the following steps may be beneficial.

At the city level

ULBs may be encouraged to establish or wherever existing, strengthen the dedicated climate cells with adequate staffing and recurring budgets. These units may function as cross-sectoral coordination platforms responsible for preparation and periodic updating of CCAPs, integration of climate considerations into municipal decision-making, climate budgeting and prioritisation of sustainable investments, technical and financial project preparation, monitoring and reporting of climate outcomes and internal capacity building and dissemination of good practices.

At the state level

Similarly, each state government may strengthen the dedicated Climate Cell within the Municipal Administration Department or equivalent agency to support cities, particularly smaller ULBs that lack internal technical capacity. These state-level institutions may provide technical support for project and implementation, coordinate and liaise with national agencies for funding and policy support, facilitate aggregation of projects across multiple cities and support municipal reforms and capacity building.

At the national level

Given the scale of India's urban system, sustained capacity-building efforts will be required across thousands of urban centres. A Programme Management and Knowledge Support Unit may be established at MoHUA to provide long-term TA to states and cities.

Training programmes may therefore be institutionalised on greenhouse gas accounting and climate risk assessment, climate-responsive urban planning, climate finance and blended finance structures, PPP project structuring for RESCO models, waste to energy and circularity, e-mobility, capital market access, climate budgeting, carbon markets like CCTS, Article 6, and voluntary markets.

Project preparation support facilities such as NIUA's CPPF and HUDCO's UiWIN may be expanded and institutionalised as one-stop TA platforms for project preparation, financing, asset management, and capacity building.

Strengthen municipal finances and climate-linked financing

Improve own-source revenues of ULBs

One of the key constraints to urban climate transition is the weak financial position of ULBs. Cities need stronger own-source revenues and operating surpluses to support infrastructure investment and improve creditworthiness. ULBs should therefore continue striving for enhancing tax and non-tax revenue collection efficiency, periodically rationalising user charges and municipal taxes, preparing updated inventories/ registers of municipal assets linked to GIS and digital twin platforms, and exploring land value capture, leasing road right-of-way and other asset monetisation strategies.

On their part, the central and state governments should incentivise cities that demonstrate improvements in own source revenue generation and use of surpluses for climate outcomes.

Sustaining core urban missions

AMRUT, SBM, etc., are currently valid till 2026-27. Some of the challenging sustainability goals like NRW reduction below 20 per cent would probably require more time and investment. As cities transition to the market access-based model under UCF, they may need some handholding. Therefore, to achieve the envisaged climate-related outcomes, existing schemes need to continue along with financial packages to provide the window of support beyond their current timelines. Climate objectives may also be increasingly embedded within the core of ongoing infrastructure and service delivery programmes.

Integrate climate parameters into intergovernmental fiscal transfers

While Finance Commission transfers remain an important source of funding for ULBs, climate considerations currently have limited weightage in urban devolution frameworks. SFCs and state governments may therefore consider incorporating some climate-related indicators in the performance grants.

Potential indicators may progressively include reduction in non-revenue water, share of renewable energy in municipal demand, electrification of public transport, water recycling and reuse, climate-resilient infrastructure creation, etc.

Promote blended finance, credit enhancement and access to climate finance

A collaborative platform may be established amongst domestic infrastructure financing institutions like HUDCO, IIFCL, IRFC, PFC, NaBFID, commercial banks, international DFIs, climate and philanthropic funds, to create a dedicated sustainable finance window that provides financial and TA support to cities. The participating institutions may come together to establish a blended finance-based funding pool. It may also create pooled financing structures for smaller ULBs.

Credit enhancement mechanisms may also be expanded through these institutions and state-level financial intermediaries. State governments may also be encouraged to establish mechanisms similar to Tamil Nadu's PSGF.

Urban climate projects within the National Infrastructure Pipeline may be tagged with sustainability or climate labels to improve visibility for domestic and international climate investors.

In parallel, ULBs may be encouraged to explore voluntary carbon markets and permitted Article 6 mechanisms during project preparation.

Promote standardisation, technology support and innovation

Creating a public standards repository: Smaller cities and towns often lack the technical capacity to evaluate and implement climate-related technologies and projects. To address this, the Government of India may develop a publicly accessible repository of standards, specifications, and model documents relating to renewable energy systems, energy-efficiency equipment for various municipal services, water and waste recycling, low-emission transport zones, urban heat mitigation, flood resilience and disaster risk reduction, climate-resilient construction, and low-carbon construction materials.

The repository may include minimum performance standards, standardised procurement models and bidding documents including contracts, list of empanelled vendors and service providers. Standardisation would improve confidence among smaller ULBs, reduce project preparation time, and support creation of a professional market for climate-related urban services.

Supporting pilot projects: The government may also support pilot projects in emerging sectors such as district cooling, circular economy and other non-standard systems to establish replicable and scalable models.

Promoting low-carbon materials in construction: The Government of India may also direct BIS, GRIHA, IGBC and related institutions to develop a national framework for Environmental Product Declarations and progressive adoption of low-carbon construction materials in public infrastructure. Such measures would help scale demand for low-carbon materials and technologies while improving competitiveness of Indian manufacturing and exports.

Expand private sector and citizen participation in climate action: A large share of urban emissions originates from privately-owned buildings, vehicles, commercial and industrial establishments. Urban climate transition therefore requires active participation by citizens and businesses, including investment to reduce their respective carbon footprints.

To induce private stakeholders, state governments and ULBs may promote incentive-based regulatory measures such as property tax rebates for green buildings, Incentives for rooftop solar and water reuse, management of bulk waste by communities/ societies, localised bio-energy (from waste) facilities, wide distribution of charging points, preferential parking or user charges for non-fossil fuel vehicles, and defining low-emission zones in certain areas. Reducing load on centralised landfills, wastewater treatment plants and reducing traffic congestion will be key to reducing GHG emissions and citizen participation will be essential.

Chapter 5: Conclusion

Achieving India's long-term climate and development objectives will require a strategic shift in urban infrastructure financing and governance. Instead of relying primarily on grant-funded capital expenditure, India's urban climate responsive transition will increasingly require a combination of public investment, market-based financing, blended finance, institutional reforms, and stronger municipal capacity.

Cities need to be positioned not merely as implementing agencies, but as active partners in India's climate transition. This requires strengthening municipal finances, improving institutional capabilities, standardising climate project development, and aligning national, sub-national and local priorities.

