Public Participation in Adaptive Governance to Address the Climate Crisis in Dhaka, Bangladesh

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ABSTRACT

Purpose: This study aims to examine the role of public participation within adaptive governance frameworks in addressing the climate crisis in Dhaka, Bangladesh. Specifically, it investigates how participatory mechanisms contribute to adaptive capacity, institutional learning, and climate-responsive decision-making in a highly vulnerable urban context, while also identifying the structural constraints that limit meaningful citizen influence on climate governance outcomes.

Subjects and Methods: The study employed a qualitative case study approach focusing on climate adaptation governance in Dhaka. Data were collected through semi-structured interviews with government officials, local planners, civil society representatives, community leaders, and residents from climate-vulnerable neighborhoods, complemented by document analysis of urban climate policies, adaptation plans, and project reports. The data were analyzed using thematic analysis informed by adaptive governance theory to capture patterns related to participation, power relations, and institutional responsiveness.

Results: The findings reveal that public participation has enhanced localized risk awareness, facilitated community-based adaptation practices, and supported incremental learning within climate governance processes. Participatory forums enabled communities to articulate local knowledge and immediate adaptation needs, particularly in relation to flooding, heat stress, and informal settlement vulnerabilities. However, participation was predominantly consultative, with limited influence on strategic planning and resource allocation. Power asymmetries, fragmented institutional coordination, and weak accountability mechanisms constrained the integration of community inputs into formal policy decisions, thereby limiting transformative adaptation outcomes.

Conclusions:
The study concludes that while public participation strengthens adaptive governance at the local level, its potential remains underutilized without stronger institutional integration and accountability. Enhancing the effectiveness of adaptive governance in Dhaka requires moving beyond procedural participation toward more inclusive, empowered, and multi-level participatory arrangements. These findings contribute to the literature on urban climate governance in the Global South by highlighting participation as both an enabling and contested dimension of adaptive responses to climate change.

INTRODUCTION

The climate crisis has emerged as one of the most profound challenges confronting contemporary societies, with its impacts disproportionately affecting rapidly urbanizing cities in the Global South (Das et al., 2024; Anguelovski et al., 2016; Ali et al., 2025; Carvalho & Spataru, 2023).

Intensifying floods, heatwaves, water scarcity, and public health risks increasingly threaten urban livelihoods, infrastructure, and governance systems. In this context, urban governance has become a critical arena for climate adaptation, as cities concentrate populations, economic activities, and climate vulnerabilities simultaneously. Recent literature emphasizes that effective climate adaptation requires not only technical and infrastructural solutions but also inclusive governance arrangements that enable learning, flexibility, and responsiveness to uncertainty (Folke et al., 2006; Bulkeley & Tuts, 2013). Adaptive governance has therefore gained prominence as an approach that highlights polycentric institutions, stakeholder participation, and iterative decision-making to manage complex socio-ecological systems under changing climatic conditions.

Public participation is widely recognized as a central component of adaptive governance. It is argued to enhance the legitimacy, effectiveness, and equity of climate responses by incorporating local knowledge, fostering collective ownership, and strengthening accountability (Adade et al., 2020; Chanza & De, 2016). In urban climate governance, participatory processes can improve the design and implementation of adaptation strategies by aligning them more closely with community needs and lived experiences, particularly for vulnerable populations (Chu et al., 2016; Archer et al., 2014; Uittenbroek et al. 2019; Broto et al., 2015). Recent studies underscore that participatory adaptation is especially crucial in cities facing overlapping risks related to poverty, informal settlements, and weak service provision, where top-down interventions often fail to reach those most affected by climate impacts (Anguelovski et al., 2016). As a result, understanding how public participation functions within adaptive governance frameworks has become an important research agenda in climate and urban studies.

