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POLICY BRIEF

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Climate Governance Through a Justice Lens in Bangladesh

(Closing the policy and practice gap on locally led adaptation, reflecting on the G4CR Project)

- Adiba Bintey Kamal, Rukhsar Sultana, Nafia Saddaf, Bushra Anjum

Key Highlights:

- *Canal restoration should be recognized as a Nature-based Solution (NbS) when it restores ecosystem functions such as drainage, freshwater circulation, biodiversity, and habitat, and meets core NbS quality criteria.*
- *The eight principles of Locally Led Adaptation (LLA) provide a practical delivery framework for making NbS more equitable through devolved decision-making, inclusion, accountability, and more predictable finance.*
- *Evidence from the G4CR initiatives in Munshiganj Union, Shyamnagar Upazila, shows that canal excavation and restoration, when combined with justice-oriented governance, can restore access to public commons, increase agricultural productivity, and reduce elite capture of freshwater resources.*
- *To scale adaptation in coastal hotspots, canals must be governed as climate-resilience commons rather than primarily as leased or revenue-generating water bodies.*

1. Introduction

Bangladesh is ranked as the seventh most vulnerable country in the global vulnerability index (David et al., 2021), but the country is also widely recognized for its strong commitment to climate adaptation, supported by national plans, strategies, and increased investment in resilience. Yet the impacts of climate change in coastal communities are compounding. Waterlogging, tidal flooding, and salinity intrusion are continually threatening agriculture, freshwater access, and livelihood stability, highlighting a persistent gap between policy ambition and lived outcomes.

Before the G4CR initiative, canal management in the coastal regions of Shyamnagar was characterized by widespread mismanagement, illegal encroachment, and a restrictive leasing system that marginalized local communities. Freshwater canals, which are essential for crops, livestock, and fish production, were often

Powerful individuals frequently secured leases or constructed illegal structures. These governance failures, coupled with state neglect of legal disputes, left smallholders and women in a perpetual freshwater crisis. Without reliable water, multi-season farming was considered impossible, leaving vast agricultural tracts barren for most of the year.

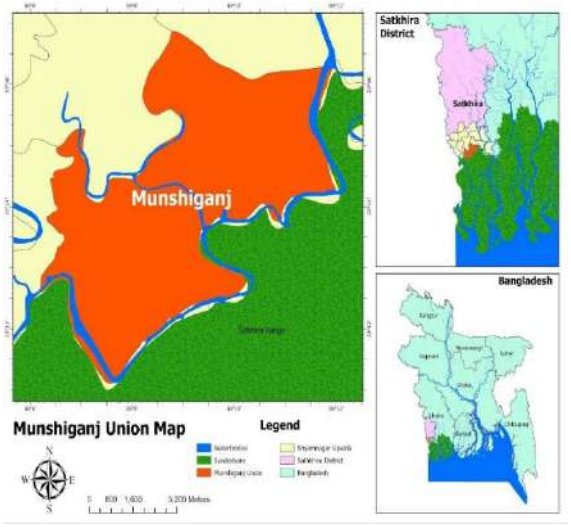

Figure 1: Munshiganj Union Map
(Map Design: Sakib Rahman Siddique Shuvo)

David, E., Marie-Lena, H., & Maik, W. (2021). Global Climate Risk Index 2021: Who suffers most from extreme weather events? Weather-related loss events in 2019 and 2000–2019. Germanwatch.

Munshiganj Union, in Shyamnagar Upazila, Satkhira district, is widely recognised as one of the most climate-vulnerable hotspots in Bangladesh. Historically, the coastal landscape functioned as a “commons,” with tidal flows managed by natural canal networks known as “khals”. These served as a circulatory system providing systemic drainage for rice production, freshwater buffers against salinity, and support for fisheries and aquatic species (Nishat et al.). Over time, rising sea level and salinity intrusion, along with leasing, encroachment, and siltation, have transformed these water bodies into contested assets.

Canal restoration in coastal Bangladesh is not constrained only by a lack of policy recognition. It underperforms because governance systems fail to protect canals as public commons, ensure equitable access, and sustain long-term management.