A coordinated framework involving the Government of India, state governments, ULBs, financial institutions, and private investors can help accelerate the development of low-carbon, climate-resilient, and economically competitive urban centres consistent with the broader vision of Viksit Bharat.

Annexure

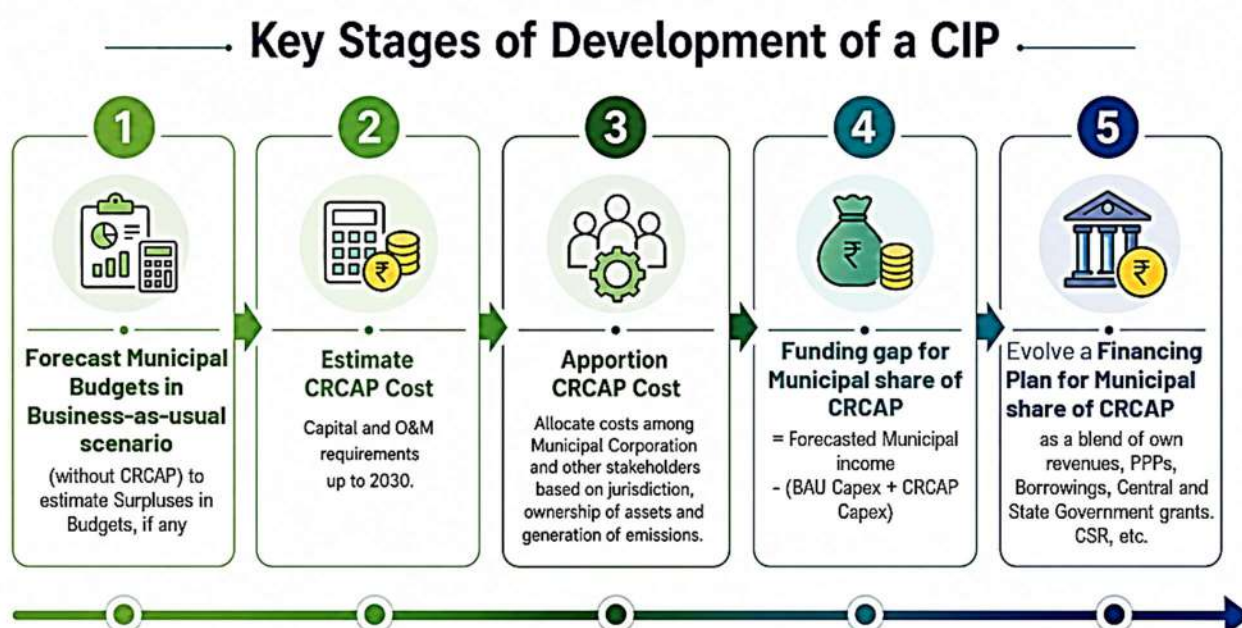
Template for the Preparation of a City Climate Investment Plan

Climate Investment Plan for _____ (name of the city)

(Based on the

City Climate Action Plan for _____ (Year)

A Climate Investment Plan (CIP) is a multi-year strategic plan that helps an Urban Local Body (ULB) to forecast the quantum of additional investment required for the execution and operation of a portfolio of sustainable infrastructure projects over the ULB's Business-as-Usual (BAU) activities, along with a suitable funding strategy and policy measures. It is a dynamic document that may be updated in accordance with changing ground realities at intervals of 2-3 years.



Instructions for filling up the template:

- This is a generic template for preparing a Climate Investment Plan (CIP) for any city in India. However, each city may adapt or customise it to develop its CIP according to the local context and data available.
- The CIP comprises three chapters, with a mix of quantitative and narrative content. The text shaded in grey is provided for explaining the context and expectations of each section. Cities should delete the text in grey and fill up the content as described therein.
- The tables must be filled in as described based on the city's own data and projections.
- The figures and graphs in the template are provided as illustrations for reference. The city should recreate the figures and graphs using its own data.
- A brief context or interpretation of each table and graph may be included to explain the findings or observations.
- Cities may wish to refer to a training module on climate investment planning, aligned with this template, which is being made available on the National Urban Learning Platform (NULP).

Abbreviations/ Acronyms

Acronym	Definition
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BAU	Business-as-Usual
CAP / CRCAP	Climate Action Plan / Climate Resilient City Action Plan
CCAP	City Climate Action Plans
CCTS	Carbon Credit Trading Scheme of India
CESL	Convergence Energy Services Limited
CIP	Climate Investment Plan
CSR	Corporate Social Responsibility
DFI	Development Finance Institution
ESCO	Energy Service Company
EV	Electric Vehicle
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India
GCC	Gross Cost Contract
GHG	Greenhouse Gas
GIS	Geographic Information System
GoI	Government of India
MNRE	Ministry of New and Renewable Energy
MoHUA	Ministry of Housing and Urban Affairs
NULP	National Urban Learning Platform
NRW	Non-Revenue Water
PM e-DRIVE	PM Electric Drive Revolution in Innovative Vehicle Enhancement
PPP	Public-Private Partnerships
RE	Renewable Energy
RESCO	Renewable Energy Services Company
SBM	Swachh Bharat Mission
SCM	Smart Cities Mission
TA	Technical Assistance
ULB	Urban Local Body
UCF	Urban Challenge Fund
VGF	Viability Gap Funding

Chapter 1: Historical & Current State of Climate Budgeting & Financing in the City

The Context

This is the introductory narrative that provides an overview of the context in which the CIP is being developed. The city should add:

- a brief introduction to the city (for instance population, municipal area, key economic activities, etc.);
- the institutional set up comprising the municipal body and other agencies involved in the administration and delivery of urban services;
- a brief about the city's Climate Action Plan and estimated cost of interventions proposed for the next 5 years;
- the city's aim /goal for this Climate Investment Plan (CIP); and
- any other relevant information.

An appraisal of the current state of overall Municipal finances

Preparation of the investment plan can start with looking at the foundation, i.e. where is the city today in terms of overall budgeting and financial planning, its financial health, borrowing capacity, etc. and what have been the efforts specifically towards financing climate action in the recent past.

This may be explained through a narrative and tables and cover the following aspects:

Expenditure Budget

- Total size of municipal budget over the last five years (Revenue Expenditure + Capital Expenditure)
 - Share of Revenue and Capital expenditure in the total budget; and
 - Growth trends of Revenue and Capital expenditure over the last five years.

