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Climate Governance and Local Sustainable Development: Institutional Capacity and Policy Implementation in Bangladesh

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Abstract

Climate change is a serious problem associated with sustainable development, especially in vulnerable developing countries like Bangladesh. The study investigates the institutional capacity in strengthening local climate governance and local sustainable development, while looking into the condition of the implementation of climate policy. The study is conducted using the qualitative institutional case study approach and has involved 30 key informant interviews, six focus group discussions and documentary analysis with local government officials, government officials, development practitioners, climate experts and community stakeholders. Deductive and inductive themes were used in the analysis of the data. Administrative, technical, financial and coordination capacities are shown to be important influences on the effectiveness of local climate governance. Though Bangladesh has extensive national level climate policy frameworks, the gaps between policy commitments and local implementation are large, stemming from limited resources, technical capacity, inter-institutional coordination and community involvement. The results also indicate that good climate governance plays a role in building community resilience, in safeguarding livelihoods and in enhancing sustainable development, which is dependent on institutional capacity and effectiveness in implementing climate governance. The study underscores the importance of building institutional capacities for long-term, enhancing access to climate finance, strengthening multi-level collaboration, decentralizing and involving the communities in a meaningful way to build sustainable and locally rooted climate governance in Bangladesh.

Keywords: Climate governance, Institutional capacity, Policy implementation, and Sustainable development.

1. Introduction

Climate change is one of the greatest challenges that impacts ecological systems, economic development and social stability, especially in the vulnerable developing countries. The Solutions to climate change are not only technological and financial, but also

include effective governance mechanisms which can coordinate work on adaptation, mitigation and sustainable development at various administrative levels. There has been a growing trend in climate governance from a centralized government to a multi-level governance framework, whereby national, regional and local governance body's work together to develop and execute climate responses. In this context, local governments are particularly important as climate change effects vary from one place to another and the strategies needed to adapt to those effects (Bulkeley & Betsill, 2005; Ostrom, 2010; Essa, 2023).

Local climate governance is defined as the institutional structures and processes that enable local governments to make decisions, distribute resources, mobilize stakeholders and take action on the ground on climate issues within their jurisdiction. Effective local governance is needed as local institutions play an important role in disaster management, infrastructure development, provision of public services and support for adaptation where local communities are most affected by climate risks. Local climate governance, however, relies greatly on institutional capacities, which encompass administrative capacity, technical capacity, financial resources, institutional autonomy, and inter-institutional and inter-actor coordination (Agrawal, 2008; Gupta, 2010). The literature suggests that the institutions should be able to evaluate the risks of climate change, mobilize resources, coordinate stakeholders and integrate issues of climate change into broader development planning (Biesbroek *et al.*, 2018). Institutional capacity influences the ability of the local governments to transcend the policy adoption stage to implementing the policy in practice and achieving tangible benefits. In many developing countries, however, local institutions are constrained in number of resources at their disposal, such as human resources, financial autonomy, technical knowledge, and administrative responsibilities. The challenges that exist between policy commitments and implementation at the local level are not being closed (Moser & Ekstrom, 2010).

Bangladesh is an important case to study local climate governance as it is one of the most vulnerable countries to climate change consequences. Its geographical attributes low elevation, coastline, and the reliance on climate-sensitive livelihoods make millions of people vulnerable to cyclones, flooding, river erosion, salinity intrusion and sea-level rise. Bangladesh has a relative strong National Climate Policy framework such as the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), Climate Change Trust Fund and the National Adaptation Plan. These efforts are a clear sign of the country's dedication to sustainable development and climate resilience. The success of these policies dependent on the ability of local government institutions to implement adaptation strategies and incorporate climate issues into local development planning. The research on climate governance in Bangladesh suggest that the national and sectoral policies have been incorporating climate change gradually and challenges are still present at the sub-national levels such as institutional coordination, capacity development, access to climate finance and implementation mechanisms. The study by Fatemi *et al.* (2020) revealed that although there is a growing trend in mainstreaming climate change at the local level, it is still hindered by poor institutional arrangements and capacity building, which needs to be strengthened through sub-national climate governance systems.

In Bangladesh, local government institutions such as Union Parishads, Upazila Parishads, municipalities and city corporations are expected to promote adaptation and resilience to climate change. However, these institutions are often constrained by a number of factors, including the lack of financial means, reliance on central government agencies, lack of technical competence and decision-making power. These constraints hinder their ability to effectively adapt national climate policies to local adaptations. Moreover, the institutional capacity is not the only issue in climate governance challenges, but also the effectiveness of the policy implementation process. One of the more common obstacles in policy implementation is when the policy goals are not well supported by institutional arrangements, resources, and administration. Although climate policies offer strategic guidance for adaptation and building resilience in Bangladesh, there is a mismatch between the policy making and implementation at the local

level. Governance outcomes remain affected by weak coordination between government agencies, lack of stakeholder engagement, and the absence of climate considerations in local development planning.

