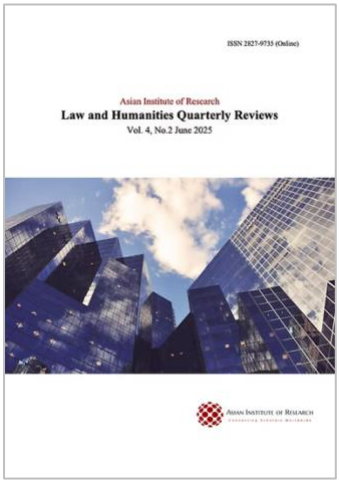

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Historical Insights into Wetland Management in Bangladesh: Policies, Practices, and Transformations

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Abstract
Wetlands play a crucial role in Bangladesh's ecology, economy, and livelihoods, yet their management has evolved through a complex interplay of traditional practices, colonial legacies, and contemporary policies. This qualitative study explores the historical trajectory of wetland management in Bangladesh, examining key policies, governance structures, and shifting approaches from pre-colonial times. Drawing on historical records, policy documents, and scholarly analyses, the study traces the transition from indigenous and community-based wetland use to state-led conservation and development initiatives. The findings reveal how colonial-era interventions disrupted traditional management systems, while post-independence policies have oscillated between exploitation and conservation. Despite efforts to integrate participatory governance and sustainable management, challenges persist due to policy inconsistencies, institutional fragmentation, and socio-economic pressures. By offering historical insights into policy transformations and their implications, this study underscores the need for an adaptive, community-inclusive, and ecologically sustainable approach to wetland governance in Bangladesh.

Keywords: Wetland Management, Bangladesh, Historical Analysis, Policy Transformation, Governance, Sustainability

1. Introduction

Bangladesh boasts vast and globally famous wetlands. In the past, the country's wetlands were considered ‘wasteland’ as these lands were not easy to use for agricultural or urbanization purposes. Only during the last thirty five to forty years have such popular perspectives changed after communities realized the enormous benefits of wetlands, that they accommodated huge biological resources, ultimately helping in livelihoods. Wetlands are remarkable because of their biological richness and cultural history. Fisheries in Bangladesh provide about 60% of the dietary protein for people of all classes. Also, people harvest food, fuel, fibre, fodder, building material, and water from the wetlands for irrigation and domestic uses. Various recreational activities such as boat races, swimming, and monsoon folk also require wetlands. People use wetlands for commercial and non-commercial purposes, such as growing flood-resistant rice paddies, rearing fish, collecting mollusc shells (snails), fruits and vegetables from wetland plants, harvesting fodder for their cattle, cultivating winter crops,

raising ducks, hunting turtles, collecting dried weeds for fuel, trapping water birds, and navigating. Bangladesh, as a deltaic country, is subject to frequent floods—during the monsoon season, before the monsoon season, and so on. Healthy wetland ecosystems operate as a flood buffer and lower livelihood risks. The above advantages contribute significantly to national revenue generation, commercial and non-commercial operations acceleration, disaster control, and poverty reduction.

The wetlands management needs to be improved in many areas, including agriculture, fish production, swamp forest protection, migratory bird conservation and floral resource harvesting. Resource users and the concerned government departments are equally paying attention to 'the sustainable management of natural resources. People in rural Bangladesh have been exploiting resources without considering the needs of our future generations. It has been happening due to a lack of awareness and updated knowledge, the prevalence of extreme poverty, poor policies and weak law enforcement. So, in response to the impending environmental catastrophe, civil society, NGOs, the government, and informed community members began to advocate urgently for the restoration of the wetlands and conservation in the interests of sustainable development and the eradication of poverty. There are eight ecologically critical areas in the country, primarily wetlands. Bangladesh joined global environment and biodiversity forums by signing and ratifying the Ramsar Convention and the Convention on Biological Diversity (Bridgewater & Kim, 2021), making it obligatory to implement global environment and biodiversity conservation measures at the country level. It implies that the local people of the ecosystems consider the critical stakeholders for planning, implementing and managing the haor resources. The engagement of the indigenous people ensures at all levels of the design and implementation of the components.