1.1 Governance for Climate Resilience (G4CR) Initiative

The Governance for Climate Resilience (G4CR) project began in 2017, implemented by the Centre for Natural Resource Studies (CNRS) with financial support from the Climate Justice Resilience Fund (CJRF), in coalition with the Centre for Climate Justice (CCJ)- Bangladesh and the International Centre for Climate Change and Development (ICCCAD). The initiative took a multifaceted approach, focusing on the Munshiganj Union community, especially smallholder farmers, to access canal water and enhance their resilience (focusing on climate-resilient farming). CNRS also collaborated with a local youth organization, CEDIO, to ensure effective water governance and equitable resource management at the local level.

The project aimed to address the interconnected challenges of climate change adaptation, governance, and social justice by strengthening community capacities, building trust among stakeholders, and engaging local government authorities. A key focus was to support communities in claiming their legal rights and ensuring that natural resources are governed equitably. Therefore, this policy brief argues that NbS in coastal Bangladesh cannot be treated as a technical or ecological intervention alone. Canal restoration, wetland conservation, and freshwater management are closely linked to governance, enforcement, and responsibility for the public commons. The policy brief also highlights that if a canal is excavated but remains under elite control and is effectively inaccessible to frontline communities, then adaptation has failed. Through this analysis, it has been identified that climate governance and justice lens is therefore essential to close the policy and practice gap on NbS and LLA.

1.2 NbS and LLA in Practice: Insights from G4CR

In Bangladesh's coastal climate hotspots, the G4CR initiative demonstrated how NbS and LLA can support one another. LLA offers the "delivery architecture" that guarantees these solutions are inclusive and equitable, while NbS offers the ecological mechanism for resilience. According to Bangladesh's NbS evidence base, well-designed NbS interventions can generate livelihoods, reduce poverty, increase biodiversity, and lower climate risks. However, these results are highly dependent on enabling conditions like participation, transparent governance, secure tenure and finance, and systemic monitoring (Smith et al., 2021). The Bangladesh National LLA framework, which emphasizes devolved decision-making, inclusion, and accountability across local institutions and communities, also revolves around these requirements (MoEFCC, 2025).

[1.] Nishat, B., Rahman, A. Z., & Mahmud, S. (n.d.). Landscape Narrative of the Sundarban: Towards collaborative management by Bangladesh and India (First draft). World Bank. https://documents1.worldbank.org/curated/en/539771546853079693/pdf/Sundarban-Joint-Landscape-Narrative.pdf

A. Governance of Contested Commons

In the southwest coastal belt, freshwater and drainage systems are not neutral infrastructure; they are contested commonly shaped by power relations, access control, and enforcement capacity. This is why canal restoration as NbS cannot succeed if treated as engineering alone (KII respondent 1). Without governance safeguards, restored ecosystem services can be re-captured, excluding the most climate-exposed groups. (Smith et al., 2021). The G4CR's initiative was rooted in collective action, with community members serving as frontline advocates for their rights. CNRS facilitated this process by strengthening community capacities, building trust among stakeholders, and engaging relevant local government authorities to support the communities in claiming justice and equitable access to resources. Through this initiative, CNRS has re-excavated 5 canals in Kultoli village (Goi canal, Shahider Khal, etc.) in the Munshiganj Union, and court cases were initiated as part of the governance process. Some cases are still pending, and some have been completed. This access has played a pivotal role in improving household food security and sustaining local livelihoods. However, implementing this initiative proved challenging, as efforts to revoke canal leases and address privatization were deeply embedded in political dynamics, posing potential threats and pressures for affected communities.

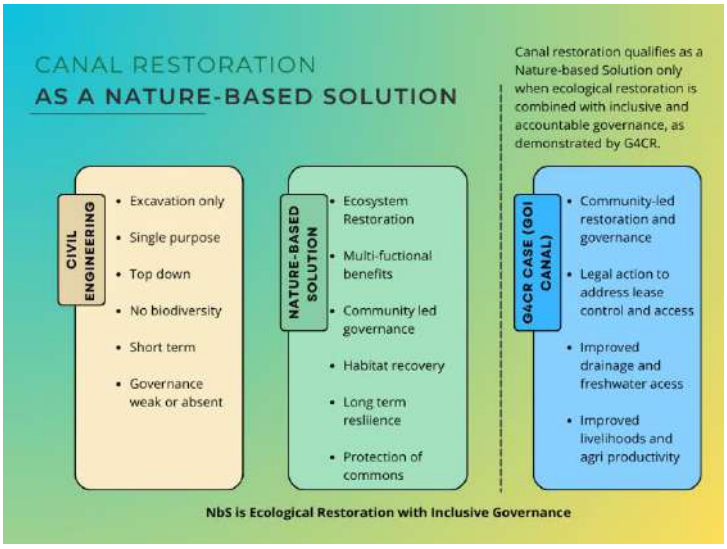

Figure 2: Canal Restoration as a Nature Based Solution

The community has been at the heart of this initiative, as they have long been advocating for their right to access canal water. With the CNRS's support, community members initially became aware of their rights and later mobilized collectively, signing petitions for access to canal water and organizing human chains. The entire approach was driven by community decisions, with women and youth playing a leading role at the forefront of the movement.

