



Global Disaster  
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RESEARCH PAPER

# Leveraging Governance Innovation for Urban Climate Resilience:

## Strengthening Municipal Fiscal Autonomy in Bangladesh

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## Abbreviations

ADB	Asian Development Bank
APA	American Psychological Association
BBS	Bangladesh Bureau of Statistics
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BDT	Bangladeshi Taka
BIP	Bangladesh Institute of Planners
BMDF	Bangladesh Municipal Development Fund
CAGR	Compound Annual Growth Rate
CBT	Climate-Relevant Budget Tracking / Climate Budget Tagging
CBO	Community-Based Organization
CFF	Climate Fiscal Framework
CCTF	Climate Change Trust Fund
CPEIR	Climate Public Expenditure and Institutional Review
DR	Directly Relevant (expenditure category)
EAR	Expenditure Autonomy Ratio
FDMN	Forcibly Displaced Myanmar Nationals
FY	Fiscal Year
GAI	Governance and Accountability Index
GDPC	Global Disaster Preparedness Center
GDG	Government Development Grants
GED	General Economics Division
GRG	Government Revenue Grants
IGFT	Intergovernmental Fiscal Transfers

IGT	Intergovernmental Transfers
IFRC	International Federation of Red Cross and Red Crescent Societies
IOM	International Organization for Migration
IR	Indirectly Relevant (expenditure category)
KII	Key Informant Interviews
LGCRPP	Local Government Covid-19 Response and Recovery Project
LGIs	Local Government Institutions
LoGIC	Local Government Initiative on Climate Change
MGSP	Municipal Governance and Service Project
MoEFCC	Ministry of Environment, Forest and Climate Change
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
NCR	Not Climate Relevant (expenditure category)
NRCB	National Research Council of Bangladesh
O&M	Operation and Maintenance
OSR	Own-Source Revenue
PFM	Public Financial Management
PR	Potentially Relevant (expenditure category)
TDE	Total Development Expenditure
TME	Total Municipal Expenditure
TRI	Total Revenue Income
TRE	Total Revenue Expenditure
TLCC	Town-Level Coordination Committees
UGIIP-III	Urban Governance and Infrastructure Improvement Project
UHI	Urban Heat Island
UNDP	United Nations Development Program

UN-Habitat United Nations Human Settlements Program

WLCC Ward-Level Coordination Committees

## Abstract

This research investigates the critical nexus of fiscal autonomy, governance innovation, and urban climate resilience in Bangladeshi municipalities. A mixed-methods case study approach, combining an econometric analysis of seven municipal budgets with rich qualitative insights from Key Informant Interviews, reveals a systemic crisis: a self-reinforcing "governance-finance-resilience trilemma." The findings demonstrate that municipalities operate with an illusory sense of fiscal autonomy, trapped in a "fiscal dependency trap" where inadequate local revenue is compounded by a "crowding-out effect" from external grants. This financial instability forces a reactive, project-driven "boom-bust cycle" for climate action, creating a perilous "maintenance trap" where new infrastructure lacks sustainable local funding for long-term upkeep. The study concludes that fiscal autonomy and governance innovation are co-dependent and synergistic: the former provides the resources ("fuel"), while the latter provides the mechanisms ("engine") for their effective use. The report offers evidence-based, multi-level recommendations for national and local policymakers to reform the fiscal architecture, strengthen institutional capacity, and empower local governments as the primary agents of a sustainable, equitable, and resilient urban future.

*This work was part of a [multi-country research initiative](#) led by the Global Disaster Preparedness Center of the American Red Cross.*

# 1. Introduction

## 1.1 The Nexus of Urban Crisis and Climate Vulnerability in Bangladesh

Bangladesh is grappling with a profound urban crisis, characterized by the convergence of rapid, unplanned urbanization and the escalating impacts of climate change. The nation's urban population is expanding at an annual rate of over 3%, a trajectory that is projected to result in half of the country's total population residing in urban areas by 2030 (Centre for Urban Studies, 2021). This demographic shift, however, is not a seamless transition but a chaotic process that has led to spatial imbalances, overcrowding, and the proliferation of informal settlements. Over 50% of the urban population now live in these informal settlements, which are inherently vulnerable due to their location in high-risk zones, such as flood-prone areas.

This internal crisis is compounded by Bangladesh's extreme vulnerability to climate change, a threat that is not theoretical but a lived reality. The country is ranked as one of the most vulnerable globally, with its low-lying topography and high population density amplifying the risks from natural hazards. The economic and social costs are staggering, with average annual losses from tropical cyclones alone estimated at \$1 billion, and a severe flood event having the potential to reduce the national GDP by as much as 9%. Furthermore, climate-induced adversities—including intensifying floods, rising sea levels, and increased salinity—are projected to displace approximately 13 million people, creating a humanitarian challenge of unprecedented scale as climate migrants seek refuge in already strained urban centres. The consequences of this unchecked urbanization extend beyond infrastructure deficits to severe environmental issues, including air and water pollution, which contribute to a range of health risks and economic burdens equivalent to 9% of the national GDP annually.

## 1.2 Research Problem and Significance

The fundamental challenge confronting Bangladesh is a critical disconnect between the national scale of the urban and climate crises and the local, city-specific nature of their impacts. The country's governance system is highly centralized, a legacy that has vested most decision-making and financial authority in the central government (MoLGRDC, 2009; World Bank, 2018). This top-down approach often results in policies and adaptation measures that fail to address the unique and diverse needs of local communities and municipalities, creating a significant gap between high-level national strategy and on-the-ground realities (Coen et al., 2021).

A core dimension of this problem is the severe fiscal constraint faced by municipalities. Local governments are acutely dependent on the central government for revenue, a reliance that severely limits their ability to invest proactively in climate resilience (World Bank, 2022; Local Government Division, 2020). This research is significant because it moves beyond a simple diagnosis of these challenges to propose a strategic, evidence-based solution. The report investigates the potential of combining governance innovation, including the strategic use of digital tools, participatory planning processes, and adaptive governance frameworks, with enhanced fiscal decentralisation. This approach offers a promising pathway to empower Bangladeshi municipalities, enabling them to build robust urban climate resilience. The findings are intended to contribute to the academic discourse on urban climate governance in developing countries (Dodman et al., 2019) while providing actionable recommendations for policymakers and practitioners, thereby aligning with the broader humanitarian goals of building more resilient and sustainable urban environments (Jabeen, 2019).

### 1.3 Research Questions

This research seeks to answer the following key questions:

1. How does the current fiscal governance landscape in Bangladeshi municipalities impact their ability to invest in and implement climate resilience measures?
2. What specific governance innovations (including digital tools and participatory approaches) are being implemented in Bangladeshi municipalities, and how effective are they in enhancing climate resilience?
3. What are the key enablers and barriers to the adoption and scaling up of effective governance innovations for urban climate resilience?
4. How can increased fiscal autonomy for municipalities, combined with governance innovation, lead to more transparent, accountable, and climate-resilient urban governance?

### 1.4 Research Objectives

This research is guided by the overarching aim of understanding how governance innovation can strengthen urban climate resilience in Bangladesh by enhancing municipal fiscal autonomy. This requires a multi-faceted approach, encompassing an assessment of the current situation, an exploration of potential solutions, and the development of actionable recommendations. To achieve this aim, the following research objectives are pursued:

**Objective 1:** To evaluate the status quo of fiscal governance and decentralization in Bangladeshi municipalities, identifying key barriers and opportunities for innovation.

**Objective 2:** To leverage governance innovations—such as digital tools, public accountability systems, and adaptive frameworks—to enhance municipal financial autonomy and empower local governments towards sustainable, climate-resilient urban management.

**Objective 3:** To develop evidence-based strategic recommendations for reforms that promote transparent, accountable, and climate-resilient governance in Bangladeshi municipalities.

## 2. Literature Review: Contextual and Theoretical Frameworks of Urban Climate Resilience in Bangladesh

Urban areas in Bangladesh are increasingly confronting the severe and multifaceted challenges posed by climate change. As a South Asian nation recognized globally as one of the most vulnerable to climate change, Bangladesh experiences a disproportionate burden of climate-related hazards due to its unique geographical characteristics, including a low-lying delta topography and significant socio-economic factors such as high population density and widespread poverty (World Bank, 2021). Within this vulnerable nation, urban centers, particularly the capital city of Dhaka, are at the forefront of experiencing a range of climate-induced stresses. The pervasive acknowledgement of Bangladesh's extreme susceptibility to climate change underscores the urgent need for a comprehensive understanding and enhancement of urban climate resilience. While numerous studies have documented the general impacts of climate change on the country (e.g., MoEFCC, 2021; IOM, 2020), there remains a critical need to explore the less-understood intersections with fiscal autonomy and governance innovation to generate novel insights into effective resilience-building strategies.

Addressing these escalating climate challenges necessitates a strong focus on enhancing urban climate resilience, fostering innovation in governance practices, and ensuring adequate fiscal autonomy for local authorities (ADB, 2022). Strengthening the capacity of urban areas to withstand, adapt to, and recover from climate-related shocks and stresses is paramount for safeguarding urban populations, critical infrastructure, and overall economic stability (Meerow et al., 2016). The complex and dynamic nature of urban environments under climate change demands innovative approaches to governance (Coen et al., 2020). Crucially, the ability of municipal governments to independently plan and finance adaptation and mitigation efforts is fundamentally linked to their fiscal capacity and autonomy (World Bank, 2022). The

individual significance of urban climate resilience, governance innovation, and fiscal autonomy suggests strong potential for synergistic effects when these elements are effectively integrated. Therefore, this literature review provides a comprehensive synthesis of existing academic knowledge on the interconnectedness of fiscal autonomy, governance innovation, and urban climate resilience, specifically within the context of urban Bangladesh, identifying key research gaps to inform future research.

## 2.1 Contextual Framework

### 2.1.1 Climate Change Impact on Urban Bangladesh

The Earth's surface has undergone profound transformations in recent decades, with rapid urban expansion as a defining characteristic (UN-Habitat, 2022). This accelerated urban growth, often outpacing population increases, has triggered significant environmental alterations. Bangladesh, due to its unique geographical attributes, is exceptionally vulnerable to the impacts of climate change, acutely evident in its urban centers (MoEFCC, 2021). Situated at the confluence of major river systems and characterized by a low-lying topography, the nation is inherently susceptible to a multitude of climate-related hazards.

**Urban Flooding:** Bangladesh confronts an escalating crisis of frequent and intense flooding, amplified by climate change (Mirza, 2011). Himalayan glacial melt augments river flows, while altered weather patterns lead to more frequent and heavier rainfall, increasing inundation risks. Bangladesh's geographical predisposition to flooding, exacerbated by these climate-induced factors, sees riverine flooding partially mitigated by post-1998 embankments, yet urban flooding from high-intensity rainfall persists (Huq et al., 2007). Projections indicate substantial intensification, with increased monsoon precipitation amplifying the frequency, magnitude, and duration of both riverine and urban flooding (MoEFCC, 2021). Rapid urban growth and high population density in Bangladesh render cities increasingly susceptible to human-induced environmental vulnerabilities, compounded by siltation of rivers and inadequately planned urban drainage, worsening the effects of heavy rainfall and leading to prolonged waterlogging (Ahmed & Dewan, 2017; Dewan et al., 2021).

Dhaka, ranking ninth globally in disaster risk, faces recurrent severe urban flooding during the June-October monsoon. Its existing drainage infrastructure is frequently overwhelmed by intense rainfall, with research showing peak runoff directly correlating with rainfall intensity. Encroachment on natural drainage channels (khals) and suboptimal drainage infrastructure management significantly contribute to this problem (Huq et al., 2007), severely disrupting daily life, particularly in vulnerable slum areas. The far-reaching consequences include damage to fragile shelters,

contamination of water sources, disruption of sanitation, and increased waterborne disease risks. Floods decimate livelihoods, particularly in the informal sector, exacerbating financial precariousness.

**Rising Temperatures:** Rising temperatures, a significant consequence of climate change, are projected to increase with more intense and prolonged heat waves (MoEFCC, 2021). Rapid urban growth, transforming natural landscapes and increasing heat emissions create distinct urban microclimates—the Urban Heat Island (UHI) effect—making urban areas significantly warmer than their rural counterparts (Emmanuel & Krüger, 2012). This is increasingly evident in Bangladesh. Urban areas are particularly susceptible to the UHI effect, where heat-absorbing concrete and reduced vegetation trap solar radiation. Loss of natural surfaces due to climatic conditions and population growth has compounded rising temperatures.

Dhaka experiences urban temperatures significantly higher than surrounding rural areas, most pronounced in the afternoon and night, increasing energy demand for cooling and decreasing quality of life. This temperature elevation is driven by rapid, often unplanned urbanization. Data from 2001-2017 shows a consistent upward trend in Dhaka's temperatures (Dewan et al., 2021). This rise, coupled with high humidity, threatens public health. A severe scarcity of green spaces in Dhaka further compounds the UHI's effects.

**Sea-Level Rise:** The projected relative sea-level rise in the Ganges Delta poses a substantial threat to low-lying coastal urban areas (Nicholls et al., 2021). This contributes to increased coastal flooding, salinity intrusion, and coastal erosion, severely impacting infrastructure and livelihoods. Millions in coastal Bangladesh are at risk of displacement. By the year 2050, Bangladesh is projected to lose an estimated 17% of its total territory due to the relentless rise in sea levels, resulting in the devastating loss of approximately 30% of the country's vital agricultural land. The current rate of sea-level rise in Bangladesh is alarmingly high, ranging from 3.8 to 5.8 mm per year, significantly faster than the global average.

**Tropical Cyclones and Storm Surges:** Coastal regions face heightened risk from tropical cyclones and storm surges, with climate change projected to amplify their intensity, leading to greater destruction of both property and critical infrastructure, as well as a tragic increase in the loss of human life (Karim & Mimura, 2008). Coastal urban areas are vulnerable to inundation and damage when storm surges coincide with high tides. Historical cyclone impacts, exemplified by events like Cyclone Sidr and Aila, highlight the immense human and economic costs of these recurring disasters.

**Water Scarcity and Salinity:** Climate change intensifies water scarcity through elevated temperatures, altered precipitation, and saline intrusion (Khan et al., 2011). This contaminates freshwater sources, leading to health problems.

**Differentiated Vulnerabilities Across Urban Areas:** Climate change impacts vary significantly across Bangladesh's urban landscape, necessitating location-specific adaptation strategies. Coastal cities, such as Cox's Bazar, Mongla, and Khulna, are highly vulnerable to sea-level rise and salinity intrusion (MoEFCC, 2021; Nicholls et al., 2021). Shoreline erosion threatens livelihoods and infrastructure and projected inland shifts of the salinity isoline pose severe risks to freshwater resources and agriculture. Khulna faces a complex combination of sea-level rise and inland flooding (Huq et al., 2015), while Chittagong grapples with urban flooding from both rainfall and tidal surges (Dewan et al., 2015). Inland urban areas, though not directly impacted by sea-level rise, experience intensified riverine flooding (Rahman & Islam, 2019), increasing heat stress from rising temperatures and the urban heat island effect (Dewan et al., 2021). Rajshahi, for example, faces challenges to its winter agriculture due to shifting climate patterns. Smaller municipalities (Pourashavas) also face flooding and water management issues, often exacerbated by unplanned urbanization. The overview of Urban Vulnerabilities and Climate Impacts in Bangladesh is shown shortly in Figure 1.

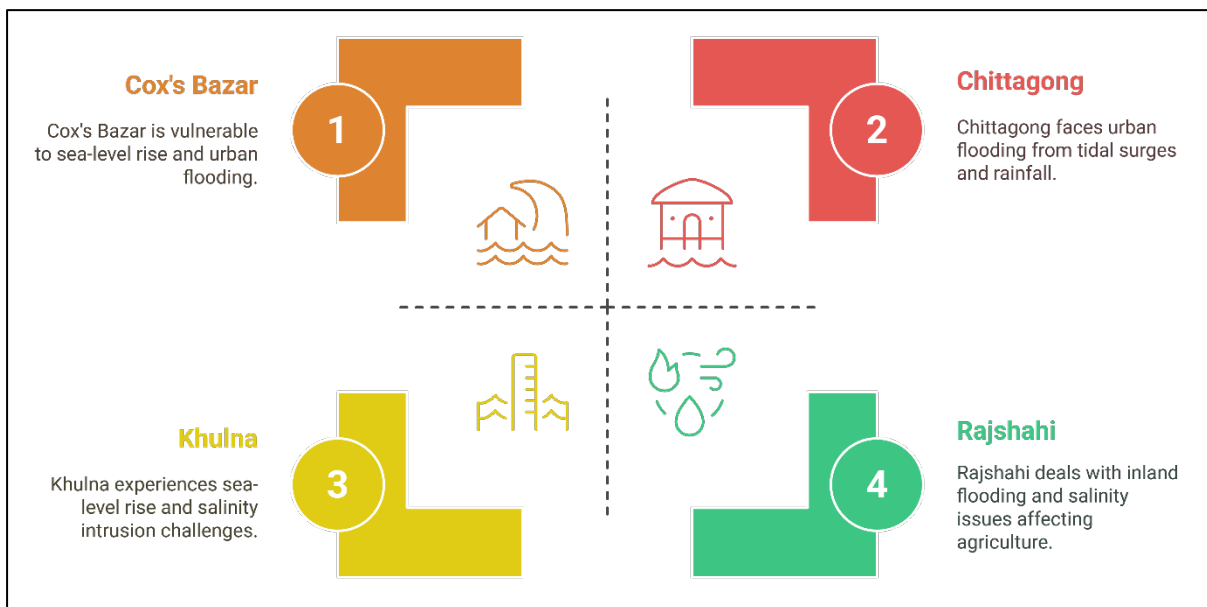


Figure 1: Overview of Urban Vulnerabilities and Climate Impacts in Bangladesh

Source: Delta Plan 2100 and Author 2025

**Climate Migration:** Sea-level rise and other climate-related disasters are projected to displace millions in Bangladesh, driving significant climate-induced migration towards

urban centers (Rigaud et al., 2018; IOM, 2020). Cities like Dhaka, Chittagong, and Khulna are already major destinations for migrants, with Dhaka's extreme population density highlighting the pressure (BBS, 2019). Climate migrants often end up in urban slums, facing precarious living conditions, food insecurity, and increased health risks. The increasing frequency of flooding and other climate-related disasters in rural areas acts as a significant "push" factor, driving this migration. Bangladeshi cities are often ill-equipped to handle this influx, leading to an internal migration crisis and further strain on urban infrastructure (Alam et al., 2017). The impact of climate migration on urban centers is shown shortly in Figure 2.

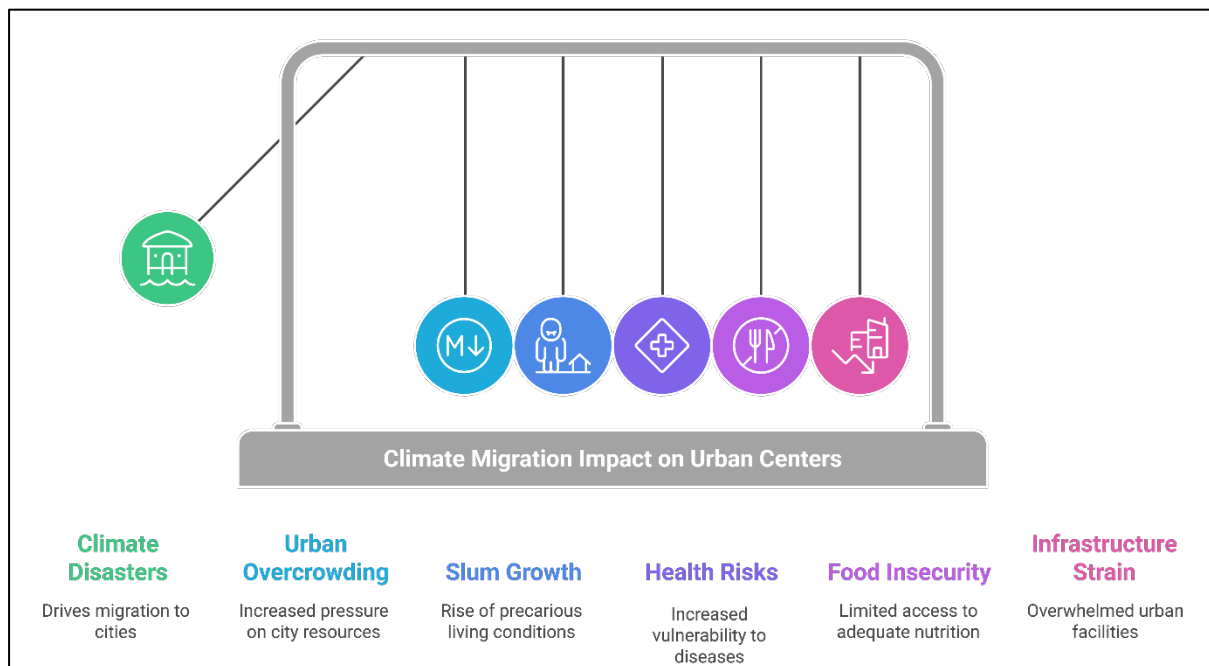


Figure 2 Climate Migration Impact on Urban Centers

Source: Author 2025

**Socio-economic Consequences:** Climate change is projected to exacerbate existing social inequities and health risks in Bangladesh's densely populated urban areas (Khan et al., 2020). Unplanned urbanization contributes to air pollution, inadequate sanitation, and poor housing, which is linked to increased respiratory and waterborne diseases. These risks are heightened by poverty and limited healthcare access. Climate-induced migration often leads to poor living conditions for migrants, increasing poverty, and health problems. Floods and extreme temperatures directly impact the urban poor, damaging shelters, polluting water, and increasing disease incidence. Coastal communities dependent on agriculture and fishing are particularly vulnerable, with land loss impacting livelihoods. Climate change is expected to have significant macroeconomic consequences, potentially reducing GDP and agricultural output, disproportionately affecting the rural poor and widening economic inequality.

These further limit the capacity for adaptation and mitigation, vicious creating a cycle of vulnerability.

### 2.1.2 Urban Vulnerabilities in Bangladesh

Beyond physical vulnerability, pre-existing socio-economic disparities (poverty, income inequality) and inadequate access to services exacerbate climate impacts in urban Bangladesh (UN-Habitat, 2022). A substantial portion of the urban population resides in slums with limited access to necessities.

Weak local governance structures hinder effective climate change responses and erode public trust. These institutions often grapple with insufficient funding, bureaucratic bottlenecks, limited stakeholder engagement, and corruption (Hossain, 2008). Political interference prioritizes agendas over service delivery. Weak institutional capacity and lack of inter-agency coordination further complicate matters. The absence of a comprehensive local governance policy framework impedes decentralization. Complex processes for accessing central development funds often overlook localized needs.

Vulnerability is unevenly distributed. Women and the economically disadvantaged are disproportionately affected (Cannon, 2010). The urban poor, often in informal settlements, are exceptionally vulnerable. Unequal power relations based on ethnicity, religion, gender, and socio-economic status further differentiate vulnerability. Climate Risks and Socio-economic Vulnerabilities in Bangladeshi Municipalities are shown in Table 1 below.

*Table 1 Climate Risks and Socio-economic Vulnerabilities in Bangladeshi Municipalities.*

Challenge Area	Climate Risk(s)	Socio-Economic Vulnerabilities	Combined Impact
<b>Coastal Zone Crisis</b>	Cyclones, Tidal Surges, Sea-Level Rise	High poverty rates, dense populations in low-lying areas, limited access to resources and protective infrastructure, dependence on climate-sensitive livelihoods (fishing, agriculture)	Displacement, loss of housing and infrastructure, livelihood disruption, increased poverty and inequality, permanent land loss, increased frequency/intensity of coastal flooding, food insecurity, forced migration.
<b>Urban Flooding &amp; Health</b>	Seasonal Flooding (riverine, urban)	Rapid/unplanned urbanization, inadequate drainage systems, high population density in slums (approx. half of urban population), limited access to sanitation and clean water, weak infrastructure and governance	Damage to infrastructure, disruption of transportation and commerce, waterborne disease outbreaks, increased health risks (especially in slums), food insecurity, economic disruption.

<b>Extreme Heat Stress</b>	Heatwaves	High population density (especially in slums), limited access to cooling/green spaces, "urban heat island" effect, reliance on outdoor labor, strain on energy infrastructure	Increased heat-related illnesses and mortality, reduced productivity, increased energy demand and potential blackouts, exacerbated health inequalities, economic losses.
<b>Water Scarcity &amp; Quality</b>	Salinity Intrusion	Coastal location, dependence on freshwater resources, inadequate water management infrastructure, limited access to safe drinking water (especially in slums), reliance on urban agriculture (where present)	Contamination of drinking water, damage to urban agriculture, increased health risks, water scarcity, livelihood impacts, exacerbation of existing inequalities.
<b>Underlying Governance and Infrastructure Weakness</b>	Cross-Cutting across all the above	Rapid, unplanned urbanization exceeding infrastructure capacity. Weak enforcement of building codes and land-use planning. Limited investment in resilient infrastructure. Inadequate social safety nets. Inequitable access to resources and services.	Amplifies all other impacts. Reduces adaptive capacity. Increases vulnerability of all populations, but especially the poor and marginalized. Hinders effective disaster preparedness and response.

Source: Compiled by Author 2025

Climate change acts as a multiplier threat, exacerbating existing vulnerabilities (Adger, 2006). Environmental hazards and socio-political factors drive rural-urban migration. The lack of access to basic urban services in informal settlements, compounded by climate shocks, creates a cycle of vulnerability.

