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Bypassing the Commons: A Political Ecology of Elite Capture and Resilience in Wetland Co-Management

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Abstract

This study uses Ostrom's Social-Ecological System Framework (SESF) to analyse fishers' resilience to social-ecological challenges within the co-managed Bogiani fishery's social-ecological system (SES) in Bangladesh. Synthesizing the SESF with insights from political ecology and informal institutional theory, the study assesses how structural power relations and patronage networks influence fishers' resilience. Empirical findings from in-depth interviews and focus group discussions indicate that socioeconomic adversity and top-down, hierarchical political processes constrain local fishers' capacity to co-manage the fishery. Unable to cover high annual leasing fees and maintenance expenses in competitive government auctions, fishers rely on wealthy, politically connected individuals for financial backing. This reliance enables elites to capture fishery management informally. Furthermore, exclusion from decision-making, market-driven governance, and short-term profit extraction without habitat restoration threaten long-term social-ecological sustainability. Minimal fisher participation in rulemaking and enforcement severely undermines collective action, causing co-management to fail in fostering joint action to mitigate ecological degradation.

Introduction

Inland wetland fisheries represent an essential source of animal protein, export earnings, and employment for the rural population of Bangladesh (Department of Fisheries (DoF), 2018). Over two-thirds of the rural population rely on rivers, estuaries, and floodplains for fishing, fish processing, or fish trading (Thompson et al., 2003). Despite its vital socio-economic importance, the sector's contribution to national GDP declined significantly from 62.59% in 1983–84 to 28.45% in 2017–18 (DoF, 2018). Wetland fisheries face ongoing degradation primarily due to destructive fishing practices, biophysical habitat damage, and the systematic exclusion of traditional fishing communities from management (Newaz & Rahman, 2019). To reverse these trends, the government of Bangladesh adopted a fisheries co-management strategy to share management responsibilities between resource users and government agencies (DoF, 2018; Newaz & Rahman, 2019).

Co-management arrangements delegate fishing rights to local fishers' cooperatives, promote stakeholder collaboration, support equitable benefit-sharing, establish fish sanctuaries, and integrate local ecological knowledge into management strategies (Sultana et al., 2022; Thompson et al., 2003). These initiatives aim to strengthen fishers' management capacity and secure rural livelihoods (Islam et al., 2014). Nevertheless, wetland fishery resources and fisher access remain largely un-restored (Newaz & Rahman, 2019). Co-management in Bangladesh faces critical social and ecological hurdles, including conflicting institutional mandates, elite capture, exclusionary decision-making, market-driven governance, species diversity loss, and severe habitat degradation (Ahmed & Haque, 2023; Allison & Badjeck, 2004; Fagun & Rishan, 2023; Hossain & Banik, 2022; London et al., 2017; Lozano & Heinen, 2016). Rather than representing a fixed institutional formula, co-management is a dynamic governance process involving ongoing negotiation, learning, and coordination among multiple actors (Berkes, 2009; Carlsson & Berkes, 2005).

To navigate these institutional and environmental disruptions, fishing communities must develop social-ecological resilience, the capacity to devise strategies, make decisions, and undertake collective actions within complex systems (Pellowe & Leslie, 2020; Salomon et al., 2019; Satumanatpan & Pollnac, 2020). Ostrom's Social-Ecological Systems Framework (SESF) offers a robust diagnostic taxonomy for evaluating interactions among social actors, governance rules, and ecological variables (Aswani, 2020; McGinnis & Ostrom, 2014; Partelow et al., 2018). However, because the standard SESF underemphasizes structural power asymmetries, this study integrates Political Ecology and Informal Institutional Theory. Political ecology examines how broader processes of capitalist expansion, historical inequalities, and state policies shape resource access, recognizing that co-management initiatives can inadvertently reinforce elite dominance under the guise of participation (Lund & Saito-Jensen, 2013; Moore, 2015, 2021; Puley & Charles, 2022; Wolf, 1972). Complementarily, informal institutional theory accounts for how unwritten norms, patron-client networks, and credit dependencies operate alongside formal policies to override official rules (Helmke & Levitsky, 2004). While previous studies examine co-management limitations, elite capture, and resilience separately (Allen et al., 2018; Cinner & Barnes, 2019; Evans et al., 2011; Ostrom, 2009), limited research explores how informal institutions interact with political power to systematically cause resilience failure within SES-based co-management. This study addresses this theoretical gap by examining the Bogiani fishery in Sunamganj district, Bangladesh.

Framework of the Study

This study grounds its analysis in social-ecological resilience theory to understand how fishers cope with institutional, economic, and environmental challenges in the Bogiani wetland fishery. A social-ecological system consists of tightly coupled social and ecological components where shifts in one sphere directly affect the other (Folke, 2016). In this context, resilience extends beyond shock recovery to encompass adaptation, livelihood reorganization, and institutional transformation when existing arrangements prove unsustainable (Baggio et al., 2015; Folke, 2016). Here, resilience defined as the capacity of fishing communities to sustain livelihoods and meaningfully participate in governance despite ecological uncertainty and unequal political contexts. Ostrom's SESF provides the core analytical structure for diagnosing interactions across resource systems, governance arrangements, social actors, and broader contexts (London et al., 2017; McGinnis & Ostrom, 2014).

Because the SESF traditionally pays limited attention to structural power, political ecology and informal institutional theory are incorporated to provide critical analytical depth. Political ecology reveals how state auction-based leasing enables elite capture by allowing wealthy, politically connected investors to monopolize access at the expense of traditional fishers. Informal institutional theory (Helmke & Levitsky, 2004) explains how unwritten rules—such as advance credit systems that create debt dependencies—override formal co-management structures. By integrating resilience theory, the SESF, political ecology, and informal institutional theory, this framework explains how formal policies, structural power, informal patronage, and environmental change interact to shape collective action and social-ecological resilience in the Bogiani fishery.

Methods

Study Location

The study was conducted in the Bogiani wetland fishery, located in Tahirpur Upazila, Sunamganj district, northeastern Bangladesh (25°01'–25°12' N, 91°02'–91°19' E; Banglapedia, 2020). The region experiences average annual temperatures of 21.1°C to 31.2°C and mean annual rainfall of 3,576.96 mm (BBS, 2019). The Bogiani fishery encompasses 1,000.66 acres across eleven interconnected parts, including two fish sanctuaries and mini forest areas. It connects with Shanir Haor during monsoon (June–November) and separates during dry months.

