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Localisation of climate finance – Empowering Indian cities to combat climate change

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Localisation of climate finance – Empowering Indian cities to combat climate change

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SELF-DECLARATION

This is to certify that the thesis titled “Localisation of climate finance – Empowering Indian cities to combat climate change” is my original work and has not previously formed the basis for the award of any Degree, Diploma, Associateship or Fellowship to this or any other University.

Lekhani Hamen Raja

07.04.2025

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GLOSSARY

CAA – Constitution Amendment Act
CCAP – City Climate Action Plan
CCCF – Country Climate Change Funds
CCLFA – Cities Climate Finance Leadership Alliance
CDSB – Climate Disclosures Standard Board
CRLF - Climate Revolving Loan Funds
CSR – Corporate Social Responsibility
ESG – Environmental, Social and Governance
FFF – Funds, Functions and Functionaries
GDP – Gross Domestic Product
GIS - Geographic Information System
GST – Goods and Services Tax
IIHS – Indian Institute of Human Settlements
KPI – Key Performance Indicators
MDA – Metropolitan Development Authority
NSE – National Stock Exchange
PPP – Public Private Partnership
SAPCC - State Action Plan on Climate Change
SCAP – State Climate Action Plan
SEBI – Securities and Exchange Board of India
SFC – State Finance Commission
ULB – Urban Local Body
UIDF – Urban Infrastructure Development Fund
UMTA – Unified Metropolitan Transit Authority
UNEP – United Nations Environment Program
UNDP – United Nations Development Program
USA – United States of America

I. EXECUTIVE SUMMARY

Indian cities are at the forefront of climate change and facing the immediate effects of climate change. While they are the engines of growth, they are also the major contributors to global CO_2 emissions. With “68% of the world's population projected to live in cities by 2025” and India being the second-largest urban system globally, the country faces unique challenges in addressing climate change at the local level. While discussions on climate finance have gained momentum at international and institutional levels, there remains a critical gap in ensuring that these financial resources reach cities that are the frontline of climate action. Despite increasing discourse on local climate action, the question of financing the need remains largely unaddressed. Urban local bodies (ULBs) play a vital role in implementing climate solutions, but significant challenges such as limited fiscal autonomy and constrained decision-making powers hinder their ability to take proactive measures in combating climate change.

Localising climate finance is essential to empower city governments with direct access to funds, enabling them to implement real-time, context-specific interventions. However, due to the fragmented governance structure, misalignment between national and local priorities, and an underdeveloped municipal finance ecosystem, the climate finance landscape at the municipal level remains disrupted. Addressing these challenges requires a systemic shift toward fiscal decentralisation and strengthening the urban governance framework. By devolving climate finance to the local level, city governments can enhance their resilience and accelerate action to combat climate change.

Recommendations to strengthen climate finance at a local level:

- Enhancing the fiscal autonomy of ULBs through improved collection efficiency, rationalized user charges, and diversified revenue streams.

- Developing a robust municipal bond market by introducing serial bonds, improving the creditworthiness of ULBs, and promoting green bonds.
- Implementing formula-based fiscal devolution directly to cities.
- Establishing state-level CRLFs to provide sustainable financing for local climate projects.
- Exploring innovative revenue generation methods such as congestion pricing and green taxes.
- Integrating climate finance into municipal budgets through an Urban Climate Dashboard.
- Strengthening regulatory frameworks with an emphasis on audits, reporting, and accountability.
- Enhancing the political autonomy of municipalities.

II. INTRODUCTION

2.1 Overview

Cities continue to be major contributors to global CO_2 emissions while bearing the brunt of climate-related disasters. Over half of the global population of **approximately 4.4 billion** people are currently residing in cities (World Bank). This trend is set to continue with "**68% of the world's population living in cities, marking a sharp increase from 54% in 2016**" (NCES, 2024). **India is the "second largest urban system in the world with almost 11% of the total global urban population living in Indian cities**" (Niti Aayog, 2021). "The country has reached a turning point in its journey of economic transformation, wherein half of the country would be 'urban' in a few decades. Urban growth is expected to contribute to **73% of the total population increase by 2036**" (MoHFW, 2019).

Indian cities are at the forefront of climate change, facing immediate and tangible impacts such as rising temperatures, frequent flooding, and severe pollution (Singh et al., 2021). These climate-induced disruptions disproportionately affect livelihoods, particularly in vulnerable communities, while putting immense strain on the urban infrastructure. The urgency to implement effective climate mitigation and adaptation strategies is undeniable, yet their success heavily depends on timely and adequate financial resources. Issues demand prompt and effective responses so that cities can adopt robust mitigation and adaptation strategies. However, the disbursement of climate funds remains slow and inefficient, often delaying crucial urban climate projects.

Given the city's central role in both contributing to and addressing climate change, ensuring that climate finance reaches the city government, or the urban local bodies (ULBs) directly, is imperative. The UN-Habitat report on "Cities and Climate Action" mentions that “**local governments face insurmountable obstacles in accessing climate finance**” (UN-Habitat, 2024). Localising climate finance would allow the city government to access funds more efficiently, enabling them to implement tailored solutions based on their needs, risks, and vulnerabilities on a real-time basis. However, several institutional and financial barriers, including limited financial autonomy, fragmented governance structures, and procedural delays, hinder the process.

2.2 Role of climate finance in urban resilience

Climate finance plays a crucial role in enhancing urban resilience, requiring both long-term and short-term funding strategies. However, current climate finance allocation prioritises mitigation over adaptation, despite adaptation being a more immediate need for local action. However, local-level climate finance constitutes **only 9% of public adaptation finance (UNEP, 2022, and “less than 10% of global climate finance reaches the communities directly at the local level**” (Soanes et al., 2017).

The disbursement of adaptation finance faces significant challenges, with **only 66% of allocated adaptation funds successfully reaching recipient countries between 2017 and 2021**, compared to 98% of overall development finance (SEI, 2023). This disparity highlights barriers such as inadequate understanding of local markets, limited climate policy knowledge, and bureaucratic delays in fund approval and disbursement. Furthermore, less than 17% of international public adaptation was spent on local-level projects, indicating the need for focusing on local-level adaptation initiatives. The estimated yearly gap for developing nations ranges from **US $215 to US $387 billion**, but currently only **US $21 billion** flows in as international adaptation public finance (UNEP, 2023). This disparity highlights the challenges in accessing adaptation finance primarily due to a lack of understanding of the local markets, insufficient knowledge of climate policy among decision-makers, and the bureaucratic delays that further impact fund approval and disbursement.