### 2.1.3 Overview of Municipal Governance in Bangladesh

The Constitution mandates decentralization. The Local Government (Pourashava) Act, 2009, and the Local Government (City Corporation) Act, 2009, govern urban areas (MoLGRDC, 2009), outlining the structure, functions, and financial arrangements.

Bangladesh has a multi-tiered local government system. Urban areas are administered by City Corporations (major cities) and Pourashavas (municipalities), responsible for services like water supply, sanitation, infrastructure, and public health (Siddiquee, 2006). City Corporations generally have a broader mandate, including education and social welfare programs.

Municipalities face inadequate budgets, challenges in collecting local taxes, and significant dependence on central government transfers, particularly through the Annual Development Program (ADP) (World Bank, 2022). The Bangladesh Municipal Development Fund (BMDF) provides credit for infrastructure. A recurring challenge is insufficient revenue to cover expenses and meet service demands.

Financial constraints, capacity deficits, political interference, administrative inefficiencies, corruption, rapid urbanization, and the absence of a comprehensive local governance policy framework hinder effectiveness (Hossain, 2008).

The governance system is highly centralized, limiting municipal autonomy and responsiveness. Complex processes for accessing development funds often prioritize large-scale infrastructure, overlooking localized needs. Despite constitutional provisions for local government, reforms have often strengthened the ruling party's base rather than fostering genuine decentralization.

## 2.2 Theoretical Framework

### 2.2.1 Urban Climate Governance

Urban climate governance encompasses the ways actors and institutions define climate goals, influence action, and manage urban climate planning (Bulkeley, 2013; Coen et al., 2020). It operates through formal and informal rules, structures, and processes, addressing the unique challenges of climate change in cities. Key concepts include:

**Multi-level Governance:** Coordination across local, regional, national, and international levels (vertical and horizontal integration) (Betsill & Bulkeley, 2006). A robust framework features a coordinating authority, capacity-building support, co-production of knowledge, co-benefits framing, and civil society inclusion.

**Adaptive Governance:** Flexible, learning-oriented approaches enabling adjustment amidst evolving challenges (Pahl-Wostl, 2009).

**Participatory Governance:** Engaging non-governmental and civil society actors in decision-making (Newig & Fritsch, 2009).

Governance and Fiscal Challenges include short-term electoral cycles, policy inconsistencies, coordination problems, limited resources, and competing priorities (shown in Table 2). Effective governance requires multi-stakeholder engagement and policy integration.

Table 2: Governance and Fiscal Challenges in Bangladeshi Municipalities

Challenges Category	Specific Challenges	Impact/ Consequences
Centralized Governance	Reactive and top-down adaptation approaches	Ineffective, poorly targeted interventions; failure to address specific local needs; reduced community ownership.

	Failure to recognize community perspectives and local concerns	Marginalization of local knowledge; unsustainable solutions; potential for conflict and resistance.
	Disconnect between national policies and local realities	Inefficient resource allocation; impractical policies; delayed or inadequate responses to climate impacts.
	Concentration of influence at the national level	Limited local autonomy; reduced municipal capacity; disempowerment of local communities and stakeholders.
	Weak history of government accountability at local level	Lack of transparency; potential for corruption; reduced trust in government; ineffective service delivery.
<b>Limited Fiscal Autonomy</b>	Heavy reliance on central government grants	Financial vulnerability; inability to plan long-term; dependence on national priorities (which may not align with local needs).
	Limited ability to mobilize local financial resources	Insufficient funding for essential services and climate action; reduced capacity for innovation and local adaptation.
	Central government control over urban government structure and finances	Lack of municipal control over spending; reduced flexibility; inability to respond quickly to emerging needs.
	Insufficient resources for effective service delivery and climate action	Inadequate infrastructure; poor public health outcomes; increased vulnerability to climate impacts; hindered sustainable development.
	Vulnerability to fluctuations in national budgets and priorities	Unpredictable funding; potential for project delays or cancellations; hampered long-term planning and investment in climate resilience.

Source: Compiled by Author 2025

## 2.2.2 Urban Climate Resilience

Urban climate resilience is the capacity of cities to maintain essential functions and enable inhabitants to survive and thrive amidst climate shocks and stresses (Meerow et al., 2016). It integrates adaptation, mitigation, and disaster risk reduction, emphasizing the ability of cities to evolve, adapt, and transform. Frameworks like the City Resilience Framework (CRF) (Arup, 2014) help assess and improve resilience, structured around dimensions like Health & Wellbeing, Economy & Society, Infrastructure & Environment, and Leadership & Strategy. The urban climate resilience framework is shown in Figure 3.

Measuring urban resilience is complex. The Global Urban Climate Assessment (GUCA) is a pilot tool, but challenges include over-reliance on readily available data and limitations in capturing the dynamic nature of resilience. Equity and environmental justice are central to resilience-building (Ziervogel et al., 2017). Power asymmetries

and inequitable planning practices often result in low-income communities facing higher risks.

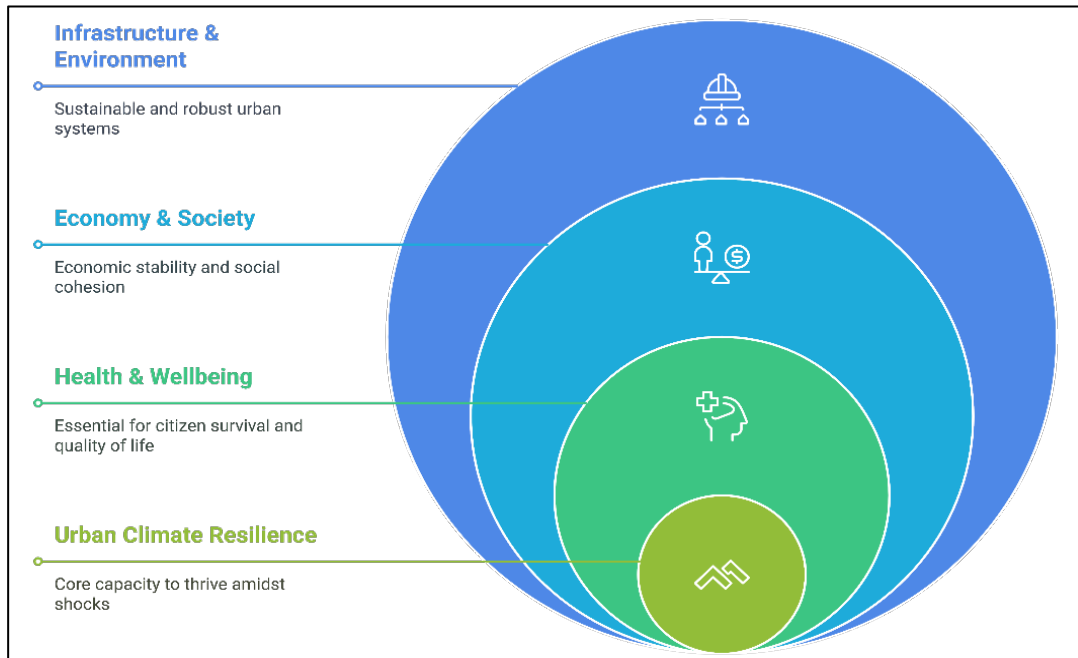


Figure 3: Urban Climate Resilience Framework

Source: Compiled by Author 2025

### 2.2.3 Climate Finance

Local governments in developing countries need substantial financial resources for climate adaptation and mitigation (Buchner et al., 2019). These investments are crucial for greening infrastructure and promoting low-carbon development. However, local governments often lack resources. To bridge the funding gap, they need to mobilize resources through grants, intergovernmental transfers, own-source revenues (pollution charges, land value capture), and repayable financing instruments (municipal borrowing, PPPs). The landscape of climate finance is increasingly "urbanized," but access to private finance may be uneven.

### 2.2.4 Fiscal Autonomy and Decentralization

Fiscal autonomy is the extent to which local governments can generate revenue and make independent expenditure decisions (Smoke, 2001). Dimensions include revenue autonomy, expenditure autonomy, and borrowing autonomy. Key indicators include local revenue independence, tax autonomy, and expenditure dependence (World Bank, 2022).

Fiscal decentralization involves transferring fiscal responsibilities and resources to sub-national levels (Bahl, 2009). Arguments for decentralization include improved resource allocation, enhanced accountability, and fiscal discipline (Oates, 1999). Arguments against include weakened fiscal discipline, limited capacity for macroeconomic stabilization, and increased corruption (Prud'homme, 1995). Developing countries often face challenges including weak local governments, limited tax bases, and inefficient administration (Smoke, 2015). Table 3 shows the Potential Fiscal Decentralization Mechanisms for Urban Climate Resilience.

*Table 3: Potential Fiscal Decentralization Mechanisms for Urban Climate Resilience*

Mechanisms	Description/Action	Potential Benefits
<b>Enhanced local revenue generation</b>	Expand the local tax base (e.g., property tax reform). Explore new revenue streams (e.g., climate resilience levies, green bonds). Improve tax collection efficiency.	Increased municipal financial autonomy. greater ability to fund local priorities. Reduced dependence on central government transfers. Improved financial sustainability.
<b>Improved and more equitable intergovernmental fiscal transfers</b>	Reform intergovernmental fiscal transfer formulas to account for climate vulnerability. Ensure equitable and predictable transfers. Provide performance-based grants for climate action.	More equitable distribution of resources. Incentivizes climate-resilient development. improved long-term planning capacity. Reduced regional disparities.
<b>Strengthening municipal financial management capacities</b>	Provide training and capacity building for municipal finance staff. Implement transparent budgeting and accounting systems. Improve financial reporting and auditing.	Improved financial accountability and transparency. better resource allocation. reduced the risk of corruption. Increased investor confidence.
<b>Exploring innovative financing mechanisms for climate resilience</b>	Explore public-private partnerships for climate resilience projects. Develop climate resilience bonds. Leverage international climate finance.	Increased access to capital for climate projects. diversification of funding sources. reduced burden on municipal budgets. promotes private sector involvement.

*Source: Compiled by Author 2025*

Greater fiscal decentralization and autonomy have been associated with increased investment in local infrastructure and improvements in service quality. It can also strengthen local accountability. In the context of climate change, fiscal autonomy empowers local governments to finance locally relevant adaptation and mitigation measures.

## 2.2.5 Governance Innovation

Governance innovation involves implementing novel solutions to address public problems, fostering accountability, and transparency (Sørensen & Torfing, 2011). Typologies include:

- **Technological Innovations:** Applying new technologies (digital platforms) to enhance engagement, risk management, and service delivery.
- **Participatory Mechanisms:** Involving citizens and stakeholders in policy and decision-making.
- **Institutional Innovations:** Creating new organizational structures and policies and establishing arrangements.
- **Adaptive Governance:** Promoting flexible and iterative approaches.
- **Social Innovation:** Focus on empowering citizens and communities.
- **Systemic Innovation:** Improving the interaction of public organizations.

Theories of innovation adoption and diffusion explain how new practices spread (Rogers, 2003). Governance innovation is particularly relevant for climate change, requiring adaptation of existing systems. Digital governance tools can enhance transparency; participatory mechanisms can ensure inclusive policies and adaptive governance approaches are valuable in responding to evolving impacts. Potential Governance Innovations for Urban Climate Resilience are shown in Table 4.

*Table 4: Potential Governance Innovations for Urban Climate Resilience*

Mechanisms	Description/Action	Potential Benefits	Example/Supporting Snippet
<b>Digital Tools</b>	Implement digital platform for: climate risk data collection Analysis and Sharing Managing urban infrastructure and services Citizen engagement, feedback, and participatory planning.	Improved data-driven decision-making enhanced efficiency and transparency increased citizen participation faster response to climate events better resource allocation.	Integrated Municipal Information System (IMIS) Digital centers for citizen services
<b>Participatory Approaches</b>	Establish community advisory boards for climate resilience planning. Conduct regular public consultations and workshops. Integrate local and traditional knowledge into adaptation strategies.	Increased community ownership and buy-in more relevant and effective solutions improved social equity enhanced social capital and cohesion reduced conflict.	Community-led planning and decision-making processes Collaboration between municipalities and local communities

<b>Adaptive Frameworks</b>	Develop flexible, iterative climate governance strategies. Establish multi-level governance structures (national-local coordination). Implement robust monitoring, evaluation, and learning systems.	Improved responsiveness to changing conditions continuous improvement of adaptation strategies better integration of climate risks into planning enhanced policy coherence.	Bridging the gap between national policies and local implementation Continuous monitoring
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Source: Compiled by Author 2025

## 2.3 The Nexus of Fiscal Autonomy, Governance Innovation, and Urban Climate Resilience

A strong theoretical nexus exists between fiscal autonomy, governance innovation, and urban climate resilience. Fiscal autonomy provides resources; governance innovation offers mechanisms for strategic utilization to enhance urban climate resilience. Synergies create an enabling environment. It is hypothesized that increased fiscal autonomy empowers municipalities to allocate more resources to climate resilience, leading to better adaptation outcomes. Governance innovations enhancing citizen participation are expected to result in more equitable and locally relevant strategies. Digital technologies for climate risk assessment, facilitated by fiscal autonomy, are hypothesized to improve efficiency. Municipalities with higher fiscal autonomy are expected to be more likely to experiment with governance innovations. Stronger collaboration, enabled by innovative mechanisms, is hypothesized to enhance resilience (Dodman et al., 2019).

The pathways to urban climate resilience are shown in Figure 4.

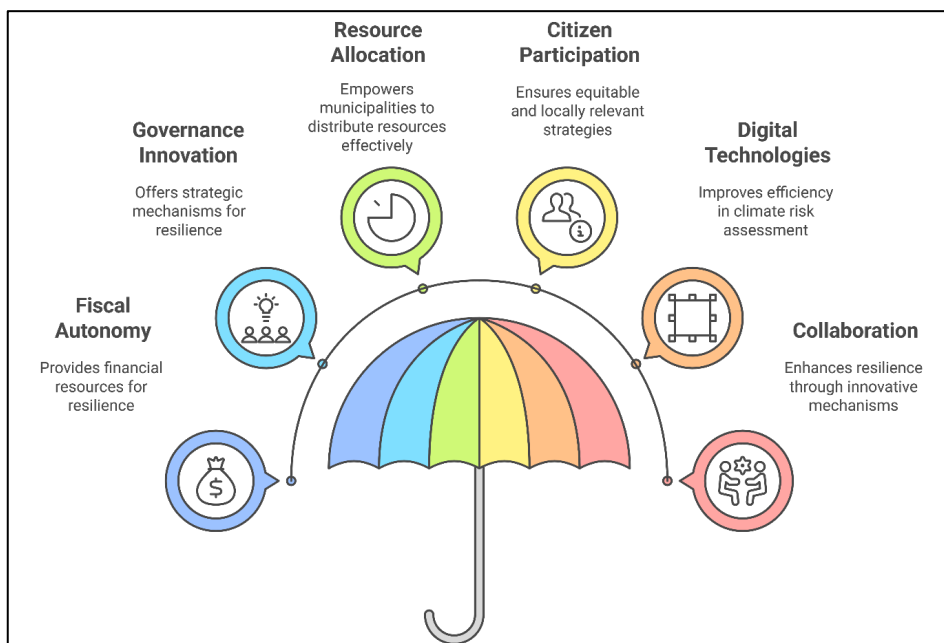


Figure 4: Pathways to Urban Climate Resilience

Source: Compiled by Author 2025

Empirical evidence, as suggested by the literature, also points towards these linkages. Strengthening fiscal autonomy through governance innovation presents a critical pathway. Increasing revenue generation capacity and control over budgetary allocations allows local governments to dedicate more resources to climate vulnerabilities. Transparent and participatory decision-making processes ensure efficient, equitable, and accountable use of resources. Digital tools improve monitoring and evaluation, facilitating adaptive management.

## 3. Project Scope and Methodology

This research investigates the interplay between governance innovation, fiscal decentralization, and urban climate resilience in Bangladeshi municipalities using a mixed-methods case study approach. This approach is well-suited for exploring complex, context-dependent phenomena, allowing for an in-depth understanding of local nuances, institutional dynamics, and stakeholder perspectives (Yin, 2018; Flyvbjerg, 2006). The mixed-methods design, integrating qualitative and quantitative data, enables triangulation of findings, enhancing the validity and reliability of the research (Creswell & Plano Clark, 2018; Jick, 1979). The matrix table of the research is the table along with the objectives shown in Annex 01.

### 3.1 Case Selection

Seven A-class municipalities within the Delta Plan 2100 hotspots of Bangladesh (GED, 2018) were strategically selected: Bogura, Cox's Bazar, Rangamati, Savar, Kurigram, Kishoreganj, and Sherpur (shown in the map in Annex 3). The selection criteria included (detail criteria according to the delta plan and others are shown in Annex 02):

- **Diversity in Governance Capacity:** Municipalities with varying abilities to plan, implement, and manage climate adaptation policies (Andrews & Shah, 2003).
- **Climate Vulnerability:** Municipalities facing different climate risks (e.g., flooding, salinity, cyclones) (MoEFCC, 2021).
- **Socio-Economic Conditions:** Municipalities with varying income levels, education, infrastructure, and social equity (BBS, 2019; UN-Habitat, 2022).
- **Spatial Development:** Municipalities are selected with the highest cluster which is Considering nighttime light data regarding development using a hierarchical cluster for the municipalities in Bangladesh (Rahman et al., 2018).

This deliberate heterogeneity enables the identification of both common challenges and context-specific solutions, uncovering unique local adaptations and innovations. The Map of the study area as a district shows Annex 03 which is generated through GIS software.

## 3.2 Data Collection and Analysis

The research employed a multi-faceted approach to data collection and analysis, including a detailed review of municipal financial data, extensive Key Informant Interviews, and a systematic document review.

### 3.2.1 Budget Data Collection and Analysis

This component involved a rigorous quantitative analysis of municipal income statements, expenditure reports, and annual budget documents for each of the seven municipalities. The analysis period spanned at least five consecutive fiscal years for each municipality, with data from FY2019-20 to FY2024-25 prioritized where available. The list of the required information from the municipalities is shown in Figure 5, and the outline of the budget data analysis is shown in Figure 6.

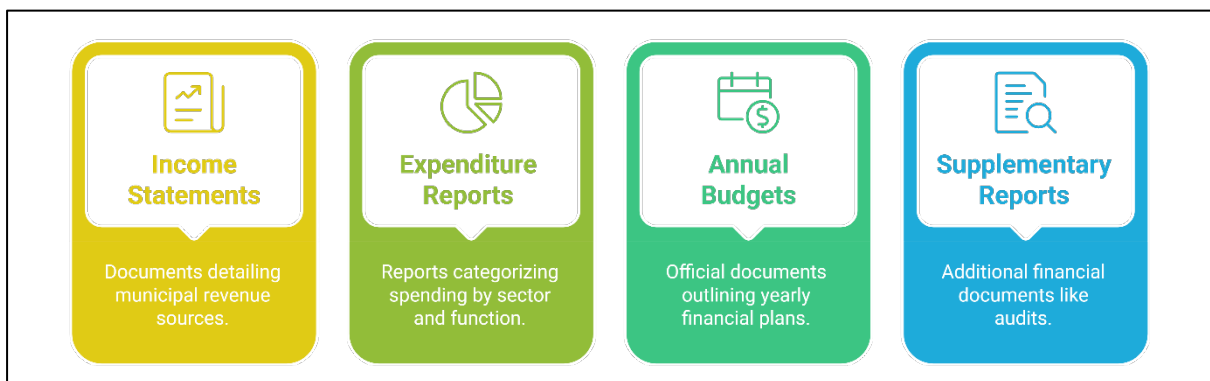


Figure 5: List of Information Required from Municipalities

Source: Compiled by Author 2025

The analysis was structured around four key areas with Microsoft excel and SPSS:

- **Fiscal Autonomy Analysis:** This involved the calculation of key indicators to assess the municipality's financial health and independence. These metrics included the Own-Source Revenue (OSR) ratio, the Intergovernmental Fiscal Dependency Ratio, and the Expenditure Autonomy Ratio.
- **Climate Relevance Assessment:** A weighted taxonomy, consistent with frameworks from the United Nations Development Programme (UNDP) and the Ministry of Environment, Forest and Climate Change (MoEFCC), was

applied to identify and quantify the proportion of municipal budgets allocated to climate-relevant expenditures.

- **Trend and Growth Analysis:** Compound Annual Growth Rate (CAGR) calculations and time-series analysis were performed to discern long-term growth patterns and identify significant shifts in revenue sources and expenditure priorities over time.
- **Comparative Analysis:** Where data quality and consistency allowed, a comparative analysis was conducted to identify common challenges and distinct fiscal behaviors across the seven municipalities.

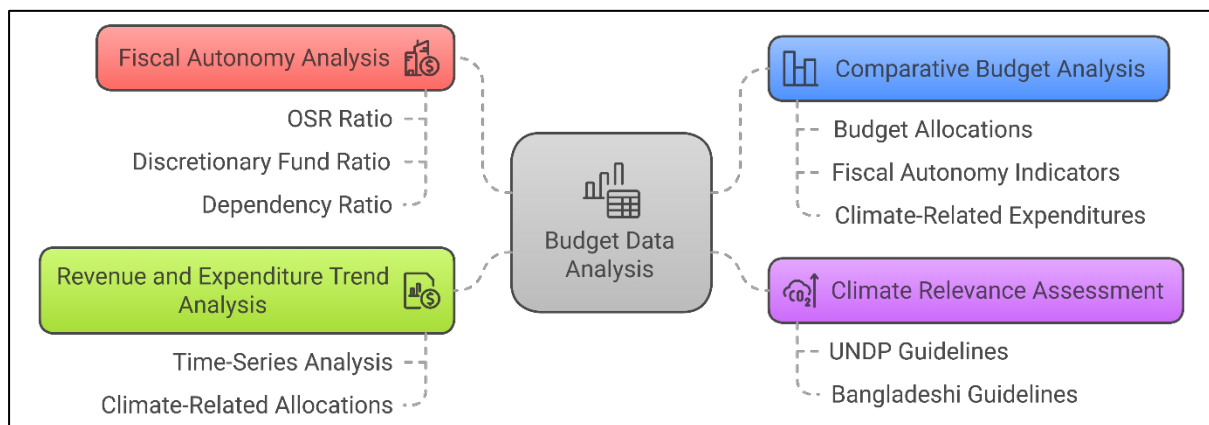


Figure 6: Budget Data Analysis for Municipalities

Source: Compiled by Author 2025

### 3.2.2 Key Informant Interviewees (KIIs)

A total of 31 Key Informant Interviews (number of KIIs Shown in annex 04 and the KII questionnaire shown in annex 05) were conducted across seven key stakeholder groups to gather qualitative insights. Participants included municipal officials (mayors/administrators, CEOs, urban planners, finance officers), national government representatives, academic experts on fiscal decentralization, local community organizations (NGOs), urban planning association representatives, climate resilience stakeholders, and private sector representatives. The interviews were conducted in two phases, allowing for initial exploratory questions to be followed by more focused inquiries designed to probe and validate emerging themes from the budget data analysis. The interviews were based on structured and semi-structured questionnaires, and the resulting transcripts were analyzed using thematic analysis to systematically identify, code, and refine recurring themes related to fiscal governance, institutional challenges, and climate-related priorities. Thematic analysis is done by using Excel, SPSS, NVivo which involves systematic coding, theme development, and refinement (Braun & Clarke, 2006).

### 3.2.3 Document Review and Analysis

A systematic review of a wide range of documents was undertaken to provide contextual background and corroborate findings from budget analysis and KIIs. The documents reviewed included: The comprehensive Framework for Systematic Document Review in Governance is shown in Figure 7.

- National policies and legal frameworks (e.g., the Local Government Act, Bangladesh Delta Plan 2100).
- Municipal documents (e.g., annual budgets, urban development plans).
- Project documents from government agencies, NGOs, and international organizations.
- Authoritative academic and "grey" literature (reports and policy briefs from organizations like the World Bank and UNDP).

This review provided a comprehensive understanding of the policy environment and historical context, confirming the systemic nature of the challenges identified in the quantitative and qualitative data through systematic identification, access, and analysis of relevant documents (Bowen, 2009). Analytical Technique is Thematic (as with KIIs) to provide context, corroborate other data, and identify policy frameworks (Braun & Clarke, 2006). The document review provides contextual background, corroborate data from KIIs and budget analysis, identify policy frameworks and gaps, and assess the alignment of local actions with national and international goals.