2. Wetlands: The conceptual understandings

Wetlands are regarded as valuable ecosystems by scholars worldwide. Wetlands are lands that transition from a terrestrial to an aquatic environment, covered by shallow water (Cherry, 2011). It also refers to a diverse variety of inland, coastal, and marine environments that share a range of features (Dugan, 1990). Bangladesh possesses enormous wetland areas out of which the principal ones are rivers and streams, freshwater lakes and marshes including haors, baors and beels, water storage reservoirs, fish ponds, flooded cultivated fields and estuarine systems with extensive mangrove swamps. Wetlands can be classified into freshwater wetlands, saltwater wetlands and man-made wetlands (Alam, 2013).

Wetlands are defined as follows by the Ramsar International Wetland Conservation Treaty (Gardner & Davidson, 2011):
Article 1.1: "...wetlands are areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters."

Article 2.1: "[Wetlands] may incorporate riparian and coastal zones adjacent to the wetlands and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands".

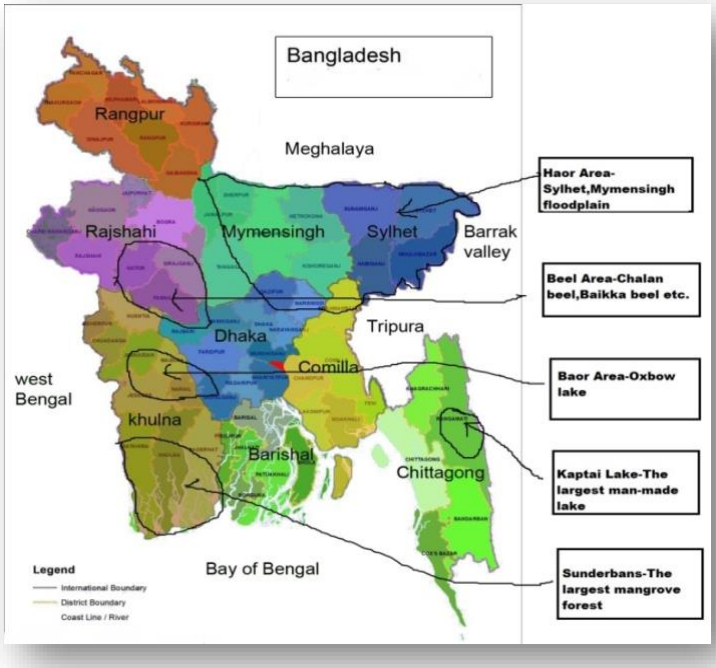

Figure 1: Major wetlands of Bangladesh
Source: http://dbhwd.gov.bd (2024)

3. Wetland management: Bangladesh perspectives

Wetland management has mainly focused on revenue generation over the last two centuries. Fishing on rivers, haors, baors, and beels was customarily allowed for Bangladeshi fishermen before the British took control of the Indian subcontinent. To support their livelihoods, the people of the haor area had access to neighbouring resources. Technologically advanced and highly centralized production and efficiency-oriented systems have dominated the post-colonial management regime. Indigenous people have been viewed as a threat to haor resources and treated as degraders of commons in the formal management system. As a result, policy changes have gradually reduced resource access and resource users' customary rights. The EEF strategy is best focused on the goal of providing society with well-being, e.g. education, health, and security. However, despite the basic purpose of the EEF strategy, there has been very little evidence of enhanced well-being of the inhabitants in the haor region of the country from the British period till now. In practice, the EEF policy regime, which is based on science and technology, has created conditions that encourage exploitation, conflicts, and disorder in the management of wetlands resources (Khan, 2011).