Table 1: Historical Municipal Budget Summary (in INR Billion or in INR Crores)

Total Budget	Y 1 (20.. - ..) (Actual)	Y 2 (20.. - ..) (Actual)	Y 3 (20.. - ..) (Actual)	Y 4 (20.. - ..) (RB)	Y 5 (20.. - ..) (BE)
Revenue Expenditure					
Capital Expenditure					
Total Expenditure					

Actual, RB (Revised Budget) and BE (Budget Estimate) may be mentioned

Sources of Funds

- Share of Revenue and Capital income over the last five years

Table 2: Historical Municipal Income Summary (in INR Billion or in INR Crores)

Total Income or receipts	Y 1 (20.. - ..) (Actual)	Y 2 (20.. - ..) (Actual)	Y 3 (20.. - ..) (Actual)	Y 4 (20.. - ..) (RB)	Y 5 (20.. - ..) (BE)
Revenue Income					
Capital Income					
Total Income					

Actual, RB (Revised Budget) and BE (Budget Estimate) may be mentioned

- Analysis of the revenue account,
 - Broad composition of revenue income sources: shares of own tax and non-tax revenues, and grants and transfers from the central and state government;
 - Growth trends of revenue income and expenditure; and
 - Quantum and trends of revenue account surplus or deficit.
- Analysis of the capital account,
 - Broad composition of capital income sources: shares of ULB's own sources, share of grants and transfers from the central and state governments under various schemes and Finance Commission grants, parastatal agencies, borrowings (loans from banks, bond issues), developmental finance from multilateral and bilateral organisations, and any other source including PPPs
 - The data can be presented in the format given in table 3 supported by stacked bar graphs to show the annual composition pattern and pie-charts to give an idea of the average composition over 5 years (Figure 1)
 - Growth trends of capital income and expenditure
 - Quantum and trends of capital account surplus or deficit

Table 3: Capital Income summary (in INR Billion or in INR Crores)

Total Income or receipts	Y 1 (20.. - ..) (Actual)	Y 2 (20.. - ..) (Actual)	Y 3 (20.. - ..) (Actual)	Y 4 (20.. - ..) (RB)	Y 5 (20.. - ..) (BE)
ULB's Own surpluses and resources					
Grants from the State Government					
Grants from the Central Government					
Borrowings					
Other Sources					
Total Capital Income					

Actual, RB (Revised Budget) and BE (Budget Estimate) may be mentioned

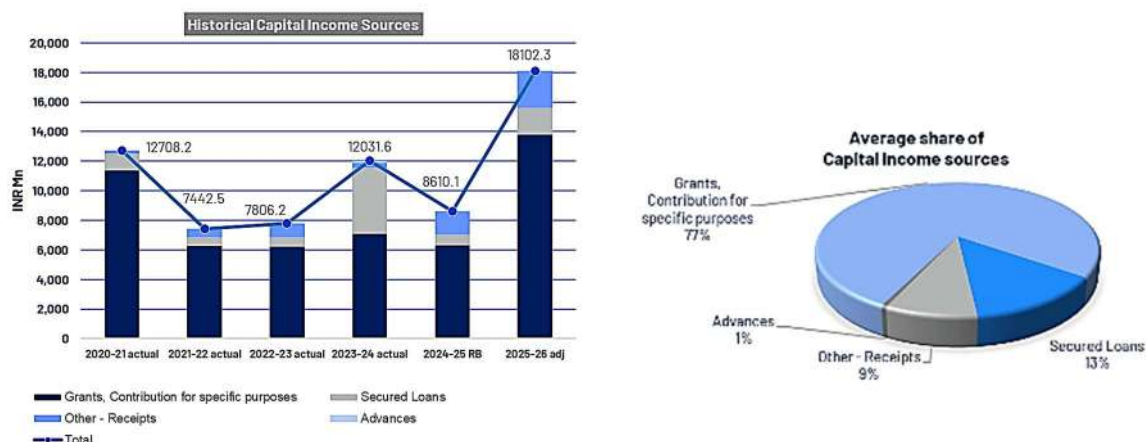


Figure 1: ...Municipal Corporation's Historical Capital Income Sources (Illustration)

- Overall budget surplus/ deficit
 - Pattern of surpluses and deficits in revenue and capital accounts over the last five years,

Table 4: Overall Budget Position (in INR billion or in INR Crores)

Total Surplus/deficit	Y 1 (20.. - ..) (Actual)	Y 2 (20.. - ..) (Actual)	Y 3 (20.. - ..) (Actual)	Y 4 (20.. - ..) (RB)	Y 5 (20.. - ..) (BE)
Revenue budget surplus					
Capital budget surplus					
Total Surplus/deficit					

ULB's experience of borrowing and accessing the debt market

This section would touch upon the municipal body's access and capacity to raise debt to increase its pool of resources from bank loans and capital markets.

- Sources of debt finance, Outstanding debt position, and proposals for raising further money through borrowings, if any.
- Has the municipality carried out any assessment of its borrowing capacity, or got a credit rating?
- Has it issued any bonds/ green bonds? If yes, a brief description may be included regarding the purpose of utilisation of bond proceeds, quantum of issuance, term of the bond, interest rate, credit rating, mechanism to ensure debt service payments to investors, etc.

Focus on Climate/ sustainability

This section would briefly focus on the city's experience of financial planning for climate action. Even though the municipal activities may not have been specifically climate tagged in past budgets, efforts towards sustainability in water supply and sanitation, drainage and flood mitigation, solid waste

management, decarbonisation of urban transport, urban greening and biodiversity, municipal buildings, air quality, etc. may be briefly explained or tabulated. Some cities and states have recently started the practice of climate budgeting, which should be mentioned in this section.

Please describe the following:

- Average share of annual city budget devoted to activities that represent climate change and sustainability (climate mitigation and adaptation)
- Break down by sector & sub sectoral actions with sources of funding

Table 5: Details of Budget for Climate Actions in the city (in INR Billion or in INR Crores)

Sector	Subsector Action#	(20.. - ..)	(20.. - ..)	Sources of funding
Transportation	e.g. Promoting Non-motorised transport e.g. Development of Walking & Cycling Facilities			
	e.g. Improvement of Public Transport facilities and promoting shift to Public transport modes			
	e.g. Provision of EV Charging infrastructure, Battery facilities			
	e.g. Switch to EVs for Govt vehicles, and promoting shift to EVs for private vehicles			
				
Built Environment	e.g. Adopting Energy Conservation Building Code (ECBC) in Public Buildings			
	Cool roofs in Municipal / public buildings			
	e.g. Promoting adoption of ECBC in Private Buildings			
Energy Systems	e.g. Adoption of RE in Public buildings			
	e.g. RE in municipal operations (water supply, etc)			
	e.g. Energy efficiency in municipal operations			
	e.g. Promoting use of Biofuels within municipal jurisdiction			
	e.g. Promoting RE in private buildings			
Green Infrastructure & Nature Based Solutions (NBS), Agriculture, Forestry and Other Land Use (AFOLU)	e.g. Development of Parks, roadside plantation, Green Roofs, Community Gardens, Water bodies, Protected Areas, Forestry, etc.			
				