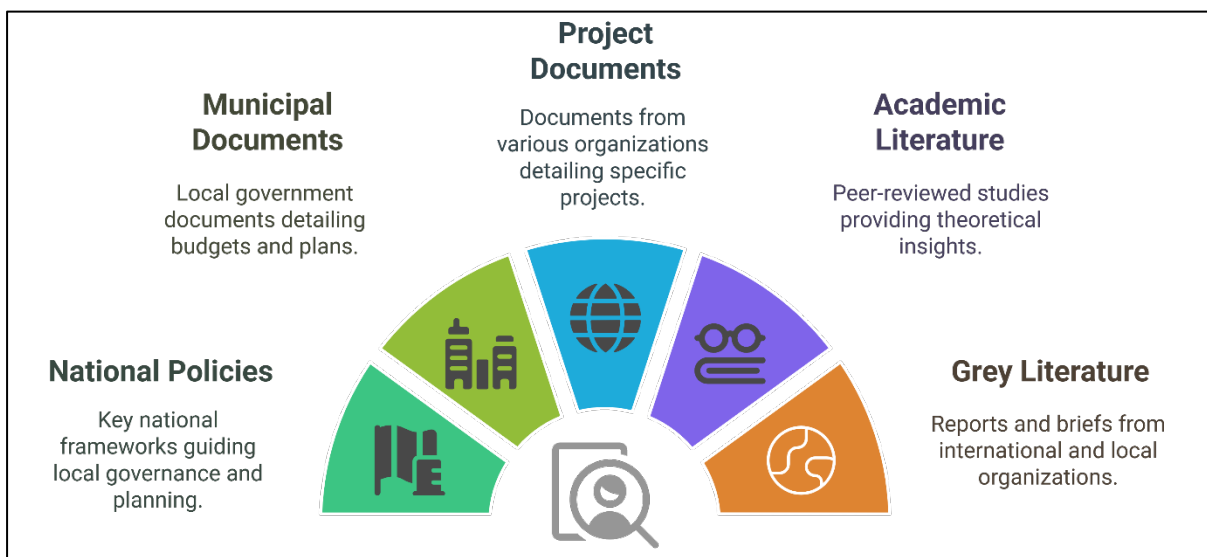


Figure 7: Comprehensive Framework for Systematic Document Review in Governance

Source: Compiled by Author 2025

### 3.2.4 Participatory Workshops for Solution Co-design

To collaboratively co-design innovative governance solutions and foster stakeholder ownership, two participatory workshops were conducted in strategically selected municipalities (Savar and Cox’s Bazar). These workshops, drawing on the initial research findings, were designed to move beyond problem identification to the development of actionable solutions and implementation pathways. The first workshop focused on identifying and prioritizing key governance challenges, while the second aimed at co-designing specific solutions and developing action plans. The workshops employed interactive and iterative methods, ensuring that solutions were tailored to specific municipal challenges and contexts. To collaboratively co-design innovative governance solutions, foster stakeholder ownership, and tailor solutions to specific municipal challenges (Shown Figure 8).



Figure 8: Collaborative Governance Solution Design

Source: Compiled by Author 2025

### 3.2.5 Proactive Scenario Planning and Governance and Accountability Index

To develop a future-oriented perspective, proactive scenario planning sessions were conducted with key municipal leaders and stakeholders in the two workshop municipalities. These sessions, using methods such as “Desired Future Visioning” and “Pathway Backcasting,” aimed to develop strategic responses to potential future challenges and opportunities related to urban climate resilience and fiscal governance. The analysis of these sessions provided insights into potential barriers to and enablers of long-term change. Methods: The scenario planning approach is future-oriented and action-oriented, including "Desired Future Visioning," "Value Stress Test," "Proactive Scenario Matrix," "Pathway Backcasting," "Futures Wheel," "Strategic Action Portfolio," and "Adaptive Monitoring Framework" (van der Heijden, 1996; Ramirez & Wilkinson, 2016). On the other hand, a Governance and

Accountability Index is proposed (shown in Annex 06), structured around three core dimensions.

### 3.3 Data Triangulation

Throughout the research process, a systematic process of data triangulation was employed. Findings from the budget data analysis were consistently compared and contrasted with insights from the Key Informant Interviews (KIIs) and document reviews to ensure the robustness and validity of the overall findings. The outcomes of the participatory workshops and scenario planning sessions were used to further validate and refine the emerging themes and recommendations.

### 3.4 Ethical Considerations

The study adhered to the ethical principles set by the National Research Council of Bangladesh (NRCB, 2019) and the American Psychological Association (APA, 2020). Informed consent was obtained from all interviewees, and their anonymity and confidentiality were maintained throughout the research and reporting process. All collected data was stored securely in password-protected files.

### 3.5 Limitations of Research

The integrity of this research is grounded in its rigorous engagement with the real-world complexities of municipal data and governance in Bangladesh. What might, in a conventional study, be viewed as limitations became, in fact, the most significant and compelling findings of this project. Rather than hindering the analysis, the unique challenges encountered during data collection and synthesis provided a critical lens into the systemic realities of local governance, thereby strengthening the research's diagnostic power and the relevance of its conclusions.

The initial inception report envisioned a broad-based, multi-entity panel data analysis. However, this was not fully feasible due to foundational challenges encountered during the data collection phase. The most significant obstacle was the limited access to comprehensive, standardized municipal budget data. Issues with data inconsistency, such as shifting budget categories and the prevalence of large "miscellaneous" accounts, frequently obscured financial transparency and accountability. This necessitated a time-consuming manual collection process that often yielded incomplete or non-standardized records. As a result, the analysis of individual municipalities, while employing regression, was technically a time-series analysis due to the single-entity nature of the dataset, which inherently limits the generalizability and inferential power of the results.

Furthermore, the research's ability to conduct all planned Key Informant Interviews (KIIs) and participatory scenario analysis was significantly constrained by widespread

political instability and frequent administrative turnover in the municipalities. This unrest led to a general reluctance among stakeholders to engage or provide data, resulting in lower-than-expected participation in planned activities.

Instead of hindering the analysis, these constraints became a foundational strength of the research design. The data limitations necessitated a deeper, mixed-methods case-study approach that prioritized qualitative richness over sheer statistical breadth. This allowed the research to uncover the interconnected and mutually reinforcing "governance-finance-resilience trilemma"—a systemic condition that would be invisible in a more abstract, top-down survey. The inherent opacity of municipal data became a primary object of the research itself, forcing the development of an innovative methodological approach—the application of a weighted taxonomy for climate spending—to make sense of the fragmented data. This ensured that the findings were not merely statistical correlations but were rooted in the lived experiences and expert knowledge of local stakeholders, revealing the "fiscal dependency trap" not as an abstract economic theory but as the lived reality of officials struggling to budget for the future. Ultimately, the most significant finding from these methodological limitations is the urgent need for a centralized, standardized, and longitudinal municipal finance database, which is a foundational step to enable rigorous, evidence-based policymaking on a national scale.

The research paper followed various steps shown in Annex 7. The risk assessment and the mitigation strategies are shown in Annex 8.

## 4. Results and Analysis

This chapter presents a comprehensive analysis of the fiscal data collected from seven municipalities, with a focus on three interrelated dimensions: fiscal autonomy, climate relevance, and statistical and comparative insights. The objective is to rigorously evaluate the financial structures, revenue-generating capacities, and expenditure patterns of each municipality, while also assessing the extent to which their fiscal behavior aligns with climate-responsive governance.

### 4.1 Fiscal Autonomy Analysis

This Section provides a rigorous assessment of fiscal autonomy by calculating and analyzing key indicators like Own Source Revenue (OSR) ratio, discretionary fund ratio, and dependency ratio on intergovernmental transfers (Smoke, 2001). Fiscal autonomy, broadly defined, is the capacity of a local government to make independent decisions regarding revenue generation and expenditure allocation, free from undue constraints imposed by higher levels of government. The analysis examines the seven municipalities' capacity to generate its own revenue and its discretion over public spending, revealing their financial independence and any structural dependencies on external funds.

#### 4.1.1 The Dynamics of Own-Source Revenue (OSR): The Engine of Autonomy

The capacity to generate revenue from local sources is the cornerstone of fiscal autonomy. Own-Source Revenue (OSR) is critical for a municipality's fiscal autonomy, as it represents funds generated internally, providing greater control and flexibility compared to external grants. For Paurashava, OSR typically comprises municipal taxes, rates, fees, income from leases, and revenue from municipal property. A robust and growing OSR base is the primary indicator of Paurashava's financial health and its ability to fund core services sustainably. A higher ratio signifies greater capacity to self-finance operations and development, reducing vulnerability to external shocks and policy shifts.

Figure 9 presents the OSR relative to the total revenue ratio, a primary indicator of self-sufficiency. The data reveals a concerning trend of variation among the seven municipalities. OSR as a percentage of total budgeted revenue is very low in Kurigram, Cox's Bazar and Sherpur municipality. Among the municipalities, the OSR ratio is lowest in Cox's Bazar municipality, which ranges from only 3.58% to 7.13% over the period of FY 2019 to FY 2024. In Sherpur and Kurigram municipalities, the OSR ratio is less than 27.50% and 34.80%, respectively, over the time period from FY 2019 to FY 2024. This indicates a growing gap between Paurashava's own fiscal

capacity and its overall operational scale, reinforcing its dependence on external funding. On the other hand, the proportion of OSR relative to total revenue has remained consistently high in Bogura and Savar municipality, demonstrating the municipalities' significant reliance on self-generated funds. Among the municipalities, the OSR ratio is highest in Bogura municipality, which ranges from 18.26% to 97.36% over the period of FY 2019 to FY 2024. In Savar municipality, the OSR ratio is most consistent and not less than 92.77% over the period. This consistent high proportion underscores a strong foundation in local revenue generation. The analysis of Rangamati Paurashava's OSR ratio reveals a condition of structural weakness. In years with significant project funding, such as FY21 and FY22, the OSR ratio plummets to 30.99% and 28.07%, respectively. This occurs because the total revenue is massively inflated by external grants, masking nominal improvements in the numerator (OSR). Conversely, in years with lower project aid, such as FY 2023 and FY 2024, the ratio appears much stronger at 84.56% and 57.89%. This volatility illustrates that the OSR ratio, when viewed in isolation, can be a misleading indicator of local fiscal effort. While the absolute collection of OSR shows a modest upward trend, the Paurashava's capacity for self-reliance remains structurally low and is consistently overshadowed by the scale of external funding.

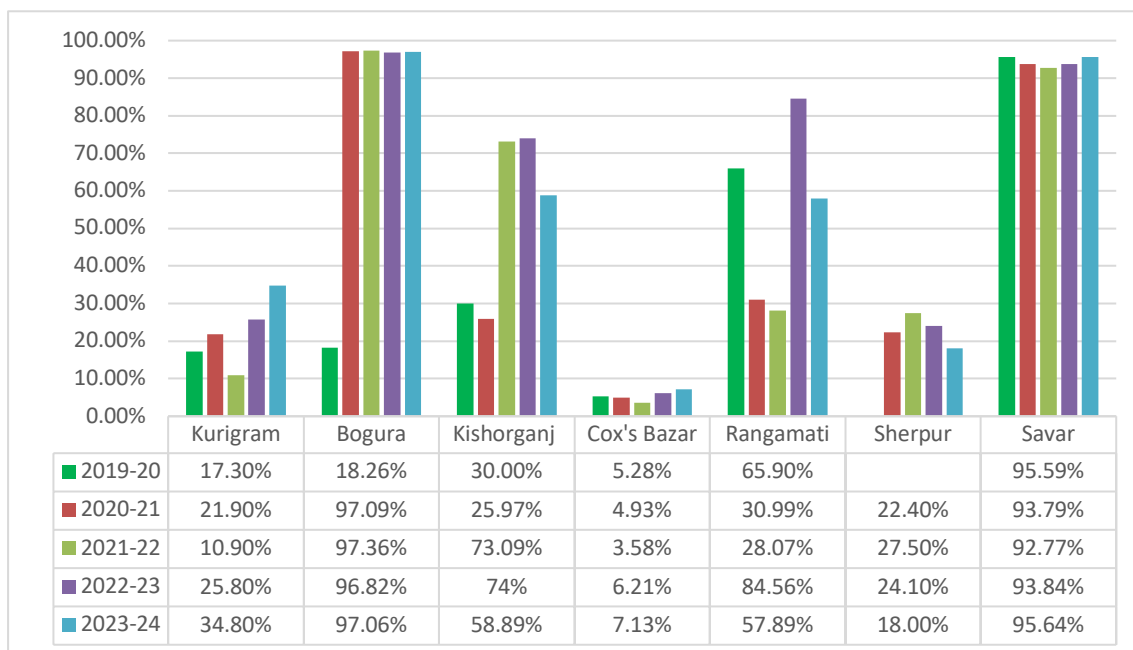


Figure 9: OSR relatives to Total Revenue

Source: Author 2025

Own-Source Revenue (OSR), generally collected from taxes (property tax, property transfer tax, and business tax), rates (conservancy, lighting), various fees and leases (market and terminal leases, licenses). The ratio of these categories varies from

municipality to municipality. While some OSR categories exhibit growth, others appear stagnant or under-leveraged. A healthy fiscal position requires a diversified and stable revenue base. The Immovable Property Transfer Tax consistently stands out as the largest single contributor to the Municipal Tax category, often dwarfing other local taxes. Fluctuations in the real estate market, perhaps due to economic downturns or policy shifts affecting land transactions, could severely impact the municipality's revenue stability, thereby limiting its ability to fund essential services or undertake planned development. This is a common challenge faced by many municipalities in developing countries. Lease revenues, particularly from markets, are consistently significant contributors to OSR. The market lease is a substantial income source. However, other lease categories, such as Public Toilet Lease or Vehicle Parking Leases, are comparatively small. New lease categories, like the Khandar Lake Lease, appear in later budgets but with inconsistent actual collection. This situation presents an opportunity to optimize and expand the scope of lease agreements. This could involve reviewing and potentially renegotiating existing contracts, identifying new public assets for leasing, and ensuring transparent and competitive bidding processes to maximize revenue. Such measures could significantly boost OSR without imposing additional tax burdens on citizens, thereby enhancing fiscal independence.

### **5.1.2 Discretion in Public Spending: The Expenditure Autonomy Ratio**

The expenditure autonomy ratio quantifies the proportion of a municipality's budget that can be allocated at its discretion, as opposed to funds committed to fixed or mandated costs. This ratio indicates how much of the municipality's own-source and general revenues are consumed by recurrent operational expenditures, thereby revealing the fiscal space available for discretionary spending or transfers to development and capital accounts. A higher ratio indicates greater flexibility and responsiveness to local needs. The overwhelming share of the total budget is allocated to development expenditure, driven entirely by the massive inflow of project aid. The expenditure patterns reveal a substantial allocation to fixed and mandated costs, which significantly limits its discretionary spending. Salaries and benefits for officers and employees consistently represent the largest share of expenditure within the Revenue Account. Other significant fixed commitments include utility bills and debt repayment, such as the interest and principal for the various projects. The total "General Establishment" expenditure is a dominant category, absorbing a considerable portion of the revenue budget. This means that a large segment of the budget is pre-committed to personnel costs and operational overheads, leaving limited financial room for flexible allocation towards new development initiatives or responsive interventions. This situation constrains the

municipality's ability to adapt quickly to changing priorities or unforeseen challenges, thereby impacting its strategic agility and capacity for innovation.

Furthermore, the municipality's capacity to undertake significant capital projects is heavily dependent on external funding rather than its own fiscal strength. While there is a category for "Development from Own Fund", the major development expenditures, such as road construction and repair and drain, culvert etc. construction, are predominantly listed under the "Development Account" and "Project Account". These accounts are largely funded by government grants or loans. This dependency can lead to a mismatch between local development needs and funding availability, as external funds often come with specific conditions and priorities that may not perfectly align with municipalities' unique context. This also raises concerns about the sustainability of these development efforts if external funding diminishes or if the municipality cannot generate sufficient internal resources for ongoing maintenance.

Among the municipalities, a high operational cost burden means has limited fiscal space to autonomously fund capital investments or critical climate resilience projects from its own generated revenues which is found in Kishorganj municipality. This necessitates reliance on external grants or debt for significant development initiatives. This situation can hinder the municipality's ability to self-finance its strategic development priorities, including those related to climate change, and may lead to a "use-it-or-lose-it" budgeting approach that discourages the accumulation of funds for larger, long-term projects. In Cox's Bazar Paurashava, the Expenditure Autonomy Ratio is critically low, indicating that the Paurashava has direct control over less than 10% of its total spending in most years. This quantitative evidence confirms a state of profound fiscal dependency, where the municipality functions more as an implementing agency for external funders than as an autonomous local government. Again, the EAR for Savar Paurashava, while showing an upward trend in the later years, remains relatively low, ranging from 11.75% to 19.20%. This indicates that while the municipality is effective at generating its own revenue, these funds cover only a small portion of its total expenditure, particularly when large development projects are included. On the other hand, Rangamati Paurashava's expenditure autonomy ratio is high, which is 58.67% in FY21 and 77.73% in FY22, suggesting a strong commitment to capital investment. However, this figure creates an "illusion of autonomy." An examination of the budget details reveals that this development spending is almost entirely financed by tied grants and is allocated to highly specific, pre-determined line items, such as "UGIIP-III Road Construction/Drain" or "Climate Project - Solar Panel Street Light". Paurashava has minimal discretion over how these funds are used. True expenditure autonomy stems from the ability to allocate locally raised revenue surpluses to development priorities

identified by the local community and its elected representatives. The consistently small revenue surplus generated by the Paurashava indicates that this capacity is severely limited.

### **5.1.3 Intergovernmental Fiscal Dependency: The Role of Grants**

The inverse of OSR performance is the degree of reliance on intergovernmental fiscal transfers. The Intergovernmental Fiscal Dependency Ratio, calculated as total government grants divided by total revenue, quantifies this reliance, these development grants are almost always project-tied, meaning they come with stringent conditions and earmarks that severely limit Paurashava's discretion over how the funds are used. This transforms the municipality into an implementing arm of the central government or donor agencies, undermining its role as an autonomous local governing body. These grants originate from various sources, including general revenue support, development assistance, and specific project funding. For example, Revenue Account Government Grants include support for municipal tax in lieu, salary and allowance support, and teacher salary grants. This funding enables the Paurashava to construct critical infrastructure of roads, drains, water systems, and sanitary landfills—that it could not possibly finance from its own limited resources. However, this reliance on external projects has significant drawbacks. It creates a "lumpy" and episodic pattern of investment, driven by the timelines and priorities of external agencies rather than a consistent, locally driven capital improvement plan. This dynamic inflates the dependency ratio and can create substantial future liabilities.

### **5.1.4 Five-Year Growth Trajectory: A CAGR Perspective**

Compound Annual Growth Rate (CAGR) provides a smoothed annual growth rate over a specified period, offering a dynamic perspective on financial performance. Analyzing CAGR for key revenue and expenditure components helps identify areas of robust growth or stagnation. The analysis period for CAGR is from 2019-20 to 2023-24 (budget), spanning 5 years. A comparison of the CAGR for total revenue with that of total expenditure reveals important trends in the municipality's fiscal sustainability. If the expenditure CAGR significantly outpaces the revenue of CAGR, it suggests a growing fiscal deficit or an increasing reliance on opening balances or external transfers to cover recurrent costs. A sustained negative gap between revenue and expenditure growth points to an unsustainable fiscal trajectory, potentially necessitating aggressive revenue enhancement measures or stringent expenditure rationalization to maintain financial health and avoid accumulating liabilities, which could ultimately impact service delivery.

From the budget analysis of Kurigram Municipality, it is found that, while total budgeted expenditure is growing at a CAGR of 7.46%, the growth in OSR is only 1.28%. This widening gap is being filled by intergovernmental grants, which show a CAGR of 1.74%, and more significantly, by the large, non-recurring project funds that drive the overall budget size. This divergence is unsustainable. It confirms that the Paurashava's expenditure commitments are growing faster than its intrinsic capacity to fund them, leading to an ever-deepening cycle of fiscal dependency. Without a significant acceleration in OSR growth, the Paurashava's fiscal health and autonomy will continue to erode.

The CAGR analysis of Bogura municipality reveals that while total revenue in the Revenue Account has grown 19.98%, total expenditure has grown 23.65% at a faster pace over the period. This indicates a potential long-term fiscal challenge if not addressed. Among OSR categories, Fees and Health & Sanitation expenditures show particularly high growth rates, suggesting increasing service demands or strategic prioritization in these areas. Conversely, the overall government grants to the Revenue Account show a negative CAGR of -10.37%, indicating a decreasing trend in direct revenue support from the central government, further emphasizing the need for robust OSR generation.

Analyzing the Compound Annual Growth Rates (CAGR) of different income and expenditure categories provides a dynamic view of Kishorganj's fiscal evolution. The analysis of growth rates reveals several important patterns such as "Total Revenue Account Income" and has grown at 10.26%. Simultaneously, "Total Revenue Expenditure" has increased at a slightly higher rate of 11.40%, suggesting persistent pressure on the revenue surplus. "Development from Government Grants" demonstrates a strong CAGR of 14.77%, highlighting an increasing reliance on external support for development initiatives. Notably, "Total Project Income" shows a negative CAGR of -9.49%, indicating a significant decline in this category over the period, which contrasts sharply with the growth in other areas.

In Cox's Bazar Municipality the OSR's share of total revenue remains in 9.35%, while the dependency ratio is consistently above 90%. Consequently, the Expenditure Autonomy Ratio is critically low, indicating that the Paurashava has direct control over less than 10% of its total spending in most years. This quantitative evidence confirms a state of profound fiscal dependency, where the municipality functions more as an implementing agency for external funders than as an autonomous local government.

The Compound Annual Growth Rate (CAGR) analysis of Sherpur Municipality's Own Source Revenue (OSR) from FY 2020-21 to FY 2024-25 reveals a healthy overall growth of 13.0%. The highest growth was observed in the Taxes (Property, Transfer,

etc.) category, which grew at an impressive 18.0% CAGR, reflecting effective tax collection and possibly an expanding tax base. Rates (Lighting, Conservancy) followed closely with a 14.7% CAGR, indicating improved service charges or collection efficiency. However, Fees, Leases & Other revenues showed a more modest 7.1% CAGR, suggesting relative stability or limited growth potential in that segment. Overall, the consistent upward trend in all components demonstrates Sherpur Municipality's strengthening capacity for local revenue generation.

In Rangamati municipality, the budget analysis indicates a Compound Annual Growth Rate (CAGR) for OSR of 5.81%, while development grants exhibit a CAGR of 1.48%. Although OSR growth appears robust, its baseline is significantly lower than that of development grants. The overall total revenue shows a CAGR of 2.30%, a modest figure that masks the underlying year-to-year volatility. The relatively stable growth in OSR is a positive indicator of local effort, but its impact is overshadowed by the sheer scale and unpredictability of external transfers. Recurrent expenditure grew at a CAGR of 6.55%, closely tracking the growth in OSR and indicating rising operational costs. In contrast, development expenditure exhibited a negative CAGR of -17.02%, a direct consequence of the volatile and non-continuous nature of large project funding. Total expenditure had a negative CAGR of -9.00%, again highlighting how the conclusion of large projects can lead to a significant contraction in the overall budget size, even as core operational costs continue to rise.

In Savar Municipality, Both Total Revenue Income and Own-Source Revenue demonstrated strong and identical growth rates of 10.87% annually, indicating a healthy expansion of the municipality's overall financial base and its internal revenue-generating capacity. Total Revenue Expenditure also grew at a substantial rate of 9.53%, largely in line with revenue growth. However, the Compound Annual Growth Rate of intergovernmental grants (GRG) significantly outpaced that of own-source revenues, growing at an impressive 35.03% annually. This indicates a deepening structural reliance on central government support for revenue grants. If this trend continues, it poses significant long-term sustainability challenges for the municipality's fiscal autonomy, as its financial future becomes increasingly reliant on external political and economic decisions rather than its internal capacity to generate funds. This structural shift implies that Savar Paurashava's ability to plan and execute its budget is progressively more susceptible to changes in central government policy, national economic conditions, or even political priorities. This dependence can undermine local planning stability and long-term financial health, making the municipality vulnerable to sudden reductions in transfers. Conversely, Total Development Expenditure showed a slight negative CAGR of -1.86% over the period. This decline in development spending, despite overall revenue growth, warrants

further investigation into the allocation of priorities and project implementation capacities within the municipality.

## 4.2 Climate Relevance Assessment

This section assesses the seven municipalities financial commitment to climate adaptation and mitigation using a taxonomy based on UNDP (2015) and Bangladeshi guidelines (MoEFCC, 2021) to identify the proportion of municipal budgets allocated to climate-related expenditures. Recognizing the acute vulnerability of Bangladesh to climate change, integrating climate considerations into public financial management has become a national priority.<sup>18</sup> This section undertakes a Climate-Relevant Budget Tracking (CBT) exercise for Kurigram Paurashava. The objective is to identify, classify, and quantify climate-related expenditures within the municipal budget, thereby assessing Paurashava's financial commitment to climate adaptation and mitigation. This process is essential for raising awareness, informing policy, and enhancing transparency and accountability in climate finance

### 4.2.1 Taxonomy for Climate Action in a Municipal Context

A robust CBT exercise requires a clear and consistent methodology for defining and classifying climate-relevant spending. This analysis adopts a weighted taxonomy framework, guided by the principles of the UNDP's approach to CBT and the Government of Bangladesh's Climate Fiscal Framework (CFF). The CFF itself is structured around the six thematic areas of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), providing a nationally endorsed basis for classification.

To apply this high-level framework to the specific line items in a municipal budget, expenditures are categorized into three tiers of relevance, each assigned a specific weight to reflect the proportion of the spending that can reasonably be attributed to climate action. This weighted approach avoids the over-counting that would result from treating all partially relevant expenditures as 100% climate focused. Table 5 details the taxonomy used in this analysis, with concrete examples drawn from the municipalities' budget documents.