Management of Bogiani Fishery

The *Tahirpur Jamalghor Motsojibi Sombay Somiti* (Tahirpur Jamalghor Fishers' Cooperative Association) (TJMSS), which was established in 1972 by 48 fishers from Jamalghorvillage, leased the fishery from the government for six years, from 2017 to 2023. Previously, the 45-member *Vati (low-lying) Tahirpur Motsojibi Sombay Somiti* (Vati Tahirpur Fishers' Cooperative Association) (VTMSS), founded in 2007 in Vati Tahirpur village, leased the fishery from 2010 to 2016. TJMSS (current leaseholders) transferred fishery management to a former wealthy leaseholder due to their inability to bear the expenses (participants estimate the yearly leasing fee at BDT 6.2 million≈ 50,000; total expenses at BDT 20 million≈ 160,000; 1 USD≈ 125 BDT) and to manage the fishery. Notably, most fishers are landless and marginalized, with agriculture being the key means of subsistence in the region (Banglapedia, 2020).

Study Design

This study employs a qualitative approach, utilizing an instrumental case study design to assess co-management challenges and their effects on fishers' resilience. The Bogiani fishery is the study's primary focus, providing a real-world context for understanding broader issues of co-management and resilience. To develop a rich and well-rounded understanding, the study draws on several sources of information, including in-depth interviews (IDIs), focus group discussions (FGDs), and document analysis. The qualitative case study design informed both participant selection and the data collection strategy described below.

Data Collection

The fieldwork started with twenty online individual conversations with TJMSS (12) and VTMSS (8) members from August 2021, using WhatsApp with the help of assistants from the study area to build rapport with informants. The spread of COVID-19 prevented the researcher from conducting in-person data collection to complete the study. Additionally, thirty in-person

conversations were conducted with TJMSS (17) and VTMSS (10) members, and government officials (3) in the study area from November 2021 to build relationships with more informants. This study conducted 18 IDIs with fishers from TJMSS (9) and VTMSS (6), along with government officials (3), and five FGDs with six members each from TJMSS (3) and VTMSS (2), in person between February and May 2022. The study used convenience sampling to explore key aspects of fishers' resilience to their co-management challenges. This study used separate semi-structured interview guides for IDIs and FGDs to collect data using predetermined question sets, which were further refined by asking informants follow-up questions based on their responses.

IDIs obtained information about fishers' socioeconomic and demographic characteristics, fishing practices, fish catch, leadership patterns, trust and reciprocity, rules-in-use, family and fishing assets, and challenges in co-management. FGDs gathered collective insights from fishers on their social, economic, political, cultural, and ecological settings. Additionally, published documents, including the Statistical Yearbooks of Bangladesh 2019, 2020, and 2021; District Statistics 2011, Sunamganj, Bangladesh Bureau of Statistics (BBS) 2013; and the Yearbook of Fisheries Statistics of Bangladesh 2017-18, were used to contextualize wetland fisheries in Bangladesh and in Bogiani, Tahirpur (see Table 1, supplementary materials). The unit of analysis for this study was the Bogiani fishery, including all relevant actors, particularly the fishers of TJMSS and VTMSS and government officials (UNO-Upazila Nirbahi (executive) officer, UFO-Upazila fishery officer, and OC-officer in charge of the local police station) in Tahirpur subdistrict.

Informants (ordinary fishers, VTMSS and TJMSS leadership, and government officials) were selected to capture the variation in power and position within co-management. Informants among ordinary fishers included excluded and deprived members who shared opinions about their limited participation and deprivation of benefits in co-management despite legal entitlements. They were chosen to gather insight into the limitations of co-management because they remained outside the governance process and earned limited income from fishing. Informants from leadership comprised members of fishers' cooperative committees, with extensive experience in co-management and views on the challenges of running the fishery and ensuring fisheries in wetland fisheries. Government officials were also interviewed to document their experiences with inadequacies in fisheries policy and governance processes in co-management, as well as ecological decline. They possessed extensive experience with co-management challenges, gained through long-term observations of wetland fisheries operations.

As an insider, the researcher adopted a neutral position to describe fishers' resilience to co-management challenges, regardless of his personal beliefs, class, status, or familiarity with the research area. This study sought to maintain objectivity in data collection and analysis to avoid biases and subjective interpretations of co-management in the Bogiani fishery. The researcher employed a reflexive perspective to continually recognize, articulate, appraise, and reveal his position to understand his role and biases in the research. He applied personal moral standards and expertise, without resorting to prejudiced notions about co-management, to sidestep distortions and manipulations of his perspectives and to describe the Bogiani fishery in its actual socio-economic, cultural, and political settings in the Tahirpur area. The researcher's position remained fair and clear throughout the research to avoid the risk of being influenced by his socioeconomic and political position or by the research context.

This study gathered informants' actual responses about power and positional imbalances in co-management and carefully verified them to distinguish them from socially desirable answers. It sincerely preserved the confidentiality of data and informants' details and informed informants that their responses would be used only for research purposes. Although transcripts cannot be shared for privacy reasons, the coding scheme and anonymized excerpts or documentation can be made available. This prevented informants from participating in the research and the researcher from retaliation (verbal or physical aggression), likely from person(s) controlling the fishery. Before IDIs and FGDs, verbal informed consent and availability were ensured. They were conducted in Bengali and then translated and transcribed into English using the back-translation method. The researcher cross-checked the translation and transcripts repeatedly to ensure data accuracy and quality. IDI and FGD sessions lasted approximately 1-1.5 hours.

Data Analysis

Following data collection, the interview materials were analysed using a thematic approach guided by the SESF. The SESF (McGinnis & Ostrom, 2014) is used to organize social and ecological variables into three tiers to identify challenges in co-managing the Bogiani fishery SES. Interview guides were developed around first-, second-, and third-tier variables of the SESF.

This study employed the thematic analysis framework of Braun & Clarke (2006) to analyse interview and FGD transcripts, reading them repeatedly and taking essential notes to become familiar with the data. Next, transcripts were organized to classify SESF-guided and inductive codes, and their meanings and trends were compared against the research questions.