Good climate governance helps to reduce poverty, enhance livelihood security, build resilient infrastructure and help realize Sustainable Development Goals (SDGs). Improving the institutional capacity of the local level is not only important for mitigating climate vulnerability, but for sustainable development outcomes as well. The strengthening of institutions, effective implementation of policies, and participatory decision-making are essential components of a governance model that can help local communities cope better with growing climate hazards.

Existing literature has played a major role in the understanding of the climate vulnerability of Bangladesh, adaptation measures and the country's climate policy; however few empirical studies have focused on institutional capacity, climate policy implementation and sustainable development outcomes at the local government level. Previous research has largely concentrated on the climate impacts or community level adaptations, while comparatively little research has investigated whether local government institutions can have the organizational, administrative and collaborative capacity to effectively operationalize the climate policies.

This study aims to fill the gap of this research by evaluating the institutional capacity and policy implementation in enhancing climate governance and sustainable development at the local level in Bangladesh. This research aims to understand the institutional-capacity–climate-policy-implementation–development nexus to derive governance challenges and potential avenues for enhancing local climate resilience. The study seeks to evaluate the institutional capacity and policy implementation for enhancing local level climate governance and sustainable development in Bangladesh. Specifically,

- To assess the institutional capacity of local government institutions for effective climate governance.
- To examine the effectiveness of climate policy implementation at the local level in Bangladesh.
- To examine the relationship between institutional capacity and climate policy implementation.
- To assess the effect of climate governance and policy implementation on sustainable development outcomes at the local level.

This research will inform and enhance academic and policy debates about climate governance by delivering evidence about the impact of institutional factors on local climate action. The findings will feed into policy design for effective governance, policy implementation mechanism and sustainable climate adaptation planning by the policy makers, local government and development organizations in Bangladesh.

2. Review of Literature

The concept of climate governance and multi-level governance should be conceptualized. The climate governance has shifted from a state-centered approach to a multi-actor, multi-level and multi-institutional governance process. The traditional way of thinking on environmental governance has been about the role of national governments as the key actors in the process of developing and executing environmental governance policies. However, the complexity and uncertainty of climate change has exposed the need for coordination between international organizations, national governments, regional governments, local governments, private organizations and organizations of civil society to implement climate action effectively (Bulkeley & Betsill, 2005; Jordan *et al.*, 2015). As a result, the contemporary climate governance has come to be seen as a multi-level and polycentric process, in which authority, responsibility and decision-making are spread over different institutional levels. The idea of multi-level governance suggests that the decisions on climate change are not decided at the national level but are negotiated across multiple administrative levels. The concept of governance systems has come to include overtly interdependent jurisdictions, involving multiple actors in the process of making and implementing policy (Hooghe and Marks 2003). In the context of climate change, this is an expectation that

local authorities are not only recipients of climate change policies, but also key actors in climate change governance that can create locally suitable adaptation and mitigation measures. Ostrom, (2010) also emphasizes the relevance of polycentric governance arrangements which can improve climate responses through experimentation and learning and adaptation on the local level. Multi-level governance is especially relevant for developing countries where climate vulnerabilities might occur at the local level but climate policies are established at national level. Therefore, the requirements for effective climate governance are the need for mechanisms that link the national policy level with local implementation capacities. Biesbroek *et al.* (2018) point out that adaptation governance requires institutional processes that facilitate coordination, information exchange and resource pooling between levels of government. Climate governance in Bangladesh is a multi-level system, with national ministries, climate-specific institutions, local government bodies, development actors and community actors involved. The country has made a good national effort on establishing a number of climate policy frameworks such as the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and the National Adaptation Plan. The climate governance at sub-national level is found to be weak with limited institutional arrangements, co-ordination and capacity, although climate change mainstreaming has strengthened in national and sectoral planning, according to Fatemi *et al.* (2020). Therefore, the literature on climate governance implies that it is not only policies that have to be comprehensive but also institutional systems that are able to coordinate actors and to implement strategies at multiple levels. This emphasizes the need to share a perspective on institutional capacity as a key determinant of the performance of local climate governance.