Table 5: Climate-Relevant Expenditure Taxonomy and Weighting Framework

Relevance Category	Weight	Description & Rationale	Example Budget Lines from Kurigram Paurashava
<b>Directly Relevant</b>	60%-100%	Expenditures with a primary and explicit objective of addressing climate change adaptation or mitigation. These are often part of specific climate-focused projects.	"Climate Change Trust Project", "Drain construction and renovation", "Expenses for tree plantation and maintenance", "Mosquito Control" (Dengue)
<b>Indirectly Relevant</b>	30%-50%	Expenditures with significant climate co-benefits, but where climate action is not the primary objective. This includes infrastructure that enhances resilience and environmental management.	"Road construction and renovation" (improves drainage, reduces flood impact), "Wages of workers for sanitation" (part of solid waste management) , "Recreation and Children's Park Construction" (green space development)
<b>Potentially Relevant</b>	0%-25%	Expenditures that could contribute to climate action if climate considerations are mainstreamed into their execution, but which are not inherently climate focused. This includes governance, planning, and essential services.	"Salaries and allowances" (for staff in planning/engineering departments), "Water supply charges" (water security is a key adaptation issue), "Market Construction and Repair Expenses" (if built to resilient standards)
<b>Not Climate Relevant (NCR)</b>	0%	Expenditures with no identifiable climate relevance	

Source: Author's Classification based on UNDP and MoEFCC Frameworks

Figure 10 illustrates the percentage of climate expenditure relative to total expenditure across seven municipalities over five fiscal years from 2019-20 to 2023-24. A significant variation is observed among the municipalities, highlighting different levels of prioritization toward climate-related spending. Kurigram consistently allocates a large portion of its expenditure to climate-related issues, with values fluctuating between 65% and 73%, though slightly declining in the later years. Paurashava's climate spending is strongly pro-cyclical and grant dependent. There is a clear and powerful correlation between the years with high budgeted climate expenditure and the years with large inflows of specific, climate-related development grants. This pattern demonstrates that climate action in Kurigram is not, yet a stable, mainstream function integrated into the core budget. Instead, it is largely treated as an "add-on" activity, financed and driven by external projects. While these projects

deliver significant benefits, their episodic nature creates a "boom-bust" cycle in climate investment. This poses a significant risk to the sustainability of climate action. When project funding ends, there is little institutionalized local funding to continue the momentum, maintain the new infrastructure, or build upon the gains achieved.

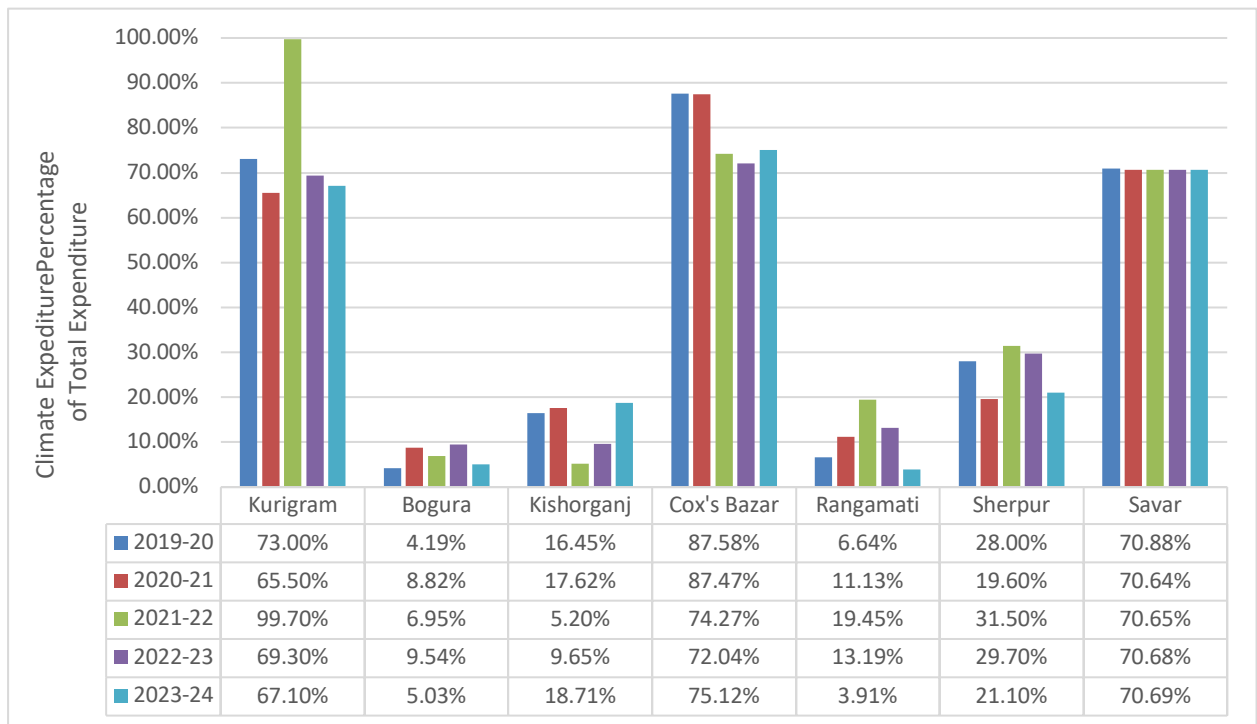


Figure 10: Percentage of climate expenditure relative to total expenditure across seven municipalities over five fiscal years from 2019-20 to 2023-24

Source: Author 2025

In contrast, Bogura shows the lowest allocation across all years, remaining below 10%, indicating minimal prioritization of climate-related initiatives. The quantification of climate-relevant expenditure reveals a fluctuating pattern in budgetary prioritization. While a significant allocation for the Climate Change Trust Fund appeared in the 2018-19 budget and again in later years, the actual figures for intermediate years are not consistently high, suggesting that climate spending may be more project-driven rather than a consistently integrated priority. This inconsistency or fluctuation indicates a lack of sustained commitment or a reactive rather than proactive approach to climate change. For effective climate action, consistent and predictable funding is essential, suggesting a need for institutionalizing climate budgeting within the regular planning cycle. It is highly probable that the largest share of climate-relevant spending falls under "Indirectly Relevant" categories, such as general waste management, drainage improvements, and public health campaigns

related to climate-sensitive diseases. This is a common characteristic for municipalities where climate action is often embedded within existing mandates for service delivery. While these expenditures contribute to climate resilience, their primary objective might not be climate focused. This highlights the need for better "climate-proofing" of all municipal investments and services. By explicitly recognizing and optimizing the climate co-benefits of these expenditures, Bogura Paurashava can achieve greater impact with existing resources, ensuring that every relevant investment contributes to building climate resilience.

Cox's Bazar demonstrates the highest and most consistent commitment, maintaining climate expenditure above 72% every year, peaking at 87.58% in 2019–20. It shows the dominance of project-driven, infrastructure-heavy spending. The high percentage of the budget deemed climate-relevant is a direct consequence of the Paurashava's development model, which relies on externally funded capital projects. While this indicates a significant flow of resources towards activities that build resilience, it also reinforces the finding that this investment is concentrated on a narrow range of "hard" adaptation measures, with less attention paid to the institutional and social dimensions of climate resilience.

Kishorganj demonstrates a moderate and relatively stable allocation, hovering between 16% and 18% across the years, with a minor dip in 2021–22. The following figure presents a conceptual classification. It is crucial to understand that the figures presented are entirely illustrative and based on hypothetical assumptions about the climate relevance of general budget categories. They do not represent actual quantified climate spending by Kishorganj Paurashava, as the underlying data does not support such precise identification.

Rangamati reflects inconsistent spending, ranging from as low as 3.91% to a high of 19.45%, suggesting irregular budgetary emphasis on climate resilience. Significant spikes in climate expenditure are visible in years corresponding to the implementation of major donor-funded projects. This pattern suggests that climate action is being pursued as a series of discrete, externally funded interventions rather than being systematically integrated into the Paurashava's core, recurrent budget. While these projects deliver tangible benefits, their temporary nature fails to build a sustainable, long-term institutional capacity for climate budgeting. This approach treats climate action as an "add-on" when funding is available, rather than as a fundamental principle guiding all municipal financial planning.

Sherpur, on the other hand, shows gradual improvement, starting from 19.60% in 2020-21, rising to 31.50% in 2021-22, and then stabilizing around 20–29% in subsequent years. The vast majority of climate-related spending, particularly high-cost capital investments in the "Directly Relevant" category, originates from the

Special Projects account, funded by national programs and international partners. In contrast, climate-related spending from the Paurashava's own revenue budget is minimal, typically confined to smaller-scale operational activities. This demonstrates that the municipality's capacity for substantive climate action is almost entirely contingent on external financing. This creates a profound sustainability risk. While these projects build essential climate-resilient infrastructure, the long-term O&M costs will fall to the Paurashava.

Savar consistently allocates around 70% of its total expenditure to climate-related activities, maintaining stability across all years, which reflects a sustained commitment. Analysis of the annual climate-related expenditures indicates that a substantial proportion of climate-relevant spending is categorized as "Directly Relevant," consistently above 90% of the total climate-relevant expenditure. This suggests that Savar Paurashava's climate action, while often embedded within broader development initiatives, is driven by projects with clear and explicit climate objectives.

Overall, the figure reveals that municipalities such as Cox's Bazar, Kurigram, and Savar demonstrate strong climate-sensitive budgeting, with climate expenditures constituting over two-thirds of their total expenditure. In contrast, Bogura and Rangamati lag significantly, allocating less than 20% in most years, thereby reflecting uneven prioritization. The overall trend suggests that while some municipalities have integrated climate concerns into their core budgeting framework, others still allocate minimal resources, pointing to regional disparities in addressing climate challenges

### **4.3 Statistical and Comparative Analysis**

This section presents a comprehensive analysis of municipal finance across several municipalities, synthesizing findings from detailed case studies of Kurigram, Bogura, Kishorganj, Cox's Bazar, Rangamati, Sherpur, and Savar. Moving beyond descriptive statistics, the analysis employs advanced statistical methods, including cluster and time-series regression analysis, to uncover the underlying forces shaping local public finance and climate investment.

The analysis reveals two critical, co-dependent structural failures at the heart of municipal governance: The Fiscal Dependency Trap and the Opportunistic Climate Action Cycle.

First, econometric analysis provides a rigorous, evidence-based foundation for a robust, statistically significant negative relationship between external grant inflows and the performance of Own-Source Revenue (OSR). This is powerful evidence for a "fiscal displacement" or "flypaper" effect, where external funds diminish the political and administrative will to mobilize difficult-to-collect local revenues.

Crucially, the analysis concurrently finds a strong, positive correlation between external project funds and climate-related spending, demonstrating that climate action is largely opportunistic and dependent on specific, earmarked aid flows rather than being a mainstreamed, internally driven priority. This suggests that climate-related investments are treated as an opportunistic "nice-to-have" activity, leading to unpredictable and inconsistent investment in critical resilience measures—a major vulnerability for a country highly exposed to climate change.

Second, cluster analysis identifies a consistent pattern of bimodal fiscal operation, driven by these external cycles: a "Project-Implementation" regime and a "Consolidation/Core-Function" regime. This externally dictated oscillation profoundly hinders the development of stable, long-term institutional capacity.

The report concludes by highlighting the critical policy implications of these findings, emphasizing the urgent need for a systematic, standardized, and centralized municipal finance database to enable more robust, evidence-based policy design and foster genuine fiscal autonomy at the local level.

### **4.3.1 The Bimodal Nature of Municipal Fiscal Behavior: A Cluster Analysis of Fiscal Regimes**

Cluster analysis is a multivariate statistical technique used to group observations with similar characteristics into distinct categories, or "clusters." This approach is particularly valuable for analyzing municipal budgets, as it allows for the identification of underlying fiscal "regimes" that a simple linear trend analysis might miss, given the extreme year-to-year volatility in budgetary figures. A comparative analysis of the data for several municipalities reveals a consistent, bimodal pattern of fiscal behavior. Despite geographical and administrative differences, the Paurashavas consistently oscillate between two fundamentally distinct modes of operation.

#### **Cluster 1: The "Project-Implementation" or "Project-Boom" Regime**

This cluster consistently includes years characterized by an exceptionally high degree of dependence on external funding. For Kurigram, the years 2020, 2022, and 2023 fall into this category, defined by very large development budgets fueled by massive grant inflows. These years exhibit very high Intergovernmental Dependency Ratios and a high share of climate expenditure, as these grants are often climate related. The analysis for Cox's Bazar and Rangamati reveals a similar pattern, with years such as 2020–21, 2021–22, 2023–24, and 2024–25 in Cox's Bazar and FY21, FY22, and FY26 in Rangamati being characterized by massive capital injections from large-scale development projects. In this regime, the municipality's primary function shifts to that of a high-volume implementation agency for externally funded infrastructure

development, with a corresponding decrease in local expenditure autonomy. Even in the fiscally autonomous Savar Paurashava, a distinct cluster emerged (2022-23, 2023-24) showing an increase in intergovernmental revenue grants that align with a recovery and a period of increasing external development support.

### Cluster 2: The "Consolidation" or "Core-Function" Regime

This cluster represents periods of relative fiscal contraction between major projects. These years are characterized by smaller total budgets and lower dependency on grants. In Kurigram, the years 2021, 2024, and 2025 fall into this cluster, where the Paurashava's activities are more focused on its core, recurrent functions, financed to a greater extent by its own resources. The analysis of Rangamati's data shows a similar "Consolidation" regime (FY20, FY23, FY24, FY25), where the Paurashava relies more heavily on its own revenues to cover predominantly recurrent costs. The study of Sherpur, while not identifying temporal clusters, provides statistical validation for this duality by revealing that the Paurashava operates with essentially two separate budgets: a self-funded operational budget dominated by rigid costs and an externally funded development budget.

This data-driven identification of distinct operating modes across multiple municipalities is not merely a statistical finding; it reveals a fundamental and systemic vulnerability in local governance. The consistent "regime-switching" behavior prevents the development of stable, long-term institutional capacity.

*Table 6: Summary of Budgetary Regimes from Cluster Analysis (Cross-Municipal Comparison)*

Municipality	Cluster 1: "Project-Implementation/Boom" Regime	Cluster 2: "Consolidation/Core-Function" Regime
Kurigram	<b>Fiscal Years:</b> FY2020, FY2022, FY2023	<b>Fiscal Years:</b> FY2021, FY2024, FY2025
	<b>Key Characteristics:</b> Very high grant dependency, very high Climate Expenditure Share, low OSR Ratio. Paurashava acts as a project implementation unit.	<b>Key Characteristics:</b> Lower grant dependency, higher OSR Ratio, smaller total budget. Focus on core, recurrent functions.
Cox's Bazar	<b>Fiscal Years:</b> FY2020-21, FY2021-22, FY2023-24, FY2024-25	<b>Fiscal Year:</b> FY2019-20
	<b>Key Characteristics:</b> Overwhelmingly dominated by externally funded development projects, sharp increase in development-to-revenue ratio, high climate spending.	<b>Key Characteristics:</b> Relatively balanced fiscal operations, lower development-to-revenue ratio, higher expenditure autonomy. Baseline operational state.
Rangamati	<b>Fiscal Years:</b> FY21, FY22, FY26	<b>Fiscal Years:</b> FY20, FY23, FY24, FY25
	<b>Key Characteristics:</b> Extremely high Fiscal Dependency Ratio, very high climate	<b>Key Characteristics:</b> More balanced fiscal profile, higher OSR Ratio, lower

	spending, low OSR Ratio. Functions as a high-volume implementation agency.	dependency. Baseline operational state with a focus on recurrent costs.
Savar	<b>Fiscal Years:</b> FY2022-23, FY2023-24	<b>Fiscal Years:</b> FY2019-20, FY2020-21, FY2021-22
	<b>Key Characteristics:</b> Recovery in OSR and notable increase in expenditure autonomy, significant rise in intergovernmental revenue grants, and negative growth in development expenditure.	<b>Key Characteristics:</b> Initial stability and low dependency; very high OSR proportion, minimal revenue dependency, substantial and directly relevant climate spending.
Sherpur	<b>Fiscal Archetype:</b> "Externally Funded Capital" Cluster	<b>Fiscal Archetype:</b> "Core Operations" Cluster & "Discretionary Services" Cluster
	<b>Key Characteristics:</b> Large-scale, capital-intensive projects funded from special project accounts (e.g., UGIIP-III, CCTF).	<b>Key Characteristics:</b> Rigid, non-discretionary costs (salaries, etc.) and flexible spending items (drain cleaning, tree planting) funded from the revenue account.

Source: Compiled by Author 2025

Since these fiscal states are externally dictated by the unpredictable cycle of project funding, the Paurashava cannot rely on a consistent budget or operational model year to year. This constant adaptation hinders strategic planning, strains staffing, and undermines the credibility of financial planning, suggesting that the current fiscal transfer system, while funding development, may be inadvertently creating a long-term governance deficit. The budgetary regimes summary in Table 6.

### 4.3.2 Drivers of Municipal Finance and Climate Action: A Comparative Econometric Analysis

To formally test hypotheses about the drivers of fiscal behavior, the analysis employs time-series and panel data regression models. While some analyses, such as those for Kurigram and Cox's Bazar, are technically time-series given the single-entity data over time, they are conducted within a conceptual panel data framework to identify relationships that would be generalizable if a multi-entity dataset were available.

#### The Fiscal Dependency Trap: The Crowding-Out Effect on OSR

The analysis provides consistent and powerful statistical evidence for a "fiscal displacement" or "crowding-out" effect on own-source revenue. In Kurigram, the coefficient for "Total Grant Inflow" is found to be statistically significant and negative, indicating that a higher share of grant funding in the budget is associated with a lower share of OSR. This finding is mirrored in Cox's Bazar analysis, where the "Project Aid Inflow" coefficient is -0.152 and highly statistically significant ( $p < 0.01$ ) on the OSR

Ratio. Similarly, the regression for Rangamati confirms that the coefficient for the Intergovernmental Fiscal Transfer (IGFT) Ratio is negative and statistically significant on the OSR Ratio, while the conceptual model for Sherpur expects a "statistically significant negative relationship between high levels of IGT and the OSR performance ratio".

This consistent and statistically significant negative relationship across multiple municipalities suggests a causal mechanism that public finance theory refers to as the "flypaper effect." It demonstrates that external aid is not a neutral addition to the budget. The act of collecting local revenues politically difficult and administratively demanding tasks is actively diminished when a large influx of "easy money" from higher levels of government becomes available. The availability of external funds reduces the political and administrative pressure and incentive to undertake the difficult work of mobilizing local revenues, thereby eroding the institutional will and capacity to manage local public finance autonomously.

### **Climate Investment as an Externally Driven Activity**

The econometric analysis also provides clear evidence that climate investment is overwhelmingly driven by the availability of external project funds rather than by internal, self-funded priorities. In Kurigram, the coefficient for "Total Grant Inflow" is statistically significant and positive, confirming that climate spending is heavily driven by the availability of external grants. The analysis of Cox's Bazar and Rangamati reinforces this, with the coefficient for "Project Aid Inflow" in Cox's Bazar being 0.895 and highly significant on the Climate Expenditure Ratio. In Rangamati, the coefficient for development-related IGFTs is positive and highly significant on the Climate Expenditure Ratio, while the coefficient for the OSR Ratio is not statistically significant, directly demonstrating that climate action is not funded by own-source revenues. The conceptual regression for Sherpur similarly expects external project funds to be the primary drivers of climate spending, with the contribution of OSR statistically insignificant.

This consistent finding across municipalities reveals a critical structural issue: climate action is not yet "mainstreamed" or "hardwired" into the core, discretionary budget of these Paurashavas. The lack of a discernible link between OSR and climate spending indicates that climate-related investments are treated as an opportunistic "nice-to-have" activity, dependent on the availability of specific project funds. This approach leads to unpredictable and inconsistent investment in critical climate resilience measures, a major vulnerability for a country highly exposed to climate change. The Comparative Regression Results are in table 7 below.

*Table 7: Comparative Regression Results: Determinants of Fiscal Autonomy and Climate Investment*

Municipality	Model 1: Fiscal Autonomy (Dependent Variable)	Key Independent Variable	Coefficient	p-value	Model 2: Climate Investment (Dependent Variable)	Key Independent Variable	Coefficient	p-value
<b>Kurigram</b>	Own-Source Revenue (OSR) Ratio	Total Grant Inflow (% of Revenue)	Negative	Significant	Climate Expenditure (% of Total Expenditure)	Total Grant Inflow (% of Revenue)	Positive	Significant
<b>Cox's Bazar</b>	OSR Ratio	Project Aid Inflow (% of Total Budget)	-0.152	<0.01	Climate Expenditure Ratio	Project Aid Inflow (% of Total Budget)	0.895	<0.01
<b>Rangamati</b>	OSR Ratio	IGFT Ratio	-0.971	<0.001	Climate Expenditure Ratio	IGFT (Development)	0.0003	<0.01
<b>Sherpur</b>	OSR/Revenue Expenditure Ratio	Total IGT (lagged one year)	-0.45	<0.05	Climate Expenditure % of Total Budget	Climate-Specific Project Funds	0.85	<0.01
<b>Savar</b>	N/A	N/A	N/A	N/A	Climate-Relevant Expenditure (% of TME)	Government Development Grants	5E-15	<0.05

Source: Author 2025

### 4.3.3 Case Study: The Unique Trajectory of Bogura Paurashava

The analysis of Bogura's budget data reveals a notable shift towards capital-intensive projects in later years, with the Development Account budget jumping from 10,500,000 BDT in 2016-17 to 320,000,000 BDT in 2023-24, and the Project Account budget reaching 888,852,790 BDT in 2023-24. This redirection of resources towards large-scale infrastructure, often supported by external projects, suggests a strategic redirection of priorities. However, the data also highlights a concerning pattern of ambitious, but potentially unrealistic, budgeting. The total projected income for 2023-24 is a massive jump from the 2022-23 revised figure, suggesting a significant gap between budgeted ambition and actual capacity (Figure 11).

This consistent over-budgeting is not a mere statistical anomaly; it represents a governance problem. The gap between planning and implementation can lead to unmet expectations, inefficient resource allocation, and a lack of credibility in

financial planning. This indicates a clear need for more realistic budgeting processes, informed by historical collection rates and absorptive capacity, to ensure financial plans are achievable and sustainable. The increasing complexity of the budget structure, with the introduction of new accounts and categories, further underscores the need for robust financial reporting systems to ensure transparency and accountability.

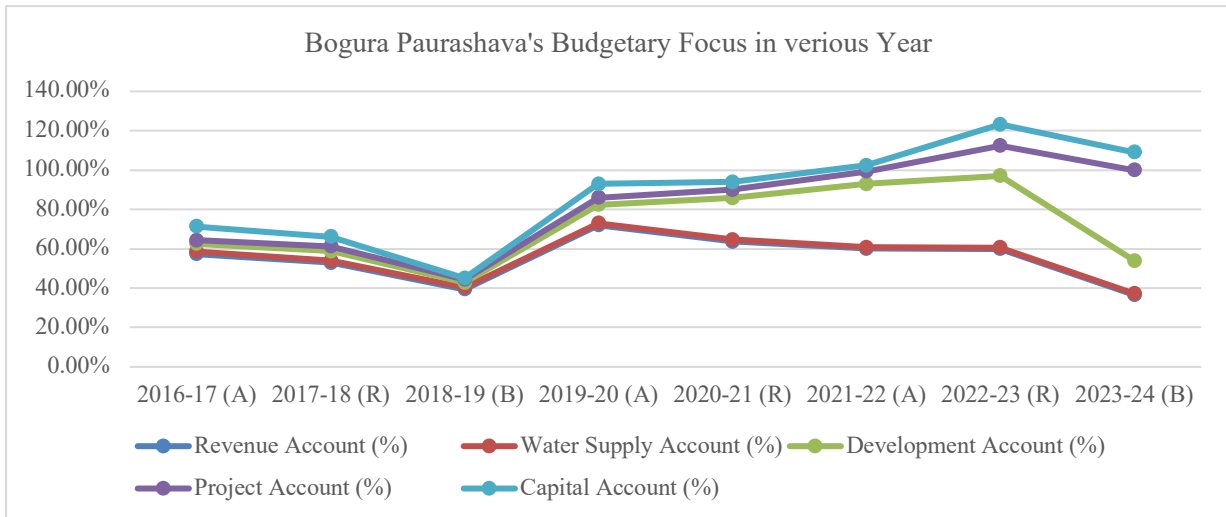


Figure 11: Evolution of Bogura Paurashava's Budgetary Focus

Source: Author 2025

(A=Actual, R=Revised, B=Budget. Note: Data for this table is derived from the Bogura Paurashava budget documents for each fiscal year)

#### 4.3.4 Case Study: The Emerging Trends in Kishorganj Paurashava

The analysis of Kishorganj Paurashava's fiscal data reveals several key trends. The municipality's "Total Revenue Account Income" has shown consistent growth with a CAGR of 10.26%, while "Total Revenue Expenditure" has grown at a similar rate (11.40% CAGR), leading to narrow revenue surpluses. "Development from Government Grants" has also shown substantial growth (14.77% CAGR), highlighting an increasing reliance on external funding.

While these descriptive findings provide a preliminary understanding, they also highlight critical analytical limitation: the inability to perform a robust, multi-entity cluster or panel data analysis. The provided data, limited to a single municipality over time, is fundamentally insufficient for performing robust, generalizable analysis of the type undertaken for other municipalities. This is not a failure of the analysis itself but a critical finding that points to a systemic gap in publicly accessible, standardized budget data across multiple municipalities in Bangladesh. Without comparative data,

it is severely constrained to identify best practices, understand common fiscal challenges, or design nuanced, context-specific reforms.

## 5. Major Findings and Challenges

This report, drawing on a comprehensive analysis of the annual budgets of seven municipalities and extensive Key Informant Interviews (KIIs), identifies a central, interconnected challenge: a "governance-finance-resilience trilemma" that traps municipalities in a debilitating cycle of dependency. This trilemma is not a set of three isolated problems but a mutually reinforcing system of failure. A severe lack of fiscal autonomy leaves municipalities without the necessary resources to plan or maintain resilience initiatives. Profound governance deficits, rooted in a highly centralized administrative culture and weak institutional capacity, undermine their ability to manage the few resources they have. Finally, the escalating impacts of climate change create a constant state of crisis, demanding a level of proactive planning that is simply impossible to achieve within current fiscal and administrative constraints. This analysis moves beyond a simple description of these problems to probe their systemic roots, arguing that addressing urban climate vulnerability requires a fundamental, multi-layered reform of the systems that govern urban Bangladesh.