Table 1 An Interactive Code Plan for Thematic Analysis

SESF-guided codes	Inductive codes	Inductive themes
Inconsistent institutional arrangements	Uneven leasing practices	Elite capture of co-management Institutions
Regional socioeconomic adversity	Fishers' financial inability	
Hierarchical legal structure	Manipulation of leasing, mediators' influence on the fishery, and informal regulation of co-management	
Hierarchical power relations	Fishers' forced dependence on mediators	Exclusion from decision-making
Non-participatory governance	Limited decision-making rights, partial property rights, and exclusion from governance	
Fishers' limited control over governance	Profit-oriented governance and mediator's profit-making tendency	Governance-driven ecological decline
Declining fishery ecology	Short-term profiting without restoration actions, harmful effects of overharvesting, and falling fishery's long-term productivity	
Actors limited self-organization	Loss of collective action	Erosion of collective action
Ineffective leadership	Fishers' isolation from management and self-interested leadership	

Left-sided SESF-guided codes correspond to right-sided inductive codes in Table 2. The SESF-guided codes preceded the identification of inductive codes from the collected data, aligning with the research aims and questions. Their interactions reflected the co-management challenges, with inductive themes assembled from inductive codes. These themes were then cross-checked for relevance and accuracy using data on layer variables. The SESF provided insights for selecting relevant codes and themes to analyse fishers' resilience to challenges in co-managing the Bogiani SES.

Results

The SESF is applied to characterize Bogiani as an SES and to highlight the key challenges in its co-management. It includes eight first-tier variables, 36 second-tier variables, and 43 third-tier variables (see Fig. 1 and Table 2–9 in the supplementary materials). These variables reflect the overall situation and challenges of wetland fishers in the Tahirpur area. The results are structured around a few analytical themes that connect institutions, power, and ecological change to outcomes in co-management under auction-based leasing regimes. The SESF serves as an analytical lens for exploring and relating challenges to fishers' resilience in co-managing the Bogiani fishery.

3.1 Elite Capture of Co-management Institutions

The Bangladesh government has devolved fishing rights to local fishers to improve their economic conditions and build their capacity to co-manage wetland fisheries in the country's floodplain areas. Existing leasing rules emphasize revenue generation, fishers' livelihoods, and the sustainable management of wetland fisheries in Bangladesh, with a focus on open and competitive auctions (Hossain et al., 2026; Sultana et al., 2022). Wetland fishers enlisted with the fisheries department are only entitled to apply for the lease through their fishers' association, which must be registered with the government's cooperatives department. However, higher leasing fees and management expenses, along with competitive leasing auctions, impede poor local fishers from obtaining fishing rights in wetland fisheries. The lack of economic capacity to cover leasing and management costs

compels fishers to lease fisheries with the help of well-off, powerful financiers. Some 50-70-year-old experienced fishers of VTMSS stated in a group discussion that:

…We are the poorest people in the area, possessing less than 5% of the resources. The government has given us fishing rights in wetland fisheries, but our poverty prevents us from having full control over them. We cannot pay the leasing fee and other fishery expenses ourselves. Eventually, we rely on rich people to get the lease, but they finally take full control over the fishery.
Weak socioeconomic conditions force fishers to depend on the rich to lease fisheries, and the rich consequently take control. As a result, the rights of fishers in the fishery are undermined by some rich and powerful mediators. Based on FGD data with 45-60-year-old informants of TJMSS,

"...We obtained the lease with financial support from a local elite, but once the lease was secured, he assumed full control of the fishery. Although the fishery legally belongs to us, we are no longer allowed to fish there."

Across interviews, fishers consistently attributed their exclusion from fisheries governance to the auction-based leasing system, which exceeded their financial capacity and enabled politically connected elites to control fishing rights through informal influence and patronage. Rather than functioning as a mechanism for equitable resource allocation, the leasing system reinforced existing socioeconomic inequalities by transferring effective control of the fishery to actors with superior financial resources, political connections, and institutional influence. Moreover, influential people often manipulate the leasing process to capture fisheries in association with political leaders and government officials. Informants report that the existing fisheries resource policy, which allows the highest bidders in the auction to lease fisheries, is an inescapable hindrance to their co-management. UNO of Tahirpur Upazila elucidates:

"Government rules favour the highest bidder. Poor fishers cannot compete financially or politically, allowing powerful groups to secure and control the fishery."

Expensive leasing arrangements hinder local fishers from accessing smaller fisheries (Ahmed & Haque, 2023; Allison & Badjeck, 2004; Hossain & Rabby, 2019; Newaz & Rahman, 2019; Fabinyi et al., 2022). The present leasing system allows wealthy and powerful individuals to access wetland fisheries. Bogiani acquire the fishery lease as the highest bidders, with the help of an influential mediator. The expensive leasing system eventually enables powerful mediators to indirectly capture fisheries for their investments. While fishers are the lawfully registered leaseholders of the Bogiani fishery, the mediator unlawfully regulates their management rights and profits. Moreover, many local investors compete to obtain wetland fisheries in the Tahirpur area. However, an unofficial mechanism exists to regulate co-management that is officially held by the fishers (Ahmed & Haque, 2023; Allison & Badjeck, 2004; Partelow et al., 2023). This process is reinforced because the mediators continue to maintain their influence over fishers, political leaders, and government officials, thereby enabling them to occupy fisheries informally. The limitations in implementing the government's fisheries resource policy appear to be a key obstacle to building fishers' capacity to co-manage the Bogiani fishery. Fishers identify the lack of freedom as a major impediment to co-management. The president of TJMSS states:

"Although we have legs, we cannot walk on our own feet."

While laws allow fishers to access fisheries through bidding, higher leasing and operating costs permit local power groups to capture them. The mediators informally control the leasing process with the help of government officials and political leaders. The leasing rules are not aligned with fishers' socioeconomic conditions for access to fisheries. Economic constraints restrict fishers' access, and the mediator also limits fishers' rights to catch and sell fish rather than managing the Bogiani fishery. Fishers remain excluded from co-management processes aimed at developing resilience to the challenges they face in the Bogiani fishery. The mediator's connection to the power structure and competition among powerful local groups further marginalize fishers in co-management across the Tahirpur area. Leasing and management decisions made by top officials and leaders in top-down political contexts prolong fishers' deprivation under co-management. Investors help fishers lease the fishery, but they finally exclude them from management. The government's fisheries policy is more about promoting access to wetland fisheries for rich and powerful people than for poor fishers. Fishers ultimately fail to improve their economic and organizational ability to co-manage the fishery. The SESF finds that inconsistent leasing rules, which allow elites to capture wetland fisheries in hierarchical political contexts, are the primary cause of fishers' lack of resilience. These unequal power relations extended

beyond control over leasing arrangements and directly shaped fishers' participation in governance, resulting in their systematic exclusion from decision-making.