Waste and Circular Economy	e.g. Developing facilities for and Promoting segregation, recycling, circular economy in Household Waste, Industrial Waste, Other Commercial Waste)			

Sector	Subsector Action#	(20.. - ..)	(20.. - ..)	Sources of funding
				
Climate Adaptation & Disaster resilience	<i>E.g. Development of flood protection measures, early warning systems, emergency relief shelters, urban cooling interventions, etc.</i>			
Total in INR				

Indicative ideas have been presented here for illustration

Constraints or challenges faced by the city in mobilising finance, particularly for climate action

It will be good to identify the barriers, limitations the municipal body and urban institutions face in budgeting and financial planning and mobilising resources for climate action. These could be grouped under heads such as Policy, Institutional, Financial as indicated in the table below.

In module 3 of the CIP, the city can define strategies to mitigate these challenges.

Table 6: Barriers and Limitations faced in budgeting, financial planning and mobilising resources

Barrier #	Description #	Sector and Stakeholders Involved
POLICY		
<i>e.g. Setting goals for climate mitigation and adaptation at a city level</i>	Specific goals for urban areas aligned to India's NDCs are not yet defined at the national and state level.	Gol, state government, ULB, parastatal agencies, academia, civil society, citizens and businesses
<i>e.g. Enabling policy and regulation to motivate and bring together all public and private stakeholders for climate action</i>	Achievement of climate goals needs commitment from all stakeholders. A unified vision and goal at a city level with clear allocation of responsibilities is necessary to mobilise resources and implement the actions	State government, ULB, parastatal agencies, civil society, citizens and businesses
....		
INSTITUTIONAL		
<i>e.g. Integrating Climate centricity in project planning, budgeting and decision making</i>	ULB staff are not well exposed to climate frameworks and tools. There is a gap in awareness and operational processes to integrate climate concerns in the day-to-day functioning of the ULB. Climate budgeting has not yet been introduced (or being implemented in a limited way)	The ULB, Urban Development Department and Climate Change Departments of the state government
<i>e.g. Cooperation and coordination issues with other government departments and agencies</i>	While the ULB takes the lead in implementing its share of climate interventions, other public agencies may have different priorities and resource constraints. This delays the achievement of goals at a city level	The ULB, Urban Development Department, and other relevant departments of the state government, Gol
...		
FINANCE		
<i>e.g. High Investment required for urban climate transition</i>	Climate actions require long-term capital investments compared to BAU activities of the ULB as well as that of other stakeholders. These upfront costs can act as a deterrent for	All stakeholders

Barrier #	Description #	Sector and Stakeholders Involved
	stakeholders to commit resources for climate transition	
<i>e.g. Limitations in mobilising resources for capital expenditure</i>	Limited ability of the ULB to undertake capital expenditure for regular and climate projects through own resources and borrowings. High dependency on grants from the central and state government for capital works	The ULB, state government, State level Financial Intermediary institutions, Gol
<i>e.g. Difficulty in project preparation and access to climate finance by ULB and parastatal agencies</i>	Limited exposure to sustainable finance/ carbon finance instruments and their requirements, Limited experience of bankable project structuring and of leveraging public funds to mobilise additional capital from private and other sources.	The ULB, state government, State level Financial intermediary institutions, Gol

...

Cities may mention the challenges perceived by them. A few ideas have been presented here for illustration.

Chapter 2: Investment Planning for Climate Actions in the City

This module constitutes the core of the Investment Plan. It aims to present the overall investment required to be mobilised from different sources to deliver the climate goals of the city for the next five years. The funding plan should consider the cost of each sectoral action from the CRCAP/CAP and suggest the potential source(s) of funding for the same.

Estimate of Total Investment required

Determining the total investment required is the first step in developing the financing strategy. For this purpose, the total capex and operational costs (upto five years) for the portfolio of infrastructure projects identified in the CAP should be summarised in the following table.

A narrative should be added to briefly explain the broad assumptions and share of different sectors.

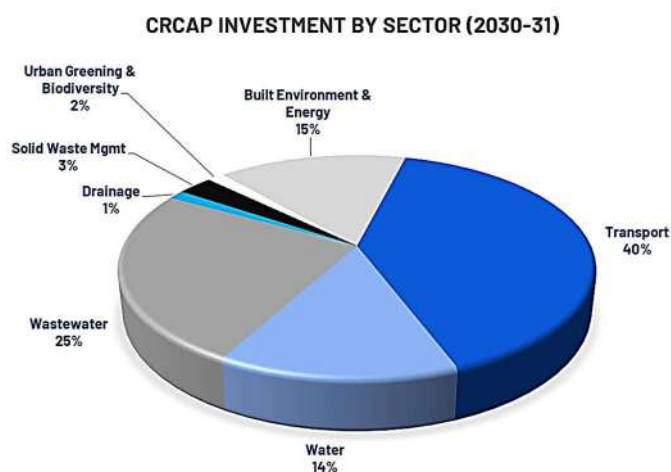


Figure 2: CRCAP Investment by sector (Illustration)

The narrative may also highlight projects that are likely to have the maximum impact in terms of emission reduction and co-benefits (cost effectiveness). It may also mention quick win projects that are more advanced than others in terms of preparedness.

Table 7: Cost of Climate Actions for the Next Five Years (In INR billion or in INR Crores)

Sector	Sub sector Action	Capex	Opex	Total Cost
Transportation	e.g. Pedestrian and Cycling Infrastructure	...	...	
	e.g. Public Transport infra	...	...	
	e.g. EV charging infrastructure	...	...	...
		...	...	...
Sub Total Transport Sector				

Sector	Sub sector Action	Capex	Opex	Total Cost
Similar details may be filled in for the other sectors				
Total for All sectors				
Cross Cutting Costs	Supporting activities needed across different sectors, such as citizen engagement, communication with relevant stakeholders, governance and planning exercises, capacity building, etc.			
Total by the year 20..				

Proposed funding plan to meet the required investment for climate action

Once the total cost of climate interventions is known the funding plan is developed through a series of steps.