In the case of India, "**adaptation finance is heavily dependent on domestic sources, which account for 94% of the total adaptation finance in 2019-2020**" (Chakravarty et al., 2024), while "**international funding makes up only 6%**" (Acharya, 2024). Although the Union government has significantly increased its spending on adaptation from **1.45% of GDP in 2000-01 to 5.60% in 2021-22**, the growth remains insufficient to address the existing gap. This situation creates challenges for the state government, which further complicates resource allocation and the need to introduce innovative models to bridge the financing gap (Acharya, 2024).

2.3 Research overview

This paper aims to explore the local climate finance landscape by examining the challenges and opportunities required for effective implementation. Policy gaps, stakeholder insights, and key learnings from some successful examples would cumulatively enhance the study. The paper provides actionable insights for strengthening the governance structure in Indian cities. The overall objectives are as follows:

- Understand the barriers and opportunities by gaining first-hand insights into the barriers and opportunities in mobilising and utilising climate finance at the local level.
- Analyse the access to financial, administrative, and structural hurdles that ULBs face in availing and deploying climate funds effectively.
- Gather insights from stakeholders from diverse backgrounds on the existing climate finance landscape, challenges, and potential strategies for improving the climate finance landscape.

- Examine the successful examples of cities that have implemented localised climate finance models and how India can leverage those learnings.
- Identify the gap between the national agenda and ground-level realities.

2.4 Research questions

This report seeks to explore how ULBs can enhance their capacity to localize climate finance by addressing systemic barriers and diversifying funding mechanisms. The key questions guiding this study include:

- Why is climate finance not flowing directly to city governments, despite cities being at the frontline of climate change?
- How can challenges related to the accessibility and deployment of climate funds at the city level be addressed?
- What are the primary challenges associated with the decentralization of financial powers to ULBs?
- How can city governments diversify their funding sources beyond state and central allocations?
- What innovative financing instruments—beyond green bonds—can be deployed to address funding gaps?
- How can inter-city collaborations and partnerships help mobilize and optimize climate finance?
- What lessons can Indian cities learn from global examples of successful localized climate finance?

III. UNDERSTANDING THE NEXUS

The landscape of climate action and finance is rapidly evolving, underscoring the urgent need to integrate financing mechanisms within the urban governance framework. This section critically examines the existing literature on urban governance, localisation of climate action, and finance by highlighting key challenges and gaps in the discourse. It is structured into five sub-sections, each covering the background, relevant literature, necessity, and examples in a few cases.

3.1 Background and historical context:

The urban governance framework of **India has struggled with effective devolution** and the **power of decentralised decision-making**. After independence, the ULBs were established but lacked democratic autonomy, which limited their capacity to function independently and make decisions. Later in 1993, the **74th CAA (1993)** sought to strengthen the broader democratic framework of urban governance by devolving 18 key functions to the city governments. However, these functions **remain only partially implemented across cities, hindering effective local governance** (Praja Foundation, 2020).

Traditionally, urban settlements in India, such as the nagars, operated as self-sustaining systems with efficient local management. In contrast, modern urban governance has struggled with inefficiencies due to the partial and ineffective adoption of foreign governance models. This has resulted in a fragmented planning process and financial constraints, limiting the autonomy of ULBs in addressing local challenges.

Despite the growing discussions on localised climate action, the financing of these initiatives remains predominantly centralised, highlighting the significant gap in empowering cities to implement context-specific and real-time climate solutions. The actual meaning of climate finance remains a buzzword at the local level, which is the most crucial aspect. Therefore, it is vital to ensure there is clarity of localisation of climate finance at a local level, for officials to understand and utilise the funds.

3.2 Urban governance and municipal finance frameworks

Persistent financial challenges constrain the ability of ULBs in India to effectively finance climate action. Despite their constitutional mandate to govern cities, most ULBs struggle with financial sustainability. “No state has a provision for the City Government budget to include the budget allocated by parastatal agencies in the city” (Praja Foundation, 2020). A study by IIHS (2023) also found that **none of India’s major cities generate a sufficient revenue surplus to finance capital-intensive climate projects**. Instead, capital investments remain largely **dependent on intergovernmental transfers**, limiting municipal autonomy in climate-related decision-making.

“While **India’s urban infrastructure financing needs are projected to exceed US $840 billion over the next 15 years**” (World Bank, 2022), strengthening municipal revenue models is crucial. A recent analysis by Hindustan Times (2023) highlights the financial constraints, revealing that, except for Mumbai, most large Indian municipalities rely heavily on state and central government funding or grants. This over-reliance restricts their ability to independently finance climate initiatives. Municipal finance is a critical pillar of India’s urbanisation landscape, yet ULBs continue to face structural financial challenges, impacting their role in shaping urban development. Many studies have indicated that most Indian cities generate negative surpluses on their revenue accounts, which makes them heavily dependent on “program-based intergovernmental transfers for capital spending” (IIHS, 2023).

3.3 Importance of adaptation funding

Adaptation finance is essential in building climate resilience at a local level, as cities face both immediate and tangible climate risks. Unlike mitigation, which often attracts more funding, adaptation efforts require localised investments tailored to specific needs. Localising climate finance would ensure direct access to funds to city governments for implementing adaptation strategies.

The UNEP Adaptation Report of 2022 also identifies "**lack of access to funds, insufficient scale, and inefficiencies in fund allocation**" as the main gaps in adaptation finance. Moreover, developing countries such as India often face barriers in attracting adaptation funding (The Stockholm Environment Institute, 2023). This gap highlights the need to explore and develop innovative sources of capital that can be directed to city governments as adaptation finance. Kenya is a great case for putting adaptation finance into practice at the local governance level, which allows city governments to react and respond to climate initiatives on a real-time basis. This case is discussed in detail in Box 1, which illustrates the critical role that subnational governments play in addressing climate adaptation (GCMIR, 2024).

Box 1

The County Climate Change Funds (CCCFs) of Kenya present an interesting case study of decentralised climate finance that effectively integrates local priorities into climate adaptation planning. The CCCFs operate through a structured allocation system with **70% of funds** directly invested as prioritised by the ward-level committees, which comprise elected community members. This structure encourages devolving the decision-making power to local communities. The funds utilize participatory tools such as resilience assessments, vulnerability and capacity assessments, and digital resource mapping to identify local climate vulnerabilities and priorities. Investment approaches and transparent criteria require projects to focus on public goods, enhance climate resilience, ensure participatory approaches, and align with local and national development priorities. Most investments have funded water infrastructure projects to support climate-resilient livelihoods. The CCCFs have successfully integrated climate finance into county budgets, with Wajir and Makueni allocating 2% and 1% of their development budgets, respectively, to the funds, demonstrating financial sustainability and local ownership of climate adaptation initiatives.