3.2 Exclusion from Decision-making

Hierarchical political settings in which higher-level government executives and political leaders make decisions often exclude fishers from their rights in wetland fisheries. This implies that co-management has failed to ensure fishers' access and management rights in the Bogiani fishery. Economic adversity primarily constrains fishers' ability to obtain rights and decision-making power in co-management. Abdur Rahman (pseudonym), the 56-year-old member of TJMSS from Jamalghor village, claims that:

…We are legally entitled to apply for the lease of the Bogiani fishery, but our weak economic condition and limited access to government officials and political leaders prevent us from obtaining it. The leasing and maintenance costs are too high, so we have to depend on rich and powerful people to secure the lease. It is very difficult for us to raise enough money to lease and manage the fishery.

Beyond economic constraints, the expensive, competitive leasing process pushes local fishers to seek support from wealthy and powerful people to secure a lease in the fishery. Bazlur Rahman (pseudonym), another 65-year-old informant of VTMSS, explained the power of the former rich leaseholders in influencing the future of the Bogiani fishery:

…a former leaseholder paid for the lease and used his political connections to secure it, so although the lease was in our name, he became the actual manager of the fishery, and we had very limited rights.

Fishers consistently described how formal leasing rights were overridden by informal patronage networks. Although TJMSS legally obtained the lease, decision-making authorities shifted to wealthy financiers who assumed effective control after providing financial support. This discrepancy between formal entitlement and actual authority demonstrates how informal governance displaced legally recognised co-management institutions, leaving fishers with nominal ownership but little influence over management decisions. One informant of TJMSS narrated,

…Although the fishery is our legal property, the mediator now controls access to the fishery. Our legal property rights are illegally taken by the powerful mediator. The existing leasing process restricts local fishers' access to the fishery due to high lease costs and other management expenses. Government rules are failing to protect our rights in the fishery.

This narrative illustrates the central contradiction in Bogiani's co-management system: while fishers retained formal legal rights, effective authority rested with politically connected mediators. Rather than empowering resource users, co-management became mediated through informal patronage networks that undermined participation and decision-making. Following the transfer of management responsibility, the mediator exercised complete control over the fishery, leaving many TJMSS members unable to fish despite their legal membership. Informants attributed this exclusion to hierarchical political networks through which the mediator maintained close relationships with government officials and political leaders, enabling continued control over both leasing arrangements and day-to-day governance.

Co-management seemed to fail to operate effectively in the hierarchical political setting of the Tahirpur area. The mechanisms used to seize fisheries through power relations, while ignoring existing rules, frequently constrain local fishers' access to wetland fisheries in the area. The investor backs TJMSS from behind, providing funds and other logistical support to indirectly obtain the lease for Bogiani. This implies violations of fishers' customary fishery rights and a disregard for government rules. Informants claim that a manageable leasing fee, with assistance from government offices, will enable fishers to participate in co-management. Government regulations need to be modified to enable local fishers to afford leasing and other operational expenses required to establish their rights in wetland fisheries. Access to and rights over fisheries will ensure fishers' livelihoods and conserve fisheries for long-term use. Some VTMSS's deprived members shared in FGD,

…Our participation in fishery management is nominal and ineffective. We obtained the fishery in accordance with government rules, but the mediator is illegally depriving us of our legal rights. The mediator controls the fishery and takes all the benefits.

Exclusion from management hinders fishers from attaining a minimum income from the fishery. Shopon Barman (pseudonym), a 57-year-old fisher of TJMSS, narrates:

…Some members of TJMSS, with the mediator, run the fishery. Most of us have no work in the fishery. The mediator does not allow us to catch fish in the fishery. He gives a share to a powerful local UP (Union Parishad) council chairman and the Tahirpur Upazila chairman to oversee the fishery. Many of us are now seeking alternative livelihoods because we cannot earn a living from fishing. Our crore taka (money) is taken away by the mediator, and we are not looking at it.

Most fishers are not actively involved in the co-management of the Bogiani fishery. Their exclusion from co-management constrains them from obtaining their share of the fishery's profits. Co-management has been completely dysfunctional in hierarchical political settings where the implicit leaseholder makes all decisions and takes profits. Fishers' exclusion from decision-making has made it impossible to build their resilience to address financial, political, and organizational challenges in co-managing the Bogiani fishery. The SESF explores the top-down institutional and political processes that further promote the domination of influential persons and groups in wetland fisheries. While rules underscore fishers' rights, enforcement allows the rich and powerful (Ahmed & Haque, 2023; Allison & Badjeck, 2004; Lindley, 2023). Fishers' exclusion from decision-making seems to have become an intrinsic systemic part of fisheries management. Fishers' ability to co-manage and address challenges is inherently limited. Beyond restricting fishers' participation, these governance arrangements also had important ecological consequences for the fishery's long-term sustainability.

3.3 Governance-driven Ecological Decline

The ecology of the Bogiani fishery has been declining due to profit-driven co-management governance mechanisms. Powerful individuals or groups take a lease on the fishery to overexploit it. They are inclined to overharvest the fishery because prices for inland wetland fish in local markets are rising. Informants report a declining trend in fish growth, spawning, and total catch in the Bogiani fishery's disrupted habitat. Similarly, a group discussion with economically disadvantaged fishers from VTMSS revealed their perceptions of the consequences of fishery overexploitation:

…The haor (wetland) fish has higher demand in the local market due to its distinct taste, smell, and colour. The haor fish is larger and has a unique taste, attracting many people to the fishery. The fishery earns a lot of profit. Overharvesting for additional profit is reducing fish populations in the fishery. The price of fish is increasing a lot, but there are fewer fish in the fishery.

Increasing profits from the fishery incentivize fish production, thereby damaging the habitat for breeding and nurturing fish. This profit-seeking tendency restrains fishers from preserving and sustaining fishery resources. Informants claim that the mediator seeks quick returns from the fishery by overharvesting, excluding most fishers from management, and maintaining relationships with government officials and powerful local people. No actions (payments, service levies, fines) are in place to protect or use resources in the area. Similarly, an FGD session with traditional fishers aged 40–60 years from TJMSS attributed declining fish diversity to profit-driven overharvesting and the absence of conservation measures:

…The mediator exploits the fishery to maximise profits, but there are no visible conservation activities. Many fish species are becoming extinct because of overexploitation.