1. Forecasting the BAU budget of the ULB to determine whether it will be able to generate some surpluses beyond its BAU requirements for meeting climate actions.
2. Allocation of the total CRCAP cost (determined in 2.1 above) amongst stakeholders based on who is responsible for the source of GHG emissions or is in the best place to control it, and through this process determining the direct responsibility of the ULB.
3. Of the total investment required for the CRCAP, assessing the overlap with the BAU budget, i.e. quantum of funding tied up for various climate projects in existing municipal budgets. The remaining amount will be the funding gap.
4. Evolving the funding plan for the funding gap for CRCAP projects directly attributable to the ULB, taking into account the BAU financial position of the ULB for the next 5 Years, assessed in step 1.

Through this process cities would be able to identify potential capital solutions for each project looking at the resources available with itself, other public sources that may be accessible, define the funding gap, and look for ways to bridge that gap from potential additional and external funding sources. Some of the critical aspects to be considered during this exercise include:

- What are the existing resources already available for each action or project?
- What are the other sources of public capital that the city could access? Who are the other stakeholders who could be tapped?
- Is there a possibility to work on a convergence approach to create a large pool of grants from various central and state government schemes to implement a portfolio of climate projects?
- How can the city optimally leverage public funding to mobilise private capital for various climate actions?
- If there is a limitation regarding the quantum of funding that can be mobilised over the next 5-6 years vis-à-vis the total investment required, how can the city prioritise projects?

BAU scenario forecast of the municipal budget

Building upon past trends analysed in Module 1 of this template, a projection of different income streams and cash flow sources may be developed upto the horizon year (year 5, 20..). Out of these a certain portion would be utilised for ongoing and planned operating expenses and capital projects up to the same horizon year. The balance cash reserve, in entirety or in part, may be the starting point to determine the source of capital available with the city for climate action.

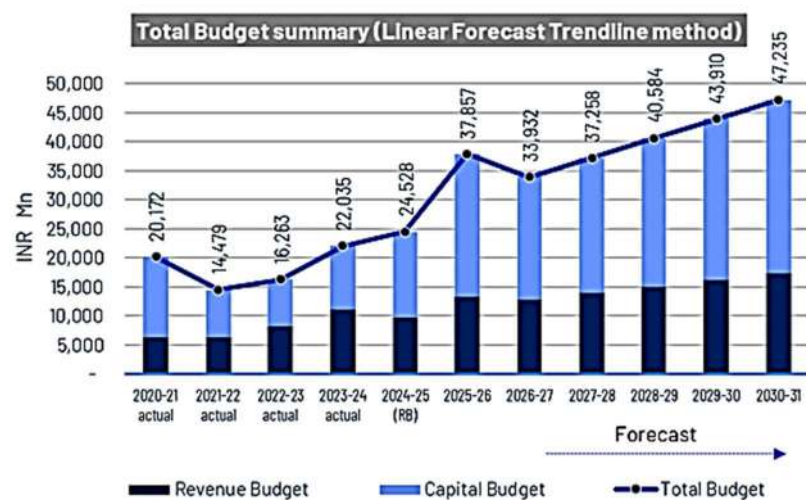
The forecasting of the respective income and expenditure items in the revenue account and capital account for the next 5 years from the latest available budget could be carried out through a scenario analysis of alternate methodologies.

- 1) Projection based on the average annual growth rate of the last 5 years. The average annual growth rate of relevant income or expenditure items over the last 5 years may be calculated as the average of year-on-year growth rates from Y1 to Y5.
- 2) Projection based on the Compounded Annual Growth Rate (CAGR) of the last five years. It may be noted that CAGR is based only on the starting and terminal year data and does not reflect the swings or fluctuations in the interim years.
- 3) Projections based on Linear best fit trendlines of the income and expenditure data trends of last 5 years. These can be easily computed in Microsoft Excel software.
- 4) Projections based on assumed growth rates for income and expenditure heads (say 8-15 per cent p.a.) that appear realistic considering the financial position of the municipal body.

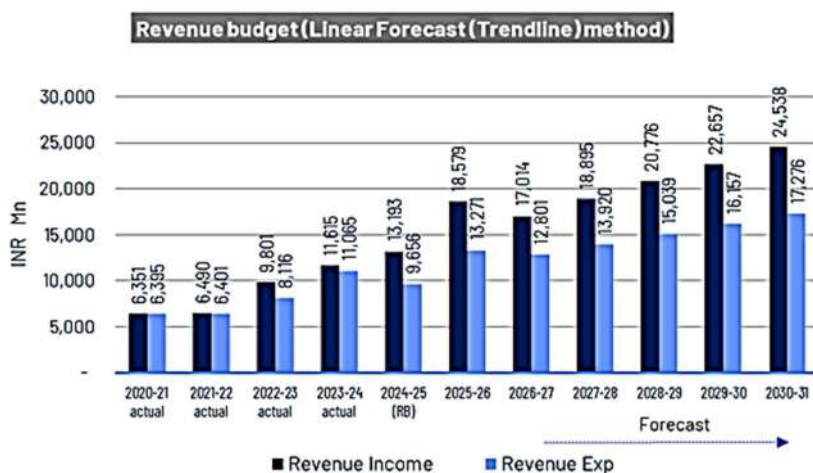
The budget forecasts for revenue account, capital account and overall surplus/ deficit by different approaches may be summarised in the following tables. These can be supplemented by graphs that show the existing and future forecasts (total 10 years period in a snapshot). The most reasonable methodology for financial planning may be adopted by comparing such scenarios.