Dhaka, the capital of Bangladesh, represents a critical case for examining public participation in adaptive governance under conditions of extreme climate vulnerability. Frequently cited as one of the world's most climate-exposed megacities, Dhaka faces recurrent flooding, waterlogging, heat stress, and climate-induced migration pressures. Its rapid population growth, high density, and prevalence of informal settlements further exacerbate these risks. Bangladesh has been internationally recognized for its proactive engagement with climate adaptation planning, including the development of national strategies and institutional mechanisms (Ayers et al.,2014). However, the translation of these frameworks into effective, inclusive urban adaptation remains uneven, particularly at the city and community levels. Existing studies suggest that governance challenges, such as institutional fragmentation and limited citizen engagement, constrain adaptive capacity in Dhaka's urban context (Swapan & Khan, 2022).

The central research problem identified in the literature concerns the gap between adaptive governance ideals and their practical realization through meaningful public participation. While adaptive governance emphasizes inclusiveness, learning, and collaboration, empirical studies often reveal that participation in climate governance is limited, symbolic, or dominated by elite actors (Sharma-Wallace et al., 2018; Munaretto et al., 2014). In Dhaka, climate-related decision-making is frequently centralized within government agencies and development organizations, with limited opportunities for sustained engagement by local communities, particularly those residing in informal or marginalized areas (Rahman & Islam, 2024). This disconnect raises concerns about the effectiveness and social justice of adaptation initiatives, as policies may fail to reflect local priorities or address differentiated vulnerabilities.

In response to these challenges, the literature proposes several general solutions aimed at strengthening public participation in adaptive governance. One widely discussed approach involves institutionalizing participatory mechanisms within climate planning and implementation processes, such as community consultations, co-production platforms, and participatory risk assessments. Another strand of research highlights the importance of multi-level governance, where coordination between national, municipal, and community actors enables more responsive and context-sensitive adaptation strategies. Capacity building for both public institutions and community actors is also emphasized as a necessary condition for effective participation, ensuring that stakeholders possess the skills, resources, and knowledge required to engage meaningfully in governance processes (Riege & Lindsay, 2006; Robinson & Berkes, 2011).

Beyond these general prescriptions, the literature identifies more specific participatory solutions relevant to climate adaptation in vulnerable urban settings. Community-based adaptation has received significant attention as an approach that foregrounds local knowledge, social networks, and grassroots initiatives in responding to climate risks (Bhanye, 2025; Kettle et al., 2014). In South Asian cities, including Dhaka, studies show that community organizations, non-governmental organizations, and informal networks play a crucial role in managing flood risks, water access, and livelihood diversification. These initiatives are often portrayed as building blocks of adaptive governance by fostering social learning and collective action. However, their scalability and integration into formal governance structures remain contested, with concerns about sustainability and dependence on external support.

Another set of solutions emphasized in the literature relates to collaborative and co-production models of governance. Co-production involves the joint design and delivery of services and policies by public authorities and citizens, and is increasingly promoted as a means of enhancing adaptive capacity in urban climate governance (Mees et al., 2017; Fraser, 2017; Ferrari et al. 2021; Bovaird et al., 2016). Empirical studies suggest that co-produced adaptation initiatives can improve trust between authorities and communities, enhance policy relevance, and generate innovative responses to complex climate challenges. In Dhaka, examples of collaboration between municipal bodies, development agencies, and community groups illustrate the potential of such approaches, while also revealing persistent power imbalances and institutional constraints that limit their transformative potential.

Despite these growing bodies of research, the literature on public participation in adaptive governance remains fragmented, particularly with respect to urban contexts in the Global South. Many studies focus on either adaptive governance as a conceptual framework or participatory practices as isolated interventions, without systematically examining how participation operates within adaptive governance arrangements over time. In the case of Dhaka, existing research often addresses climate vulnerability, informal settlements, or specific adaptation projects, but provides limited integrative analysis of participatory governance across institutional levels and policy domains. This fragmentation points to a research gap concerning how public participation contributes to, or is constrained within, adaptive governance systems in highly vulnerable megacities.