As India continues to urbanise and face escalating climate risks, developing locally tailored adaptation finance mechanisms like Kenya will help enhance the financial autonomy of the ULBs. Kenya is an interesting example showcasing that strengthening fiscal capacity, streamlining fund access, and ensuring efficient allocation are essential steps toward building climate-resilient cities.

3.4 Gap between the national climate action plans and ground-level implementation

Given that urban areas are both major contributors to emissions and highly vulnerable to climate impacts, City Climate Action Plans (CCAPs) are essential to bridge this governance and finance gap. These plans could align with NCAP and SAPCCs while offering a localised framework prioritising city-specific climate risks, financing mechanisms, and governance structures. The plans at the global or national level often lack direct mechanisms for implementation at the urban level, where climate vulnerabilities are most acute (CSE, 2023).

The Indian climate governance framework is structured across multiple levels, but **there lies a disconnect between the national policies and the actual urban on-ground realities**. Although we have the National and the State Climate Action Plans, very few cities like Mumbai, Ahmedabad, Rajkot, Vadodara, Coimbatore, Tiruchirappalli, Tiruneveli, Udaipur, and Siliguri have their climate action plans. This is essential as each city is unique in terms of location, demographics, climate challenges, etc., and therefore a unique plan of action would be important. It would be more impactful to have all the city's climate action plans in place rather than the state plans.

The city-level climate action plan of Ekurhuleni, South Africa, demonstrates that local governments must have direct access to climate finance and decision-making autonomy to implement meaningful interventions (FAO, 2024; CIF, 2024). The case of Ekurhuleni's Green City Action Plan (GCAP) explored in Box 2 offers a snippet of the unique needs of the city and establishes clear targets and priority solutions.

Box 2

The City of Ekurhuleni is an industrial and logistics hub in the Gauteng Province, South Africa. The "Green City Plan" (GCAP) of Ekurhuleni presents a comprehensive approach to addressing climate change and the promotion of sustainable urban development. The city has prioritised responding to climate change through initiatives as part of its strategy. The plan identifies actions including "**city-level policies, investments, and planning strategies** — that can help the City meet its climate mitigation and sustainability targets". The overall aim is to increase both private and public investments for climate-related projects, which can influence the city-level plans and policies. The GCAP has set the sustainability targets for 2030, which include a "25% reduction in fossil fuel energy use, 20% fewer private vehicle kilometers, a 50% decrease in landfill waste, and a 20% cut in greenhouse gas emissions". The plan has prioritised 20 key solutions across four specific sectors to achieve these goals. The sectors include "built environment and energy, transportation, waste management, and water. Measures include green building requirements, energy-efficient streetlights, solar power, electric vehicles, improved public transport, composting, landfill gas capture, wastewater reuse, and smart water meters." GCAP has projected to reduce its emissions by 23.7% (3.4 million tonnes) compared to business-as-usual scenarios. With an estimated cost of ZAR 8 billion (USD 530 million) over 10 years, funding will come from **municipal finance, public-private partnerships, and private investments**. Climate resilience strategies, aiming for net-zero emissions by 2050, are integrated into the plan.

Therefore, establishing a "**National Framework for City Climate Action Plans**" (NF-CCAP) in India could provide structured guidelines, financial support mechanisms, and technical expertise to enable cities to effectively drive climate action and enhance resilience. Each city in India is unique with certain opportunities and challenges, individual plans with sector-specific prioritisation can help address climate change in a different way.

3.5 Need for decentralised mechanisms

Urban areas are both major contributors to climate change and key arenas for adaptation and mitigation efforts (UNEP, 2022; World Bank, 2024). As discussion on the localisation of climate action is gaining traction, the financing of these initiatives remains largely centralised. Cities need to be empowered to be able to effectively address climate action at the local level. However, a report by the World Bank states that there is **significant financial gap persists in building climate-smart infrastructure at the municipal level** (2021). Several frameworks proposed by the “Cities Climate Finance Leadership Alliance (CCFLA, 2024)” and the “Global Covenant of Mayors (GCoM, 2024)” advocate for an increase in subnational access to climate funds. On the contrary, various other studies on India’s urban climate finance landscape show a steady mismatch between the available funding and the capacity of municipal bodies to absorb and deploy the resources effectively (IIHS, 2024).

There have been many arguments by various scholars in developing countries for local governments that face structural barriers, including limited fiscal autonomy, fragmented governance, and insufficient institutional capacity (CPI, 2024; SEI, 2023). The “State of Cities Climate Finance 2024” report also underscores these challenges, noting that while global climate finance is increasing, local governments often struggle to access these funds due to administrative and regulatory constraints.

Ensuring direct access of “**funds, functions, and functionaries**” (FFF) to the city government at the municipal level would ensure financial autonomy and, at the same time, empower the local authorities to take immediate action on a real-time basis. The key to fostering sustainable and climate-resilient urban development is strengthening the financing mechanisms of the subnational governments, particularly the ULBs. Integration of climate strategies at the Panchayat and the ULB and across all levels of the government is vital in implementing effective climate adaptation and building a strong local governance model. Box 3 showcases how Vadodara Municipal Corporation (VMC) was able to initiate "India's and Asia's first certified Green Muni Bond".

Box 3

VMC, in Gujarat, issued muni bonds worth Rs. 100 crores to address liquid wastewater management across Vadodara. The ULB acquired the green certification from the Climate Bonds Initiative (CBI). The projects undertaken under this would contribute towards developing wastewater infrastructure and ensure that sewage water would be collected and treated. It was ensured that treated water would be reused by industries, which will help save fresh drinking water. This was the second issue of bonds by Vadodara, after its first issuance, which was over-subscribed by 10 times. This showcases the potential of municipal governments and their role in achieving climate goals at a local level. This is a scalable model for other cities in India to align large-scale infrastructure projects at a municipal level. This bond is a testament to the evolving landscape of transition finance, highlighting the role that municipalities play in the journey towards a resilient, low-carbon future.

In conclusion, this section highlights the critical need for localising climate finance within the urban governance framework. Various examples highlighted ways in which the true potential of ULBs can be utilised. "The **urban climate finance must increase more than fivefold to meet global climate goals, while systemic barriers—such as weak policy commitment, inadequate enabling environments, capacity constraints, and limited capital mobilization**" (SCCFR, 2024).

IV. METHODOLOGY

This project report was undertaken in collaboration with auctusESG to identify the key challenges and opportunities that come along with localising climate finance in the context of Indian cities. The methodology adopted a combined approach using both secondary research with qualitative insights from stakeholder interviews to offer a comprehensive understanding of the topic, followed by providing actionable insights.