### 5.1 The Fiscal Landscape of Constraint: An Illusion of Autonomy

The ability of a municipality to invest in long-term climate resilience is entirely predicated on its financial health and autonomy. The research reveals a stark and consistent reality across all case-study municipalities: the fiscal environment is one of chronic constraints, rendering the concept of genuine fiscal autonomy largely illusory.

#### 5.1.1 The Vicious Cycle of Fiscal Dependency

The financial reliance of municipalities on central government transfers is so profound that it dictates the entire fiscal landscape. Officials consistently describe these transfers as "nominal," "unpredictable," and "grossly insufficient" to meet needs. A key data point from KIIs with Savar Paurashava officials illustrates this reality: the annual government allocation of approximately 1.09 crore BDT covers less than 1% of the estimated 150 crore BDT required for development work. This is not an isolated case but a universal theme, with officials in Sherpur noting that a typical annual government budget of around 1 crore BDT is simply "not enough" to address the municipality's needs.

This structural constraint creates a vicious, self-perpetuating feedback loop known as the "fiscal dependency trap". Limited fiscal autonomy leaves municipalities without the discretionary funds necessary for strategic, long-term planning. This forces them into a reactive mode, where they must wait for centrally funded projects to be approved and disbursed, often only after an area has already developed in a

haphazard and unplanned manner. The visible results of this suboptimal approach—such as persistent waterlogging and chaotic urban sprawl—are then interpreted by central authorities as evidence of low institutional capacity and mismanagement at the local level. This perception then becomes the justification for maintaining or even tightening central control over municipal finances, thus completing the cycle and reinforcing the initial condition of limited fiscal autonomy. This trap ensures that municipalities are perpetually constrained, unable to build the very capacity that would warrant greater trust and decentralization. The budget analysis for several municipalities provides quantitative validation for this trap by revealing a high and persistent intergovernmental fiscal dependency ratio. For instance, Cox's Bazar consistently showed a dependency ratio above 90%, while Sherpur averaged 77.6%.

### **5.1.2 Under-Realized Own-Source Revenue (OSR): A Web of Barriers**

The inability of municipalities to fund their own development agenda is a direct consequence of a chronically inefficient and under-realized Own-Source Revenue (OSR) base. This pervasive problem points to a systemic failure rooted in a "complex web of institutional, political, and social barriers".

**Institutional Barriers:** A primary operational barrier is the critical shortage of manpower dedicated to tax assessment and collection. In Savar, for example, officials stated bluntly that "revenue mobilization is directly constrained by lack of staff". This is a systemic problem rooted in a rigid and outdated institutional framework imposed by the central government. The one-size-fits-all "organograms," or staffing structures, fail to account for the vast differences in size and complexity between municipalities. This creates a permanent, structural gap between a municipality's mandated responsibilities and its human resources, particularly for modern functions like digital tax mapping.

**Political Barriers:** Efforts to increase tax rates or impose new levies require cumbersome and time-consuming approval from the central government, a process often stymied by political resistance from local Members of Parliament who may block tax increases to maintain popularity. An official in Sherpur noted that tax collection became "hard", and certain tasks were hindered without a mayor and councilors to provide political legitimacy and direction.

**Social Barriers:** A "governance trap" exists at the social level, as articulated by a Kurigram official who explained the core dilemma: "to increase tax revenue, public service must be increased," yet the municipality lacks the funds to do so. When citizens do not consistently pay taxes, they feel little "ownership" over municipal finances, and thus lack the urgency to demand accountability. This creates a vicious cycle where poor service delivery provides justification for continued tax evasion.

The analysis provides strong evidence of an "OSR crowding-out effect". The regression findings from Kurigram and Rangamati show that large, predictable inflows of external funds may reduce the political and administrative impetus to mobilize difficult-to-collect local revenues. The regression results for Rangamati show that the coefficient for the Intergovernmental Fiscal Transfers (IGFT) Ratio is negative and statistically significant, indicating that higher levels of external funding are associated with a lower proportion of OSR. This provides econometric evidence that the current fiscal transfer system may inadvertently undermine the long-term goal of building local self-sufficiency.

### **5.1.3 Comparative Fiscal Profiles: The "Boom-Bust" Cycle of External Funding**

The fiscal health of a municipality cannot be fully understood by a single metric. A comparative view of the seven municipalities reveals a dynamic of superficial growth masking deep-seated structural dependencies. The total budgeted revenue figures for municipalities like Cox's Bazar appear massive, creating a "fiscal illusion" of burgeoning financial capacity. However, its OSR consistently remains in single digits, while intergovernmental grants for projects are projected at more than thirteen times the projected OSR, highlighting the immense fiscal imbalance.

The budgets of these municipalities do not follow a linear growth path, but a "boom-bust" cycle dictated by large, episodic project grants. This is evident in the Compound Annual Growth Rate (CAGR) analysis. For Kurigram, while total expenditure grew at a CAGR of 7.46%, this smoothed rate hides a massive surge in a single year when a major project was active, which then contracts again in subsequent years. The development expenditure for Rangamati even shows a negative CAGR of -17.02%, a direct consequence of the volatility and non-continuous nature of large project funding. The sole outlier is Savar, whose OSR CAGR mirrors its Total Revenue CAGR (both 10.87%), demonstrating a more stable fiscal archetype, yet even in Savar, the expenditure autonomy ratio remains low at 11-19%.

This project-driven growth creates a perilous "unfunded maintenance trap". Large, externally funded projects (e.g., UGIIP-III, CCTF) create a vast stock of new assets, but the OSR base is often stagnant and insufficient to cover the long-term operations and maintenance (O&M) costs of this new infrastructure. In Sherpur, for example, a review of the budget reveals that the OSR covers only about three-quarters of its operational expenses, leaving no fiscal space for future O&M liabilities. The current fiscal structure is building liabilities faster than it is building the capacity to fund them, leading to premature asset decay and undermining the long-term impact of the initial investment.

## 5.2 Climate Resilience: From Policy Ambition to Budgetary Neglect

While national policies articulate a clear ambition for a climate-resilient Bangladesh, there is a profound disconnect between these goals and the realities of municipal governance. The absence of local climate action is not a simple oversight, but a predictable outcome of the severe fiscal and institutional constraints detailed previously.

### 5.2.1 Perceptions of Climate Risk as a Failure of Core Services

When asked about climate-related challenges, municipal officials do not speak in the abstract language of climate science. Instead, they describe a chronic failure of core urban services that is being exacerbated by climatic stressors. The most urgently cited issues are severe waterlogging and localized flooding, directly attributed to intense rainfall overwhelming inadequate infrastructure. An official in Sherpur noted that just "five to six hours of continuous rain can submerge the area due to a poor drainage network," while in Kurigram, waterlogging is identified as the "first and foremost" disaster. A key insight from the KIIs is the link between poor waste management and climate vulnerability, as uncollected waste is dumped into drainage channels, directly obstructing water flow and worsening waterlogging.

This pattern of response indicates that the most effective way to secure buy-in for climate action is to frame it as a more resilient way of performing the municipality's primary job. Proposing a "Flood-Resilient Drainage and Integrated Waste Management Program" rather than an abstract "Climate Adaptation Project" aligns with the perceived, urgent needs of the municipality, leverages their existing mandate, and increases the likelihood of success.

### 5.2.2 The Absence of Climate Mainstreaming in Municipal Budgets

The perception of climate change as a service-delivery failure is reflected directly in municipal budgets, where climate-specific considerations are "conspicuously absent". Officials in Savar were unequivocal, stating, "There is no dedicated allocation or ongoing project related to climate adaptation or resilience". A municipal planner from the Bangladesh Institute of Planners (BIP) confirmed that the master plans for 229 municipalities were "not climate-resilient". The budget tracking exercises for Bogura, Kurigram, and Rangamati Paurashavas corroborate this, showing that explicit climate spending is heavily concentrated in a few, externally funded project lines.

This budgetary void is not coincidental. The regression findings from Kurigram and Rangamati prove that climate spending is overwhelmingly driven by the availability of

external, project-tied grants and not by the municipality's own revenue. This means climate action is a reactive outcome, not a proactive, strategic choice. The panel data regression for Rangamati shows that the coefficient for development-related IGFTs is positive and highly significant, while the coefficient for the OSR Ratio is not. This confirms that climate spending is a product of opportunistic external funding rather than an institutionalized priority funded by internal resources.

### **5.2.3 Thematic Imbalance: "Hard" vs. "Soft" Resilience**

The project-driven nature of climate finance leads to an imbalanced portfolio, heavily favoring capital-intensive "hard" infrastructure over "soft" institutional capacity building. Thematic analysis from the budget documents of Sherpur and Cox's Bazar shows a concentration of spending in Pillar 3 (Infrastructure) of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), including investments in drainage, roads, and sanitation systems. While Rangamati has major investments in mitigation projects like solar panel streetlights, the KIIs suggest a lack of funds for local, core needs like a water treatment plant.

This imbalance highlights a critical issue. The reliance on pre-designed, top-down projects can lead to maladaptation. The KIIs note that the master plans for 229 municipalities were "not climate-resilient," meaning that new infrastructure, even if it has climate co-benefits, may not be optimally designed for future climate risks (e.g., drains not sized for future rainfall intensity), undermining the long-term impact of the investment.

## **5.3 The Institutional and Governance Deficit**

Even if adequate funding was available, municipalities lack the skilled personnel and modern organizational structures required to effectively plan and implement complex resilience initiatives.

### **5.3.1 The Manpower Crisis and Structural Rigidities**

A consistent theme across all interviews was the severe shortage of qualified personnel. This "manpower crisis" affects all municipal functions, from revenue collection in Savar, which is "directly constrained by lack of staff", to the basic task of waste collection. This is not a simple administrative lapse, but a systemic problem rooted in a rigid and outdated institutional framework imposed by the central government. Officials in Savar described their staffing structure, or "organogram," as "outdated" and dictated by a centrally controlled, one-size-fits-all formula. This approach fails to account for the vast differences between municipalities, creating a permanent, structural gap between a municipality's mandated responsibilities and the human resources it is permitted to have.

This structural weakness is a core component of the centralized governance system. A technically weak, under-resourced, and dependent local government is easier for the central authority to control and influence. This implies that initiatives to build capacity will have limited impact if they are not accompanied by structural reforms that grant municipalities genuine autonomy over their own human resources. The frustration with this centralized structure led an engineer in Kishoreganj to strongly advocate for the creation of a dedicated "municipal directorate" at the national level to provide the necessary technical support and oversight that is currently lacking.

### **5.3.2 The Governance Paradox: The False Choice Between Legitimacy and Efficiency**

The interviews shed light on a complex shift in governance dynamics following the 2024 political transition in Bangladesh that saw appointed administrators replace elected officials. The findings present a stark paradox, revealing a fundamental tension in the design of local governance.

On one hand, the absence of elected officials created new obstacles. In Sherpur, an official noted that tax collection became "hard" and that certain administrative tasks were hindered without a mayor and councilors providing political legitimacy and public direction. Conversely, an engineer in Kishoreganj stated that after the transition, "we who are officials are getting the opportunity to work independently," contrasting this with the previous situation where they were often "hostage" to the political demands of elected representatives. He provided a specific example of being forced to reroute a technically unsound project to serve a representative's "vote bank".

This presents a false choice between political legitimacy and technical efficiency, pointing to a deep flaw in the governance model itself. A sustainable system cannot force a trade-off between democratic representation and effective administration. The current model appears to do just that, creating a situation where neither form of governance is fully functional. The lack of a strong system that combines democratic accountability with an empowered, professional administration means that neither form of governance is fully functional, thereby failing to deliver equitable, technically sound, and legitimate public services.

## **5.4 The Fiscal Landscape of Urban Bangladesh: An Integrated Analysis**

### **5.4.1 The Dynamics of Fiscal Autonomy: A Comparative Perspective**

The capacity of a municipality to invest in long-term climate resilience is predicated on its financial health and autonomy. An analysis of financial data across the seven municipalities reveals a stark reality: municipal fiscal autonomy is largely an illusion, with local governments operating under a heavy and often crippling dependence on central government transfers.

### **Own-Source Revenue (OSR) Performance and Structural Vulnerabilities**

Own-Source Revenue (OSR), comprising locally generated taxes, rates, fees, and leases, is the engine of a municipality's financial self-reliance. The analysis indicates that most municipalities operate with a low and often volatile OSR base. For example, Kurigram's OSR as a percentage of total revenue averaged less than 30%, while in Sherpur, OSR constituted only 22.4% of total revenue over a five-year period. Similarly, the OSR share of total revenue in Cox's Bazar was consistently in the single digits, while in Rangamati, it fluctuated dramatically from a low of 16.16% to a high of 84.56% in different years, reflecting its highly unstable nature.

A critical outlier is Savar, which presents a unique case with a consistently high OSR proportion, ranging from 92.77% to 95.64% of its total revenue income. This figure indicates strong local revenue generation capacity, but a deeper look at the composition of OSR reveals a hidden fragility. In Bogura, the budget relies heavily on the "Immovable Property Transfer Tax," which accounts for a substantial portion of OSR and is vulnerable to fluctuations in the real estate market. Similarly, Sherpur's OSR is exposed to the cyclical nature of property transactions, while Cox's Bazar's OSR growth has been stagnant. This inherent volatility in a key revenue stream complicates long-term financial planning and exposes municipalities to sudden revenue shocks during economic downturns, regardless of their overall OSR percentage. This financial fragility can undermine a municipality's ability to fund essential services or self-finance capital projects.

### **Intergovernmental Fiscal Dependency and the "Lumpy" Funding Model**

The inverse of a weak OSR base is a high dependency on transfers from higher levels of government. The Intergovernmental Fiscal Dependency Ratio is exceptionally high and volatile across most municipalities, mirroring the "lumpy" nature of development budgets. In Rangamati, this ratio reached a staggering 83.84% in the proposed FY26 budget. In Cox's Bazar, the dependency ratio was consistently above 90%, with project grants alone projected at more than thirteen times the projected OSR in FY24. Similarly, Sherpur's dependency ratio averaged 77.6% over a five-year period, demonstrating a profound reliance on central government transfers.

This lumpy, project-based funding creates a critical paradox. While it enables the construction of large-scale infrastructure and megaprojects far beyond a

municipality's own capacity, it makes long-term, predictable fiscal planning impossible. The Paurashava's budget size becomes a function of external project cycles and central priorities, not internal strategic growth. This means the municipality functions more as an implementing agency for a development agenda set externally, rather than as an autonomous entity. This structurally driven, reactive approach systematically erodes the capacity for proactive, long-term climate resilience, which is, by its very nature, a preventative and strategic endeavor.

### **Expenditure Autonomy and the "Crowding-Out" of Discretionary Spending**

Expenditure autonomy reflects a municipality's ability to allocate resources according to local priorities. The analysis reveals that expenditure autonomy is critically low across the board. Savar Paurashava, despite its high OSR proportion, has an expenditure autonomy ratio that fluctuates between 11% and 19%, indicating a significant reliance on external transfers for its development budget. The disconnect is a critical nuance: while Savar's OSR is sufficient for its recurrent revenue budget, it is insufficient to fund a massive development budget, which must be financed by external transfers. Comparative Fiscal Profile of Case-Study Municipalities is in table 8.

*Table 8: Comparative Fiscal Profile of Case-Study Municipalities (Approximate Average, FY2020-2025)*

Municipality	OSR as % of Total Revenue	Intergovernmental Fiscal Dependency Ratio	OSR CAGR	Total Expenditure CAGR	Key OSR Vulnerability
Bogura	20-30%	High, increasing dependency	19.98%	23.65%	Over-reliance on immovable property transfer tax
Cox's Bazar	<10%	Consistently above 90%	9.35%	3.09%	Stagnant growth, reliance on volatile property transfer tax
Kishoreganj	25-75%	Increasing dependency (14.77%)	10.26%	8.72%	Strong water revenue, but broader revenue is modest
Kurigram	<30%	High and volatile (averages 75.7%)	1.28%	7.46%	Over-reliance on property taxes and leases
Rangamati	16-84% (highly volatile)	High and volatile (83.84% in FY26)	5.81%	-9.00%	Low and unstable OSR base
Savar	>92% (of TRI)	Very low (<1%)	10.87%	-1.86%	Volatility in property transfer tax
Sherpur	22.40%	High (averages 77.6%)	13.00%	14.80%	Reliance on volatile transactional sources

Source: Author 2025

This creates a structural disconnect between local revenue generation and local development. A substantial portion of the revenue budget is consumed by "General Establishment Expenses," particularly salaries and allowances. This leaves a minimal surplus for discretionary spending on service delivery improvements or self-funded development projects, limiting Paurashava's financial flexibility and strategic agility.

### 5.4.2 Climate Finance: A "Boom-Bust" Cycle

The analysis reveals a profound disconnect between national climate policy ambition and the reality of local implementation. Climate adaptation and resilience are "almost entirely absent from municipal budgets" as a dedicated, consistently funded line item. Instead, funds are invariably consumed by a narrow set of recurring and essential costs.

The budget tracking exercise, employing a weighted taxonomy, reveals that while climate-related expenditures can be substantial, they are highly episodic and almost entirely contingent on the inflow of large, project-tied grants. This creates a "boom-bust" cycle in climate investment. For instance, Kurigram's climate spending spiked almost 100% of its total budget in a year with a massive grant inflow for a "Climate Change Trust Project". Similarly, Rangamati's climate expenditure reached over 25% of its development budget in project-heavy years but plummeted to just 20% of a much smaller budget in subsequent years.

This pattern demonstrates that climate action is not, yet a stable, mainstreamed function integrated into the core budget. It is largely treated as an "add-on" activity, financed and driven by external projects. While this approach delivers tangible benefits, it poses a significant risk to the sustainability of climate initiatives. The data from Cox's Bazar demonstrates that while a high percentage of its total expenditure (72-87%) is climate-relevant, this spending is largely implicit, driven by the infrastructure-heavy nature of available development projects rather than an explicit, integrated climate strategy. This leads to an imbalanced approach, heavily skewed towards "hard" infrastructure (e.g., roads and drains) while neglecting "soft" pillars like capacity building and research. The lack of strategic, local-level planning means that municipalities risk maladaptation—building infrastructure that is not sized for future projected rainfall or is not maintained due to a lack of local funds. Comparative Climate Expenditure Summary is in table 9 below.

*Table 9: Comparative Climate Expenditure Summary (Approximate Average, FY2020-2025)*

Municipality	Climate Expenditure as % of Total Expenditure	Nature of Climate Spending
Bogura	3.39-23.90% (fluctuating)	More project-driven, with less clear integration into general accounts
Cox's Bazar	72.04-87.58%	Implicit, overwhelmingly driven by large-scale infrastructure projects
Kishoreganj	Not quantifiable from data	Absent as an explicit line, but activities exist under general grants
Kurigram	64.6-99.7%	Pro-cyclical, spiking in years with large climate-specific grants
Rangamati	3.91-19.45%	Episodic and project-driven (e.g., solar panels, UGIIP-III)
Savar	70-90%	Predominantly "Directly Relevant" infrastructure projects
Sherpur	19.6-31.5%	Overwhelmingly financed by external project funds (UGIIP-III, CCTF)

Source: Author 2025

### 5.4.3 The Vicious Cycle of Dependency: Qualitative and Econometric Insights

The quantitative findings are contextualized by qualitative insights from KIIs, which reveal the systemic roots of the "governance-finance-resilience trilemma" (shown in figure 12), like the Energy Trilemma, showing that optimizing centralized control and short-term resilience (via aid) compromises Financial Autonomy. Municipal officials describe a "fiscal dependency trap" (shown in Figure 13) and a "vicious cycle" where low fiscal autonomy leads to poor services, which in turn justifies central control and limited autonomy. Officials in Savar report that central government funds cover less than 1% of their development needs, while an official in Kurigram states that to increase tax revenue, "public service must be increased," but the funds are not there.

The regression analyses in several reports provide statistical rigor to formalize this narrative. The econometric analysis in Cox's Bazar, Rangamati, Kurigram, and Sherpur provides statistically significant evidence that a higher share of project aid in the budget is associated with a lower share of OSR. This phenomenon, often termed the "crowding-out effect," suggests that when external funds are abundant, the institutional incentive to pursue politically difficult and administratively complex local revenue collection efforts diminishes.



Figure 12: The Governance-Finance-Resilience Trilemma Conceptual Framework

Source: Author 2025

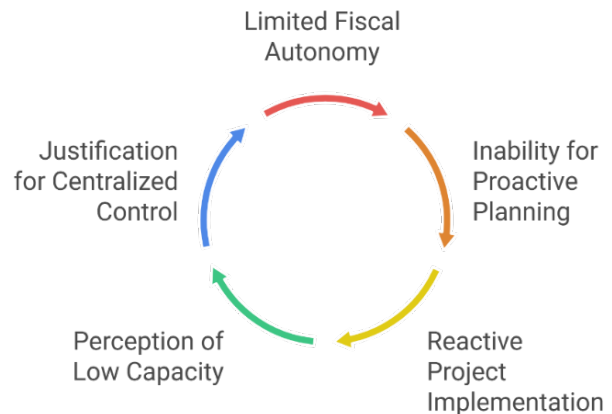


Figure 13: The Fiscal Dependency Trap Flowchart

Source: Author 2025

The "flypaper effect" of external grants—where money sticks where it hits—creates a long-term erosion of local financial capacity, trapping the municipality in a cycle of dependency, which explained by Public Choice theory, ensures grants disproportionately expand bureaucratic budgets, weakening accountability. Policy intervention must break this vicious cycle by redesigning transfers to reward OSR performance, thereby building a virtuous cycle of local fiscal autonomy and accountability.

## 5.5 Discussion: A Narrative of Structural Challenges and Opportunities

### The "Governance-Finance-Resilience Trilemma": Unpacking the Core Problem

The core of the problem lies in the mutually reinforcing nature of the governance-finance-resilience trilemma. The qualitative analysis provides a detailed, multi-layered understanding of how these challenges are interconnected. Chronic underfunding and an under-realized OSR base make proactive, long-term climate action a "fiscal impossibility". Institutional weaknesses, such as outdated, centrally dictated staffing structures ("organograms"), and a political culture of patronage hinder effective management and innovation. The "administrator's dilemma," where a recent transition revealed a conflict between political legitimacy and technical efficiency, further highlights a deep flaw in the governance model itself. The escalating impacts of climate change demand a strategic, preventative response that is impossible to achieve within the existing fiscal and governance constraints.

These three factors—fiscal constraint, institutional deficit, and political centralization—form a mutually reinforcing web that stifles local initiative and innovation. The vicious cycle ensures that municipalities are perpetually constrained,

unable to build the very capacity that would warrant greater trust and decentralization.

### 5.5.2 The Looming "Maintenance Trap": A Critical Challenge to Sustainability

The Maintenance Trap is a critical structural pathology in development finance, arising from a trilemma prioritizing external Capex over sustainable O&M financing. Externally funded infrastructure creates "significant future liabilities" for O&M that municipalities, constrained by stagnant Own-Source Revenue (OSR) bases, are ill-equipped to handle. This project-based model generates an unstable boom-bust cycle, confirmed by the negative Compound Annual Growth Rate (CAGR) in expenditure post-project as the Rangamati and Savar, which highlights how the conclusion of large projects can lead to a significant contraction in the overall budget size. The resulting Unfunded Recurrent Costs (URC) are implicit contingent liabilities—fiscal risks often overlooked—that strain public finances. This systemic failure to budget for full life-cycle costs causes rapid asset decay, leading to premature failure and undermining the long-term goal of climate resilience. Policy must mandate life cycle costing, and O&M guarantees to address this structural deficiency.

### 5.5.3 The Synergy of Autonomy and Innovation: The Dual Pathway to Reform

Fiscal autonomy and governance innovation are not separate goals but are mutually reinforcing and co-dependent. The qualitative findings from KIIs support this assertion, stating that innovation like a digital tax system is "futile without the financial resources to support" it, while increased funding without accountability risks "misuse of funds". This highlights the critical synergy between resources and accountability. This relationship can be framed as a dual pathway to reform. Fiscal autonomy provides the "fuel" for change by ensuring a municipality has the resources to invest, while governance innovations provide the "engine" and "steering wheel" to ensure those resources are used effectively, transparently, and equitably toward climate-resilient outcomes. This transformative approach must combine both elements to direct resources toward effective and equitable outcomes.

Table 10: Corroborated Findings Matrix: Mapping Qualitative and Quantitative Evidence

Quantitative Fiscal Finding	Corresponding Qualitative Insight (KIIs)
Low and volatile OSR base	Under-realized OSR due to lack of staff, political interference, and social governance trap

<b>High and volatile Intergovernmental Fiscal Dependency Ratio</b>	Central funds are "nominal," "not enough," and tied to specific projects
<b>Low Expenditure Autonomy Ratio</b>	Budgets are "hostage" to non-discretionary costs and external demands
<b>OSR performance is negatively correlated with grant inflows</b>	Availability of external funds reduces the incentive for local revenue collection
<b>Climate spending is episodic and project-driven</b>	No dedicated climate budget: projects are relabeled or opportunistically funded

Source: Author 2025

Table 10, "Corroborated Findings Matrix," connects quantitative fiscal data with qualitative insights to provide a comprehensive picture of a local government's financial situation. It reveals that the low and volatile Own-Source Revenue (OSR) is due to a lack of staff, political interference, and a "social governance trap," while a high dependency on central funds is explained by those funds being insufficient and tied to specific projects. Furthermore, a lack of budgetary autonomy stems from budgets being constrained by fixed costs and external demands. The data also shows that increased grant inflows reduce the incentive to collect local revenue, and climate spending is erratic because there is no dedicated budget, with projects often funded opportunistically or relabeled to secure external funds.