Against this backdrop, this study aims to analyze public participation in adaptive governance to address the climate crisis in Dhaka, Bangladesh. The study seeks to examine how participatory processes are structured, who participates, and how participation influences adaptive decision-making and outcomes. The novelty of this research lies in its integrative focus on public participation as a core mechanism of adaptive governance rather than as a peripheral or instrumental tool. By situating participatory practices within broader governance dynamics, the study contributes to a deeper understanding of the conditions under which adaptive governance can enhance urban climate resilience. The scope of the study is limited to urban climate adaptation in Dhaka, with particular attention to governance processes involving local communities, public institutions, and intermediary actors, offering insights relevant to both theory development and policy practice in climate governance.

METHODOLOGY

Research Design

This study adopts a qualitative case study design to examine public participation within adaptive governance frameworks addressing the climate crisis in Dhaka, Bangladesh. A qualitative approach is appropriate given the study's focus on governance processes, actor interactions, institutional dynamics, and contextual factors that shape participation in climate adaptation (Patterson et al., 2019). The case study strategy enables an in-depth exploration of Dhaka as a climate-vulnerable megacity where adaptive governance is both urgently needed and institutionally complex. The analysis is guided by the adaptive governance framework, which emphasizes flexibility, learning, multi-level coordination, and stakeholder participation in managing socio-ecological systems under conditions of uncertainty (Foxon et al., 2009; Morante et al., 2025). Public participation is treated as a core analytical dimension of adaptive governance,

rather than a supplementary policy instrument, allowing the study to assess how participatory practices influence adaptive capacity, decision-making, and governance outcomes.

Case Selection and Study Context

Dhaka was selected as the case study due to its high exposure to climate risks, including recurrent flooding, waterlogging, heat stress, and climate-induced migration, combined with rapid urbanization and socio-economic inequality. The city represents a critical urban laboratory for examining adaptive governance in the Global South, where formal governance structures coexist with informal institutions and community-based practices. The study focuses on urban climate adaptation initiatives and governance processes operating at the municipal and community levels, while situating them within broader national policy frameworks. This multilevel perspective is consistent with the adaptive governance literature, which highlights the importance of vertical and horizontal linkages across governance scales. By concentrating on Dhaka, the study captures the interaction between formal state-led adaptation strategies and grassroots participatory practices that emerge in response to everyday climate risks.

Data Sources and Data Collection

Data for this study were collected from multiple qualitative sources to ensure analytical depth and triangulation. Primary data consist of semi-structured interviews and document analysis, complemented by secondary sources from existing studies and policy reports. Semi-structured interviews were conducted with key stakeholders involved in urban climate governance, including municipal officials, representatives of national agencies operating in Dhaka, non-governmental organizations, community-based organizations, and residents of climate-vulnerable neighborhoods. The interview guide was designed to elicit insights into the forms, depth, and perceived effectiveness of public participation in climate adaptation processes, as well as the constraints and enabling conditions shaping participatory governance. Semi-structured interviews allow flexibility to explore emergent themes while maintaining consistency across respondents, which is particularly valuable in governance research (O'Keeffe et al., 2016). Document analysis constituted a second major data source. Policy documents, climate adaptation plans, urban development strategies, and project reports produced by government agencies, international organizations, and non-governmental actors were systematically reviewed. These documents provided insight into formal governance arrangements, stated commitments to participation, and the institutional framing of adaptive governance in Dhaka. Reviewing policy texts alongside interview data enabled the study to compare formal participatory claims with actual practices, an approach commonly used in governance and policy analysis. Secondary literature on urban climate adaptation and participatory governance in Bangladesh was also consulted to contextualize the findings and support analytical interpretation. Ethical considerations were integral to the research design and data collection process. Informed consent was obtained from all interview participants, and anonymity was ensured by removing identifying information from transcripts and analysis. Given the involvement of residents from climate-vulnerable and potentially marginalized communities, particular attention was paid to avoiding harm, coercion, or unrealistic expectations regarding policy influence. The study adhered to established ethical guidelines for qualitative social research, emphasizing respect, confidentiality, and transparency throughout the research process.