The report begins with a thorough review of secondary research, existing literature, reports, thematic papers, newspaper articles, and reports by the government to understand the current landscape of climate finance in India. Various policies, case studies, and roles of central, state, and local governments were analysed in the context of climate action at a local level. To understand the landscape better, interviews with stakeholders and experts from the sector were conducted to gain practical insights and identify on-ground challenges. Two economists who are also academicians, 4 practitioners, 1 elected representative, 1 municipal finance expert, and 1 urban planner cumulatively made the group of experts. Most of them were from India, but almost all of them had the experience of working around the globe. The questions of the interviews were tailored to each one according to their areas of expertise. Overall, the interviews were essential and enriching in bridging the gap between the understanding of secondary sources of data and ground realities, ensuring data triangulation.

For analysis, secondary research was done initially, followed by primary interviews, and then the inputs were segregated into various overlapping themes that emerged, which were pivotal to localising climate finance. This analysis is also done inductively by transcribing the interviews through qualitative coding. These include municipal finance and local fiscal autonomy, the political economy of urban governance and finance, misalignment between national and local climate finance priorities, and disparity between mitigation and adaptation funding. Moreover, the role of local action, citizen participation, behavioural change, and the importance of climate-resilient urban planning was also explored.

To conclude, this paper provides a comprehensive understanding of the subject by analysing secondary resources and triangulating them with insights from experts. It also provides actionable insights as part of recommendations to enhance the landscape of climate finance at a local level in India.

V. ANALYSIS AND DISCUSSIONS

The section presents a comprehensive analysis of expert interviews focused on the subject. The aim was to explore insights and connect them with the secondary findings from various sources. The analysis is done by identifying recurring themes, patterns, insights, and perspectives.

5.1 Key findings

1. **Municipal Finance and local fiscal autonomy –** "In India, **municipal corporations are not fiscal entities**," and hence lack of financial autonomy remains a major concern. One of the experts mentioned that "**local governments are not financially strong**" because "**municipal governance has been a state subject,**" making them "**extensions of the state or national government**". It was noted that municipalities primarily relied on centrally sponsored schemes, "limiting their ability to act independently" on any subject, climate being one of them. This structure of limited autonomy makes the ULBs heavily reliant on the state for funding rather than being able to manage and generate their own funds. The lack of financial autonomy "**reduces the agency**" of these bodies, restricting their ability to function independently.

   One of the experts argued that "**funds are not a problem**," but the mechanisms for accessing and utilising them require significant reforms. While cities have "**historically relied on using their own-source revenue, grants, or market funding**," this increasing centralisation of municipal finance at the state or national level has constrained the local governments from allocating resources when needed. The discussions also highlighted the significant degree of state autonomy within India's federal structure, with states independently setting their priorities.

2. **Political economy and urban governance framework** - The governance structure of municipal bodies remains heavily subordinated to state-level control. One of the experts substantiated the argument by referring to the reporting mechanisms of "**the municipal commissioner of Mumbai, who reports to the Chief Minister instead of the mayor**", clearly reflecting the limited autonomy of the city government. Moreover, municipal corporations are often treated as "**centers of extraction**," with urban wealth being funneled to higher levels of government, undermining local democracy and fiscal devolution.

   While municipal bodies are expected to drive urban development, their reporting mechanisms reinforce state dominance. In contrast, the metropolitan development authorities (MDAs) remain the "**agents of the state government rather than the local government**," further weakening municipal decision-making power. As cities have now evolved into economic powerhouses, the increasing complexity of governance necessitates a reassessment of the subjects under various lists, which were originally designed for a different era.

   The centralised approach to urban finance exacerbates these challenges. The Urban Infrastructure Development Fund (UIDF) is one such example, as it is "**conceived at a centralized level without understanding decentralized requirements**", highlighting the need for financial structures that align with local needs rather than top-down directives.

3. **Misalignment between national and local climate finance priorities** – A key issue highlighted was the disconnect between financial decision-making at higher levels and

local needs. The climate finance system is well structured, but it remains highly fragmented. The respondent stresses that there is a “**need for better inter-agency coordination”.** A major gap is the lack of awareness of funding sources, access mechanisms, and operationalisation. Despite funding from multilateral donors, banks, and government sources, these do not always align with national climate policies.

One of the experts mentioned that while “**localisation of climate is gaining traction, it has a huge risk of losing momentum without sustained efforts**”. The emphasis on localised action and finance must be paired with technical expertise, as state governments alone cannot manage their responsibility. Instead, collaborative governance is an essential tool for effective climate action.

4. **Disparity Between Mitigation and Adaptation Funding** – One of the experts highlights the imbalance in climate finance, noting that "**mitigation is an abstract collective concept**" whereas "**adaptation is much more tangible and localised**." This distinction skews funding priorities and leads to adaptation costs that “fall disproportionately on poorer and more vulnerable people” while wealthier groups avoid public investments through privatized solutions.

   Adaptation finance receives “**less public attention**” than mitigation despite its importance at the local level. From a policy perspective, both adaptation and mitigation are crucial. However, one of the experts noted that "**adaptation is a long journey**" involving policy adjustments, behavioural changes, and resilience-building, while "mitigation is more about reducing or preventing greenhouse gas emissions." Mitigation requires significant initial investment and is often addressed on a global scale, while adaptation is inherently local and necessitates "social and political consensus."

5. **Role of local action, citizen participation, and behavioural change in climate governance** – Climate action must be driven by local actors instead of the state or national government. The common feature that came across the discussion with almost all experts was the disconnect between the state-level plans and local implementation, arguing that real climate action should be planned and executed at the city level. To enable this, amending the 74th CAA is crucial as that would financially and politically empower the city governments.

   A major gap in urban governance is the lack of participatory planning. Unlike rural Panchayat Sabhas, cities lack an equivalent platform for community engagement. One of the experts suggested forming "**neighborhood sabhas**" to lead local climate planning and recommended "**allocating 10% of city revenue to ward committees**" for greater local decision-making. Beyond policy interventions, citizen participation and behavioural change are critical. One of the experts highlighted that "**the best strategy to manage solid waste is to ensure segregation happens at a household level**." While the government should provide infrastructure and regulation, long-term climate adaptation depends on local engagement. However, public awareness in India is shaped by diverse traditions and indigenous practices, which sometimes limit effective policy implementation.

   "**India's approach to climate policy is blindly adopting global strategies like mass electric vehicle deployment, ignoring the local realities**", argued one of the experts. Instead, cities must focus on compact urban growth, transit-oriented development, and decentralised infrastructure. A key challenge in localising climate finance is the funding and capacity problem. While funds "**should move closer to where the action is**", who will be responsible for utilising the money effectively and efficiently? Therefore, localising climate finance is essential, but its success would depend on bridging governance, awareness, and capacity gaps, ensuring cities and communities actively shape their climate policies and infrastructure that fit their unique urban realities.