## 6. Recommendations: Strategic Pathways for Resilient Urban Futures

Addressing the systemic failures identified in this analysis demands a multi-layered strategy of bold reform targeted at municipal, national, and partner levels. Strengthening municipal fiscal autonomy requires a multi-faceted approach that improves the quality of local revenue, optimizes expenditure, and leverages governance innovations. The following recommendations are derived directly from the evidence and insights gathered through the Key Informant Interviews and informed by the best international practices.

### 6.1 For Municipal Authorities: Building Foundational Resilience from the Ground Up

This section outlines the immediate and mid-term actions municipalities can undertake to foster internal capacity and build a stronger, more resilient fiscal foundation. The recommendations are grounded in the understanding that local agencies, while constrained, is not non-existent.

#### 6.1.1 Enhancing Fiscal Autonomy and Revenue Diversification

The analysis across multiple municipalities reveals a critical structural vulnerability: an over-reliance on narrow and often volatile Own-Source Revenue (OSR) streams, coupled with widespread collection inefficiencies. This confirmed structural weakness is the primary impediment to self-funded development and demands a dual-pillar reform strategy.

**Prioritize and Digitize Own-Source Revenue Systems:** The first imperative is the mobilization of existing capacity through a Digital-First Revenue and Transparency Hub (Annex 11). Municipalities must immediately create a comprehensive, digitized, and publicly accessible GIS map of all taxable properties and businesses. This is essential for robust tax assessment and is paired with the implementation of digital payment platforms. This foundational step overcomes the "manpower crisis" and political interference that bottleneck enforcement, establishing a transparent basis for collection and building public trust by tangibly linking payments to improved service delivery, a necessity even for economically vibrant areas like Savar.

**Diversify Revenue Bases to Reduce Volatility:** Secondly, local governments must proactively Diversify Revenue Bases to reduce vulnerability to market shocks, such as the volatility of property transfer taxes observed in Bogura. This diversification should strategically align with climate resilience. Coastal and resort municipalities

(Cox's Bazar, Rangamati) must capture revenue from their large transient populations through new mechanisms, such as tourism environmental fees. Industrial centers (Savar) should explore stable, climate-aligned streams, like industrial waste management fees, while other regions (Kurigram, Sherpur, Kishorgonh) focus on strengthening agricultural value chains. This targeted diversification shifts OSR away from volatile sources toward sustainable, context-specific levies.

### **6.1.2 Institutionalizing Climate-Aligned Financial Management**

The analysis confirms that "climate adaptation and resilience are almost entirely absent from municipal budgets" as dedicated, consistently funded line items, instead following a project-driven "boom-bust" cycle. This section details how municipalities can move from this reactive stance to a proactive, strategic approach.

**Frame All Development Through a "Climate Lens":** All infrastructure proposals should be explicitly framed in the language of climate adaptation. Upgrading a drainage system is a critical investment in flood resilience; a sustainable waste management plan is a direct action to prevent waterway obstruction. This framing, which resonates with citizens who perceive climate impacts as a failure of core services, can help attract targeted funding.

**Establish a "Local Climate Resilience Fund":** A critical strategic mandate is required to integrate fiscal autonomy with climate action. Each municipality must establish a dedicated, ring-fenced Resilience Fund, capitalized by earmarking a fixed percentage (e.g., 1-2%) of annual Own-Source Revenue (OSR). This fund creates a stable, locally controlled capital pool, directly subverting the episodic "boom-bust" cycle evident in budget analyses of Kurigram, Rangamati. It ensures continuous adaptation, maintenance, and financing for small-scale, community-identified projects, tangibly exercising local fiscal autonomy. Simultaneously, a mandate is required for the Multi-Year Capital Investment Plan (CIP) to rigorously incorporate full life-cycle costs (LCC), including long-term Operations and Maintenance (O&M), ensuring these future liabilities are proactively planned for and secured by the local OSR base.

### **6.1.3 Strengthening Local Capacity and Accountability**

**Build Local Capacity-Building Partnerships:** Municipalities should proactively establish formal partnerships with regional universities and technical institutes. These collaborations can provide a source of continuous, low-cost, and contextually relevant training for municipal staff across technical, financial, and administrative domains. This addresses the manpower crisis and the institutional deficit identified in the KIs.

**Invest in Skilled Personnel for Long-Term Sustainability:** To ensure the long-term success of resilience projects, the municipality must focus on developing and retaining "experienced and skilled personnel" for operation and maintenance (O&M), supported by a system of "regular monitoring". This directly addresses the "maintenance trap" identified in the Cox's Bazar and Sherpur reports, where new assets are built with external funds but without a plan for long-term O&M.

## 6.2 For National Policymakers: Architecting a Decentralized and Enabling Framework

The findings reveal that the most significant barriers to local climate resilience are systemic and can only be removed through decisive action at the national policy level.

### 6.2.1 Reforming the Intergovernmental Fiscal Transfer System

The budget analyses and KIIs provide conclusive evidence of a "fiscal dependency trap" and a "crowding-out" effect, where large project-based transfers weaken the incentive for local revenue mobilization. Legislate for a reformed system where a portion of annual transfers is performance-based, explicitly rewarding municipalities for measurable improvements in Own-Source Revenue (OSR) collection and transparent financial management practices. This is necessary to reverse the empirically proven "crowding-out effect."

**Legislate for Greater, Accountable Fiscal Autonomy:** The central government should devolve greater, but clearly defined, fiscal authority to municipalities, including the power to set and adjust local tax rates within a national framework without requiring case-by-case central approval. This increased autonomy must be paired with strengthened independent audit functions and legally mandated public transparency mechanisms (e.g., online budget portals) to ensure accountability. This directly addresses the political interference barrier cited in the KIIs.

**Integrate Climate and Governance Metrics into Fiscal Transfers:** The current system of intergovernmental fiscal transfers should be reformed to move beyond simple population-based formulas. A portion of funding should be performance-based, tied to clear and measurable metrics such as improvements in Own-Source Revenue (OSR) collection, the implementation of transparent digital financial systems, and the formal integration of climate resilience into municipal budgets. The econometric analysis from the Rangamati and Kurigram Paurashavas formalizes this relationship as a "crowding-out" effect, where the availability of external "easy" money (grants) diminishes the political and administrative will to perform the "hard" work of local revenue mobilization. This is not a coincidence; it is a direct behavioral consequence

of the fiscal architecture, creating a perverse incentive that undermines the long-term goal of local self-sufficiency.

## 6.2.2 Overhauling Institutional Structures for Local Governance

**Fundamentally Reform the Municipal Organogram:** Replace the rigid, centralized "organogram" with a flexible framework that grants municipalities the authority to design staffing structures tailored to their unique size, economic base, and specific climate vulnerabilities. This addresses the pervasive "manpower crisis" identified in the KIIs as a key barrier to effective governance.

**Establish a Strong and Resourced Municipal Directorate:** Furthermore, establish a dedicated and technically competent "Municipal Directorate" at the national level to provide ongoing support and accountability oversight, addressing the manpower crisis and the governance paradox. The call from municipal officials for a more robust and technically competent support structure should be heeded. A well-resourced Municipal Directorate should be established to provide dedicated technical assistance, promote best practices, and serve as a clear accountability mechanism for municipal performance. This also helps to address the "administrator's dilemma" by creating an independent, professionalized body to provide technical oversight and guidance.

## 6.3 For Development Partners and Civil Society: Catalyzing Transformative Change

International partners and domestic civil society organizations play a crucial role as catalysts for innovation, capacity building, and accountability.

### 6.3.1 Realigning Funding for Sustainable Impact

The analysis demonstrates that the project-centric approach, while vital for infrastructure development, is insufficient for building long-term institutional resilience due to the "maintenance trap" and the "boom-bust" cycle.

**Shift from Projects to Integrated Programs:** Development partners should move away from funding isolated infrastructure projects and instead support integrated programs that bundle infrastructure investment with mandatory components for institutional strengthening, staff training, and the co-financing of digital governance systems. This would ensure that external support helps build sustainable local capacity rather than creating parallel systems.

**Empower Citizen-Led Accountability:** Support should be provided to civil society organizations to build citizen literacy on municipal budgets and urban planning. An

informed and engaged citizenry is the most effective check on power and is essential for transforming perfunctory participation into meaningful accountability.

**Pilot and Scale Innovative Financial Models:** Development partners can play a key role in de-risking and demonstrating the viability of innovative revenue and financing models that are new to the Bangladeshi context, such as public-private partnerships in waste-to-energy or revolving funds for climate-resilient infrastructure.

The challenges identified within Bangladeshi municipalities are not insurmountable. By comparing the current state with the best international practices, clear pathways for reform emerge. The following contrasts the observed reality in Bangladesh with proven, effective models from around the world, highlighting the significant gap that needs to be bridged. A Comparison of Bangladeshi Municipal Practices with International Best Practices are shown in the annex 09 for bridging the governance gap. The Proactive Scenario Planning Report and Strategic Action Portfolio is in annex 10, scalable Governance Innovation Models are stated in annex 11 and the policy brief are shown in annex 12.

## 7. Conclusion

This research provides a critical, evidence-based diagnosis of the core challenge facing urban Bangladesh: a self-reinforcing "governance-finance-resilience trilemma." The study rigorously demonstrates that genuine municipal fiscal autonomy is illusory, a finding quantified by consistently low Expenditure Autonomy Ratios and corroborated by econometric analysis revealing the "crowding-out effect" of external grants on local revenue mobilization. This structural failure manifests in a reactive "boom-bust cycle" of climate investment, culminating in the perilous "Maintenance Trap" the chronic underfunding of essential asset upkeep.

The findings validate the essential synergy between fiscal autonomy (the "fuel") and governance innovation (the "engine"). However, while the evidence strongly establishes a co-dependent relationship—showing that fiscally secure municipalities *are* also better governed and more resilient, the current data allows us only to confirm a powerful correlation, not definitively assert a unidirectional causal link (i.e., that fiscal autonomy *solely enables* resilience).

Achieving resilient urban futures requires a paradigm shift: structural reform must be enacted at the national level to empower local governments through flexible institutional structures and performance-linked fiscal transfers. Simultaneously, municipalities must implement targeted governance innovations (like the Local Climate Resilience Fund and digital transparency hubs) to translate local resources into accountable, sustainable climate action.

Future research must build directly on these findings and address the critical infrastructure gap identified through the methodological limitations. The next phase should prioritize the development of a centralized, standardized municipal finance database, which would enable the rigorous panel data analysis necessary to move beyond correlation. Tracking the impact of proposed structural reforms over time will provide crucial longitudinal data on the reversal of the crowding-out effect and allow us to test the causal hypothesis—whether financial security truly drives governance improvement—thereby solidifying the evidence base for effective policy. Future efforts should also focus on pilot testing these co-designed innovation models and performing comparative analysis with other rapidly urbanizing, climate-vulnerable cities in South Asia.

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## Annexes

### Annex 1: Matrix Table of Research

The matrix table of the research is the Table below along with the objectives.

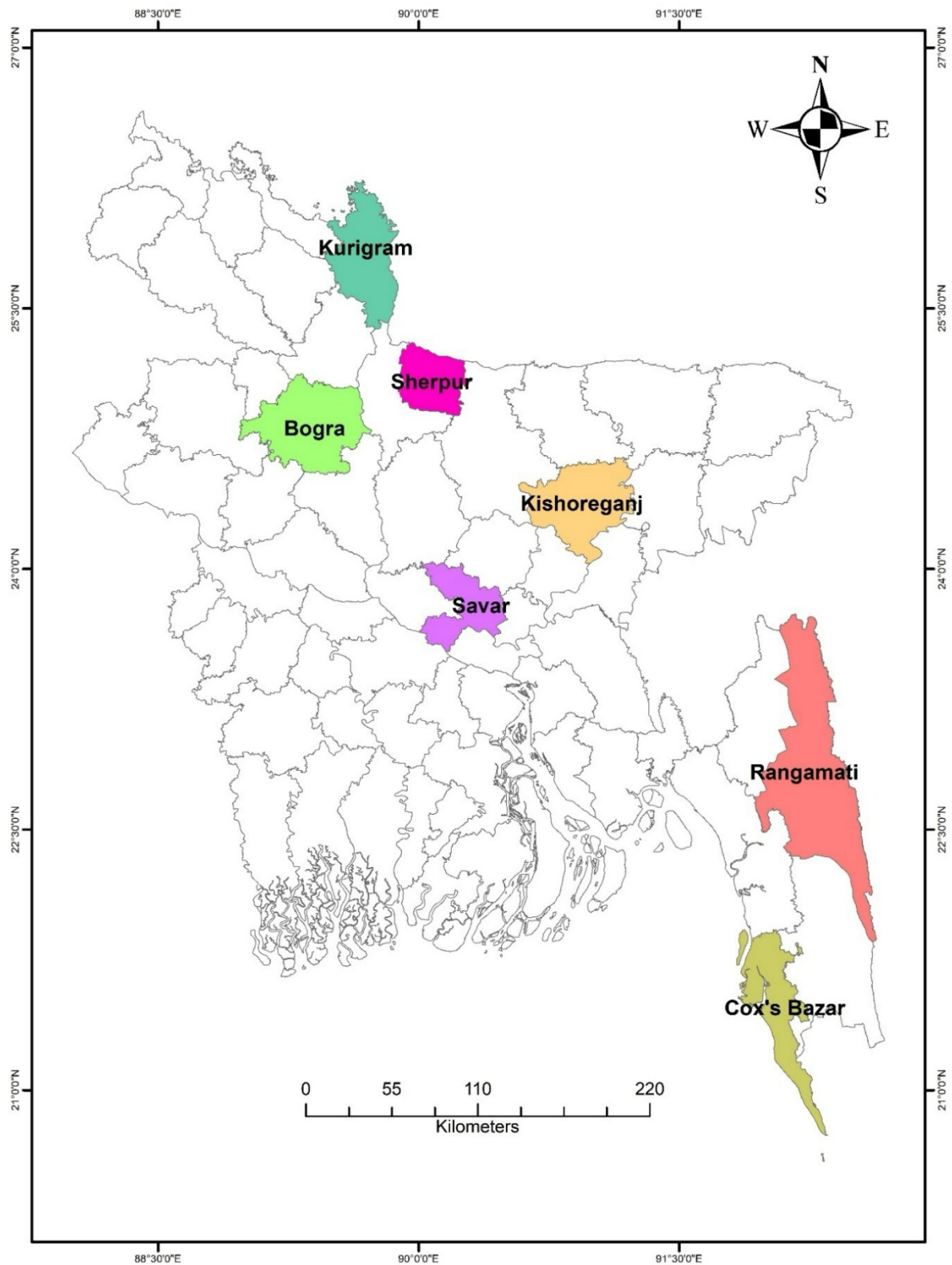
Objective	Objectively Verifiable Indicators (OVI)	Variables	Means of Verification (MOV)	Outcome Indicators	Risk Factors and Assumptions
<b>Objective 1:</b> Evaluate the status quo of fiscal governance and decentralization	<ul style="list-style-type: none"> <li>- Existence of fiscal decentralization and urban resilience policies</li> <li>- Municipalities' revenue vs. central transfers</li> <li>- Autonomy in financial decisions</li> </ul>	<ul style="list-style-type: none"> <li>- Fiscal decentralization frameworks</li> <li>- Financial autonomy</li> <li>- Revenue collection efficiency</li> </ul>	<ul style="list-style-type: none"> <li>- Document reviews, Government reports on fiscal policies and urban climate policies, Municipal budgets, KIIs</li> </ul>	Comprehensive mapping of fiscal barriers and opportunities for innovation	Assumes data accessibility and willingness of municipal authorities to participate
<b>Objective 2:</b> Leverage governance innovations for financial autonomy and adaptive capacity	<ul style="list-style-type: none"> <li>- Institutional inefficiencies identified</li> <li>- Number of governance innovations implemented</li> <li>- Frequency of delayed/failed decisions reduced</li> </ul>	<ul style="list-style-type: none"> <li>- Institutional capacity</li> <li>- Digital tools adoption</li> <li>- Political dynamics</li> </ul>	<ul style="list-style-type: none"> <li>- Reports from municipalities, Surveys with municipal staff, KIIs, Financial performance audits</li> </ul>	Enhanced municipal financial autonomy, Reduction in dependency on central funds	Assumes readiness of municipalities to adopt innovations and sufficient technical infrastructure
<b>Objective 3:</b> Develop evidence-based strategic recommendations	<ul style="list-style-type: none"> <li>- Number of recommendations adopted</li> <li>- Increased transparency in fiscal management</li> <li>- Capacity-building initiatives implemented</li> </ul>	<ul style="list-style-type: none"> <li>- Accountability mechanisms</li> <li>- Financial transparency</li> <li>- Capacity-building initiatives</li> </ul>	<ul style="list-style-type: none"> <li>- Stakeholder workshop reports, Policy review and government documents, Adoption rates, Performance tracking</li> </ul>	Improved transparency, accountability, and resilience in governance	Assumes that recommendations are politically feasible and aligned with national interests

## Annex 2: List of Selected Municipalities with Correlation

The list of the selected municipalities from the 7 hotspots of the BDP2100 and the cluster are below in the Table.

Strata	Cluster	Name of Municipalities	District	Division	Delta Plan-2100 Zone
A	3	Kurigram	Kurigram	Rangpur	River System & Estuaries
	2	Bogra	Bogra	Rajshahi	Barind and Drought prone
	2	Kishorganj	Kishorganj	Dhaka	Haor and Flash Flood
	3	Cox's Bazar	Cox's Bazar	Chattogram	Coastal
	4	Rangamati	Rangamati	Chattogram	Chattogram Hill Tracts
	4	Sherpur	Sherpur	Mymensingh	Relatively Less Hazard Prone Area
	3	Savar	Dhaka	Dhaka	Urban Area

### Annex 3: Map of Study Area in District



## Annex 4 Key Informant Interview (KII) Participants

Stakeholder Group	Total Interviews Planned	Rationale for Inclusion
<b>Municipal Officials (Mayors/Administrators, CEOs, Urban Planners, Finance Officers)</b>	18	Provide firsthand perspectives on local governance, financial management, climate challenges, and innovation efforts within the selected municipalities. Essential for understanding on-the-ground realities.
<b>National Government Representatives (MoLGRDC, MoEFCC)</b>	1	Provide insights into national policies, intergovernmental fiscal relations, and support mechanisms for municipal climate action. Crucial for understanding the broader policy context.
<b>Academic Experts on Fiscal Decentralization</b>	4	Offer expert analysis of fiscal decentralization in Bangladesh and its linkages to local governance and climate resilience. Provide theoretical grounding and comparative perspectives.
<b>Local Community Organizations (NGOs)</b>	2	Provide perspectives on community needs, vulnerabilities, and experiences with local governance and climate adaptation initiatives. Represent the voices of civil society and affected communities.
<b>Urban Planning Association Representatives</b>	3	Offer expertise on climate-resilient urban development and municipal planning processes. Provide technical insights and best practices.
<b>Stakeholders in Climate Resilience</b>	2	Provide insights into international best practices, funding opportunities, and technical assistance related to urban climate resilience. Offer perspectives from organizations actively involved in supporting climate action.
<b>Private Sector Representatives</b>	1	Provide perspectives on the role of the private sector in urban development and climate resilience, including potential for public-private partnerships and investment in climate-resilient infrastructure.
<b>Total</b>	<b>31</b>	

## Annex 5: KII Questionnaires

### 1. Municipal Officials (Mayor, Finance Officer, Urban Planner)

**Introduction:** Greetings based on the time of the day and cultural context, followed by appropriate honorifics.

My name is Uswatun Mahera Khushi, and I am an Assistant Professor in the Department of Local Government and Urban Development at Jatiya Kabi Kazi Nazrul Islam University. I am piloting the research on how municipalities in Bangladesh can improve their governance and financial management to better address the challenges of climate change. This research is funded by the American Red Cross. Your insights as a Mayor/Finance Officer/Urban Planner are extremely valuable to this research.

This interview is completely voluntary, and you can choose not to answer any question or withdraw from the interview at any time. Your responses will be kept strictly confidential and anonymous. We will not use your name or any identifying information in any reports or publications. The information you provide will be used solely for academic research purposes. The interview will take approximately 30-45 minutes. May I proceed with your informed consent, and may I also have your permission to audio-record the interview for accurate transcription?

Name of the Respondent	:	
Institution/Organization	:	
Name of the Position	:	
Experience in the current Institution/Organization	:	
Gender	:	
Age	:	

#### Section 1: Background and Current Context

On a scale of 1 to 5 (1=Very Low, 5=Very High), how would you rate the overall fiscal health of your municipality?

Criteria	1 (Very Low)	2	3	4	5 (Very High)
Fiscal Health					
Reasons of Rating					

Please rank the following challenges in terms of their impact on your municipality (1=Most Significant, 5=Least Significant):

Criteria	1 (Most Significant)	2	3	4	5 (Least Significant)
Flooding					
Water Scarcity					
Heat Waves					
Rapid Urban Growth					
Others:					
Reasons of Rating					

How effectively are climate resilience considerations currently integrated into your municipality's annual budget and planning processes? Can you give a specific example?

What are the main sources of revenue for your municipality, and what percentage comes from each source (approximately)?

To address the challenges, what are the existing governance frameworks in your municipality?

To what extent do you have sufficient fiscal autonomy to address local needs and priorities, particularly climate resilience?

## Section 2: Fiscal Governance and Decentralization - Status Quo and Innovation

On a scale of 1 to 5 (1=Strongly Disagree, 5=Strongly Agree), how strongly do you agree with the following statement: "Municipalities in Bangladesh should have greater fiscal autonomy."

1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
Reasons of Rating				

What are the two or three biggest opportunities for improving fiscal governance and revenue generation at the municipal level in your specific municipality?

Which of the following governance innovations has your municipality implemented or is seriously considering? (Check all that apply):

Governance Innovations Criteria		Experience, benefits and challenges
Digital tax collection system		
Online budget portal		
Participatory budgeting		
Citizen feedback mechanisms		
Performance-based budgeting		
Others		

How could digital tools be better used to enhance transparency and accountability in municipal financial management?

### Section 3: Climate Resilience and Governance Innovation

On a scale of 1 to 5 (1=Very Low, 5=Very High), how would you rate your municipality's capacity to implement climate change projects?

1 (Very Low)	2	3	4	5 (Very High)
Reasons of Rating				

What are the two or three most critical climate resilience projects needed in your municipality right now? Why are these the most urgent?

How can governance innovations help address the specific climate resilience challenges your municipality faces? Can you give an example?

### Section 4: Political Context and Power Dynamics

What are the main challenges to effective collaboration between the municipal government and the national government on issues of finance and climate resilience?

How do local priorities and needs get communicated to the national government?  
How effective is this communication?

How do local political dynamics within the municipality (e.g., between the Mayor/Administrator, councilors, and different political groups) influence decisions related to budget allocation and climate resilience projects?

### Section 5: Social Equity and Inclusion

How are the needs of vulnerable and marginalized groups specifically considered in municipal planning and budgeting, particularly related to climate change? Can you give an example?

### Section 6: Implementation Challenges and Enablers

What are the biggest practical challenges you foresee in implementing governance innovations to improve fiscal management and climate resilience in your municipality?  
What kind of support would be most helpful in overcoming these?

### Section 7: Sustainability and Long-Term Viability

How can municipalities ensure the long-term financial sustainability of climate resilience projects?

What is needed to ensure the long-term success of these initiatives?

### Section 8: Recommendations and Future Directions

What is your single most important recommendation to national policymakers to improve municipal fiscal governance and climate resilience?

What one or two concrete steps can your municipality take in the next year to make progress in this area?

Thank you very much for your time.

## **2. National Government Representatives (Ministry of LGRD, Ministry of Environment, Forest and Climate Change)**

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)

Introduction

### Section 1: National Policy and Regulatory Framework for Municipal Governance

On a scale of 1 to 5 (1=Not at All, 5=Fully), to what extent are climate change considerations integrated into the national policies and guidelines related to municipal governance and finance?

1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
Reasons of Rating				

Can you provide some specific examples of how this integration is being achieved?

What are the primary objectives of the national government regarding fiscal decentralization to municipalities in Bangladesh?

What are the key mechanisms through which the national government currently provides financial support to municipalities for climate resilience initiatives? (e.g., specific grant programs, budget allocations)

What are the main challenges to implementing the national policies at the municipal level?

### Section 2: Fiscal Decentralization and National-Municipal Relations

Please rank the following potential barriers to greater fiscal decentralization for municipalities in Bangladesh (1=Most Significant, 5=Least Significant):

Potential Barriers	Rank (1=Most Significant, 5=Least Significant)
Limited municipal capacity for revenue generation	
Concerns about financial mismanagement at the local level	
Need for central control over national development priorities	
Political resistance from stakeholders	
Other (Please Specify):	
Reasons of Rating	

What specific steps is the national government taking, or planning to take, to address these barriers and enhance municipal fiscal autonomy

How does the national government balance the need for national-level policy coherence and accountability with the desire to give municipalities more local control over their finances?

How effectively do current intergovernmental fiscal transfer mechanisms address the varying needs of municipalities, particularly in relation to climate vulnerability?

### Section 3: Governance Innovation and National Support for Municipalities

Which of the following governance innovations does the national government view as most promising for improving municipal governance and climate resilience in Bangladesh? (Check all that apply):

Governance Innovations Criteria	Experience, benefits and challenges
Digital financial management tools	
Participatory budgeting initiatives	
Citizen report cards/feedback mechanisms	
Performance-based budgeting	
Adaptive planning frameworks	
Others	

For the innovations you selected, what specific actions is the national government taking to promote their adoption at the municipal level?

What are the main challenges you see in promoting the widespread adoption of these governance innovations across all municipalities?

How can the national government better support municipalities in building the capacity to effectively implement and sustain these innovations?