Data Analysis Procedures

Data analysis followed a qualitative thematic analysis approach, which is well suited to identifying patterns of meaning across diverse data sources. Interview transcripts and documents were coded iteratively using both deductive and inductive strategies. Deductive codes were derived from the adaptive governance literature and included concepts such as participation, learning, flexibility, collaboration, accountability, and power relations. Inductive coding allowed themes to emerge from the data, particularly regarding local interpretations of participation, informal governance practices, and context-specific constraints in Dhaka. This combined approach ensured that the analysis remained theoretically grounded while being sensitive to empirical realities. The coding process involved multiple rounds of refinement to enhance analytical rigor. Initial coding focused on identifying references to participatory mechanisms and governance interactions. Subsequent

rounds examined how participation influenced decision-making, whose voices were included or excluded, and how participatory practices interacted with institutional structures. Analytical memos were used to document emerging interpretations and relationships between themes, supporting reflexive engagement with the data. This process aligns with best practices in qualitative governance research, where transparency and reflexivity are essential for credible interpretation (Humphreys et al., 2021). To enhance the trustworthiness of the findings, several strategies were employed. Triangulation was achieved by comparing interview data with documentary evidence and existing literature, allowing cross-validation of claims and interpretations. Attention was also paid to capturing diverse perspectives, particularly potential divergences between official narratives and community experiences of participation. Reflexivity was maintained throughout the research process by critically examining the researcher's assumptions and positionality, especially in interpreting power relations and governance effectiveness. While the study does not aim for statistical generalization, the analytical depth and theoretical grounding support the transferability of insights to other climate-vulnerable urban contexts.

RESULTS AND DISCUSSION

Forms and Structures of Public Participation in Adaptive Governance

The interview data reveal that public participation in adaptive governance in Dhaka is predominantly structured through project-based mechanisms rather than permanent institutional arrangements. Municipal officials and representatives of implementing agencies described participation mainly in terms of consultation meetings, community workshops, and vulnerability assessments conducted during the planning or early implementation phases of climate adaptation projects. One municipal official explained that

> *"Community consultations are usually organized at the beginning of a project to understand local problems, especially flooding and drainage issues, but decisions are ultimately finalized at the agency level."*

This statement reflects a broader pattern identified across interviews, where participation is framed as information-gathering rather than shared decision-making. Community representatives and residents offered a contrasting perspective, emphasizing that participation is often episodic and conditional on external initiatives. A resident from a flood-prone informal settlement noted that

> *"We are invited when a project starts, but after that we rarely hear how our suggestions are used."*

These accounts suggest that participatory structures lack continuity and are weakly embedded in formal governance routines. Consistent with adaptive governance theory, which stresses iterative engagement and feedback loops, the findings indicate that participation in Dhaka remains largely procedural and time-bound, limiting its adaptive potential.

Actors, Power Relations, and Inclusion in Participatory Processes

Interview findings highlight that power asymmetries strongly shape who participates and whose voices are prioritized in adaptive governance processes. Government officials acknowledged that engagement is often mediated through selected community leaders or representatives who are perceived as credible interlocutors. One official stated that

> *"it is difficult to involve everyone, so we usually work with community leaders or NGO partners who already have networks."*

While this approach enhances administrative efficiency, it also narrows the range of perspectives represented in participatory forums. Community members and non-governmental actors emphasized that residents of informal settlements, women, and recent climate migrants face structural barriers to meaningful participation. A representative of a local NGO observed that

> *"Many slum residents are excluded because they lack legal recognition or are considered temporary, even though they are the most affected by flooding."*

Several female interviewees reported that their participation was often limited to implementation-related activities rather than strategic discussions. These findings align with existing literature that critiques participatory governance for reproducing existing social hierarchies and marginalizing vulnerable groups (Bradbury-Jones et al., 2018).