6. **Alternative financing mechanisms** - A key challenge in localising climate finance is "**ensuring sustainable revenue generation**". Experts suggested cities should "explore diverse market-based financing mechanisms", citing examples from "Maharashtra and Gujarat", where smaller cities have successfully leveraged funding sourcing. Most experts stressed that "**cities should not be reliant on funding; instead, explore making local and innovative financing mechanisms essential**". Possible strategies suggested included "**the creation of an urban climate dashboard**" to track climate-related spending, congestion pricing as a revenue generation tool, integrating climate actions in municipal budgets with dedicated allocations, periodic audits, and regulatory frameworks to enhance accountability. Municipal bonds are one potential funding source. Other sources like **municipal bonds, debt markets, local bonds, and climate-linked debt** are additional financial tools that can be explored.

Indeed, public finance would not suffice to meet the demand of climate change, and hence, private finance needs to be mobilised to address the problem of climate change. India's strong CSR framework is a significant opportunity for mobilizing private funds for local climate action. However, a major barrier in private finance is that the "**Indian banking system is highly centralised, unlike the U.S.A., where the**

credit cooperatives and branch banking operate at a local level". Box 4 illustrates the example of the US decentralised municipal finance landscape and discusses its functioning."

Box 4

The U.S. follows a highly decentralised governance structure, where local governments have significant autonomy and independence in raising funds for infrastructure projects. Unlike centralised models, local entities such as school districts and utility departments manage their finances, issue bonds, and raise funds without cross-collateralisation. This financial independence is partly driven by the federal government's reduction in direct financial support, shifting the responsibility for municipal finance to local authorities.

A key factor supporting this decentralised model is the maturity of the U.S. municipal bond market, which has evolved over two centuries. Over these years, the market mechanisms have strengthened, resulting in increasing investor confidence and the introduction of diverse financial instruments. This structure has enhanced market stability and reduced financial risk for investors and issuers. In addition, the credit ratings play a critical role in the functioning of the US municipal finance system. All entities at the municipal level, including wastewater, water supply, and power, receive separate credit ratings. The ratings help in determining borrowing costs and shaping investor confidence. While the ratings are mandatory for bond issuance, an additional self-assessment framework can help municipalities in India evaluate their financial health and investment readiness before seeking a formal rating, thereby improving financial planning and transparency.

The Revolving Loan Fund (RLF) is administered by agencies such as "Environmental Protection Agency (EPA) or state-level bodies like California's Department of Water Resources." The RLF operates primarily through three streams – annual federal government, state-level issuances, and loan repayments from cities. This structure ensures a continuous flow of capital for projects like climate-focused ones.

One important characteristic of the bonds in the US is that they are tax-exempt, enabling local governments to issue at low costs. As the investor benefits from tax-free returns, the willingness to accept lower interest rates works, making them an attractive financing tool.

The U.S. model of municipal finance, with its strong local autonomy, mature bond market, and diversified financing mechanisms, offers valuable insights for India. Adopting structured reforms, such as revolving loan funds, improved bond instruments, and financial self-assessments, could enhance the ability of Indian ULBs to localize climate finance effectively. While India is already making progress in municipal finance, strategic interventions in governance, financial instruments, and market confidence-building could accelerate the transition toward sustainable urban development.

7. **Importance of climate-resilient urban planning** – A common theme that emerged from the conversation with the experts was that "**climate-resilient urban planning must be embedded within the national adaptation frameworks**", to ensure that municipalities play a direct role in integrating climate concerns into financial planning. While mitigation efforts are necessary, weak adaptation strategies can worsen local climate impacts. Climate resilience is not just an environmental concern but must be integrated into finance and broader developmental strategies.

Beyond securing funds, planning and capacity building are equally crucial. "**Money in any government, anywhere in the world, is never sufficient**", making it essential for cities to develop strong, proactive climate action plans rather than relying on reactive spending. Many cities have climate plans, but they often exist separately from statutory urban planning mechanisms like master plans. Since "**money follows the master plan**", climate action and finance must be fully integrated into urban planning frameworks.

VI. RECOMMENDATIONS

India’s urban landscape is undergoing rapid transformation, with a growing population residing in its cities. This puts ULBs at the forefront of managing urban expansion and ensuring the provision of essential services. As engines of economic growth, **over 60% of the nation's GDP is generated despite covering only 3% of the land area**; the effective functioning of ULBs is paramount for India’s continued development. However, the local governments face significant challenges, particularly concerning their financial autonomy and the increasing urgency to address climate change impacts. This report delves into eight essential areas for strengthening ULBs, focusing on methods to reduce their reliance on state and central transfers, enhancing their control over local revenue and expenditure, and integrating climate finance into their core operations. After critically analysing secondary sources, insights from experts and existing literature, this section is outlined to draw key actionable strategies for policymakers, government, and other stakeholders to foster effective implementation of localised climate action.

1. **Enhance the fiscal autonomy of ULBs -** Indian urban local bodies (ULBs) have some of the lowest autonomy in finance among other local governments across the world. The provincial administrations exercise a dominant regulation over ULBs’ jurisdiction to impose taxes, set rates, offer exemptions, formulate debt plans, as well as interfere with the timing and quantity of intergovernmental transfers. Such intergovernmental control cripples the ULBs' capacity to meet local demands and streamline and implement development activities on their own. **More than 50% of the municipal corporations generate under 50% of their revenues locally**, which results in high reliance on the fiscal transfers from the state and central governments. In recent years, these **transfers**

represented only 0.45% of India's GDP, contrasting with the 1.6% to 5.4% in Brazil, Indonesia, the Philippines, and Mexico. This dependence puts the ULBs at **risk regarding the uncertain nature of these transfers** and compromises their ability to carry out urban governance.

Property tax is the primary source of revenue for the ULBs in India, and it constitutes a significant portion of the world's GDP. It is estimated that the **property tax revenue in India is around 0.12 to 0.15% of the total GDP**, whereas in developed countries, this percentage is more than 1, indicating a significant underutilisation of the potential of this revenue source. In 2017, with the introduction of GST, the financial condition of the ULBs further worsened as nearly all local taxes, inclusive of octroi and entry tax, were subsumed. According to a study from 2019, revenue generated by municipal corporations over a metropolitan area shows a decrease compared to GDP after GST was introduced. A few suggestions made by SFCs regarding the improvement of monetary power given to ULBs have been acknowledged, but only in a cosmetic manner. As per the observation made by the Reserve Bank of India, the distribution of money to local bodies following SFC recommendations is done ineffectively. As a result, most municipalities, **about 81%, are without autonomous powers** to borrow or invest and need jurisdictional approvals for their financial activities.