Institutional Capacity and Local Climate Governance

The strength of the institutional capacity is seen as a key component in effective climate governance as policies are implemented in the structures of the institution. While the definition of institutional capacity varies from discipline to discipline, the basic definition is that it is the capacity of the institution to carry out its assigned responsibilities, to mobilize its resources and to coordinate its stakeholders, to effectively achieve its policy objectives. Within the field of climate governance research, institutional capacity is defined as administrative capacity, technical expertise, financial resources, knowledge systems, leadership and collaborative networks (Moser & Ekstrom, 2010; Gupta *et al.*, 2010). The value of institutional capacity is most clearly seen in the area of adaptation as context-specific information is needed, ongoing learning is required, and coordination is necessary among a range of actors for adaptation decisions. Adaptation involves institutions adapting to climate risks that are uncertain and specific to the place, whereas mitigation policies are generally associated with measurable emission reductions. As a result, local institutions need to have the ability to conduct a vulnerability assessment, to develop interventions accordingly, to manage resources and to involve affected communities (Agrawal, 2008). Administrative capacity is the ability of institutions to plan, manage and implement policies effectively. Technical capacity refers to the availability of scientific knowledge, technical staff and information systems that are required for taking climate decisions. Financial capacity is defined as the ability of institutions to have a sufficient capacity to implement climate programs, and as coordination capacity is defined as the ability of an institution to work together with other government agencies, non-governmental organizations and communities (Moser & Ekstrom, 2010). In many developing countries, however, there are enormous institutional capacity gaps which hinder good climate governance. Local governments often do not have enough competent staff, need more financial ownership, have low institutional coordination, and rely on central government agencies. The challenges are causing implementation gaps between the national climate commitments and the local adaptation outcomes. Experiences in local governance in developing countries show that decentralization is not sufficient to ensure successful climate action if local institutions are not provided with sufficient authority, resources and technical capacities. Local government institutions provide a range of climate related services in Bangladesh but have limited resources, administrative

restrictions and coordination mechanisms that inhibit their implementation of climate policies. Fatemi et al. (2020) showed that while the national climate integration is strong, sub-national climate main-streaming is weaker than the national level due to issues with institutional arrangements, capacity building, and coordination amongst agencies. The research of climate finance governance in Bangladesh shows that local government institutions are involved in climate-related projects but limited institutional capacity, project management skills, and access to climate financing mechanisms affect the effectiveness of local government institutions. Hence, it is argued that for better local climate governance, institutional capacity building is critical, as indicated in the existing literature. But there is still a need to conduct more empirical study on the effect of various aspects of institutional capacity on climate policy implement-ation and sustainable development outcomes in Bangladesh's local government system.

Climate Policy Implementation and Governance Challenges

Effective climate governance requires "good policy" and "good institutions" in terms of their ability to effectively implement the policies. Policy implement-ation is the process of converting the formal policy goals into administration, programs, and measurable results. The situation of implementing climate policies in climate governance is especially demanding due to the multi-sectoral nature of policy, the long-term time horizon of climate change, the unpredictability of future climate conditions and the fact that climate policies have to be shaped by the interactions between various actors. Thus, at the institutional level, good coordination, sufficient resources, clearly defined responsibilities, and efficient monitoring and evaluation systems are keys to its success (Pressman & Wildavsky, 1984; Moser and Ekstrom, 2010). Implementing climate policy is particularly difficult in developing countries, where institutional constraints may lead to disconnect between national and local action. While many developing countries have adopted far-reaching policies and instruments on climate change adaptation there are still challenges in their implementation, such as capacity constraints at the administrative level, the lack of financial resources, poor technical knowledge and weak governance systems (Biesbroek *et al.,* 2018). They suggest that having climate policies is not enough to have effective climate action – it is about institutional arrangements and implementation capacities to achieve policy goals. A key difficulty in the implementation of climate policies is the multi-level governance coordination. The sectors involved in the agriculture, water, disaster, infrastructure and public health have to work together for the integrated responses to the climate change. But institutional fragmentation can also lead to overlap-ping responsibilities, unclear mandates and weak cooperation among government agencies. The concept of multi-level governance suggests that vertical co-ordination – between national and local govern-ments – and horizontal coordination – within different sectors and with other stakeholders – are both essential to the successful implementation of climate action (Hooghe and Marks, 2003; Jordan *et al.,* 2015). Butterfly management is plagued by another serious problem, which is the availability and distribution of resources. While local governments have a key role in implementing climate adaptation activities, they may not have adequate financial mandates or access to climate finance mechanisms. This results in a lack of local autonomy in decision-making, as it depends upon the central government institutions and external development partners. Financial and administrative resources are considered key elements of governance capacity as they influence whether or not climate programs are effectively planned, implemented and maintained within institutions (Gupta *et al.*, 2010).

Bangladesh has established several important climate policy frameworks, such as the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and the National Adaptation Plan, which reflects high level of commitment at the national level towards climate resilience. But these policies still need to be translated into effective local action, which is difficult given institutional capacity constraints and lack of co-ordination. Fatemi *et al.* (2020) conducted a study on multi-level governance of climate change in Bangladesh and concluded that the mainstreaming of climate change has progressed much more at the national and sectoral levels than at the sub-national level which is hampered by inadequate institutional

structures, capacity building, and inter-agency coordination. Likewise, Rahman *et al.* (2020) noted that state institutions, development cooperation mechanisms and bureaucratic systems interact to affect the implementation of climate adaptation policies in Bangladesh. Their results suggest that while Bangladesh has made strong policy commitments, the outcomes of implementation are influenced by institutional practices; institutional capacity, and the capacity of actors engaged in climate governance but technical knowledge, planning capacity, finance, and institutional authority are all constraints on the potential for implementation of climate policies. Fatemi *et al.* (2020) highlighted the need for better institutional coordination, professional development, and institutional pathways for accessing climate finance to build sub-national climate capacity. The results indicate that beyond development of policies, there is a need to enhance institutional systems that ensures the implementation of better climate governance. Climate adaptation should not be considered a stand-alone environmental problem rather as part of broader sustainable development planning.