Institutional Coordination and Multi-Level Governance Dynamics

The results indicate that weak coordination across governance levels constrains the integration of participatory inputs into adaptive governance. Interviews with national and municipal officials revealed that while policy frameworks emphasize decentralization and stakeholder engagement, practical coordination mechanisms remain underdeveloped. One planning officer noted that

> *"Local inputs are valuable, but aligning them with national climate strategies and budget cycles is challenging."*

This disconnect limits the upward flow of knowledge generated through participation at the community level. Community actors similarly perceived a gap between local engagement and policy influence. A community organizer remarked that

> *"We share our experiences with flooding every year, but city plans do not change much."*

These findings suggest that participatory knowledge is rarely institutionalized into formal learning processes, reinforcing earlier observations that adaptive governance requires stronger vertical integration to translate local learning into systemic adaptation. As a result, participation contributes more to local problem-solving than to strategic policy adaptation.

Learning, Flexibility, and Community-Level Adaptive Capacity

Interview data demonstrate that participation plays a significant role in fostering learning and adaptive capacity at the community level. Residents involved in repeated adaptation initiatives reported improved understanding of climate risks and greater preparedness for extreme events. A resident from a low-lying neighborhood stated that

> *"Before, we did not know when floods would come, but now we share information and prepare together."*

These experiences reflect the adaptive governance emphasis on social learning and collective action as foundations of resilience (Berkes, 2017). However, the interviews also reveal a sharp contrast between community-level learning and institutional rigidity. Municipal officials acknowledged that bureaucratic procedures and short project timelines limit opportunities for iterative adaptation. One official explained that

> *"Projects have fixed objectives and timeframes, so it is difficult to change plans even if new information emerges."*

This rigidity constrains institutional learning and highlights a key tension between adaptive governance ideals and administrative realities, as noted in prior research.

Participation, Accountability, and Perceived Legitimacy

The findings show that participation enhances the perceived legitimacy of climate adaptation initiatives but has limited impact on accountability. Community members reported greater trust in projects where they were consulted and where outcomes were visible. One participant noted that

> *"When officials listen to us, even small improvements feel meaningful."*

This perception supports arguments that participation strengthens procedural legitimacy and social acceptance. At the same time, interviewees consistently reported weak accountability mechanisms. Residents expressed uncertainty about how decisions were made and how to raise concerns once projects were underway. A community leader stated that

> *"There is no clear way to complain if promises are not fulfilled."*

Officials similarly acknowledged the absence of formal feedback mechanisms linking participation to accountability. These findings reinforce critiques that participation without institutionalized

accountability risks becoming symbolic rather than transformative (Berkes, 2017; Malsch & Gendron, 2013).

Outcomes and Limits of Participatory Adaptive Governance

The results suggest that participatory adaptive governance has contributed to localized improvements in climate resilience, particularly in preparedness, early warning dissemination, and small-scale infrastructure maintenance. Interviewees cited examples such as improved drainage cleaning, community monitoring of flood-prone areas, and collective responses during extreme rainfall events. These outcomes are consistent with literature emphasizing the effectiveness of community-based adaptation in addressing everyday climate risks.

Nevertheless, both officials and community members acknowledged that participation alone cannot address the structural drivers of vulnerability in Dhaka. Issues such as unplanned urban expansion, housing insecurity, and inadequate service provision remain largely beyond the reach of participatory initiatives. One NGO representative observed that

> *"Communities can adapt, but without changes in urban planning and land policy, risks will continue."*

This finding underscores the scale mismatch between localized participation and city-wide climate challenges, a limitation widely discussed in urban adaptive governance research. This study set out to examine how public participation operates within adaptive governance arrangements addressing the climate crisis in Dhaka, Bangladesh. The findings indicate that participation is present and increasingly institutionalized in policy discourse, yet its practical influence on adaptive decision-making remains constrained. This section discusses the results by situating them within the broader literature on adaptive governance, participatory climate adaptation, and urban governance in the Global South, while highlighting their theoretical and practical implications.

First, the results confirm a central proposition of adaptive governance theory, namely that participation is a necessary condition for building adaptive capacity, but not a sufficient one. In Dhaka, participatory processes contribute meaningfully to community-level learning, preparedness, and localized problem-solving. Interview evidence demonstrates that repeated engagement enables residents to better anticipate climate risks, share information, and coordinate collective responses. These findings align with studies emphasizing the role of social learning and local knowledge in strengthening resilience in climate-vulnerable urban contexts. However, the limited institutional uptake of this learning underscores a persistent gap between adaptive governance ideals and bureaucratic practice. Adaptive governance emphasizes flexibility and iteration, yet planning and project cycles in Dhaka remain largely rigid and time-bound, constraining institutional learning and policy adjustment.