Table 8: ULB Budget Forecasts up to 20..-.. (By method) (in INR billion or IN INR Crores)

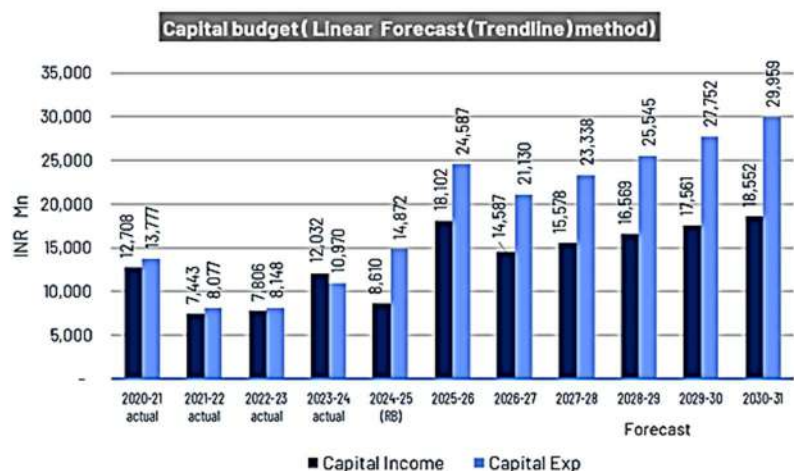
	Y 6 (20.. - ..)	Y 7 (20.. - ..)	Y 8 (20.. - ..)	Y 9 (20.. - ..)	Y10 (20.. - ..)	Total
Revenue Ac Forecast						
Total Revenue Income						
Total Revenue Expenditure						
Estimated Surplus/Deficit from Revenue Account						
Capital Ac Forecast						
Total Capital Receipts						
Total Capital Expenditure						
Surplus / Deficit in Capital Account						
Total Surplus /Deficit						



The total budget is expected to grow modestly in comparison to the Steady Growth method, from the current level of **INR 24,528 million** in 2024-25 (RB) to about **INR 47,235 million** by 2030-31.



The projections indicate a consistent and increasing annual surplus in this option too, but significantly lower than in the steady growth option. The cumulative revenue **surplus** over the next five years is projected to be **INR 28,686 mn**.



In the trendline scenario, capital expenditure exceeds capital income in all 5 years resulting in similar range of deficit as in the steady growth method. (Total deficit of **INR 44,877 mn** over 5 years). On account of lower revenue surplus, the **overall deficit** appears to be much higher over the same period (Total **INR 16,192 mn**).

Figure 3: ULB Budget – Historical and projected (by forecast Method)

Apportionment of Costs amongst stakeholders

In this section the CIP should set out the principles for allocation of costs amongst stakeholders in Table 9 followed by distribution of investment.

Explanation: The GHG inventory and projections in the CRCAP for a city typically includes all emissions generated within the municipal limits. Thus, it not only includes greenhouse gases emitted as a result of the activities of the ULB but also that of most other stakeholders or actors in the city, including private citizens and businesses. It may be noted that the majority of emissions originate from activities that are beyond the direct administrative control or jurisdiction of the Municipal Corporation.

As per international good practice, the responsibility for mitigation of GHGs should therefore be attributed to the sources/generators of respective share of emissions in the city. It logically follows that the entire CRCAP investment is not the responsibility of the Municipal Corporation alone. It should be apportioned amongst the entities who are responsible for the generation of emissions or are in the best position to control them from their respective actions.

The following principles may be considered with respect to apportioning costs of various mitigation and adaptation measures amongst the stakeholders:

1. **Built environment Sector:** Cost may be apportioned on the basis of ownership of buildings. For instance, more than 95 per cent of the buildings in a city may be assumed to be owned by private residents and businesses. Hence the same proportion of emissions originating from the built environment sector should be attributed to private residents and the remaining to the ULB and other government owned assets. Accordingly, the cost related to climate mitigation and adaption in this sector should also be allocated in the same proportion.
2. **Transport Sector:** Cost may be apportioned based on the same principle of vehicle ownership (including hired/leased assets) as for buildings.
3. **Energy Sector:** Cost may be apportioned based on generation of emissions due to use of energy. For example,
 - a. The ULB is responsible for the emissions generated due to use of energy in its operations and functions (water supply and sanitation, buildings, etc.).
 - b. Other government agencies are responsible for the emissions attributable to energy consumed in their offices and establishments.
 - c. Private residents are responsible for emissions arising out of energy usage in their homes;
 - d. Industries, business establishments and institutions are responsible for emissions on account of energy usage in their premises;
4. **Water supply, wastewater, drainage and solid waste management:** The municipal body or parastatal agency is primarily responsible for mitigating these emissions, except for emissions generated from captive plants of industries, large private townships, etc.

Hence majority of the costs related to climate action in these sectors should be attributable to the government agencies.

Wherever the central and state governments have been providing financial assistance to ULBs under flagship missions like AMRUT, SBM, PM E-Drive, Pradhan Mantri Awas Yojana (PMAY), Finance Commission grants and state specific schemes, the costs may be apportioned to these entities based on their respective share of scheme funding. Similar principle would also apply to schemes where the government is providing incentives to private individuals for promoting sustainable initiatives in rooftop solar, e-vehicles, etc.

The principle of cost apportionment between the ULB and other stakeholders may be recorded in Table 9 as shown in the following sample illustration. The distribution presented in the table is indicative. Each city should adopt its own distribution and also add its own narrative explanations to supplement the information in the table as necessary.

Table 9: Principle of allocation of CRCAP costs (for select actions) in different sectors amongst stakeholders

Type of Climate Action	Municipal Corporation	State Govt Schemes	Central Govt Schemes	Parastatal Agencies	Private Citizens, businesses	Infrastructure service providers	Rationale
Use of Energy efficient appliances in buildings	0.5%	0.3%	0.1%	0.1%	89.1%	9.9%	- About 99% of total building stock in the city may be considered as private buildings, - Rest distributed amongst different public entities. - In 10% of private buildings it may be delivered by outsourcing to specialised Energy Service Companies (ESCO model).
Scale up use of renewable energy in buildings			50%		40%	10%	Assume average 50% cost to be met from GOI subsidy under PM Surya Ghar: Muft Bijli Yojana for residential buildings. 20% of the private share may be considered to be delivered through RESCO model (i.e. by infra service providers)
RE power for Water supply services, Wastewater services, Streetlights and other municipal functions	10%					90%	RE power may be obtained from captive RE Generation on PPP model ⁷ or by procuring energy from other RE producers
Promote the increased use of public transportation for mobility		35%	65%				An ULB will probably not have a direct role and a project SPV

⁷ For Captive Projects as per current regulations, the ULB would need to invest atleast 26% equity in the project. With 70%:30% Debt-Equity ratio, this would translate to 8-10% of the project cost

Type of Climate Action	Municipal Corporation	State Govt Schemes	Central Govt Schemes	Parastatal Agencies	Private Citizens, businesses	Infrastructure service providers	Rationale
needs through MRT / LRT systems							may be set up between GoTN and Gol. Funding assumed on the lines of a 'Central Sector' ⁸ project. Soft loan may be available from Multilateral or bilateral agencies if approved by DEA, GOI and the State Govt.
Introducing EV buses for public transportation						100%	May be implemented through PPP (Gross Cost Model). The agency responsible for public bus transport will need to make provision for recurring payments to the operator as per the bid over 10-12 years.
Implement energy efficient water pumping	20%			80%			Could be shared between the ULB and State Govt / Water Board / Jal Nigam
24x7 Water Supply Systems	25%		25%	50%			It could be implemented under a similar financing arrangement as AMRUT2.0. and /or 16 th FC Grants
Restoration of Lakes	100%						As per MC budget
Restoration of River		100%					As described in MC budget
Wastewater Systems, Sewerage network, Treatment, Faecal sludge management, etc.	10%		50%	40%			It could be implemented under a similar financing arrangement as AMRUT2.0. and /or 16 th FC Grants
Drainage Network, Flood management	10%		50%	40%			- As above -
Solid Waste: Legacy waste management, Bio mining	30%	70 %					May be shared between the ULB and state Govt / Finance

⁸ Please refer to the applicable Metro Rail Policy.