In the 1980s, collaborative management became a topic of discussion in the development sector of Bangladesh. Co-management of wetlands, on the other hand, began in the mid-1990s. It arose mostly from the governments, NGOs', and communities' experiences. They tried out various approaches to establish co-management of government properties, such as natural resources, by enacting rules, regulations, and standards. These initiatives were so popular that community members were encouraged to include private floodplains in the project area. Different government departments in Bangladesh, including the DoF, the DoE, and the Forest Department, have played major roles in these initiatives on behalf of the government of Bangladesh. Although nature conservation, biodiversity, and environmental sustainability are the primary goals of these programs, ensuring access rights for fishermen and the underprivileged has also been prioritized. In this regard, sustainable wetland management initiatives by the government are below:

Table 1: Projects on sustainable wetland management in Bangladesh

Name of the project	Time	Concerned agency	Area
Management of Aquatic Resources through Community Husbandry (MACH)	1998-2007	DoF-USAID	Hail Haor, Turag-Bangshi floodplain, Kangsha-Malijhee basin
Community Based Haor & Floodplain Resource Management (SEMP)	1998-2005	MoEF-IUCN-UNDP	Pagnar and Sanuar-Dakuar haors, Hakaluki Haor, and Jamuna-Padma, Madhumati, & Brahmaputra Floodplains
Community-Based Fisheries Management (CBFM-I & II)	1994-1999	DOF-Ford Foundation	116 water bodies, including Hakaluki Haor in 22 districts
Coastal and Wetland Biodiversity Management Project (CWBMP)	2001-2007	DOF-DFID-World Fish Centre	Cox's Bazar, hakaluki Haor, Sonadia Island, St. Martin's Island
Wetland Biodiversity Rehabilitation	2003-2013	DoE	3 districts (Pabna, Natore, Sirajganj)
Community-Based Adaptation in the Ecologically Critical Areas through Biodiversity Conservation and Social Protection (CBA-ECA)	2009-2015	BWDB/GIZ	Hakaluki Haor, Cox's Bazaar-Teknaf Peninsula, Sonadia Island
	2010-2015	DoE-UNDP-EKN-IUCN	Hakaluki Haor
Community-Based Sustainable Management of Tanguar Haor	2006-2018	MoEF-IUCN-SDC	Management and planning context of Tanguar Haor
Community-based Management of Tanguar Haor Wetland in Bangladesh	2022	UNDP-MoEFCC-GEF	Promote community-based management of Tanguar Haor wetland in Bangladesh.

Source: International Union for Conservation of Nature, (2018) & GEF, (2022)

4. Concepts of wetland governance in Bangladesh

Effective wetland management is inherently linked to governance, which shapes the policies, regulations, and institutional frameworks governing these vital ecosystems. Governance models increasingly influence wetland management strategies (Ruz et al., 2011). Wetland governance can be defined as "the interaction of policies, laws, and other norms, as well as institutions and processes through which society exercises power and allocates responsibilities to make and implement decisions affecting wetlands and wetland users, and to hold decision-makers accountable" (Newaz, 2019).

A crucial aspect of wetland governance is co-management, which fosters collaboration among various stakeholders. Borrini (2000:7) defines co-management as "a situation in which two or more social actors negotiate, define, and ensure amongst themselves a fair sharing of management functions, entitlements, and responsibilities for a given territory, area, or set of natural resources."

The co-management framework in Bangladesh involves multiple stakeholders (Carlsson & Berkes, 2005), including:

a) Government agencies
b) Non-governmental organizations (NGOs)
c) Business actors

d) Civil society organizations

Co-management emphasizes negotiation, problem-solving, shared responsibilities, and collaborative learning, thereby enhancing interactions between local institutions and government agencies (Williams & Tai, 2016). By involving local communities in resource management, co-management ensures sustainability and empowers marginalized groups. Indigenous knowledge plays a crucial role in devising sustainable strategies, reinforcing the significance of community participation in governance. Local engagement leads to resource equity, while exclusion often results in conflict. In Bangladesh's haor wetlands, privatization through the leasing system has led to disputes, as political and local elites exert control, marginalizing community access to resources (Khan & Haque, 2010; Rahman et al., 2012).

For community-based resource management to succeed, the voices and perspectives of local stakeholders must be acknowledged (Uddin, 2011). Co-management fosters the creation of grassroots institutions like community-based organizations (CBOs), which empower marginalized communities. The sustainability and effectiveness of these organizations are pivotal in shaping governance outcomes (Khan, 2012).

Despite the benefits of shared governance, challenges persist in ensuring inclusive stakeholder participation in wetland conservation. Effective governance demands accountability, transparency, and responsiveness to sustain ecosystems and livelihoods (Christophe & Neiland, 2006; Sithirith, 2015). Strengthening co-management approaches and institutional frameworks is essential for the long-term sustainability of Bangladesh's wetlands.