Moreover, Joni Deb (pseudonym), another 42-year-old member of TJMSS, explains the experiential effects of the declining fishery environment on fish production in the fishery:

…We are now catching fewer ghonia, kalibaus, and rohu than before. The mediator even harvests fry and undersized fish using fine-mesh nets, while sedimentation, agricultural pollution, and overharvesting continue to degrade the fishery.

Overharvesting reduces total catch and endangers fish species in wetland fisheries. Leaseholders take little action to restore fishery habitat. Declining catch and fishery habitat have emerged as key challenges to fishers' livelihoods and the long-term productivity of the Bogiani fishery. Reflecting on the current ecological conditions of the Bogiani fishery, a 32-year-old fisher from VTMSS expressed concern about its future:

…Bogiani was once a breeding ground for many fish species, but fish populations are now declining as the habitat continues to degrade. Aquatic plants that were once abundant remain in only a few areas. Unless the habitat is restored, Bogiani will continue to deteriorate and no longer function as a spawning ground for the wider wetland.

Fishers consistently associated Bogiani's decline with the disappearance of aquatic vegetation, reduced spawning habitats, and the absence of restoration initiatives such as excavation, habitat reconnection, replanting aquatic vegetation, and fish fry release. Collectively, these observations suggest that governance prioritised short-term extraction over long-term ecosystem recovery.

The continued absence of habitat restoration under profit-oriented governance accelerated ecological degradation and reduced the Bogiani fishery's long-term productivity. As fish stocks and habitat quality declined, fishers' livelihoods and their capacity to participate meaningfully in co-management were progressively weakened, demonstrating how governance failures translated into declining social-ecological resilience. The Upazila Fisheries Officer (UFO) similarly attributed declining fish production to deteriorating biophysical conditions within the fishery:

…The fishery's productivity has declined over the years due to reduced fish fry production and the lack of nutrients needed for fish growth. Both the size and number of fish have decreased considerably. During the dry season, much of the fishery dries up, leaving shallow water where eggs and fry struggle to survive. As fish habitat continues to shrink, indiscriminate harvesting further accelerates the decline.

The profit-making tendency is prevalent in co-management-based fisheries governance (Allison & Badjeck, 2004; Cinner et al., 2021). Leaseholders typically have a commercial mindset when leasing and governing wetland fisheries. The government's commercial leasing policy encourages leaseholders to overexploit fisheries to cover expenses and make a profit. Excessive profiteering during short tenures often causes lasting damage to the fishery's environment. Commercialized governance has failed to ensure the sustainability of wetland fisheries and protect fishers' rights. Moreover, informants report a lack of initiatives to restore the fishery's damaged ecosystem. These constraints severely limit local wetland fishers' resilience to co-managing wetland fisheries, as they face and adapt to financial, political, and ecological challenges in the Tahirpur area.

Further, fisheries governance exhibits a notable deficiency in wetland fisheries, as legally entitled leaseholders are ignored in the making and enforcement of management rules (Lindley, 2023; Nayak et al., 2023). The market-oriented governance excludes fishers from decision-making, prioritizing short-term profits over broader institutional engagement to reverse ecological decline. Fishers lack authority and receive no visible financial assistance for their efforts to reverse market-driven governance and curb ecological decline in the fishery (Ahmed & Haque, 2023; Fabinyi et al., 2022). The controlled institutional settings by top-level government officials and political leaders have perpetuated mediators' influence over wetland fisheries. Interactions with powerholders encourage mediators to breach established rules to capture fisheries, depriving legally entitled users. The SESF variables denote power imbalances between fishers and implicit leaseholders, triggered by top-down political settings, and their consequences for co-management outcomes. Co-management is likely to fail in contexts like the Bogiani fishery, where mediators oust entitled users by manipulating governance procedures. Fishers lack the opportunity in governance, whereas the mediator's concern over overexploitation for profits largely declines the fishery's ecology. As ecological degradation intensified, fishers also described a gradual weakening of cooperation and collective organisation within the co-management system.

3.4 Erosion of Collective Action

Co-management is said to have failed to establish local fishers' rights in the Bogiani fishery due to their limited capacity to self-organize. Informants viewed the lack of coordination between 48 TJMSS members and responsible government bodies as the key obstacle to effective co-management of the Bogiani fishery. They mentioned disagreements among members, negligence by TJMSS and government officials, and the mediator's dominance over the fishery as the main factors for weak coordination. A group discussion with TJMSS members further revealed their perceived exclusion from decision-making despite their recognised status as fishery users:

...We all belong to the Jamalghor clan, and our unity is strong. Although 48 of us are the rightful fishery users, TJMSS does not involve us in management. The president and secretary make decisions under the mediator's direction, working with the UNO, FO, OC, and other government officials while ignoring us. The committee involves us only during conflicts or emergencies. We remain part of the fishery but have little say in management and receive limited benefits.

Informants further identified their relative poverty as a significant barrier to establishing TJMSS as a collective organization for co-management. Specifically, financial limitations impede fishers from leasing and co-managing the Bogiani fishery. A 45-year-old fisher from VTMSS explained how financial constraints limited fishers' ability to retain control over fishery management:

…The lack of ability to bear leasing and operating expenses constrains fishers to reap the benefits of the fishery without surrendering the management power to the former rich and powerful leaseholders.

TJMSS and the mediator employ a divide-and-rule strategy among members to manage the fishery smoothly. Fishers indicate that the mediator and TJMSS intentionally isolate fishers from management to maximize their profits from the fishery. Informants' responses reveal that a lack of leaders' competence and eagerness to ensure collective participation and initiate commercial enterprises hinders the aim of co-management. Furthermore, the mediator's exploitative attitude restricts fishers' engagement in co-managing the fishery. During a group discussion, traditional fishers from TJMSS expressed concerns about inadequate representation of their interests and the mediator's profit-oriented management practices:

…The president and the secretary of TJMSS are not actively working to establish our rights in the fishery. However, the mediator seeks profit, even at the expense of damaging fish diversity and habitat.

TJMSS committee members prioritize leadership positions and benefits over ensuring fishers' active participation in fishery governance. The fishery association's leadership rarely reflects members' interests. An informant of VTMSS, 56-year-old Rezaul Karim (pseudonym), states that:

…Leaders of the association (the president and the secretary) take extra advantage of the mediator, which detaches fishers from co-management. The mediator keeps some fishers with him to manage the fishery, making it seem as though they own it. Fishers are the only name-only members of the fishery association.