Type of Climate Action	Municipal Corporation	State Govt Schemes	Central Govt Schemes	Parastatal Agencies	Private Citizens, businesses	Infrastructure service providers	Rationale
							commission grants
Bio-CNG Projects for Waste Management		10%	10%			80%	May be implemented on PPP with some VGF support from state Govt and Gol, if required.
Waste to energy plants	20%					80%	May be implemented on PPP with some VGF support from city or state Govt, if required.
Rainwater harvesting in residential and commercial buildings		1%			99%		The need is primarily for private buildings - cost to be borne by the developers and house owners
Developing green avenues, traffic islands, urban parks and open spaces	90%				10%		Majorly implemented through Municipal budget; some contribution from CSR, philanthropic funds may be explored

Based on the above principle, the total cost in INR Crores or INR billion should be first apportioned amongst the ULB and other stakeholders. The information may be presented in Table 10 and also graphically as shown below.

Table 10: Cost Allocation between the MC & Other stakeholders, by sector (INR Crores of INR bn)

Sector/Sub Sector Action from CRCAP	Total Investment Required upto 2030	Municipal Corporation's direct responsibility	Responsibility of other stakeholders [#]
Built Environment & Energy			
Transport			
Water			
Wastewater			
Drainage			
Solid Waste Management			
Urban Greening & Biodiversity			
Air Quality			
Total			
%		%	%

[#] Other stakeholders include the State Government, the Government of India, civic and parastatal agencies, private citizens & businesses/corporates and outsourced infrastructure service providers who can potentially procure/develop and operate e-buses, renewable energy plants, waste to energy plants, etc. on PPP models.

Allocation by Sector (%)

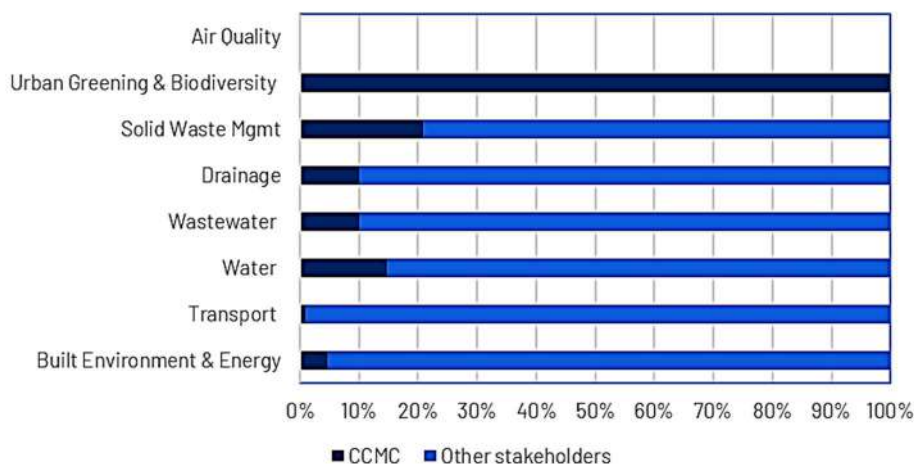


Figure 4: Broad allocation of CRCAP Cost between the ULB and other stakeholders by sector (in %) - Indicative

The next important step involves determining the CRCAP interventions or actions that have already been included in the BAU budget of the ULB and/or other stakeholders. Subtracting the quantum of funding tied up for various climate projects in existing municipal budgets helps to compute the funding gap for remaining climate actions from the CRCAP. In this context the practice of *climate budgeting*, where each BAU project is reviewed through a climate rationale, becomes very helpful to prioritise scarce resources. It would be a good idea to mention the respective source for secured funding etc. for the concerned projects.

The final allocation of funds that needs to be tapped from or contributed by different sources / stakeholders over the next 5 years should be comprehensively summarised in the following table.

Table 11: Capital Planning by Source / Stakeholder

Sector	Total Investment Required	Potential Source of Capital for Remaining Investment							Total Funding planned
		Overlap with Municipal budgets	Remaining Investment to be arranged from all stakeholders	Municipal Corporation's Share	State / Central Govt Schemes	Parastatal Agency	Citizens, Businesses	PPP Infra service providers	
Built Environment & Energy									
Transport									
Water									
Wastewater									
Drainage									
Solid Waste Management									
Urban Greening & Biodiversity									
Air Quality									
Total									
% share									

The information in the above table may also be presented graphically as shown below.