Strategies to reduce dependency on the state for funding and transfer - The degree of fiscal autonomy of the ULBs can be enhanced through various measures. Improving the collection efficiency of existing own sources is crucial. This included reforms in property tax systems through the adoption of valuation-based formulas, GIS mapping coverage, as well as improving payment compliance and decreasing payment leakages through the use of digital payment systems. It is also important to rationalise user charges for essential services like as water supply, sanitation, and waste management to at least recover the costs. Moving away from the tax system can also grant financial autonomy. ULBs should make use of land value capture instruments, advertisement taxes, building permit fees, trade license fees, and fee collection for many other services.

Therefore, it is necessary to increase the overall allocations from the central and state governments to ULBs. This allocation should be accompanied by rule-based mechanisms and have clearly defined and outlined expenditure obligations with a rational funding mix. It is important to empower the local authorities to make autonomous financial decisions, including devolving greater authority in borrowing and investment within a responsible fiscal framework, to foster local ownership and accountability. Public-private partnerships should also be encouraged for urban infrastructure development and service delivery to pool in additional financial resources and private sector expertise. Lastly, the adoption of digital solutions for optimizing costs and improving efficiency in revenue collection and expenditure management can enhance transparency and reduce financial leakages.

2. **Develop a robust municipal market in India** – India is currently in the early stages of developing a municipal bond market characterised by low issuance volumes when compared to the corporate bond market or the municipal bond market of other countries. This market holds substantial potential for financing the growing needs of cities, especially for a developing country like India. CareEdge Ratings estimates that "**the municipal bond market in India will potentially reach around ₹30,000 crore**". As of March 2024, the "total outstanding municipal bonds in India also amounted to

₹4,204 crore, which amounts to only about 0.09% of the total outstanding corporate bonds”. Although this figure is comparatively lower than that of the US, where municipal bond issuances are a significant source of funding for local infrastructure.

In India, very recently, the issuance of municipal bonds has gained traction, particularly since FY2018, largely driven by the push from the government and the introduction of the fiscal incentives. The Government of India also “initiated an incentive scheme in FY2018, offering financial support for every **₹100 crore bond issuance**, which provides a vital tool for ULBs to explore it as a financing mode. A positive trend is observed in green municipal bonds, specifically used to finance environmentally beneficial projects. The National Stock Exchange (NSE) has also launched a dedicated website providing comprehensive data on issuances, credit ratings, and trading volumes to enhance the credibility and visibility of the municipal bond market. Additionally, the “**Nifty India Municipal Bond Index**” was introduced to measure the performance of municipal bonds issued by corporations with investment-grade credit ratings.

Strategies for Developing a More Robust Market - Serial bonds are bonds wherein a portion of the bond principal matures at regular intervals, offering investors a steady flow of income and also reducing the overall risk as the outstanding amount gradually decreases. This structure particularly attracts long-term infrastructure projects. By improving the creditworthiness of ULBs, this can be achieved, but revenue constraints need to be addressed through measures such as increasing property taxes and user fees. It would also ensure adequate and timely financial disclosures. The lack of financial disclosure is identified as one of the key challenges affecting the market. The development of standardised norms for accounting and financial reporting across ULBs would be vital to ensure consistency and comparability, thereby building trust among investors. Furthermore, enhancing the liquidity of municipal bonds will help in promoting the development of a secondary market, increasing investor confidence and willingness to invest. The tax concessions on returns would benefit from investments in municipal bonds and could attract a broader base of retail investors in the future. Smaller ULBs should also be encouraged to pool their bond issuances, which will help them overcome their limitations on size and attract larger institutional investors. Implementing strong and structured payment mechanisms and further utilising escrow accounts will help assure investors of timely repayment and enhance the credit ratings of the bonds. Finally, actively promoting green bonds with transparent reporting on their overall impact and specifically their environmental impact can explore Environment, Social, and Governance (ESG) focused investors.

3. **Formula-Based Fiscal Devolution for Urban Local Bodies**

Examining the historical devolution - In India, fiscal devolution is concerned with the vertical distribution of tax revenues between the central government and state governments, as is the case with horizontal distribution, which involves directly allocating funds to cities, bypassing state governments altogether. There is no horizontal devolution in India. The Finance Commission of the Fifteenth Congress recommended grants to local governments, which include ULBs and rural bodies, covered by both the rural and urban sectors, where the main area-based criteria were population and geographical size. There are still unresolved issues about the sufficiency and certainty of local government financial resources transferred from the state and central government funding. This unpredictability in funding creates a financial void for ULBs, which adversely affects their ability to carry out long-term development plans. Such examples can rarely be found, yet they do exist in contrast to other countries that demonstrate the advantages and possibilities of direct fiscal devolution to lower authorities. A portion of income tax collected or the right to impose and collect some other taxes at the local level are often examples of such grants. As an example, local governments in **Finland are mainly financed from local income taxation**, which is indeed a significant part of their total revenue. Even **Denmark has a decentralised system where municipalities receive a significant portion of their income from local taxes, which is predominantly like a local personal income tax**.

To enhance the financial autonomy of ULBs, a "formula-based system for the direct allocation of a share of central taxes, such as a portion of the GST", could be established. The allocation criteria for this direct devolution need to be based on transparent factors, including population, urban density, service level benchmarks achieved, and the city's vulnerability to climate change. Similarly, a mechanism or framework could be created for states to directly devolve a portion of state-collected taxes, "such as a surcharge on property tax or a share of the state GST, to ULBs based on a comparable formula-driven criterion". This would help in strengthening the direct financial linkages between the state revenue generation and the needs of urban areas within the state.

Therefore, integrating "**performance-based incentives into the devolution formula**" could further encourage ULBs to improve their service delivery, enhance their local revenue generation, and be able to actively engage in climate action. Crucially, it is essential to develop clear guidelines and mechanisms to prevent undue interference from the state or the central government as to how the ULBs are utilising these directly devolved funds. This would ensure their autonomy in expenditure planning and execution.

4. **Establish a State-Level Climate Revolving Loan Fund (CRLF)**

Feasibility and the potential structure – The establishment of CRLFs at the state level in India can be a presentable case for feasibility and offer a promising strategy to address the significant climate finance gap at the urban local level. The idea is inspired by successful models such as the "US Safeguarding Tomorrow Revolving Loan Fund Program" and the "California Climate Catalyst Fund", which demonstrate the effectiveness of revolving funds in providing low-cost financing for critical climate projects. A state-level CRLF in India can be structured by blending various sources of capital, including government grants from both the state and potentially the central government, state-backed bonds, and municipalities that can use the repayment of loans acquired from the initial issuance of bonds. This blended finance model will help create a sustainable pool of funds for climate action without affecting and distributing the financial burden across multiple stakeholders.