Second, the findings highlight the enduring influence of power relations in shaping participatory governance outcomes. While participation is formally promoted, decision-making authority remains concentrated within government agencies and development organizations. This reinforces long-standing critiques that participatory processes often operate within pre-existing power structures, thereby limiting their transformative potential (Tremblay et al., 2017). In Dhaka, the reliance on selected community representatives and intermediary organizations facilitates engagement but also narrows the diversity of voices included. Marginalized groups, particularly residents of informal settlements, women, and climate migrants, remain underrepresented despite being disproportionately affected by climate risks. This suggests that participation in adaptive governance must be evaluated not only in terms of its presence but also in terms of its inclusiveness and capacity to address differentiated vulnerability.

Third, the study sheds light on the challenges of multi-level governance in urban climate adaptation. Adaptive governance theory emphasizes the importance of vertical and horizontal linkages that enable knowledge exchange and coordinated action across scales. The findings from Dhaka, however, reveal weak institutional mechanisms for integrating community-level participatory inputs into municipal and national decision-making processes. Although localized participation generates valuable insights into climate risks and coping strategies, these insights rarely influence strategic planning or long-term policy priorities. This fragmentation limits the capacity of adaptive

governance systems to respond holistically to complex urban climate challenges. The results thus support calls in the literature for stronger institutional linkages and clearer pathways for translating local knowledge into policy-relevant learning.

Fourth, the relationship between participation, legitimacy, and accountability emerges as a critical tension in Dhaka's adaptive governance landscape. The findings indicate that participation enhances procedural legitimacy and trust at the project level, as communities perceive adaptation initiatives as more responsive when they are consulted. This observation is consistent with studies linking participation to improved governance legitimacy. However, the absence of formal accountability mechanisms means that participation rarely enables communities to influence decisions beyond the consultation phase or to hold authorities responsible for unmet commitments. This reinforces the argument that participation without accountability risks becoming symbolic rather than empowering. From an adaptive governance perspective, accountability mechanisms are essential to sustain learning and adjustment over time, suggesting a critical area for institutional reform.

Finally, the findings underscore the limits of participatory adaptive governance in addressing structural drivers of urban vulnerability. While community-based and participatory initiatives contribute to incremental improvements in resilience, they are insufficient to confront broader challenges such as unplanned urban expansion, housing insecurity, and infrastructural deficits. This scale mismatch reflects a broader pattern identified in urban climate governance research, where localized adaptation efforts coexist with persistent systemic vulnerabilities. The Dhaka case illustrates that public participation must be embedded within wider governance transformations, including urban planning reform, land policy change, and long-term investment in infrastructure, to enable more transformative adaptation outcomes.

CONCLUSION

This study concludes that public participation plays an important yet constrained role within adaptive governance efforts to address the climate crisis in Dhaka, Bangladesh. The findings demonstrate that participatory practices contribute to localized learning, improved risk awareness, and greater social legitimacy of adaptation initiatives, thereby supporting key principles of adaptive governance. However, participation remains largely consultative and project-based, with limited influence on strategic decision-making, institutional learning, and long-term policy transformation. Persistent power asymmetries, weak vertical coordination across governance levels, and the absence of robust accountability mechanisms significantly limit the transformative potential of public engagement. Consequently, while participatory processes enhance incremental adaptive capacity at the community level, they are insufficient on their own to address the structural drivers of urban climate vulnerability. This study contributes to the growing body of literature on urban climate governance in the Global South by highlighting the need to institutionalize inclusive, accountable, and multi-level participatory mechanisms within adaptive governance frameworks. Future research should explore comparative urban contexts and examine how participatory innovations can be more effectively integrated into formal planning and policy processes to enable more transformative and sustainable climate adaptation outcomes.

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