The application of climate mainstreaming in research shows that there is a scope for strengthening the integration at the national level but there is not as much at the local level owing to capacity limitations and institutional weaknesses (Fatemi *et al.,* 2020). Thus, existing literature shows that institutional, administrative, financial and coordination factors have an impact on implementation of climate policy. Previous research has focused mainly on policy frameworks and adaptation challenges in Bangladesh but there is a dearth of studies on the systematic assessment of the role of institutional capacity in the effectiveness of climate policy implementation and its role in achieving the sustainable development goals at the local level. This restriction will serve as the basis for further study on the link between institutional capacity and policy implementation and local climate governance performance.

3. Methodology

The qualitative institutional case study method was used to examine the institutional capacity and its effect on climate governance, policy implementation and sustainable development at the local level in Bangladesh. A qualitative case study design was used to allow a detailed examination of institutional processes, governance structures, and policy implementation in the actual context of the institutions (Yin, 2018). Climate governance entails the interaction of a variety of actors like administrative bodies, political systems, and local socio-environmental contexts, and developing a practical understanding of the translation of climate policies requires a context sensitive approach that can capture the experience of the institutions involved and the governance processes (Creswell & Poth, 2018). Three complementary theories provided the conceptual framework for the study: Institutional Capacity Theory, Multi-Level Governance Theory and Policy Implementation Theory. The analysis of climate governance effectiveness was informed by institutional capacity theory, which addresses the issue of organizational capabilities, administrative resources and institutional constraints (Gupta *et al.,* 2010; Moser & Ekstrom, 2010). Multi-Level Governance Theory (MLGT) offered an analytical framework to analyze the interactions and coordination of the various levels of governance actors who participate in climate decision-making (Hooghe & Marks, 2003; Ostrom, 2010). The study of policy implementation theory was found to be valuable for the investigation of the gap between the formulation and the outcomes of policy implementation (Pressman and Wildavsky, 1984; Tamanna, 2024).

The study was carried out in a climate-sensitive developing country (Bangladesh) where the role of local institutions is crucial in the implementation of climate adaptation and building resilience. Bangladesh had made significant commitments in policy making in the context of climate resilience, such as the National Climate Change Strategy and Action Plan (BCCSAP) and the National Adaptation Plan (NAP). Nevertheless, the success of these policies is dependent on the ability of local actors to be able to make national to local action more appropriate. The local government institutions are the closest unit to the community where climate policies can engage community needs, priorities, and adaptation responses, it was chosen as the unit of analysis. The study locations were purposefully selected to meet three criteria:

vulnerability to climate related risks, participation in climate adaptation interventions and active role of local institutions in the process of climate governance. The rationale of using a case selection method was to explore institutional mechanisms and governance issues in contexts where the implementation of climate policy is especially relevant.

Multiple qualitative data sources were used in the study comprising key informant interviews (KIIs), focus group discussions (FGDs) and document analysis. Different qualitative data sources allowed for methodological triangulation and enhanced the trustworthiness of the results as institutional and community views were used in conjunction with evidence from formal policies (Denzin, 1978). The data was gathered using semi-structured interviews with local actors and stakeholders directly engaged in climate governance and policy implementation. The reason why semi-structured interviews were chosen was to allow flexibility to explore participants experiences whilst allowing for consistency across each interview (Kallio *et al.,* 2016). The interviews addressed institutional responsibilities, administrative and technical capacity, resources available, co-ordination mechanisms, obstacles in implementing climate change policies, and potential avenues to enhance local climate governance. The discussions in focus groups were used to gather community level views on the effectiveness of climate governance and adaptation results. FGDs allowed for the exploration of the lived experiences of local communities regarding the climate policies and governance practices whereas KIIs were able to give insights into institutional processes and administrative perspectives. The talks explored the involvement of communities in the decision-making process on climate issues, the availability of climate-related services, the citizens' perception of the responsiveness of local governments, the disconnect between political will to act and implementation and the role that climate actions play in building community resilience. FGD were regarded as useful since they were a platform for participants to exchange their collective experiences, recognize shared difficulties, and exchange differing views on governance processes (Krueger & Casey, 2015). Apart from the primary qualitative data, some relevant documents were reviewed to understand formal institutional and policy aspects of climate governance in Bangladesh. The national climate policies, adaptation strategies, government reports, local development plans, institutional guidelines and academic papers were included in the document analysis. The focus was on documenting the relationship between formal policy commitments and practical implementation experiences, in order to gain more contextual understanding of the processes of local climate governance.