TJMSS committee members seek leadership positions and benefits in co-management rather than governing the fishery through active fisher participation. A 60-year-old experienced fisher of TJMSS, Akbar Ali (pseudonym), describes:

…Many members do not even know anything regarding employing and managing the staff and time for catching and selling fish. We have little involvement in the Bogiani fishery. The TJMSS committee and the mediator are not allowing many members in the fishery. Limited access and benefits are not improving our ability to address difficulties in fishery management. The fishery was leased in our names, but we were mostly excluded from it.

Fishers are mostly detached from co-management. A lack of functional unity, both in belief and action, and organization among TJMSS members hampers the co-management of the Bogiani fishery. Informants report that weak coordination significantly hampers their ability to work together as a unit in the Bogiani fishery. Rafiq Mia (pseudonym), a 70-year-old member of VTMSS deprived of fishery management rights, describes:

…TJMSS leaders fail to bind together members and government officials for fisheries co-management. TJMSS leadership has hindered our collective participation in the success of co-management. The lack of collaboration among TJMSS members, the committee, and government officials weakens our organizing ability to manage the fishery.

This hindrance to collective action constrains TJMSS members in co-managing the Bogiani fishery. The mediator maintains good relations with committee members for co-management and oversees them. TJMSS and the mediator apply a divide-and-rule policy among members to control and manage the fishery smoothly. The relationship between fishers has remained emotional, ineffective, and dysfunctional in co-managing the fishery. The collaboration between fishers and government officials has also remained fragmented and weak, hindering collective action for co-management. Fishers have failed to develop their ability to work in groups and self-organize the fishery due to their limited participation or exclusion, as well as the mediator's dominance. Relying solely on power relations, the mediator manages the fishery to maximize benefits. Therefore, fishers have limited room to work collectively in co-managing wetland fisheries under hierarchical institutional and political situations (Ahmed & Haque, 2023; Hossain & Rabby, 2019; Sultana et al., 2022). The SESF identifies limited coordination, economic constraints, mediator dominance, and weak leadership as key barriers eroding fishers' collective action in co-management. These are mostly induced and maintained by top-down political settings, which both constrain and perpetuate fishers' capacity for co-management.

Discussion

Data show that the inability to afford higher leasing and operating costs forces fishers to rely on a mediator (a wealthy, powerful financier) to lease the Bogiani fishery. This allows the mediator to capture the fishery through an informal agreement with fishers for his investment. The investment, along with the power to negotiate with government officials and politicians to secure the lease, gives the mediator the opportunity to capture the fishery. Although the mediator engages some fishers in running the fishery, most are excluded from fisheries governance. Elite capture, driven by misaligned leasing rules that do not reflect fishers' actual circumstances, has been the key obstacle to developing fishers' resilience in co-managing the Bogiani fishery. This trend

continues because the mediator deliberately leverages power relations to capture the fishery. Top-down institutional settings (where resource allocations are decided by administrative and political executives) tend to favour elites over intended users in fisheries allocation. Despite their legal rights, fishers' earnings from fishing, collective roles, and control over institutions (leasing and governing rules) in co-management remain limited. Consequently, an informal mechanism to control management rights formally allocated to fishers has been established in the Tahirpur area. This process is reinforced because mediators consistently maintain their influence over fishers, political leaders, and government officials to informally control access to fisheries.

Although co-management advocates participatory governance in wetland fisheries, the mediator controls decisions and benefits in fishery governance through their relationships with government officials and political leaders. This process establishes the mediator as the actual leaseholder in the Bogiani fishery, while retaining nominal involvement by fishers. He illegally takes full control of the fishery and secures the greatest benefits. The profit-driven leasing system further underpins mediators' influence over co-management. Their immediate profit-making through overharvesting, without taking action to restore the fishery, often leads to the fishery's long-term ecological destruction. Declining catch and habitat quality suggest governance focused solely on profit generation. Further, institutional settings inconsistent with local fishers, along with imbalanced power relations, limit fishers' ability to influence co-management outcomes in the Bogiani fishery. Participatory co-management remains constrained not only by the absence of concerted efforts to address these issues but also by the failure to remove the barriers and inequities it is intended to overcome. Therefore, resilience is not merely an ability of individual fishers or fishing communities, but a product largely affected by governance arrangements. While governance processes and ecological decline are intertwined, attempts beyond existing interpretations are required to enable fishers to influence systemic consequences.

Placed within a broader comparative perspective, the governance challenges observed in the Bogiani fishery are not unique to Bangladesh but reflect broader patterns reported in fisheries co-management across Africa and Latin America. Although co-management is widely promoted as a means of decentralising resource governance and strengthening local resilience, its effectiveness remains contingent upon the political and institutional contexts in which it is implemented. Comparative evidence indicates that improvements in participation, compliance, and resource access are often undermined where governance institutions are weak, and decision-making is dominated by political and economic elites (Evans et al., 2011). Similarly, effective co-management requires not only community participation but also accountable institutions, equitable power-sharing, and governance arrangements that enable resource users to influence decision-making (Berkes, 2009; Carlsson & Berkes, 2005). Comparable governance failures have been documented in Zambia's Mweru-Luapula fishery, where politically connected actors appropriated co-management institutions through patronage and informal influence (Annear, 2009), and in southern Africa, where collaborative governance reproduced existing social hierarchies because informal institutions overrode formal management arrangements (Musavengane et al., 2019). Similar dynamics are evident in Latin America, where unequal power relations, institutional fragmentation, and competing economic interests have constrained adaptive co-management in Brazil's marine extractive reserves (Partelow et al., 2018) and limited equitable governance under Chile's Territorial User Rights for Fisheries (Ebel, 2020).

Collectively, these international experiences highlight an important implication: the Bogiani case reinforces the argument that resilience failures cannot be understood solely as deficiencies in fishing communities' adaptive capacity. Rather, they emerge from persistent misalignments between formal governance institutions and informal political-economic structures that shape authority, resource access, and decision-making. By integrating the Social-Ecological Systems Framework with Political Ecology and Informal Institutional Theory, this study extends existing environmental management scholarship by demonstrating that resilience is fundamentally a property of governance systems rather than merely an attribute of local communities. The findings further suggest that co-management is unlikely to achieve equitable or sustainable outcomes where institutional capture, patronage networks, and hierarchical power relations continue to undermine collective action and exclude resource users from meaningful participation. This perspective contributes to a growing body of environmental management research that calls for greater attention to structural inequalities and informal institutions as critical determinants of long-term social-ecological resilience.