B. Restoring Ecosystem

According to the UNDP NbS definition, excavating the four canals is considered a nature-based solution because it restores natural drainage and water-circulation systems rather than relying solely on engineered infrastructure. When these canals were restored, Rainwater and floodwater could drain naturally, surface water became available for irrigation, Ecosystems and biodiversity recovered, and communities gained reliable water sources for agriculture and household needs. It is also reported that the local fish variants,

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[1] Smith, A. C., Tasnim, T., Irfanullah, H. M., Turner, B., Chausson, A., & Seddon, N. (2021). Nature-based solutions in Bangladesh: Evidence of effectiveness for addressing climate change and other sustainable development goals. Frontiers in Environmental Science, 9, 737659. https://doi.org/10.3389/fenvs.2021.737659

such as koi and magur, have returned to these canals. The initiative has also introduced large-scale saline-tolerant rice cultivation in this area, with support from the Department of Agricultural Extension (DAE).

C. Case Study of the Goi Canal

A key intervention under G4CR-II was the rehabilitation of the Goi Canal to enable rapid drainage of excess monsoon rainfall and reduce crop loss (G4CR II Project Final Report, 2024). The canal was narrow and not feasible to widen and or deepen for large dry-season storage; therefore, the primary objective was to restore drainage capacity to protect monsoon rice. Farmers demarcated approximately 1,700 bigha of land within the Goi canal catchment, where monsoon rice was regularly damaged by rain-induced flooding, exacerbated by siltation and restricted drainage. A farmer-led assessment categorized waterlogging severity across the 1,700 bigha: 400 bigha severe, 600 bigha medium, and 700 bigha low waterlogging, with baseline yields as low as 7 mounds per bigha in severely affected areas (compared to 16–20 mounds per bigha in better-performing land types).

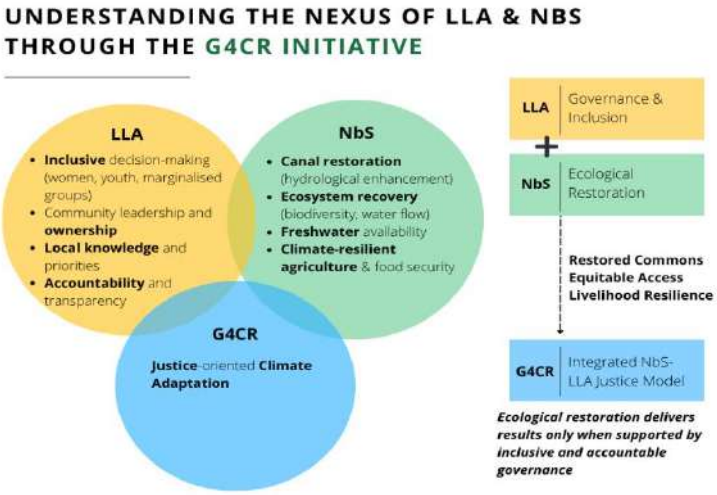

Figure 3: Understanding the Nexus of LLA & NBS through the G4CR

After restoration, drainage improved and yields reportedly rose to 16–20 mounds per bigha in impacted areas. The canal also helped restore capture fishing opportunities and improve access to freshwater. Yet these gains were not produced solely by excavation. They depended on community mobilization, action against lease-related restrictions, engagement with administration, and continued attention to fair access and governance. The Goi Canal initiative shows that restoration generates adaptation value only when governance conditions around access, rights, and maintenance are addressed alongside the physical works.

2. Methodology

This document was prepared as the primary analytical document connecting local community suggestions, relevant literature, and policy discourses. This brief draws on three sources of evidence: project documentation and field evidence from G4CR; a review of relevant national policy and literature on water governance, adaptation, NbS, and LLA; and Key Informant Interviews with experts on canal excavation, governance mechanisms, climate justice, and agricultural practices. The funnel approach was used to review the project's yearly report, field evidence reports, literature reviews, and national policies. Lastly, triangulated analysis was conducted to link the policy analysis, the expert's perspective, and field realities.