The initial capitalization of the CRLF may be done through a specific allocation in the state budget, taking cue from the idea of a Green Transition Fund. The fund may also leverage available financial resources like proceeds from the Clean Energy Cess or look for opportunities to access funds from international climate finance mechanisms. The main job of the CRLF would be to offer low-interest loans to

ULBs for a variety of climate-related projects. These would range from the installation of renewable energy equipment, energy efficiency improvements to municipal infrastructure and buildings, sustainable transportation system development, water conservation projects, and the implementation of climate change adaptation measures. When these projects are implemented successfully by the ULBs and they repay the loans, the capital would be cycled back into the fund, thus making a revolving process for continued investment in climate action. To increase the capacity of the fund and attract private investment, the state may also issue state-guaranteed bonds. These bonds, with credit guarantee mechanisms if needed, might be an attractive investment prospect for the private sector while mobilizing the CRLF with additional capital.

5. **Innovative Revenue Generation Methods for Urban Climate Initiatives**

Indian cities need to explore innovative revenue generation methods to fund increasingly crucial climate initiatives and reduce their reliance on traditional funding sources. One promising method is congestion pricing. This would involve levying a charge on vehicles entering specific, heavily congested zones during peak hours to ease traffic and vehicular emissions while generating revenue. While congestion pricing has proven effective in cities like London and Singapore, leading to significant reductions in traffic and improvements in air quality, its implementation in Indian cities has faced significant challenges primarily due to the lack of political will and potential public opposition. India can use its public communication better to highlight the benefits, alongside making improvements in public transportation alternatives. This would be essential in making the overall system feasible.

Green taxes are another such financial tool, which can be levied on activities, products, or industries that have a detrimental impact on the environment. These taxes can act as a disincentive for environmentally harmful behaviour and provide a dedicated revenue stream for environmental projects. For example, green taxes could be imposed on older, more polluting vehicles or industries with high emissions. Several states in India have already implemented a green tax regime on transport vehicles, demonstrating their potential as a revenue source for environmental initiatives. Finally, providing incentives for climate-friendly urban development can also indirectly contribute to revenue generation and reduce climate impacts. These incentives could include offering property tax rebates for buildings that achieve green ratings, providing increased Floor Area Ratio (FAR) for green-certified projects, and offering subsidies for the adoption of renewable energy technologies in urban areas. Such measures can encourage developers and property owners to adopt more sustainable practices, potentially leading to increased property values and thus higher property tax revenues in the long run.

6. Integrating Climate Finance into Municipal Budgets: The Urban Climate Dashboard

Integrating climate finance into the core municipal budgeting processes will help ensure that climate action is not treated as a peripheral activity but rather as a central priority that receives adequate and consistent financial support. Mainstreaming climate considerations into budgets would ensure the strategic alignment of financial resources with the city's climate goals and commitments. To facilitate this integration and to enhance transparency and accountability, the concept of an “**Urban Climate**

Dashboard" would be invaluable. This real-time tracking mechanism will help provide a comprehensive overview of the climate-related expenditures at the city level.

An Urban Climate Dashboard can be established to monitor both the budgetary expenditures and the actual spending for a wide variety of climate-related projects and initiatives in all applicable municipal departments. This would provide policymakers and administrators with a clear indication of how financial resources are being channeled toward climate action. Additionally, the dashboard may include key performance indicators (KPIs) for measuring the social and environmental impact of the investments, which wo uld enable the tracking of progress towards the city's climate objectives.

The information on the dashboard may be detailed and can be broken down into significant sectors, including energy, transport, waste management, and water resources. It may also classify projects by project type and determine the exact source of funds, whether municipal revenues, state or central government grants, or innovative funding tools such as green bonds. To present the data in an easily accessible and understandable format, the dashboard may use GIS mapping tools and other data visualization methods, presenting a clear and intuitive format for policymakers, municipal authorities, and the public at large. The information on the dashboard must be updated on a real-time basis for it to be effective. This can be done through smooth integration with current municipal financial management systems and project monitoring systems. The creation of such an Urban Climate Dashboard can learn important lessons and take inspiration from other city-level climate action plans and climate budgeting experiments that have been led in cities such as Mumbai, Bengaluru, and Chennai.

7. **Strengthening Regulatory Frameworks for Climate Finance in Indian Cities**

A robust regulatory framework is very crucial to ensure the integrity and effectiveness of climate finance initiatives within Indian cities. A strong emphasis should be put on the framework of periodic audits, standardized reporting mechanisms, and clear accountability frameworks. Periodic audits of climate finance expenditures at the municipal level should be conducted by independent agencies to ensure transparency, promote efficiency in the use of funds, and verify the effectiveness of the projects undertaken. Regular audits can help identify any irregularities in financial management, ensure that funds are being used for their intended purposes, and ultimately enhance public trust in the process.

There needs to be an established standardised reporting framework for municipal climate finance. These frameworks should include clear and consistent definitions of what constitutes climate-related expenditure, specify the required reporting formats, and mandate regular disclosure of relevant financial information. Standardisation will help in engaging meaningful comparisons of climate finance activities across different cities and will help in the facilitation of the aggregation of data at the national level for better policy formulation and monitoring. Drawing upon established international reporting frameworks, such as those developed by the **Climate Disclosure Standards Board (CDSB)**, can provide valuable guidance in this regard. Furthermore, the development of a "**robust accountability framework**" is essential in clearly defining the roles and responsibilities of municipal officials and other stakeholders who are involved in the management of climate finance. These frameworks should include specific mechanisms for addressing any deviations from planned activities or instances of financial mismanagement, ensuring that individuals and institutions are held responsible for their actions related to climate finance. Finally, it is crucial to ensure strict compliance with the regulations set forth by the Securities and Exchange Board of India (SEBI) for the issuance of municipal bonds, including mandatory credit ratings and comprehensive disclosure requirements, as this oversight enhances investor confidence in the municipal bond market.

8. **Enhancing the Political Autonomy of Municipal Governments**

Increasing both the political and financial independence of municipal governments in India is necessary to promote strong local self-government and empower them to respond to the increasing demands of urban growth and climate change. Constitutional reforms may include campaigning for amending the 74th Constitutional Amendment Act to make the obligatory provisions of funds, functions, and functionaries transfer to ULBs and weaken the discretionary powers now enjoyed by state governments. These reforms would give a firm legal basis to ULB autonomy. Both state and national policy reforms are necessary to provide for higher financial devolution. This also means raising the share of central and state taxes to ULBs and giving them greater freedom to impose and collect local taxes. Putting into place the formula-driven fiscal devolution to ULBs would be an important step toward enhanced fiscal autonomy, generating reliable and non-contingent finances.