These findings also reveal an important theoretical limitation in existing literature. Most existing studies discuss fishers' challenges in co-management but overlook the need to build their resilience to those challenges (Clay & Olson, 2008; Newaz &

Rahman, 2019). They address co-management challenges separately (Armitage et al., 2009; Said et al., 2019), while this study takes an overarching approach to a composite analysis of these challenges. Many studies view hierarchical institutional and political settings as significant barriers to co-management (Allison & Badjeck, 2004; Fagun & Rishan, 2023; Hossain & Banik, 2022; Sultana et al., 2022), but they underemphasize the mechanisms to overcome them. Numerous studies also overlook actions to eradicate institutional inadequacies (e.g., fishers' limited participation in rulemaking and rule enforcement) in co-management to facilitate fishers' access to wetland fisheries (Allison & Badjeck, 2004; Carrillo et al., 2019; Hossain & Rabby, 2019). Many fail to offer clear policy implications for effective co-management that align with fishers' socioeconomic situations, ensure their access to wetland fisheries, and support fisheries ecology. Many existing studies do not explicitly highlight the importance of monitoring in enabling fishers to make and enforce rules and work collectively in co-management. Instead, mechanisms for seizing fisheries through power relations imply violations of fishers' customary rights to the fishery and the abandonment of government rules (Carrillo et al., 2019; Lindley, 2023). Overall, recent studies focus on fundamental challenges in co-management but still lack perspectives that promote resilience as a means of overcoming them.

Conclusion

This study investigated wetland fishers' resilience to the challenges associated with co-management. Findings revealed that fishers are excluded from fisheries co-management due to localized socioeconomic-political conditions characterized by socioeconomic weaknesses and hierarchical political processes. Fishers' management ability was also impeded by the profit-based leasing system, where the mediator regulates the fishery informally and prioritizes short-term profits over the fishery's long-term sustainability. The mediator showed no desire to take any action to improve the fishery environment, forcing many fishers to seek employment elsewhere because their earnings from fishing were inadequate. The mediator's dominance and hardships largely limited fishers' scope to play their roles in co-management. Furthermore, TJMSS leadership supported the mediator, undermining the fishers' potential to manage the fishery. Although fishers were the legitimate users of the Bogiani fishery, the mediator had complete control over activities and decisions to maintain the fishery.

Taken together, these findings indicate that fishers' low income and participation in governance indicate the failure of co-management in Bogiani. Changes to existing fisheries policy and governance are needed to strengthen fishers' resilience and enable co-management of the fisheries. The leasing procedures need to be reviewed to ensure they are accessible and explicit for local fishers, align with their eligibility criteria, allow staged leasing payments, restrict subleasing, and prevent mediators from co-managing. Establishing participatory monitoring committees, including non-governmental and community representatives, and procedures to address grievances across leasing and management can ensure fishers' access to wetland fisheries and improve co-management performance. Similarly, mechanisms to ensure shared responsibility and engage fishers and government bodies in effective collaboration should be in place to ensure the smooth functioning of co-management. Additionally, joint stakeholder supervision to temporarily ban fishing and the use of small-mesh nets during spawning seasons, along with separating sanctuaries from fishing sites and reducing sedimentation to restore habitats, can facilitate co-management. Fishers' benefits and the fishery's long-term productivity need to be addressed together with measures to eliminate elite capture to ensure the success of co-management. Policy implications for fishers' resilience must emphasize the obstacles they face in building the capacity to address the co-management challenges discussed.

More broadly, this study demonstrates that fishers' resilience failure is unlikely to occur by chance but is deeply embedded in hierarchical institutional and political settings characterized by disparity and elite domination in wetland fisheries. It shows that co-management fails in such settings, as fishers' formal involvement rarely affords them the opportunity to influence co-management outcomes. The SESF serves as a diagnostic approach to analysing how governance structures affect fishers' resilience. This study refutes the ideas that posit resilience at the fishers' level without addressing the institutionally and politically negotiated settings that largely restrict governance outcomes in co-management.

Nevertheless, several limitations should be acknowledged. These results were obtained from a limited number of informants, which may limit their transferability to broader wetland areas. A larger group of informants from a broader wetland area may strengthen the transferability of these results to other wetland fisheries nationwide. Future studies can focus on co-management policy issues to generate novel ideas and approaches to enable fishers to manage wetland fisheries sustainably over the long term.

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Author Contribution

MAH (Mohammed Anwar Hossain): Conceptualization, Formal analysis, MethodologyProject administration, Visualization, and Writing – original draftNHS (Nor Hafizah Selamat): Conceptualization, Formal analysis, Methodology, SupervisionVisualization, and Writing – review & editingSHO (Shahla Ostovar): Conceptualization, Methodology, Supervision, Writing – review & editing, and Validation

Data Availability

The datasets generated and/or analyzed during the current study are not publicly available due to privacy and confidentiality considerations regarding the participants but may be available from the corresponding author upon reasonable request, subject to applicable ethical and institutional requirements.