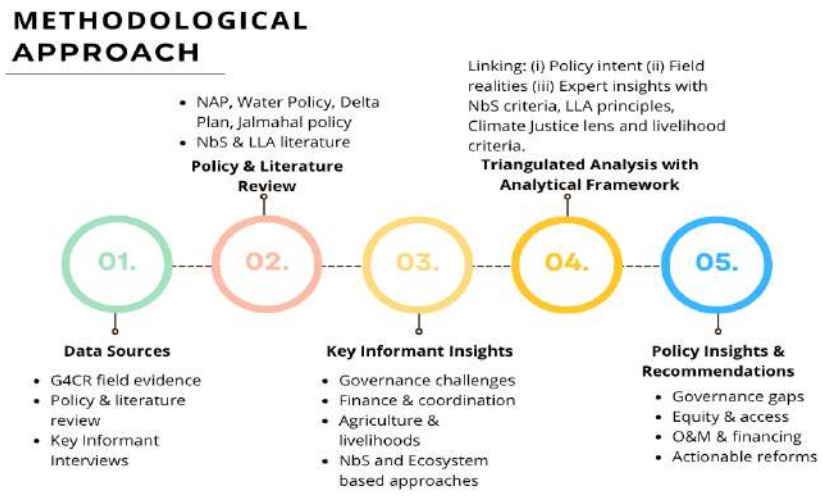

Figure 4: Methodological Approach

3. Policy Framing of Canal Restoration, NbS, and Locally Led Adaptation in Bangladesh

Bangladesh's adaptation architecture, historically shaped by BCCSAP and now evolving through the NAP and related national initiatives, provides an enabling policy space for NbS and LLA. However, the policy practice gap in coastal hotspots persists because approaches and interventions are fragmented. The KII respondent reflected that many practitioners in Bangladesh attempt to "fit" existing interventions into NbS and LLA labels after the fact, which can weaken clarity on standards, evidence, and accountability. This brief, therefore, treats canal restoration as an NbS only when it meets NbS criteria and treats LLA as a governance architecture that determines whether benefits are protected and sustained over time.

Bangladesh has enough policy language to support canal restoration, and while political transitions can influence emphasis and sequencing, climate impacts in the coastal belt remain non-negotiable realities; adaptation priorities must therefore be sustained through institutions, financing, and accountability mechanisms that outlast political cycles. In Shyamnagar, canal re-excavation is not simply a "water project"; it is a contest over rights, access, and the distribution of ecosystem benefits. Moreover, evidence from KII respondent T reinforces this: canal re-excavation becomes a justice intervention only if dependent communities regain fair access to water and ecosystem services; otherwise, it risks becoming another exclusionary resource arrangement.

3.1 Policy Landscape

The G4CR initiative is consistent with the environment-related clause of the Bangladesh constitution, which mentions "The State shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wildlife for the present and future citizens.", This foundational principle establishes a strong normative basis for canal re-excavation as a solution can restore water flows, store rainwater, and improve irrigation for communities as well as ensure climate justice (Dewan, 2021), Across Bangladesh there are multiple frameworks; Jolmohol policy (2009), the National Water policy, the Bangladesh Delta Plan 2100 (2021), the 8th Five-Year Plan(2020), the National Adaptation Plan (2023), and the LLA framework of Bangladesh (2026). In principle, this is a strong policy ecosystem. In practice, the policy landscape is better characterised by fragmented recognition rather than integrated implementation

Canal excavation and restoration are primarily addressed under water governance frameworks such as the National Water Policy 1999, the Bangladesh Water Act 2013, and the Bangladesh Delta Plan 2100. The National Water Policy is an example of good governance, as it mentions that ownership of public water bodies, such as canals, does not vest in an individual. The policy emphasizes that government water bodies, including canals, should be protected from encroachment, illegal occupation, and degradation. This indirectly supports restoration activities such as clearing, maintenance, and rehabilitation. While policies recognize canals as ecological infrastructure, governance systems treat them as economic assets, as highlighted in both the literature and KII. One of the KII respondents mentioned that canal excavation is often implemented as a political mandate or single-purpose activity (e.g., only flood control), which has drawbacks. Canal intervention becomes more aligned with NbS when it is designed to generate multiple ecosystem and livelihood benefits, such as water security, biodiversity conservation, and disaster risk reduction. A policy brief in 2021 evidenced that 291 out of 329 adaptation projects funded between 2009 and 2016 under

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[1.] Dewan, C. (2021). Misreading the Bengal Delta: Climate change, development, and livelihoods in coastal Bangladesh. University of Washington Press.