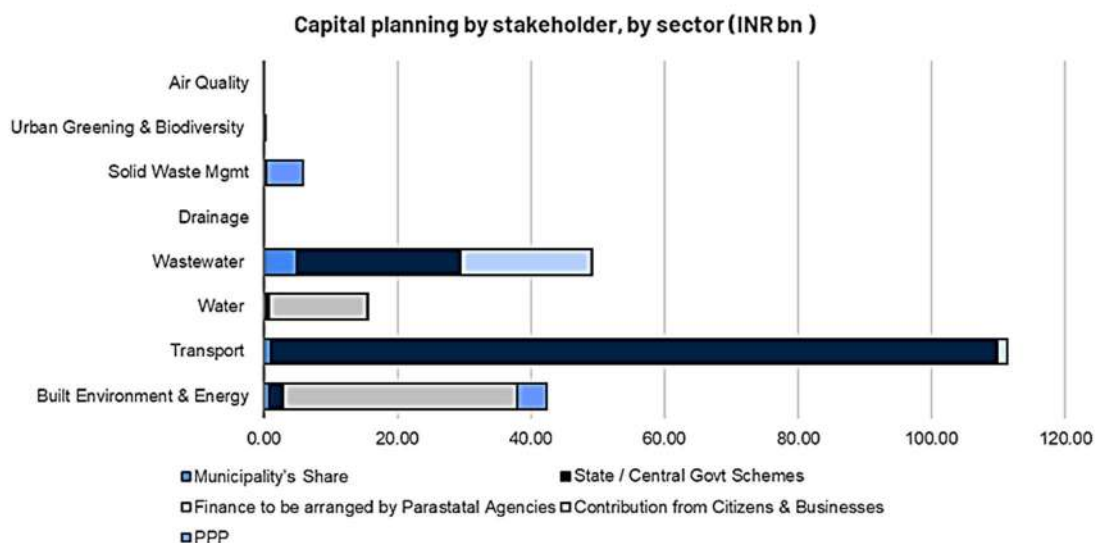


Figure 5: Capital Planning by Stakeholder by Sector (INR bn)- Indicative

Planning for the ULB's share of Investment towards the CRCAP

This is the final stage of the analysis that defines how the Municipal Corporation could mobilise financial resources to meet its share of CRCAP investment. The plan should be based on the BAU financial projections carried out in Module 2.

It is assumed that the BAU budget projections would be met from the BAU income forecasts. It may be noted that the CIP does not attempt to find a solution to the BAU needs of the ULB, but confines its focus only to the additional demand on account of the CRCAP. The following table presents a summary of the BAU financial position and then the total financial position after integrating the CRCAP targets for the next five years. Essentially, it tries to assess if there are any surpluses in the BAU forecast that can be utilised towards climate interventions.

Table 12: Estimated Funding gap for the ULB as perforecasting Method (INR bn or INR crores)

	Y 6 (20.. - ..)	Y 7 (20.. - ..)	Y 8 (20.. - ..)	Y 9 (20.. - ..)	Y 10 (20.. - ..)	Total
BAU Revenue Ac Surplus Forecast						
BAU Capital Income forecast						
BAU Capital Exp forecast (without CRCAP)						
BAU Capital Ac Surplus/Deficit						
Overall BAU Surplus/deficit						
CRCAP Investment (Municipal responsibility)						
Total Capex Programme (BAU+CRCAP)						
Total Capital Available incl Rev Ac Surplus						
Net Surplus / deficit						

Strategies to fund the gap

Finally, the CIP should define strategies for meeting the funding gap. These could include ways to enhance own tax and non-tax revenues, borrowing on its own strength and reducing dependency on grants, implementing projects like RE, energy efficiency, e-buses, waste to energy projects etc. on suitable PPP formats, and availing the Urban Challenge Fund (UCF) grants from GoI against projects implemented through borrowings and PPP. While considering grants, cities should try to explore funds available for specific sectors from ministries other than their own line ministry and pool them on a convergence approach. Through the CIP, cities may also bring out the support expected from the State Government and GoI. The above may be explained through a narrative and a summary of the indicative financing plan may be presented in the following table.

Table 13: Indicative Financing Plan for the CRCAP up to 20... (INR Bn or INR Crores)

	Y 6 (20.. - ..)	Y 7 (20.. - ..)	Y 8 (20.. - ..)	Y 9 (20.. - ..)	Y 10 (20.. - ..)	Total
Total CRCAP Cost (5 yrs) – ULB's share #						
Funding Plan:						
Use of BAU budget surplus						
Loan by leveraging part of budget surplus						
UCF scheme Grant from Gol						
State Govt , Support + Additional own revenues						

In BAU budgeting, revenue account surpluses are normally transferred to the capital account or used for funding the capital expenditures. If part of revenue account surpluses is used for leveraging and raising debt, then the corresponding shortfall, if any, in the capital budget should be first met from the loan proceeds and only the balance will be available for CRCAP. This needs to be properly reflected by adding a separate line item for BAU capital expenditure shortfall.

Chapter 3: Climate Policies for Capital Formation and Deployment

Identifying climate policies and enabling framework for mobilising capital

Taking into consideration the investment requirements and capital plan developed in Module 2, as well as the state of municipal finance and barriers discussed in Module 1, it would be important to identify relevant strategies and policy actions that could specifically support deployment of both public funding and private investment capital at the desired scale to achieve the 20.. CRCAP goals. Cities should try to identify funding available from other ministries / departments apart from MoHUA or the State Urban Development departments and use them on a convergence approach. In particular, it would be important to look at areas of leveraging public funds to mobilise capital from other sources through innovative products, accessing climate finance products in the market, etc.

Table 14: List of Climate Policies to facilitate mobilisation of Capital

Climate Policy	Policy Status (Enacted/ In Process/not yet decided, etc.)	Description of the policy (concept, sector coverage, targeted audience, etc.)	Intended Outcome for Capital Formation (quantitative / qualitative)
National level schemes		...	
...			
...			
State level schemes			
...			
...			
Initiatives of the ULB			

Risk assessment & Mitigation strategies, Stakeholder Engagement strategies

It would also be important to identify potential risks and a mitigation plan to prevent risk escalation. Some of the key considerations that need to be dealt with here could include:

- What is the institutional set up in the city to drive climate action, particularly for mobilising capital and its deployment?
- Is there an empowered Transition Team to steer financial/ funding policy that works harmoniously with the execution departments for the achievement of 20.. ambition?
- What competencies should the concerned city team be supported with through training, external resource support etc. for this?
- Who are the key stakeholders that need to be engaged with for mobilising finance, in government at various levels, DFIs, Banks & Financial industry actors, private infrastructure service providers and investors, citizens, etc.

- What challenges are expected in influencing other stakeholders to contribute to the climate action in the city?

This analysis may be carried out by sector and presented in the following table.

Table 15: Stakeholder Mapping & Engagement strategy

Fields of Action	Sectoral Project	Description of Risk	Risk Priority	Approach towards Mitigation of the Risk
Transportation	...	...		...
	...	...		...
Built Environment	...	...		...
	...	...		...
Energy Generation				
Green infrastructure and Nature Based Solutions				
Waste and Circular Economy				
City Wide Risks (Cross Cutting)				

The following table shall briefly describe the ULB's strategy to engage with different actors and stakeholders who could play a part in achieving the climate goals of the city.

Table 16: Proposed Risk Management Framework

Potential Stakeholder	Proposed Engagement Strategy
Gol	...
State Government	...
ULB and its line departments	...
Common residents	
Private businesses and industries	
Infrastructure Service Providers	
Academia/Research Institutions & Non-Governmental Organizations (NGOs)	

Way forward

Lastly, a summary of the key elements of the CIP and next steps may be presented in this concluding section.