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Figures

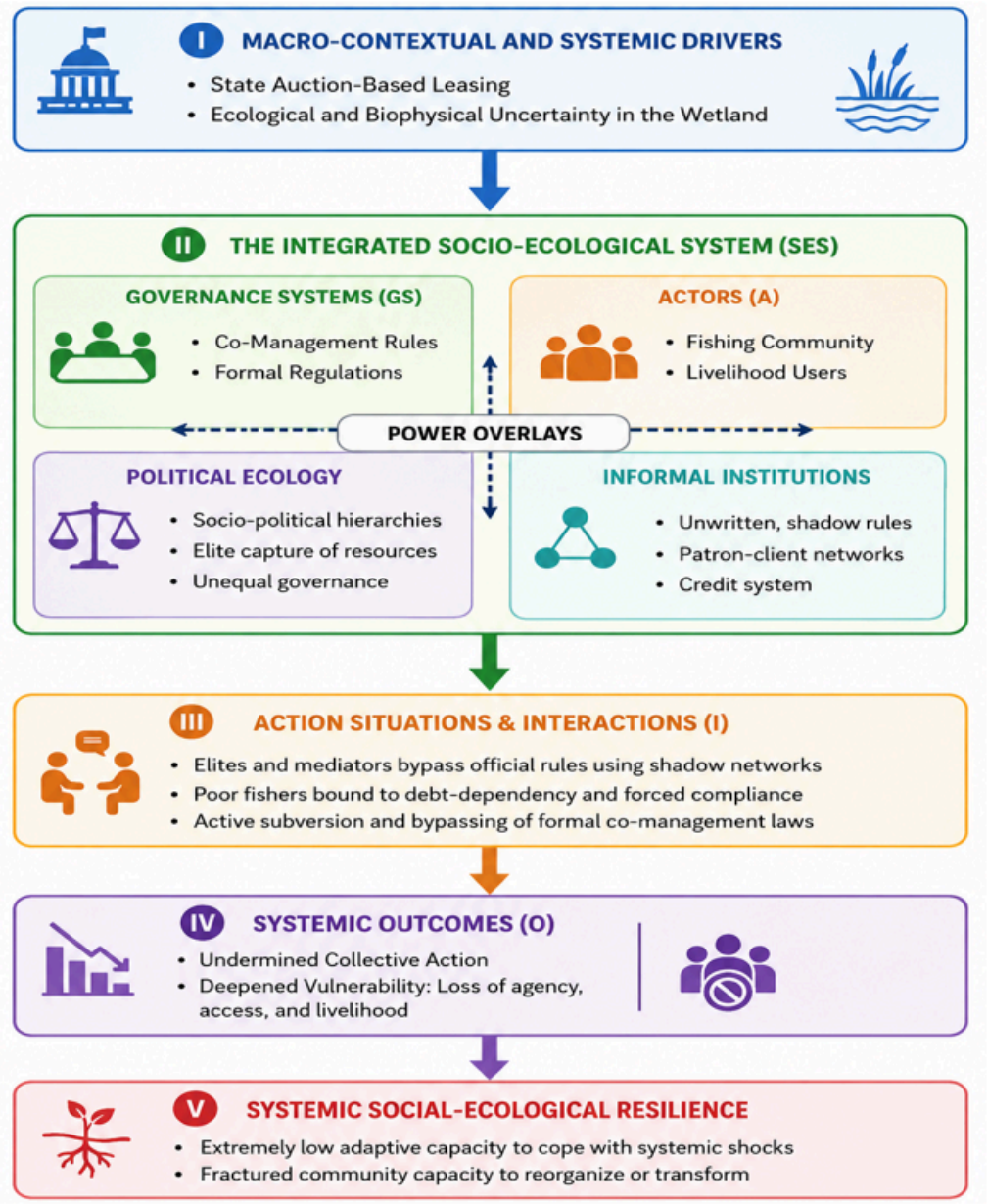


Figure 1

Integrated framework based on McGinnis and Ostrom's (2014) SESF for Fishers' Resilience to Co-management Challenges

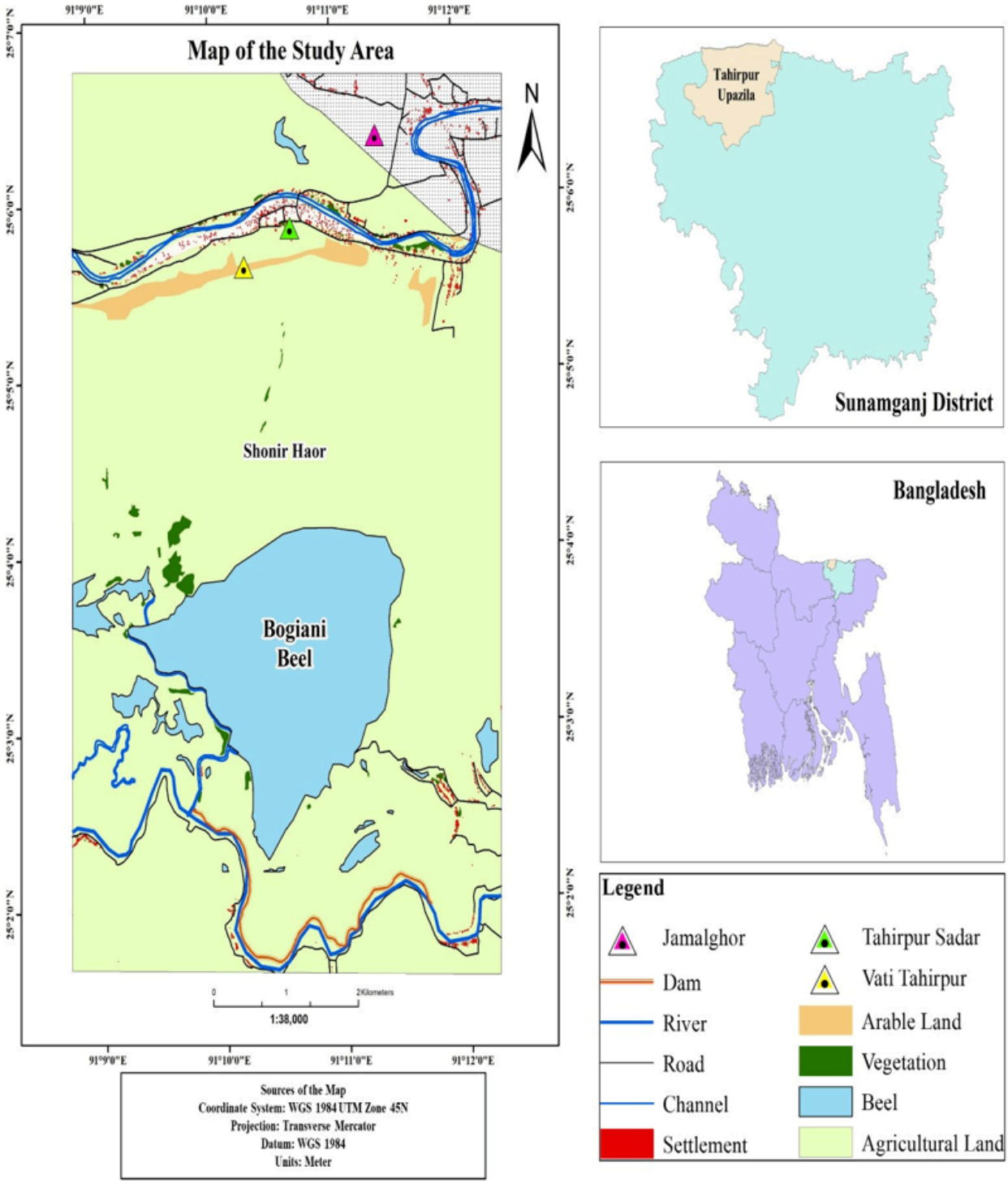


Figure 2

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Supplementary Files

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- SupplementaryMaterials.docx