Participants were selected via purposive sampling, a widely utilized qualitative sampling method in which participants are sampled because they possess knowledge, experience, and/or relevance to the research questions (Patton, 2015). The study involved representatives from three key stakeholder groups: local government representatives, government and development actors, and community stakeholders. Representatives from local governments shared their experiences on institutional capacity, administrative processes and governance responsibilities; government representatives, practitioners and officials shared their experiences on policy delivery, coordinating amongst institutions and managing climate programs and community members shared their experiences on service accessibility, participation and governance outcomes. Thirty key informant interviews (KIIs) and six focus group discussions (FGDs) were held.

The KII participants comprised four climate policy/ expertise and adaptation professionals, six NGO and development practitioners, eight government officials working on development and climate programs, and 12 local government representatives. The total number of community participants for the six FGDs was about 40 to 48, and the number of participants in each FGD was 6 to 8. The sample size was decided by the data saturation principle, which suggested that further data collection did not yield any significant new data or analytical themes. Saturation is accepted as an acceptable criterion for determining adequacy in qualitative research because the goal of qualitative sampling is to gain in depth and rich information, and not in terms of statistical representativeness (Guest *et al.,* 2006).

The qualitative data obtained from the collected data were analyzed using thematic analysis as per the steps propounded by Braun and Clarke, (2006). Thematic analysis was chosen as these enabled patterns of meaning within the qualitative data sets to be identified, organized and interpreted systematically and flexibly. The analysis started with multiple reading of the transcripts of interview/ FGDs to get familiar with the data and then initial coding of relevant information. Codes were then grouped together to form broader themes that were related to the study objectives and theoretical framework. Analysis was both deductive and inductive. The coding process was a mixture of deductive coding based on the theoretical framework of institutional capacity, multi-level governance and policy implementation as well as inductive coding to identify the other themes that arose from participants' experiences. The final analysis centered on the themes identified to do with institutional capacity challenges, administrative and financial restrictions, and coordination between governance actors, policy implementation gaps, community participation and strategies to support the strengthening of local climate governance. Research Quality and Trustworthiness. Methodological triangulation was employed to ensure the quality and credibility of the research findings by combining data from KIIs, FGDs and documentary sources. To enhance the quality of qualitative research, triangulation is used to compare several pieces of evidence and lessen the reliance on a single source of evidence (Denzin, 1978). Other steps that were taken involved keeping a systematic coding process, documenting analytical decisions, and consistency between research goals, theory, and themes. Incorporating institutional and community-level data has deepened and strengthened the results as it has included aspects of governance processes and local experiences of implementing climate policies.

4. Results

Characteristics of Study Participants

Qualitative data was gathered from different institutional actors and community stakeholders in the climate governance local adaptation processes. Thirty (30) key informant interviews (KIIs) and six (6) focus group discussions (FGDs) were held. All KII participants were representatives of local government institutions, government agencies, non-governmental organizations, development practitioners and climate policy experts. The FGDs engaged local stakeholders and members of the community directly affected by the climate change to gather community-level experiences on climate governance, climate change-related adaptation interventions, and institutional performance. The variety of participants allowed researchers to explore the issue of climate governance from many angles, from institutional capacity to processes of policy implementation, from coordination to community-level results. The study participants' characteristics are summarized in **Table 1**.

Table 1: Characteristics of Study Participants.

Data source	Participant category	Number of participants	Purpose of inclusion
Key Informant Interviews (KIIs)	Local government representatives	12	Institutional capacity, administrative processes, local governance practices
KIIs	Government officials involved in climate/development programs	8	Policy implementation, coordination, institutional arrangements
KIIs	NGO and development practitioners	6	Adaptation programs, implementation challenges, stakeholder coordination
KIIs	Climate policy and adaptation experts	4	Policy perspectives and governance mechanisms
Focus Group Discussions (FGDs)	Climate-affected community members	24–32	Community experiences, adaptation outcomes, service accessibility
FGDs	Local leaders and livelihood-dependent groups	12-16	Local participation and governance challenges
Total		Approximately 70–78 participants	

Institutional Capacity and Local Climate Governance

This section outlines institutional capacity and local climate governance. Institutional capacity and local climate governance are outlined in this section. The results indicated that institutional capacity was a key factor in the effectiveness of local climate governance. Four key dimensions that affect the institutional performance were identified from analysis of the KIIs and FGDs: administrative capacity, technical capacity, financial capacity and coordination capacity. Participants recognized the growing role of the local government institutions in adaptation planning and implementation. But these duties have grown at a faster rate than institutions' capacities. The lack of technical skills, staffing and information to manage climate activities were common concerns in local governance. One of the main difficulties encountered was technical capacity. Local institutions frequently lack climate-specific expertise for climate risk assessment, adaptation planning and monitoring of the outcomes of interventions, several participants noted. This constraint makes their capacity to develop locally-appropriate adaptation options more limited. A lack of financing was another common institutional challenge identified. While local institutions need to carry out the activities relating to climate change, participants noted that they were reliant on external funding mechanisms, and that they had limited financial flexibility. This reliance can hinder rapid action on new climate challenges. The results also showed that the coordination capability has a strong impact on institutional effectiveness. Low-level communication between central government agencies, local government, NGOs and communities presents challenges in achieving policy objectives, local priorities. Overall, the findings show that institutional capacity needs to be improved for better local climate governance performance.