Bangladesh Climate Change Trust (BCCT) were engineered interventions, with only 38 projects having NbS-type approaches (Islam et al. 2021). Therefore, even where NbS-related elements exist in policy discourse, biodiversity improvement is often difficult and weakly evidenced; interventions are underfunded and under-governed with weak accountability and limited mechanisms. As a result, canal restoration, despite being practised widely, rarely qualifies as NbS as it is implemented as a technical or infrastructure-focused intervention.

Policy / Framework	Strategic Intent for Canal Restoration	Gap
Jalmahal / Jolmol Policy (2009)	Governs public water bodies; signals monitoring expectations, including physical and biological parameters. Entry point to frame canals as ecological assets, not only revenue assets; supports biodiversity-linked monitoring for NbS	Revenue logic and leasing dynamics can override ecosystem function and equitable access; weak enforcement against encroachment
National Water Policy (1999)	Prohibits individual ownership of canals; mandates protection from encroachment.	Revenue-focused leasing or informal control often supersedes drainage and common-use rights of policy
Bangladesh Delta Plan (BDP) 2100	Promotes Integrated restoration of rivers and canals for a resilient delta.	Focuses on multipurpose restoration (drainage, irrigation, ecosystem function) but lacks a "social audit" to prevent local elites from capturing restored canals.
8th Five-Year Plan (2020–2025)	Broad climate resilience and water management agenda; indirect support for canal/drainage improvement	Creates planning legitimacy but not necessarily NbS quality control or LLA delivery rules. Often translates into “civil works” without governance/O&M provisions; no canal-specific targets
National Adaptation Plan (NAP 2023)	Positions canal re-excavation as a flagship NbS for water security.	Funding Silos: Canal work is often treated as "civil work" rather than "governance work," with limited integration of LLA principles
LLA Framework (2026)	Empowers local governments and communities to lead water management	Power Imbalance: Without legal advocacy (as seen in G4CR), marginalized groups cannot challenge the informal control of canals

[1] Islam, S., Anzum, F., Kamal, A. B., Akter, M., Rezaie, A. M., and Khan, M. R. (2021). The Integration of Nature-Based Solutions into Climate Adaptation Policy and Planning in Bangladesh. Journal of Science Policy & Governance, 18(2).

4. Key Findings

As per the analysis in section 3, it is evident that constraint is not the absence of policy but governance, mechanisms that translate policy intent into equitable and sustained outcomes. The G4CR initiative shows that canal restoration can generate measurable adaptation benefits (including improved freshwater access, increased agricultural productivity, and strengthened livelihoods), but only where governance barriers are actively addressed. The following findings highlight that technical interventions combined with institutional reform, community agency, and justice-oriented governance are central to effective adaptation

4.1 Integrated findings from G4CR, Literature and KII evidence

- **Strengthening Policy Mechanisms and Governance for Canal Restoration:** G4CR project. Community members' consultations identified that restored canals improved freshwater access and agricultural productivity, but the benefits remained vulnerable to capture without sustained governance arrangements. The evidence from the project shows a clear transition from single crop to multi-crop agriculture, enabled by restored freshwater availability. Farmers in project areas now cultivate wheat, mustard, and vegetables in previously fallow seasons, significantly improving productivity and income. Crop yields (e.g., mustard and wheat) and diversification have strengthened food security and income stability. Individual cases (e.g., reduced migration, increased year-round cultivation) illustrate direct livelihood transformation. KII respondents highlighted the need for robust and transparent policy frameworks to ensure equitable, year-round access to canal water. However, KII findings indicate that, for these benefits to be sustained, clear, enforceable governance mechanisms are critical to prevent restored canals from remaining vulnerable to elite capture, particularly during periods of water scarcity.

- **Existing policies require updating and Operationalization:** The policy review confirms that policies are outdated and do not reflect current environmental and socio-economic realities. KII respondents emphasized the need to revisit and update these policies, incorporating the lived experiences of local communities and addressing increasing non-economic loss and damage. Most importantly, the gaps in policies need to be identified for actionable outcomes.