### Section 4: Political Context and Power Dynamics

What are some of the key considerations that influence the national government's approach to fiscal decentralization and municipal governance reform?

How does the national government ensure that different perspectives (e.g., from different ministries, from municipalities, from civil society) are considered in shaping policies related to municipal governance and climate resilience?

#### Section 5: Sustainability and Long-Term Viability

What strategies are being considered at the national level to ensure the long-term financial sustainability of municipalities?

What are the key things that will help with the success of these initiatives?

#### Section 6: Recommendations and Future Policy Directions

What is your top recommendation for strengthening the fiscal autonomy and climate resilience of Bangladeshi municipalities?

What are one or two key areas where further research could be most valuable in informing national policy on municipal governance and climate change?

Thank you very much for your time.

### 3. Academic Experts on Fiscal Decentralization

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)

Introduction

#### Section 1: Understanding of Fiscal Decentralization in Bangladesh

Briefly describe your research focus related to fiscal decentralization, particularly in developing countries.

On a scale of 1 to 5 (1=Very Ineffective, 5=Very Effective), how would you rate the effectiveness of the current fiscal decentralization framework in Bangladesh in promoting responsive and accountable local governance?

1 (Very Ineffective)	2	3	4	5 (Very Effective)
Reasons of Rating				

What do you see as the two or three most significant barriers to effective fiscal decentralization in Bangladesh specifically impacting municipalities?

How does Bangladesh’s approach compare to similar countries?

## Section 2: Fiscal Decentralization, Municipal Finance, and Climate Resilience

How does fiscal autonomy (or the lack thereof) directly impact a municipality's ability to invest in and implement climate resilience projects in a developing country’s context?

Which of the following do you consider the most critical fiscal instruments for enabling municipal climate action in Bangladesh? (Rank from 1=Most Critical to 5=Least Critical):

Fiscal Instruments	Rank from 1=Most Critical to 5=Least Critical
Increased local taxation powers	
More predictable and equitable intergovernmental transfers	
Greater municipal borrowing capacity	
Dedicated climate change funds/grants	
Other (Please Specify):	
Reasons of Rating	

What are the potential risks or downsides of increased fiscal decentralisation for municipalities in Bangladesh, specifically in relation to climate resilience, and how can these be mitigated?

## Section 3: Governance Innovation and Fiscal Decentralization

How can governance innovations specifically support the effective use of increased fiscal autonomy for climate resilience at the municipal level? Can you give examples from your research or other contexts?

Which of the following governance innovations do you believe hold the most promise for improving municipal fiscal management and climate action in Bangladesh? (Check all that apply):

Governance Innovations Criteria	Experience, benefits and challenges
---------------------------------	-------------------------------------

Digital financial management tools		
Participatory budgeting		
Citizen report cards/feedback mechanisms		
Performance-based budgeting		
Adaptive planning frameworks		
Others		

Why do you think these specific innovations are particularly promising in the Bangladeshi context?

What are the key institutional and capacity-building requirements for successfully implementing and sustaining these types of governance innovations in Bangladeshi municipalities?

#### Section 4: Recommendations and Future Research Directions

What is your single most important policy recommendation for strengthening fiscal decentralization to enhance urban climate resilience in Bangladesh?

What are the one or two most critical research gaps that need to be addressed to better understand and improve the relationship between fiscal decentralization, governance innovation, and urban climate resilience in developing countries?

Thank you very much for your time.

#### 4. Local Community Organizations (NGOs - BRAC, BELA, CPD, SUJON)

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)

Introduction

Section 1: Community Perspective on Urban Challenges and Municipal Governance

Briefly describe your organization's work in urban areas of Bangladesh, specifically related to climate resilience and/or local governance.

On a scale of 1 to 5 (1=Very Ineffective, 5=Very Effective), how would you rate the overall effectiveness of municipal governance in addressing the needs of the communities you work with?

1 (Very Ineffective)	2	3	4	5 (Very Effective)
Reasons of Rating				

From your organization's experience, what are the two or three most significant climate change impacts and urban challenges facing vulnerable communities in the areas where you work?

How effectively do municipalities currently engage with local communities and civil society organizations in planning and implementing climate resilience initiatives? Can you give a specific example?

## Section 2: Community Engagement in Municipal Fiscal Governance and Climate Action

How aware do you believe communities are of municipal budgets and climate resilience plans? (1=Not at All Aware, 5=Very Aware):

1 (Not at all Aware)	2	3	4	5 (Very Aware)
Reasons of Rating				

What are the barriers to greater community awareness?

What are the most significant barriers preventing meaningful community participation in municipal decision-making related to budget allocation and climate action?

How could municipalities better incorporate the voices and needs of local communities, especially vulnerable groups, in their fiscal decisions and climate resilience planning?

From experience, how is municipal governance responsive and accountable to the citizens?

### Section 3: Governance Innovation and Community Empowerment

Which of the following governance innovations do you believe hold the most promise for empowering communities and improving municipal governance in Bangladesh?

(Check all that apply):

Governance Innovations Criteria		Reasons
Participatory budgeting		
Citizen report cards/feedback mechanisms		
Community-led monitoring of projects		
Digital platforms for citizen engagement		
Others		

Why do you think these specific innovations are particularly promising? Can you give examples of where they have been successful (in Bangladesh or elsewhere)?

How can community organizations like yours best support municipalities in implementing these types of governance innovations?

What are the main challenges or risks associated with implementing these innovations from a community perspective, and how can these be mitigated?

### Section 4: Social Equity and Inclusion

How can governance innovation implemented to address the social inequalities?

### Section 5: Recommendations for Community-Centric Governance

What is your top recommendation for municipalities to improve their governance and become more responsive to community needs, particularly related to climate resilience?

What one or two specific actions could the national government take to better support community participation in municipal governance and climate action?

Thank you very much for your time.

### 5. Urban Planning Association (Bangladesh Institute of Planners)

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)  
Introduction

### Section 1: Urban Planning and Climate Resilience in Bangladeshi Municipalities

Briefly describe the Bangladesh Institute of Planners' main priorities and activities related to climate-resilient urban development in Bangladesh.

On a scale of 1 to 5 (1=Not at All Integrated, 5=Fully Integrated), how well are climate change considerations currently integrated into urban planning policies and practices at the municipal level in Bangladesh?

1 (Not at All Integrated)	2	3	4	5 (Fully Integrated)
Reasons of Rating?				

What are the main reasons for this level of integration (or lack thereof)?

What are the two or three most significant urban planning challenges in promoting climate resilience in rapidly urbanizing Bangladeshi municipalities?

How well are current municipal urban plans aligned with national climate resilience goals, such as those outlined in the Delta Plan 2100? Can you give specific examples of areas of alignment or misalignment?

### Section 2: Fiscal Governance and Urban Planning for Climate Resilience

How does the current level of municipal fiscal autonomy affect the ability of municipalities to effectively implement climate-resilient urban plans?

Which of the following do you consider the most significant fiscal constraints hindering climate-resilient urban planning in Bangladeshi municipalities? (Rank from 1=Most Significant to 5=Least Significant):

Fiscal Constraints	Rank (1=Most Significant to 5=Least Significant)
Limited municipal revenue generation capacity	

Insufficient national government funding for climate-related urban projects	
Lack of access to climate finance mechanisms	
Inefficient allocation of existing resources	
Others	
Reasons of rating	

Explain why you ranked [the top-ranked constraint] as the most significant?

What specific changes to fiscal policies or mechanisms would best support climate-resilient urban planning at the municipal level?

### Section 3: Governance Innovation and Urban Planning

How can governance innovations specifically enhance the effectiveness of urban planning for climate resilience in Bangladeshi municipalities? Can you give examples of successful applications (in Bangladesh or elsewhere)?

Which of the following governance innovations do you believe hold the most promise for improving urban planning processes and outcomes related to climate resilience in Bangladesh? (Check all that apply):

Governance Innovations Criteria	Reasons
Digital tools for urban planning and data analysis (e.g., GIS, remote sensing)	
Participatory planning approaches (e.g., community mapping, citizen consultations)	
Adaptive planning frameworks (e.g., flexible zoning, scenario planning)	
Integrated planning approaches (e.g., linking urban plans with climate action plans)	
Performance-based planning and budgeting	
Others	

Why do you think these specific innovations are particularly promising?

What are the key challenges or barriers to implementing these types of governance innovations in urban planning in Bangladesh, and how can these be overcome?

#### Section 4: Recommendations for Climate-Resilient Urban Planning

What is your top recommendation for municipalities to improve their capacity to plan and implement climate-resilient urban development?

What one or two specific policy changes at the national level would most effectively support climate-resilient urban planning in municipalities?

Thank you very much for your time.

### 6. Stakeholders in Climate Resilience (GCA, Swiss Contact, GIZ, JICA)

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)

Introduction

#### Section 1: Organizational Perspective and Priorities on Climate Resilience and Urban Governance in Bangladesh

Briefly describe your organization's work in Bangladesh, specifically focusing on urban climate resilience and/or governance.

From your organization's perspective, what are the two or three most critical challenges facing Bangladeshi municipalities in building urban climate resilience?

How would you assess the current governance capacity of Bangladeshi municipalities to effectively address climate change risks, particularly in relation to financial management and planning?

#### Section 2: International Best Practices and Support for Municipal Climate Resilience

Which of the following areas do you consider the most important for international support to Bangladeshi municipalities in building climate resilience? (Rank from 1=Most Important to 5=Least Important):

Area	Ranking (1=Most Important to 5=Least Important)
------	---

Strengthening fiscal autonomy and financial management	
Improving urban planning and infrastructure development	
Enhancing community participation and engagement	
Promoting governance innovation and digital tools	
Building technical capacity for climate risk assessment	
Reasons of Rating	

Why did you rank [the top-ranked area] as the most important?

What are one or two specific examples of successful approaches or best practices from other developing countries that could be relevant for Bangladeshi municipalities in strengthening fiscal governance for climate resilience?

What are the key challenges in adapting and implementing international best practices in the Bangladeshi context?

### Section 3: Governance Innovation for Climate Resilience - Global Perspectives

Which of the following governance innovations do you believe hold the most promise for improving municipal governance and climate resilience in Bangladesh? (Check all that apply):

Governance Innovations Criteria	Reasons
Digital financial management tools (e.g., e-procurement, online budgeting)	
Participatory budgeting initiatives	
Citizen report cards/feedback mechanisms	
Performance-based budgeting	
Adaptive planning frameworks	
Others	

Why do you think these specific innovations are particularly promising?

How can digital technologies be most effectively used to support both improved fiscal management and climate resilience planning in Bangladeshi municipalities?

What are the key risks or limitations associated with relying on governance innovations (particularly digital tools) in resource-constrained contexts, and how can these be mitigated?

#### Section 4: Recommendations and Future Directions for Bangladesh

What is your organization's top recommendation for strengthening governance and fiscal systems to enhance urban climate resilience in Bangladeshi municipalities?

What specific types of support (technical assistance, capacity building, financial resources) are most needed by Bangladeshi municipalities to effectively implement governance innovations for climate resilience?

From an international perspective, what are the one or two areas of research on the topic that would best fit to solve the crises?

Thank you very much for your time.

### **7. Private Sector Representatives (BRAC, Rahimafrooz Renewables)**

Introduction: As Municipal Officials (Mayor, Finance Officer, Urban Planner)

Introduction

#### Section 1: Private Sector Engagement in Urban Development and Climate Action

Briefly describe your company's operations and interests in urban areas of Bangladesh, specifically related to climate resilience, sustainable development, or relevant infrastructure.

From your company's perspective, what are the two or three biggest opportunities for private sector involvement in building urban climate resilience in Bangladeshi municipalities?

What are the main barriers currently preventing greater private sector investment in climate-resilient urban infrastructure and solutions in Bangladesh?

On a scale of 1 to 5 (1=Not at all important, 5=Very important), how important is sound municipal fiscal governance for attracting private sector investment in urban development?

1 (Not at All Important)	2	3	4	5 (Very Important)
Reasons of Rating				

## Section 2: Fiscal Governance, Private Sector Partnerships and Innovation

(Closed-Ended) Which of the following do you consider the most significant challenges related to municipal governance and finance that affect private sector engagement in urban climate resilience projects? (Rank from 1=Most Significant to 5=Least Significant):

Challenge	Rank (1=Most Significant to 5=Least Significant)
Lack of transparency in municipal budgeting and procurement	
Limited municipal capacity for project development and management	
Unclear or inconsistent regulatory frameworks	
Insufficient municipal financial resources to co-finance projects	
Other (Please Specify):	

Can you explain why you ranked [the top-ranked challenge] as the most significant

What specific types of public-private partnerships (PPPs) or innovative financing mechanisms hold the most promise for funding urban climate resilience projects in Bangladesh?

How can governance innovations (e.g., digital platforms for procurement and online permitting) improve the efficiency and transparency of PPPs for climate resilience projects?

What role can municipalities play in creating a more enabling environment for private sector investment in climate resilience?

## Section 3: Recommendations and Future Collaboration

What is your company's top recommendation for municipalities to improve their governance and attract greater private sector investment in urban climate resilience?

What one or two specific policy changes at the national level would most effectively encourage private sector participation in municipal climate resilience initiatives?

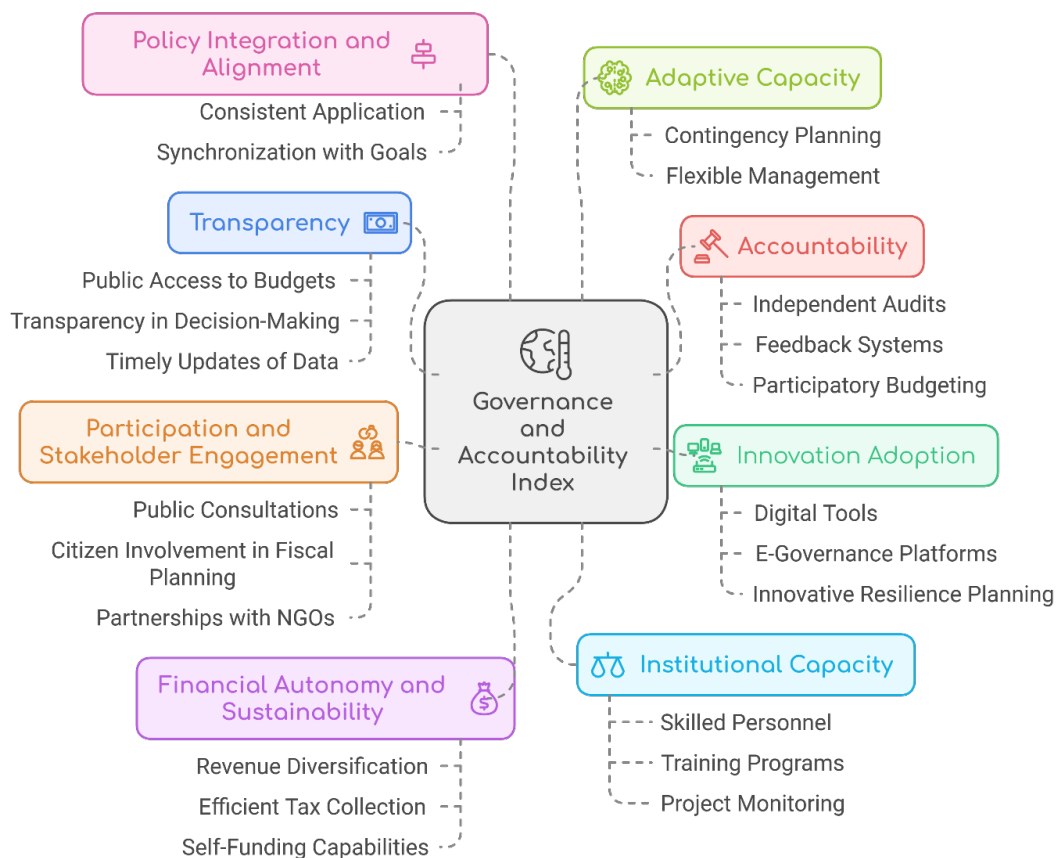
How can your company, and the private sector more broadly, best collaborate with municipalities and other stakeholders to advance urban climate resilience in Bangladesh?

What are the key things that are crucial for these initiatives to be successful?  
Thank you very much for your time.

## Annex 6: Governance Accountability Index

### Governance and Accountability Index (GAI) and User Guide

The Governance and Accountability Index (GAI) designed to serve as a comprehensive tool for municipalities in Bangladesh. The index is a key output of the research project, "Leveraging Governance Innovation for Urban Climate Resilience," and is intended to provide a standardized, yet adaptable, mechanism for local governments to self-assess their performance, track progress, and identify strategic areas for reform. GAI is structured around three core dimensions—Transparency, Participation, and Resilience Readiness—to measure the effectiveness of governance reforms and their impact on urban resilience and fiscal sustainability. Possible Core Components of the Governance and Accountability Index in the figure below.



### 1.0 Governance and Accountability Index (GAI): Core Components

The GAI is a composite index built on three foundational pillars, each with a set of specific indicators and a corresponding scoring system. The index is designed to be a diagnostic tool that provides a holistic view of a municipality's governance health,

moving beyond a simple pass/fail metric to offer a nuanced understanding of strengths and weaknesses.

### 1.1 Dimension 1: Transparency

This dimension measures the openness and clarity of a municipality's operations, particularly in its financial management and decision-making processes. Transparency is crucial for building public trust and deterring corruption, which are prerequisites for an effective local social contract.

#### Indicators:

**Budgetary Transparency:** Assesses the extent to which the municipality's budget documents are publicly disclosed and accessible. This includes the publication of annual budgets online, simplified budget summaries for the public, and clear, granular line-item breakdowns that are not obscured by large "miscellaneous" categories.

**Procurement & Financial Reporting:** Evaluates the use of digital tools for financial management. Indicators include the implementation of e-procurement systems and public-facing dashboards with real-time data on revenue and expenditure.

**Information Accessibility:** Measures the proactive disclosure of key municipal decisions, master plans, and performance reports through accessible channels, such as a municipal website or a dedicated public portal.

### 1.2 Dimension 2: Participation

This dimension measures the quality and effectiveness of mechanisms for citizen engagement and public feedback. It moves beyond the mere existence of participatory structures to assess whether they facilitate genuine, meaningful public input into governance and planning.

#### Indicators:

**Participatory Planning and Budgeting:** Assesses the implementation of formal processes for citizen engagement in budget formulation and urban planning. This goes beyond perfunctory "box-ticking" exercises and evaluates whether community input is genuinely incorporated into decision-making.

**Citizen Feedback Mechanisms:** Evaluates the presence of formal channels for public feedback and complaints, such as online hotlines or citizen report cards, and the municipality's responsiveness and follow-through on these inputs.

**Community Engagement Structures:** Measures the functionality of mandated community structures, such as ward-level coordination committees, assessing

whether they are active, well-attended, and provide a legitimate platform for dialogue between citizens and officials.

### 1.3 Dimension 3: Resilience Readiness

This dimension assesses the municipality's capacity to proactively plan, finance, and institutionalize climate-resilient development. It evaluates whether climate action is treated as a core, mainstreamed function or as a reactive, episodic activity.

#### Indicators:

**Climate Planning & Integration:** Measures the integration of climate risks into foundational planning documents. This includes the existence of a Climate Action Plan and the alignment of municipal master plans with national strategies like the Bangladesh Delta Plan 2100.[1, 1]

**Climate-Aligned Budgeting:** Assesses the use of a standardized climate budget tagging system, such as the weighted taxonomy advocated by the UNDP and the MoEFCC, to track and report climate-relevant expenditures. It measures the existence of a dedicated climate budget line or a "Local Climate Resilience Fund" to provide stable, recurrent funding.[1, 1, 1]

**Institutional Capacity:** Evaluates the municipality's human resource capacity for resilience. This includes the availability of skilled personnel for functions like urban planning, and the existence of a flexible "organogram" that can adapt to the city's unique climate vulnerabilities. [1, 1]

## 2.0 User Guide for GAI Application

The GAI is designed to be a living toolkit that municipalities can use for annual self-assessment and continuous improvement. It is a diagnostic tool, not a punitive one, intended to foster a culture of evidence-based governance.

### How to Use the GAI: A Step-by-Step Guide

#### Step 1: Data Gathering (Evidence Collection)

**Objective:** To collect all necessary evidence to score each indicator.

**Procedure:** A dedicated team within the municipality (e.g., from the Finance, Planning, and Public Relations departments) should systematically collect the following documents and information for the previous fiscal year:

**Transparency:** Annual budget reports, audit reports, records of public budget hearings, and links to any online portals or dashboards.

**Participation:** Records of ward committee meetings, minutes from public consultations, and data on the volume of citizen complaints and the municipality's response time.

**Resilience Readiness:** Any climate action plans, urban master plans, evidence of climate budget tagging, and records of technical training for staff.

## Step 2: Scoring the Index (Self-Assessment)

**Objective:** To objectively score each indicator based on the collected evidence.

**Procedure:** For each indicator, the municipality should assign a score on a simple scale of 1 to 5. The following scale provides a framework for consistent scoring:

Score	Description
1 (Emergent)	The indicator is not yet considered, or there are no formal policies or practices in place.
2 (Ad-Hoc)	The policy or practice exists, but it is inconsistent, informal, or "form over substance." For example, a budget is published, but it is not online.
3 (Functional)	The policy or practice is in place and functions consistently, but with significant limitations. For example, a digital tax system is implemented but covers only a few wards.
4 (Integrated)	The policy or practice is fully integrated into the municipality's core operations and demonstrates good results.
5 (Transformative)	The policy or practice is a leading example of best practice, consistently exceeding expectations and demonstrating a measurable, positive impact.

## Step 3: Analyzing the Results (Diagnostic Analysis)

**Objective:** To interpret the scores and identify areas for improvement.

**Procedure:** The municipality should calculate a final composite score by averaging the scores from all three dimensions. However, the true value of the index lies in the individual scores for each indicator. For example:

A low score in "Climate-Aligned Budgeting" but a high score in "Information Accessibility" suggests that while the municipality is good at communicating, it has a clear gap in its core financial planning for climate action.

A low score in "Participatory Planning and Budgeting" indicates a need to move beyond perfunctory engagement toward a more inclusive and representative model of governance.

#### **Step 4: Strategic Planning (Actionable Recommendations)**

**Objective:** To translate the diagnostic results into a clear, actionable reform agenda.

**Procedure:** The GAI should be used to inform the municipality's next strategic planning cycle. For instance, a low score in "Budgetary Transparency" can trigger a commitment to implement a public-facing online budget portal in the next year, with a clear action plan and a dedicated budget for its development. The index provides the evidence to justify these reforms and track their implementation over time.

#### **3.0 Proactive Application and Future Utility**

GAI is more than just a measurement tool; it is a strategic lever for continuous improvement. By providing a clear and consistent framework, the index empowers municipalities to:

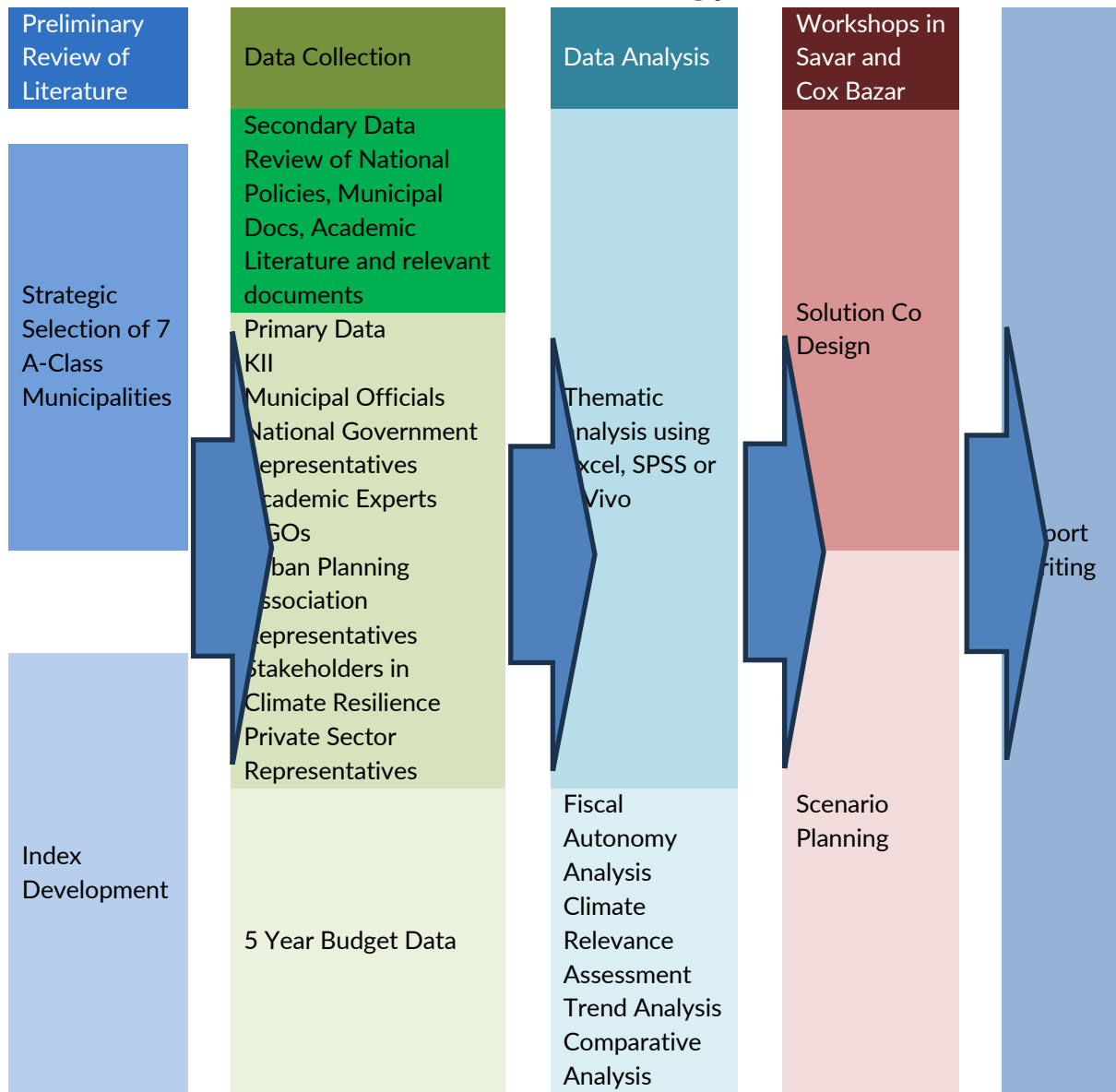
**Benchmark Performance:** Compare their progress over time, identify successful innovations, and share best practices with peer municipalities.