Climate Policy Implementation and Governance

Processes Bangladesh has developed in-depth climate policy frameworks, but implementation effectiveness is highly variable at the local level, according to the analysis. Document analysis confirmed strong national policy commitments, and interviews showed difficulties related to making policy commitments into action. One consistent theme was disconnecting between policy development and implementation. While an importance of national climate policies was acknowledged, government officials emphasized the need for adequate resources, administrative support, and coordination among institutions for implementation. Local institutions are frequently more of a policy implementer than a policy contributor, participants reported. This means that adaptation interventions can sometimes be determined by national priorities or external project requirements, rather than a local need identified. Another issue mentioned by community members was the lack of engagement with climate decision making processes. While communities are being directly impacted by climate risks, there is a tendency to limit their involvement in the project implementation, and not in the policy design and planning phase. The results suggest that the institutional integration needs to be strengthened, as well as the decentralization and the active involvement of local communities in effective climate governance.

Multi-Level Governance and Coordination Challenges

The results revealed multi-level coordination challenges as a key constraint for implementation of climate policy. Bangladesh's climate governance consists of a set of relationships between the national ministries, local government institutions, NGOs and community groups. But the participants said that these relationships are frequently either poorly coordinated or have a split responsibility. Institutional actors identified issues related to access to timely technical guidance and effective communication with the higher-level institutions. National institutions give policies direction, but local actors often have problems of transposition of policies to the specific local context. The NGO representatives also pointed out that programmes of adaptation to climate change are undertaken as isolated projects without sufficient institutionalization. This project-driven approach may lead to duplication of activities and to less opportunity for longer-term institutional strengthening. Community members highlighted the need for better mechanisms for engaging communities to ensure their knowledge and experiences are taken into account in climate planning.

Climate Governance Outcomes and Sustainable Development Implications

The findings revealed that climate governance has a positive effect on sustainable development, through its impacts on community resilience, livelihood protection and capacity to adapt. But the effects of these outcomes were greatly dependent on the effectiveness of institutions and the quality of policy implementation. Well-coordinated adaptation interventions helped to enhance disaster preparedness, livelihood protection, and access to climate-related support, participants said. Such benefits were, however, differential as a result of the institutional capacity and resource availability. The study found that climate governance strategies that only deal with project implementation in the short term tend to have short-term impacts only. It was agreed that the integration of climate adaptation into other local development planning processes is needed. Results indicate that the effectiveness of climate policies to deliver sustainable development outcomes is not only climate policy but also institutional mechanisms tasked with delivering sustainable development.

Thematic Analysis of Institutional Challenges and Governance Pathways

The thematic analysis generated five major themes and associated sub-themes. These themes represent the core factors influencing climate governance effectiveness at the local level (**Table 2**).

Table 2: Major Themes and Sub-themes Identified Through Thematic Analysis.

Main theme	Sub-themes	Key interpretation
Institutional capacity limitations	Limited technical expertise; inadequate staffing; weak planning capacity	Local institutions have responsibilities exceeding available capabilities
Financial and resource constraints	Limited local funding; dependence on external projects; delayed resource allocation	Resource limitations reduce institutional responsiveness
Multi-level governance challenges	Weak coordination; fragmented responsibilities; limited information sharing	Poor coordination affects policy implementation effectiveness
Policy implementation gaps	Difference between policy objectives and local practices; limited monitoring	National policies require stronger implementation mechanisms
Community participation and inclusion	Limited involvement in decision-making; underutilization of local knowledge	Inclusive governance improves adaptation effectiveness
Institutional strengthening pathways	Capacity development; decentralization; improved coordination	Stronger institutions support sustainable climate governance

The qualitative evidence shows that the overall effectiveness of local climate governance is driven by institutional capacity. Although Bangladesh has robust policy frameworks in place, the implementation outcomes are significantly affected by the capacity of local institutions in terms of coordination and mobilization of the resources and engagement of communities. Build institutional capacity, enhance multi-level coordination, and engage communities, therefore, are crucial avenues to sustainable climate governance.

5. Discussion

The present study investigated the local perspective of the effect of institutional capacity on climate governance, policy implementation and sustainable development in Bangladesh. The results show that despite the existence of a detailed climate policy framework in Bangladesh, the efficiency of climate governance heavily relies on the ability of local institutions to turn policy commitments into action. The findings showed that implementation challenges are not only linked to policy design but also entrenched in institutional capabilities, the institutional governance process and the interaction between state institutions and local communities.