- **Canal Restoration is treated as Civil Engineering rather than NbS:** Both literature and KII findings highlight that most canal interventions are implemented as single-purpose civil works, focusing on excavation rather than ecological restoration and governance. This limits co-benefits across water, livelihood, and ecosystems. Therefore, canal restoration becomes a true NbS only when ecological and governance dimensions are integrated.

- **Adopting a human right–based approach:** Canal excavation should be framed beyond a technical intervention, recognizing access to water as a fundamental right. Move beyond consultation and institutionalize Canal Management Committees (CMCs) with formal authority. Ensure representation of women, youth, smallholders, and fishers, with defined roles in monitoring, maintenance, and dispute resolution.

- **Create dedicated financing for long-term maintenance (not just excavation):** Shift from one-off excavation budgets to ring-fenced maintenance funds at the local government level. Introduce climate financing windows or performance-based grants tied to canal functionality and community access outcomes.

- **Institutionalizing Inclusive and Rights-based Canal Governance:** Evidence from the G4CR initiative shows that meaningful community participation strengthens ownership, improves maintenance, and ensures equitable outcomes. When participation moves beyond consultation toward institutionalized governance structures. Such as the legally mandated Canal Management Committees (CMCs) with formal authority, ensuring representation of women, youth, smallholders, fishers, and other canal-dependent groups, and assigning clear roles in monitoring, maintenance, and dispute resolution. Furthermore, embedding a “leave no one behind” approach is essential to ensure that all community groups, particularly marginalized populations, are included in planning, decision-making, and benefit-sharing processes.

4.2 Strategic Policy Recommendation

Based on this triangulated analysis, the following priority actions are identified:

1. **Reclassify canals in vulnerable coastal unions as public climate infrastructure:** Recognizing their essential roles in drainage, freshwater access, fisheries, and ecosystem functions, rather than treating them as revenue-generating water bodies. As the government is planning to undertake canal excavation at the local level, the practices demonstrated under the G4CR can be scaled within government-led programs.
2. **The Ministry of Water Development and the Land Ministry should ensure regulatory oversight and local accountability** to review existing lease arrangements that undermine drainage, freshwater circulation, and equitable public access, and take the necessary action to restore public access and to prevent elite capturel Use satellite-based analysis of historical imagery to monitor changes in canal systems, identify encroachment, and prevent elite capture, particularly in areas such as Munshiganj Upazila.
3. **Institutionalize community participation in canal governance-** Women, youth, smallholders, fishers, and other canal-dependent groups should have formal roles in oversight and management.
4. **Introduce a mandatory "Canal Protection Zoning"** regulation at the climate-vulnerable union level, and may follow the model set by the G4CR initiative. Demarcate and legally notify canal boundaries and buffer zones through local land records and visible markers to prevent encroachment through regulatory enforcement
5. **Strengthen coordination among government institutions and local authorities** to ensure effective governance and monitoring. Monitoring should include drainage performance, freshwater access, agricultural productivity, fisheries recovery, inclusion, and dispute resolution.
6. **Introduce dedicated local budget allocations** or climate-linked financing for periodic canal maintenance, including desiltation and monitoring. Restoration without maintenance is not resilient.
7. Embed Inclusion and "Leave No One Behind" Principles to ensure equitable access and benefit sharing. Integrate gender and youth considerations into governance systems

5. Conclusion

Climate adaptation in Bangladesh is not constrained by a lack of policy, but by our inability to fully operationalize our governance systems that ensure equity, accountability, and sustainability. The G4CR experience in Munshiganj Union, Shyamnagar Upazila, demonstrates that canal restoration can deliver strong resilience benefits, but only where ecological restoration is matched by governance reform, community agency, and protection of public commons. Bangladesh already has the policy language to support canal restoration through NbS and LLA approaches. This underscores a broader lesson: NbS provides an ecological pathway for resilience, while LLA offers the governance architecture to ensure that adaptation is locally driven, equitable, and accountable. Without aligning these two within a coherent governance framework, adaptation efforts risk remaining fragmented and technocratic. The urgent task now is to build the governance model that allows those policies to work for frontline communities. This requires rethinking canals as public climate infrastructure, strengthening local decision-making systems, embedding accountability mechanisms, and ensuring sustained financing and maintenance. Bangladesh has the policy foundation, but what is needed now is political and institutional commitment to deliver adaptation that is both effective and just.