**Drive Innovation:** The index highlights key areas where governance innovations can have the greatest impact, providing a roadmap for strategic investment in digital tools and participatory mechanisms.

**Leverage for External Support:** High scores on the index can serve as credible, evidence-based leverage to advocate for increased fiscal autonomy or attract targeted funding from national and international partners who prioritize transparent and accountable governance.

The GAI will be designed to evolve, incorporating new metrics and best practices to address changing climate risks and policy priorities. By integrating it into routine practices, municipalities can monitor progress, identify areas for improvement, and proactively align with national and international resilience goals, ensuring they remain agile, accountable, and resilient in the face of future challenges.

## Annex 7 Flowchart of the Methodology



## Annex 8 Risk Assessment and Mitigation Strategies

Proactive identification and mitigation of potential risks are crucial for the successful completion of this research. The following Table 8 outlines key risks, their assessed likelihood and impact, and corresponding mitigation strategies.

Criteria	Risk	Likelihood	Impact	Mitigation Strategies
<b>Data Access</b>	Difficulty accessing detailed municipal budget data (past five fiscal years) due to bureaucratic processes, varying data digitization, data sensitivity, or delays in approvals. Similar challenges with accessing specific policy documents.	Medium	High	<ol style="list-style-type: none"> <li>1. Establish proactive communication with municipal finance departments and relevant ministries from project inception.</li> <li>2. Clearly articulate research objectives and benefits.</li> <li>3. Explore publicly available data sources.</li> <li>4. Utilize formal data request letters.</li> <li>5. Leverage contacts established during KIIs.</li> <li>6. If granular data is unavailable, focus on analyzing available summary data and qualitative insights.</li> </ol>
<b>Stakeholder Engagement</b>	Difficulties scheduling and securing participation from busy stakeholders for KIIs and workshops. Potential stakeholder fatigue.	Medium	Medium	<ol style="list-style-type: none"> <li>1. Develop a comprehensive stakeholder engagement plan with tailored communication strategies.</li> <li>2. Utilize multiple communication channels.</li> <li>3. Offer flexible scheduling (including virtual options).</li> <li>4. Clearly articulate the value of participation.</li> <li>5. Provide advance notice for workshops, outlining objectives and ensuring convenient timing/location.</li> <li>6. Minimize contact frequency.</li> </ol>
<b>Data Quality</b>	Incomplete or inconsistent municipal budget data. Potential biases in interview responses (social desirability, recall errors, differing interpretations).	Low	Medium	<ol style="list-style-type: none"> <li>1. Develop standardized protocols for budget data collection and entry.</li> <li>2. Implement data cleaning and verification procedures.</li> <li>3. Design KII questionnaires with clear, unbiased questions.</li> <li>4. Train interviewers on effective techniques to minimize bias.</li> <li>5. Employ data triangulation.</li> <li>6. Acknowledge potential biases in the analysis.</li> </ol>
<b>Logistical Challenges</b>	Travel restrictions/disruptions due to unforeseen events (natural disasters, political instability, public	Low	Medium	<ol style="list-style-type: none"> <li>1. Develop contingency plans for travel disruptions (alternative routes/accommodation).</li> </ol>

	health emergencies). Communication barriers (language, internet connectivity).			2. Establish local networks and partnerships. 3. Utilize local research assistants (if applicable). 4. Ensure reliable communication channels (including backups). 5. Review and adjust project timeline, if necessary, in consultation with stakeholders.
<b>Ethical Considerations</b>	Challenges ensuring informed consent. Risk of unintentional breaches of confidentiality/anonymity. Potential misinterpretation/misuse of sensitive information.	Low	High	1. Develop a detailed ethical protocol (informed consent, confidentiality, data security). 2. Obtain ethical clearances from relevant review boards. 3. Provide clear information to participants about the research. 4. Anonymize data during analysis and reporting. 5. Thoroughly train team members on ethical research practices.

## Annex 9: Bridging the Governance Gap: A Comparison of Bangladeshi Municipal Practices with International Best Practices

Challenge Area	Observed Practice in Bangladesh (from KIIs)	International Best Practices/Models (from global research)
Revenue Collection	Manual, inconsistent, and hampered by staff shortages and political interference. Low collection rates and a weak tax base. <sup>1</sup>	<b>Digitized and Automated Systems:</b> Use of e-payment platforms, GIS mapping for property tax, and electronic registers. These have increased OSR by up to 30% in some contexts. <sup>1</sup>
Budget Transparency	Budgets are "largely offline," with no public online disclosure. Public hearings are perfunctory and rushed. <sup>1</sup>	<b>Open Government Portals:</b> Public-facing dashboards providing real-time data on budgets, spending, and strategic plan progress. Live-streaming of public meetings to increase engagement and trust. <sup>1</sup>
Climate Planning & Finance	No dedicated climate budget lines. Climate action is absent from formal planning and finance. Master plans are not climate-resilient. <sup>1</sup>	<b>Climate Budgeting:</b> Systematic integration of climate targets into the annual budget cycle, with dedicated monitoring and reporting (e.g., Oslo, Norway). <sup>1</sup>
Citizen Engagement	"Form over substance." Participatory committees exist on paper but often lack genuine function, with minutes fabricated and no real community input. <sup>1</sup>	<b>Structured Participatory Mechanisms:</b> Use of online 311 software for service requests, citizen report cards, and formal participatory budgeting processes that give communities real decision-making power. <sup>1</sup>
Institutional Structure	Rigid, centrally-controlled "one-size-fits-all" staffing organogram that does not match local needs. Lack of a dedicated technical support body. <sup>1</sup>	<b>Flexible and Adaptive Governance:</b> Empowering local governments with the authority to design their own structures and build capacity, supported by strong national frameworks and technical assistance. <sup>1</sup>

## Annex 10 Results of Proactive Scenario Planning

The Proactive Scenario Planning workshops, conducted with municipal leaders and key stakeholders from Savar and Cox's Bazar, translated the quantitative findings of the fiscal analysis into forward-looking, qualitative insights. The process moved beyond diagnosing current weaknesses to stress-testing the fiscal and governance models of these diverse municipalities against a range of plausible futures. Thematic analysis of the workshop discussions, scenario narratives, and strategic action portfolios reveals three critical, interconnected themes that are central to strengthening municipal fiscal autonomy and building urban climate resilience in Bangladesh.

### Theme 1: The "Autonomy Paradox" as a Core Climate Vulnerability

A dominant theme emerging from both workshops was the acute awareness of the "Autonomy Paradox" the condition of managing large budgets while having minimal discretionary power.

**In Cox's Bazar**, leaders articulated this as being "cash-rich but power-poor." They stress-tested their fiscal model against scenarios of sudden, intense climate events (e.g., a super-cyclone devastating tourist infrastructure) that fall outside the scope of existing large-scale, donor-funded projects. In such futures, their extreme dependency on earmarked grants left them with virtually no capacity to fund an immediate, locally-led response, repair critical assets, or support affected small businesses.

**In Savar**, while the paradox is less extreme due to a stronger OSR base, leaders identified a similar vulnerability. Their reliance on project grants for major infrastructure development means that priorities are often set externally. In a scenario featuring increased industrial pollution coupled with severe urban flooding, the municipality's ability to fund integrated, cross-sectoral solutions (e.g., combining industrial waste management with new drainage infrastructure) was severely constrained by the rigid, non-fungible nature of project funds.

The consensus was clear: fiscal dependency, regardless of budget size, is a direct and significant climate vulnerability. It inhibits the agility required for adaptive management and prevents municipalities from investing in locally identified resilience priorities.

### Theme 2: The Imperative for Proactive, Diversified Local Revenue

The "Value Stress Test" exercise starkly revealed the fragility of the existing OSR models in both municipalities, leading to a strong consensus on the need for strategic diversification.

**Savar's** model, heavily reliant on its industrial base (RMG, tanneries), was tested against the future of global economic recession and shifting trade policies. Participants recognized that a downturn in these key sectors would not only reduce revenue from trade licenses but also depress property values, creating a cascading negative impact on their two primary OSR streams.

**Cox's Bazar's** OSR, linked to tourism, was tested against scenarios involving both recurring climate shocks (e.g., severe beach erosion) and public health crises. The fragility of this model became evident, as any event deterring tourism would immediately cripple the municipality's operational budget, which is almost entirely funded by OSR.

Across both workshops, a powerful narrative emerged: municipalities cannot build climate resilience on a volatile revenue base. This led to the identification of a critical strategic need to move beyond mere tax collection efficiency and actively cultivate new, diversified, and climate-resilient revenue streams, such as environmental levies, value capture financing, and fees from the informal economy.

### **Theme 3: Bridging the Governance Gap with Technology and Participation**

Discussions consistently converged on the idea that fiscal health and climate action are fundamentally governance challenges. Participants identified a significant gap between municipal administrations and the citizens they serve, which undermines trust and the willingness to pay taxes.

In both municipalities, leaders envisioned a future where technology fosters radical transparency. The concept of a **Public Financial Management Dashboard**, providing real-time data on revenue and expenditure, was identified as a "no-regret" innovation that could build accountability and create a virtuous cycle of improved citizen compliance and better service delivery.

Furthermore, the "Pathway Backcasting" exercise highlighted that achieving a desired future of climate resilience requires community ownership. The idea of establishing a **Local Climate Resilience Fund**, capitalized by a small, ring-fenced portion of OSR and allocated through a participatory budgeting process, was a key strategic action identified. This was seen as a direct mechanism to empower communities, fund hyper-local adaptation needs, and tangibly exercise the very fiscal autonomy the research seeks to strengthen.

### **Synthesized Strategic Action Portfolio**

The workshops culminated in the development of a Strategic Action Portfolio, containing robust actions applicable across all scenarios and contingent strategies for specific futures.

**"No-Regret" Foundational Actions (Applicable to all Paurashavas):**

**Digitize Revenue Systems:** Implement GIS-based property databases and digital payment gateways to maximize collection efficiency and transparency.

**Establish a Local Climate Resilience Fund:** Earmark 1-2% of annual OSR into a dedicated, ring-fenced fund for community-prioritized, small-scale adaptation projects.

**Launch a Public Financial Dashboard:** Create a public-facing online portal to display revenue and expenditure data in a simple, accessible format.

**Conduct Regular Expenditure Reviews:** Systematically review and control establishment costs to maximize the discretionary surplus available for development.

**Contingent Adaptive Strategies (Examples):**

**For Industrial Hubs (like Savar):** In a future with declining industrial exports, trigger strategies to pivot towards a service-based economy, implement "polluter pays" principles to fund environmental remediation, and leverage the skilled workforce for green technology industries.

**For Tourism/Climate-Vulnerable Hubs (like Cox's Bazar):** In a future with accelerated sea-level rise, activate plans for managed retreat of critical infrastructure, implement tourism-based environmental levies to fund coastal protection, and diversify the local economy into climate-resilient agriculture and aquaculture.

By identifying these core themes and a corresponding portfolio of actions, the scenario planning process has provided an actionable roadmap for reform. It confirms that strengthening fiscal autonomy is not merely a technical challenge of revenue mobilization, but a strategic imperative of building adaptive, transparent, and participatory governance systems capable of navigating the deep uncertainties of a changing climate.

## Annex 11 Scalable Governance Innovation Models

This report presents a set of scalable governance innovation models co-created with stakeholders during participatory workshops in the case-study municipalities of Savar and Cox's Bazar. These models are designed to address the systemic challenges identified in this research—the "governance-finance-resilience trilemma" rooted in fiscal dependency, institutional deficits, and a lack of public accountability. The models are not isolated interventions but a mutually reinforcing framework for building a virtuous cycle of increased revenue, enhanced public trust, and a greater capacity for locally driven climate action. They are presented with detailed implementation guidelines to ensure they are both actionable and adaptable to the diverse contexts of Bangladeshi municipalities.

### Model 1: The Digital-First Revenue and Transparency Hub

#### Core Concept

This model leverages digital technology as a strategic entry point for governance reform. It is designed to address the dual challenges of chronically inefficient Own-Source Revenue (OSR) collection and a profound lack of budgetary transparency, which erode public trust and fiscal autonomy by using GIS mapping tax assessment and digital payment platforms. By prioritizing digital solutions for revenue and financial reporting, this model uses a "service delivery first" approach to build public trust and generate the revenue needed for more ambitious climate initiatives.

#### Components

**Online Property and Business Tax System:** A web-based platform and mobile app for citizens to pay holding tax, trade licenses, and other municipal fees online. The system would include a public-facing GIS map of all taxable properties to ensure transparency in assessment and reduce opportunities for corruption.

**Open Budget Portal:** A public-facing online dashboard providing real-time data on municipal revenue and expenditure. It would present complex financial information in a simplified, easy-to-understand format for the public, including a breakdown of OSR performance and how funds are being spent.

**E-Procurement and Project Tracking System:** A digital platform for all municipal procurement, from a simple tender for a garbage truck to a large-scale infrastructure project. This system would be integrated with the budget portal to allow citizens to see what projects are being funded, by whom, and at what cost.

#### Implementation Guidelines

**Phase 1: Pilot and Proof of Concept (6-12 months):**

Launch a pilot digital tax collection system for a single, high-density ward. This is a targeted, manageable start that can quickly demonstrate a reduction in corruption and an increase in revenue collection efficiency.

Simultaneously, launch a simple, read-only Open Budget Portal with data from the previous fiscal year. This addresses the "perfunctory" nature of existing public disclosure and immediately begins to build a culture of transparency.

### **Phase 2: Scale and Integrate (12-24 months):**

Expand the digital tax system to all wards.

Integrate the Open Budget Portal with the tax system so citizens can see a direct link between their tax payments and municipal spending.

Begin a public awareness campaign to drive adoption of the new digital tools.

### **Phase 3: Full-Scale Modernization (24+ months):**

Implement an e-procurement system, making the tendering process transparent.

Thematic analysis of KIIs reveals that citizens feel little "ownership" over municipal finances without a clear line of sight from their tax payments to service delivery. This model is explicitly designed to rebuild that social contract.

## **Model 2: The Participatory Budgeting and Community-Led Resilience Framework**

### **Core Concept**

This model addresses the finding that existing participatory mechanisms are often "form over substance," failing to genuinely engage citizens in decision-making and leading to a misalignment between municipal projects and community needs. This framework empowers citizens, particularly vulnerable groups, to become active partners in both planning and monitoring climate resilience projects, thereby fostering accountability and ensuring that solutions are locally relevant and equitable.

### **Components**

**Local Climate Resilience Fund:** A dedicated, ring-fenced fund capitalized by a small, fixed percentage (e.g., 1-2%) of the municipality's annual OSR. This creates a predictable, locally controlled pool of capital for small-scale, high-priority adaptation projects identified through community consultation.

**Participatory Budgeting for OSR Surplus:** A formal process where citizens can directly propose and vote on how to spend a portion of the municipality's discretionary funds (i.e., the surplus from OSR). This process would be facilitated by an independent civil society partner to ensure equitable representation of all community members.

**Community-Led Project Monitoring:** Establish Community Monitoring Boards for major infrastructure projects. These boards, composed of local residents and representatives from community-based organizations (CBOs), would be empowered to track project timelines, quality, and fund utilization, reporting their findings through the Digital-First platform (Model 1).

### Implementation Guidelines

#### Phase 1: Institutionalization and Capacity Building (6-12 months):

Legally establish the Local Climate Resilience Fund through a municipal ordinance.

Provide training for municipal officials on facilitating participatory processes and for community leaders on budget literacy and project management.

#### Phase 2: Pilot and Learn (12-24 months):

Pilot the participatory budgeting process for the new Local Climate Resilience Fund in a specific ward. The process would include public meetings, community mapping exercises, and a transparent voting mechanism.

Concurrently, establish a Community Monitoring Board for a single, high-profile project to demonstrate the value of community oversight.

#### Phase 3: Scale and Mainstream (24+ months):

Expand participatory budgeting to include a larger share of the discretionary budget and all wards.

Integrate Community Monitoring Boards into the standard operating procedure for all major development projects.

This directly addresses the "governance trap" by linking a demonstrable improvement in service delivery and project quality with a corresponding increase in local tax compliance and a greater sense of public ownership over municipal finances.

### Model 3: The Integrated Institutional and Financial Planning Model

#### Core Concept

This model is designed to overcome the systemic institutional barriers and financial traps that prevent municipalities from engaging in proactive, long-term climate planning. It directly addresses the "manpower crisis," the "maintenance trap," and the "boom-bust" cycle of project-driven funding by fundamentally overhauling how municipalities staff, plan, and budget for development.

## Components

**Performance-Based Staffing Framework (Flexible Organogram):** A national-level policy reform that replaces the rigid, "one-size-fits-all" municipal staffing structure with a flexible framework. This allows each municipality to tailor its "organogram" to its specific needs and unique climate vulnerabilities, ensuring they have the technical expertise (e.g., climate planners, drainage engineers) needed for complex resilience initiatives.

**Multi-Year Capital Investment Plan (CIP) with Lifecycle Costing:** A forward-looking planning document that identifies all major infrastructure needs over a multi-year horizon. Crucially, the CIP explicitly includes a budget for the full lifecycle costs of a project, including long-term operation and maintenance (O&M), and identifies how these costs will be funded from the local OSR base.

**Integrated Climate Budget Tagging:** The institutionalization of a standardized climate budget tagging system, aligned with national frameworks, into all financial planning. This ensures that every department's budget is assessed for its climate relevance, moving climate action from a peripheral concern to a core strategic priority.

## Implementation Guidelines

### Phase 1: Technical and Institutional Reform (6-18 months):

**National Level:** National policymakers should enact the necessary legal and administrative reforms to allow for a flexible staffing framework and provide a national-level technical "municipal directorate" for support.

**Municipal Level:** Municipalities must conduct a comprehensive needs assessment to determine their ideal staffing structure and capacity requirements.

### Phase 2: Planning and Budgeting Overhaul (18-36 months):

Develop the first Multi-Year Capital Investment Plan (CIP), explicitly identifying O&M liabilities from current external projects and demonstrating a pathway to fund them through OSR.

Integrate the national climate budget tagging system into the annual budget cycle, ensuring that all departmental budgets are aligned with the municipality's climate action goals.

### Phase 3: Fiscal Discipline and Sustainability (36+ months):

The CIP and climate budget tagging become the standard for all development spending, ensuring all investments are proactive and sustainable. This model directly addresses the "maintenance trap" by making long-term O&M a required part of the

planning process and helps to escape the "boom-bust" cycle by providing a strategic roadmap that is not entirely dependent on external funding cycles.

## Annex 12 Policy Brief

### Policy Brief 1 Reforming the Fiscal and Institutional Architecture for a Climate-Resilient Urban Bangladesh

To: National Policymakers (e.g., Ministries of Local Government, Finance, Planning Commission)

#### Executive Summary

An integrated analysis of seven municipal budgets and extensive stakeholder interviews reveals a systemic crisis at the heart of urban governance in Bangladesh. Municipalities are trapped in a debilitating "**governance-finance-resilience trilemma**," where severe climate vulnerabilities are compounded by a highly centralized governance system and profound fiscal dependency. The prevailing top-down, project-centric model is failing to equip local governments with the autonomy and capacity needed to respond effectively. The findings provide conclusive evidence of a "fiscal dependency trap," a "crowding-out effect" from central grants, and a perilous "maintenance trap" that threatens the sustainability of climate-resilient infrastructure.

This brief outlines a multi-level, dual-track reform agenda that advocates for a fundamental paradigm shift: from a system of central control to one that systematically empowers local governments as the primary agents of change for a resilient urban future.

#### Key Findings

**Illusory Fiscal Autonomy:** Despite their legal mandate, municipalities operate with minimal financial independence. Officials consistently describe central government grants as "**nominal**," unpredictable, and grossly insufficient for their needs. In one case, central funds covered less than 1% of the required development investment.

**The "Crowding-Out Effect":** Econometric analysis provides statistical evidence that large inflows of project-based grants are associated with weaker local revenue mobilization efforts. This phenomenon creates a perverse incentive, diminishing the institutional will to collect politically difficult local taxes.

**Systemic Institutional Deficits:** Municipalities suffer from a severe "**manpower crisis**," rooted in a rigid, centrally dictated staffing structure, or "**organogram**," that is outdated and fails to match local needs with human resources. This structural weakness hinders the effective planning and management of complex projects.

**A Governance Paradox:** The recent transition from elected officials to appointed administrators revealed a fundamental flaw: a false choice between the technical efficiency of appointed officials and the political legitimacy of elected representatives.

This demonstrates a need for a governance model that combines both democratic accountability and professional administration.

### Actionable Recommendations

**Reform Intergovernmental Fiscal Transfers to Incentivize Local Revenue:** Overhaul the current project-based grant system, which inadvertently creates disincentives for local revenue generation. A portion of annual grants should be made performance-based, rewarding municipalities for demonstrated success in improving own-source revenue (OSR) collection and implementing transparent financial systems.

**Fundamentally Overhaul the Municipal Organogram:** Replace the rigid, "one-size-fits-all" staffing structure with a flexible framework that allows municipalities to tailor their staff size and expertise to their specific context and unique climate vulnerabilities. Establish a dedicated "municipal directorate" at the national level to provide the necessary technical support and oversight that is currently lacking.

**Legislate for Greater, Accountable Fiscal Autonomy:** Devolve greater authority to municipalities to set and adjust local tax rates within a nationally defined framework, without requiring cumbersome case-by-case central approval. This autonomy must be paired with strengthened independent audit functions and legally mandated public transparency mechanisms (e.g., online budget portals) to ensure accountability.

### Policy Brief 2: Strengthening Fiscal and Governance Capacity for Local Climate Action

**To:** Municipal Authorities (Mayors/Administrators, CEOs, Urban Planners, Finance Officers) **From:** Uswatun Mahera Khushi, Lead Researcher **Date:** August 31, 2025  
**Subject:** From Dependency to Resilience: A Strategic Roadmap for Your Municipality

#### Executive Summary

A comprehensive analysis of municipal finance in Bangladesh confirms a central challenge: a profound disconnect between national climate policy ambition and the reality of local implementation. Your municipality, like others, is caught in a "**boom-bust cycle**" of climate investment, where spending is driven by the episodic availability of external grants rather than a stable local strategy. This leads to a dangerous "**maintenance trap**," where new infrastructure is built without a plan to fund its long-term operation and maintenance. The path to a resilient future lies in strategically strengthening your municipality's financial autonomy and embracing targeted governance innovations.

This brief provides an evidence-based roadmap, detailing practical and actionable steps your municipality can take to build a more sustainable and effective system for local climate action.

## Key Findings

**Climate is a Service Delivery Problem:** Municipal officials and citizens perceive climate risks not as an abstract threat, but as a failure of core urban services. Waterlogging and poor waste management are consistently cited as the **"first and foremost"** disasters, offering a powerful entry point for strategic action.

**The "Maintenance Trap":** The current project-driven model is creating significant future liabilities. Externally funded infrastructure, while essential, risks premature decay because the local Own-Source Revenue (OSR) base is often insufficient to cover the long-term operational and maintenance costs.

**The Need for Internal Revenue:** The research demonstrates that OSR is the most reliable source for discretionary spending and long-term planning. However, OSR collection is routinely inefficient due to a lack of staff, outdated systems, and a broken social contract with citizens.

**Innovation as an Enabler:** The findings show a clear synergy: fiscal autonomy provides the **"fuel"** for change, while governance innovations provide the **"engine"** and **"steering wheel"** for its effective and transparent use.

## Actionable Recommendations

**Implement a Digital-First Revenue and Transparency Strategy:** To address the manpower crisis and build public trust, prioritize digital tools for revenue collection and public disclosure. A phased approach, starting with an online platform for tax payments and an open budget portal, will increase efficiency, reduce corruption, and demonstrate a tangible link between tax collection and service delivery.

**Establish a "Local Climate Resilience Fund":** To counter the "boom-bust" funding cycle, create a dedicated, ring-fenced fund capitalized by earmarking a small percentage (e.g., 1-2%) of your annual OSR. This will provide a predictable, locally controlled pool of capital to fund small-scale, high-priority adaptation projects identified through community consultation.

**Develop a Multi-Year Capital Investment Plan (CIP) with Lifecycle Costing:** Transition from reactive budgeting to proactive, long-term planning. Your CIP should explicitly budget for the future operation and maintenance (O&M) costs of all new infrastructure, ensuring these liabilities can be funded from your local OSR base.

**Frame Service Improvements with "Climate Lens":** Use a "service delivery first" approach to secure buy-in. Proposing a "Flood-Resilient Drainage and Integrated Waste Management Program" is more likely to succeed than an abstract "Climate

Adaptation Project" because it aligns with citizens' immediate, tangible needs, while still delivering significant.

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