The research has highlighted the importance of institutionalism, funding, coordination and sub-national actors' capacity to execute climate actions for adaptation effectiveness.

Institutional Capacity as a Foundation of Effective Climate Governance

The results showed that limited institutional capacity is one of the significant challenges for local climate governance in Bangladesh. Local governments are increasingly responsible not only to build resilience and adapt to climate change but also have limited administrative, technical and financial capacity to effectively do so. The finding is associated with the Institutional Capacity theory that suggests that good governance depends not only on formal institutional mandates but also sufficient resources, knowledge, organizational forms and decision-making abilities (Gupta *et al.*, 2010; Moser & Ekstrom, 2010). The findings highlighted especially the need for technical capacity such as ccess to climate information, vulnerability assessment, adaptation design and assessment of intervention outcomes are often challenging for local institutions. The same issues were found in Bangladesh where the sub-national climate action has been hindered due to limited institutional capacities, poor coordination and weak capacity building mechanisms. The results indicated that in order to enhance local climate governance, attention must be paid to institutional learning, technical training and building knowledge-sharing platforms as well as to the continuous process of investment. Beyond that, the findings show that responsibilities have increased more quickly than capacities at the institutional level. This is part of the overall problem in climate governance where there is a tendency to pass the responsibility for implementing policies to local actors without giving them the same degrees of autonomy and capacity as higher levels of government. Efficient decentralization, therefore, not only means the sharing of responsibilities, but also the strengthening of local institutions to carry out these responsibilities.

Policy Implementation Gaps Between National Commitments and Local Practices

One important finding of this research is the disconnect between national climate policy aspirations and local climate implementation realities. While Bangladesh has formulated climate strategies at the international level such as the Bangladesh Climate Change Strategy and Action Plan and National Adaptation Plan, the implementation of these strategies at the local level is difficult. This result corroborates Policy Implementation theory which suggests that the success of a policy relies on the institutional arrangements, administrative routines, the availability of resources and the coordination between the actors involved in its implementation (Pressman & Wildavsky, 1984). This study shows that having policy on the books is not enough to effectively achieve adaptation outcomes. However, implementtation relies on the capacity, authority and resources of local institutions to implement policy goals. Bureaucratic structures, institutional fragmentation, and policy objectives to adaptation measures are other challenges identified with implementation in previous Bangladesh research. Rahman *et al.* (2020) pointed out that policy implementation in climate adaptation in Bangladesh is impacted by policy-bureaucratic practices, institutional structures, and management of climate finance. Similarly, a study on climate mainstreaming in Bangladesh revealed that although climate considerations are now more widely included in national planning, the implementation at sub-national level is hindered by institutional coordination and capacity gaps. The results accordingly point to the need to foster a more conducive implementation environment for better climate governance, in addition to creating more policy frameworks.

Multi-Level Governance Challenges and Coordination Constraints

The research revealed poor coordination among governance actors as a key challenge in implementing the climate policy. Multiple actors are involved in climate governance in Bangladesh such as, national ministries, local government institutions, NGOs, development agencies, and communities. The results suggested that relations between these actors remain often disconnected and hinder the effectiveness of adaptation action. The results are consistent with Multi-Level Governance Theory that asserts that environmental governance is more dependent on multi-level coordination than on a single-level approach of central decision-making (Hooghe & Marks, 2003; Ostrom, 2010). Climate change adaptation is a challenge of integration at various governance levels as climate risks exist at a local level

and many policy and financial mechanisms are national. Results of the study corroborate the past study which found that there is a need for improved institutional coordination and cooperation among agencies to mainstream climate change in sub-national levels in Bangladesh. This leads to duplication of efforts, inefficient allocation of resources and weak incorporation of local knowledge in decision-making.

Thus there is a need to enhance vertical and horizontal coordination mechanisms to improve climate governance. Policy alignment can be strengthened through vertical coordination between national and local institutions, and collaborative planning and the reduction of duplication of activities can be achieved through horizontal coordination among the local actors.

Community Participation and the Local Dimension of Climate Governance

The results highlighted the need to continue to engage communities in the governance of climate change but in a more effective way. Yet local communities are at the frontlines of climate risky situations, but they are not well involved in climate planning and decision-making processes. Communities are typically involved in adaptation projects mostly as their targets or beneficiaries, but not as active participants of the adaptation governance process. The finding reinforces the adaptive governance approach that highlights the need for adaptation to involve people, learn, cooperate, and integrate local knowledge into decisions (Folke *et al.*, 2005).

The local communities have experience of climate risks, livelihood changes, adaptation strategies, and their value cannot be ignored if they are not included in planning processes, as this diminishes the relevance and sustainability of interventions. The recent works on Bangladesh also highlight partici-patory methods as important tools to support adaptive capacity and enhance climate responsive decision making. The results of this research also indicate that meaningful participation is more than just consultation; it is also about institutional arrangements that enable communities to participate in the planning, implementation and monitoring processes.