Encouraging the establishment of decentralised climate governance systems at the city level is also imperative. This would enable ULBs to develop and execute their climate action plans and access climate finance directly, ensuring more locally driven and context-specific climate action. Lastly, the investigation into policy and legislative reforms that empower mayors and elected representatives to have enhanced executive and fiscal authority would help equip them better to deliver effective leadership in climate action and urban development. Powerful local leadership is key to fostering positive change and keeping the city electorate accountable.

VII. CONCLUSION

The study on "Localising climate finance" highlights the urgent need for climate finance at a local level to meet the increasing challenges of climate change in Indian cities. As the drivers of economic growth, cities are also the largest contributors to climate change. The city government is thus best placed to deliver effective climate solutions. But the existing governance and financial systems severely limit their capacity to do so.

The results indicate that ULBs have significant constraints in accessing and mobilizing climate finance because of limited fiscal autonomy, combined with disintegrated governance arrangements and poor decision-making authority, which represents a major hindrance to applying context-relevant climate solutions.

The study covers each part in detail, divided over several themes to provide clarity and readability. Based on successful practices and expert views, a set of recommendations has been derived for the Indian context to enhance and develop. Instead of making climate action a peripheral exercise, it must be brought into the mainstream municipal budgeting and planning mechanisms. This requires not just fiscal reforms but also changes in governance that give local governments more decision-making powers.

Thus, by localizing climate finance, Indian cities can build more context-sensitive, responsive, and inclusive climate solutions. This process would allow them to deal with both short-term adaptation requirements and long-term mitigation objectives in addition to ensuring that climate action is prioritised in line with local realities and needs. Finally, enhancing the ability of ULBs to secure and utilize climate finance is not only an environmental need but also a development imperative for the construction of resilient, sustainable, and livable cities for the coming generations.

VIII. FUTURE SCOPE

The research on “Localisation of climate finance – Empowering Indian cities to combat climate change” can be extended to explore additional areas, including diverse geographical regions, governance structure, and sectoral approached to climate adaptation and mitigation. These findings and insights can serve as a foundation for further discussions through workshops, conferences, and roundtable dialogue, bringing together policymakers, researchers, and practitioners to refine and expand the discourse.

Given that the topic primarily falls within the agenda-setting and the implementation stages of the policy cycle, continuous engagements and deeper insights can significantly enhance policy planning and execution. Strengthening operational capacity and addressing implementation challenges through collaborative learning will be crucial for more effective climate governance at a local level.

Moreover, the research’s analytical aspects, particularly those focused on designing interventions, can contribute to both policy formulation and appraisal. By integrating empirical insights into policy making, future studies can help refine frameworks that ensure not just better policy design but also practical, on ground effective implementation.

This evolving body of work holds potential to drive impactful climate action by bridging the gap between strategy and implementation, ultimately strengthening the localisation of climate policies for more resilient and sustainable urban governance.

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X. APPENDICES

1. Consent Form

I am Lekhani Hamen Raja, a researcher and a student at Kautilya School of Public Policy. I am doing this research with auctusESG a part of my Capstone Project, and you can contact me at lraj25@kautilya.org.in for any questions and concerns regarding this study.

The research explores the flow of climate finance to local governments, the challenges in implementation, and its impact on sustainable urban development. The study aims to identify solutions to improve the effectiveness of localized climate finance mechanisms.

Why have you been Selected?

You have been selected as a participant because of your expertise and professional experience in Economics/ Climate Finance/ Policy/ Urban Governance. Your insights are valuable in understanding the practical and theoretical aspects of the topic.

What Does This Study Involve?

The study primarily involves collecting information on topics such as climate finance mechanisms, governance structures, and best practices for local implementation. The interviews will be recorded using written notes and audio recording only with your permission. All information collected will be secured and I assure you that it will be used solely for the academic purpose of this research. Your responses will remain anonymous.

Risks and Benefits -

There are no direct risks associated with participating in this study. However, if any questions make you uncomfortable, please let me know, and you may refrain from answering them. Your participation contributes to advancing understanding and improving the effectiveness of localized climate finance initiatives.

Data Privacy -

To ensure that this research is ethical, and the management of data is done responsibly, the data of all the participants will be collected and handled with strict confidentiality. Data will be stored securely on password-protected devices on my computer system and will only be accessed by me and my supervisor at auctusESG - Anjali Sreeram.

After the project is completed, all identifiable data will be permanently deleted. The data will be used solely for academic purposes and will not be shared with external entities without anonymization.

Withdrawing Consent -

You may choose to stop the interview at any time or decline to answer any question without any consequences.

Statement of Consent/ Statement of Withholding Consent -

The nature and purpose of this research have been sufficiently explained to me:

A. I agree to participate in this study.

B. I disagree with participating in this study.

Date:

Participants Name:

Signature:

2. Interview questions –

- Understanding Climate Finance in Urban Contexts
  - How is climate finance currently structured to fund climate action in cities or does a concept like this even exist?
  - Does climate finance have a stronger focus on mitigation or adaptation? Why is adaptation often underfunded compared to mitigation?
  - While adaptation is more from a local perspective, what challenges will cities have to address issue at a local level?
  - What are the key challenges in implementing climate action projects at the local level?
- Financial Access and Institutional Challenges
  - What mechanisms are in place for urban local bodies (ULBs) to access climate finance? How effective are they?
  - What institutional barriers hinder the localisation of climate finance?
  - How do delays in fund disbursement affect the planning and execution of climate initiatives?
- Governance and Policy-Level Interventions
  - What role do state and central governments play in supporting ULBs to mobilise climate finance and what's the status?
  - How can what support can be given to the city government for them to address issues on a real-time basis and with adequate funds, so that they don't have to depend on funding?

- What regulatory frameworks or policies enable or obstruct the flow of climate finance to cities?
- How can decentralised governance models contribute to more effective climate finance localisation?
- What policy-level interventions are required to accelerate or encourage climate finance flows to cities?

- Role of International & Private Sector Financing
  - Do international climate finance mechanisms like the Green Climate Fund engage with urban local bodies? If yes, how?
  - How can public-private partnerships contribute to localising climate finance?
  - What incentives could encourage private sector investment in local climate action projects and do you think it’s a substantial way of financing localised climate action?
  - What strategies can help bridge the gap between global climate agendas and local urban realities?
- Financial Innovation & Capacity Building
  - How can financial innovations like green bonds, climate risk insurance, or impact investing be leveraged at the local level?
  - What monitoring and evaluation systems are needed to ensure accountability in localised climate finance?
  - What capacity-building measures are necessary to enable ULBs to effectively utilise climate finance?

- How can technology and data support better access to and management of localised climate finance?

- Equity, Inclusion, and Broader Impact
  - Do you think localising climate finance will be a transformative tool in addressing climate change? Why or why not?
  - If yes, what policy recommendations would you propose to streamline climate finance localisation that is required to accelerate or encourage these flows – this can feed in from learnings from other countries