Institutional Capacity, Climate Governance, and Sustainable Development Outcomes

The study shows how the effectiveness of climate governance affects sustainable development outcomes. Increased institutional capacity allows local stakeholders to create more context-specific adaptation solutions, co-ordinate resources efficiently and enhance community resilience. Weaknesses in institutional capacity hinder the generation of long-term adaptation benefits by governance systems. This study fits into the wider picture of the fact that climate adaptation is a technical and institutional challenge. Sustainable development outcomes rely on the capacity of institutions to incorporate climate considerations into development planning, to manage resources, and to adapt to changing environmental conditions.

The findings further underscore the need to shift from project to integrated governance app-roaches. While short-term interventions can mitigate immediate vulnerabilities, institutional development, ongoing learning, and embedding climate adaptation into broader development is needed for long-term resilience.

Theoretical Contributions

This study makes three important contributions to the field of climate governance.

First, it supports the Institutional Capacity theory by showing that the effectiveness of the institution is reliant on the cross-cutting of administrative capacity, technical knowledge, financial resources, and co-ordination mechanisms.

Second, it demonstrates that in Bangladesh, the outcome of climate governance is a product of inter-play of national policy structures, local institutional structures, and community actors.

Third, it supports the theory of Policy Implementation by highlighting that there are implementation gaps when the policy aspirations are greater than the institutional capacity and coordination.

These results combine to demonstrate that for climate governance to be effective, the goals of policies, the institutional capacities and resources, and the implementation at the local level needs to match.

Policy Implications

The findings help policy implications in respect of the enhancement of climate governance in Bangladesh. First, there is a need for long-term capacity building initiatives for local government institutions on climate knowledge, technical skills, and adaptation planning capacities. Second, the climate finance mechanisms need to be more accessible and flexible for local institutions to address context-specific challenges.

Third, there is a need for better coordination between national agencies, local governments, NGO and communities for policy coherence and effectiveness of implementation. Last but not least, adaptation approaches to climate governance need to be more participatory, taking communities as active actors instead of passive recipients of adaptation interventions. Building institutional capacity and establishing inclusive governance institutions will be critical to ensuring resilient and sustainable development in climate-sensitive areas.

6. Conclusion

The study applied an institutional case study approach to explore the role of institutional capacity in climate governance, climate policy implementation and sustainable development at the local level in Bangladesh. The study based on key informant interviews, focus group discussions and document analysis, showed that effective climate governance requires documents (climate policies) as well as institutional conditions that allow these policies to be implemented. The results indicated that the local government institutions are a key part of the translation between the national level commitments to climate change and locally relevant adaptation actions. But they are only effective if they have some technical skills, have limited financial means, have limited administrative capacity and have limited coordination between governance actors. This is a gap between national climate policy goals and implementation at the local level.

The study also emphasizes that the climate governance process is multi-level, and needs to be better coordinated at the national level between different agencies, local institutions, non-govern-mental organisations and communities. The initiation of key climate policy framework development in Bangladesh, however, has not been matched by the need for more institutional support, increased local governance capacity, and community-informed governance processes for sustainable adaptation outcomes. This study can be regarded as a theoretical addition to the literature on climate governance because it reveals the multi-layered link between institutional capacity, multi-level governance arrangements and policy implementation processes and how they affect adaptation outcomes. The results help confirm that climate adaptation is also an institutional and governance barrier to overcome that needs effective organizations, collaborative mechanisms and inclusive decision-making processes to be addressed. Policy-wise, capacity building of institutional capacities, more access to climate finance, strengthening of coordination between climate governance actors, and increased involvement of climate affected comunities in planning and implementation is needed to strengthen local climate governance. To ensure climate resilience and sustainable development in Bangladesh in the long-term, shift from project-based adaptation to integrated and locally embedded governance approaches will be essential. This study offers important insights into the local climate governance process, yet further research could build on this by studying institutional performance in other geographical regions, exploring changes over time, and investigating the impact of political economy on climate governance outcomes. This will enhance the knowledge and experience of how developing countries can develop effective and inclusive governance systems to address climate change.

7. Author Contributions

M.R.R.A.: Conceptualization, methodology, investi-gation, data collection, formal analysis, interpretation of findings, and writing-original draft. B.C.S.: Investigation, data collection, literature review, data organization, and writing-review and editing. S.S.: Literature review, data analysis, interpretation of findings, and writing-review and editing. S.M.M.A.F.: Methodology, investigation, data collection, and writing-review and editing. M.A.A.R.: Data curation, literature review, investigation, and writing-review and editing. N.U.: Data collection, investigation,

documentation, and writing-review and editing. A.M.F.: Data validation, literature review, interpretation, and writing-review and editing. All authors contributed to the development of the manuscript, reviewed the final version, and approved it for submission.

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9. Conflicts of Interest

The authors declare that there are no conflicts of interest that could have influenced the research, analysis, or findings presented in this study.

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