5. Wetland conservation and management in Bangladesh: Lessons, innovations and prospects

Bangladesh is home to various unique and complex wetland habitats that are rich and globally significant. Wetlands are extremely important in GDP contribution due to their environmental products and services. Rural areas, which contributed 3.57% of the GDP, rely on the fishing sector for 60 percent of their protein needs (FAO, 2018). In terms of job creation, the fisheries sector in wetland areas employs 1.2 million inhabitants directly and supports 11 million people (Department of Fisheries, 2018). Varieties of governmental institutions are responsible and engaged in managing haor resources. They have different policies and goals, creating conflict in establishing authority. This conflict is dysfunctional and destroys the interconnectedness of entities, ignoring the significant impact on resource sustainability and social-ecological resilience. Those institutions commercialize fisheries resources by leasing systems and restrict haor resource users. From the pre-British era to the present, natural resource management in Bangladesh has seen significant changes. Understanding the nature and characteristics of wetland management policy regimes is crucial, especially implications for peoples' long-term livelihoods, vulnerability, and the long-term viability of local ecosystems. Management approaches in the haor basin in different phases are below:

5.1 The British colonial administration

Since the Mughal Empire, the government has used land and other natural resources as a source of revenue generation. During British control in India, a permanent land revenue system was implemented. This Act limited the local population's access to land and natural resources. The British established Zamindars who served as an intermediary between the king and the peasants, moving money from local to public treasuries (Ishika and Sanchit, 2021).

The Mughals first used the Zamindari system to secure adequate tax collection from peasants and to carry out specific official functions within their domains. The Mughals created the zamindari system featured various landholdings, rights, and obligations ranging from independent or semi-autonomous tribal leaders to peasant-proprietors (Husain and Sarwar, 2012). Zamindars had many military and law enforcement responsibilities in addition to tax collection. The Mughal Empire granted Zamindars the power to set up Zamindari Adalat (courts)

to resolve regional legal issues inside their domains. They were able to serve the Mughals better because of the legal authority that practically made them lords of their domains, especially in tax collection.

Lands were brought under their authority through the Zamindari system, and a mechanism was established to collect revenue from peasants for the colonial rulers. Zamindars were given the authority to set the land tax and payment mechanism without considering peasant economic capacity (Swamy, 2011). Zamindars constructed one of the most exploitative land revenue collective systems and became passionate advocates of British authority in India (Garhwal & Lal, 2008).

5.1.1 Pakistan period (1947-71)

One of the common requests of the general public during India's independence movement (before 1947) to institute local people's access to land and their rights to it was the abolishment of the Zamindari systems (Rai, Zhang and Khanal, 2017). In response, the Congress Party stated that one of the pledges made by the Indian independence struggle was to abolish the Zamindari system. The British Zamindari system was eliminated in 1950 by The State Acquisition and Tenancy Act (East Bengal Act).

5.2 Wetland management in Bangladesh after independence of 1971

Since independence, natural resource management has remained the same. The newly independent state has designed its natural resource management method to have a comparable legal framework to support the state's revenue-based policies (Islam and Kitazawa, 2013). The Government of Bangladesh took numerous steps after the country's independence to devise an approach to managing its wetland resources without sacrificing its primary goal of gaining maximum revenue. It was determined that the Ministry of Land (MoL) could auction off all jalmohals to the highest bidder.

To earn as much revenue as possible from fisheries, the government's management system is built on a so-called open bidding process that allows those with the most money to own fisheries (or fishery estates) and get government subsidies to make their businesses successful. This approach eliminates the right of the local fishing communities, which include the poorest of fishermen, to their resources.

The study found numerous concerns and difficulties in a more accessible bidding system that reduced locals' access to their resources. Included are the following: 1) Leaseholders tend to be outsiders, and they commonly transfer their licenses to wealthier residents of the fishing community. To fish in the jalmohals, fishers are required to pay rent to operate in a fishery that, as a result of this arrangement, produces multiple layers of intermediaries between the fishers and the actual fishery. 2) Short-term leases (1-3 years) incentivize lessees to maximize profit by adopting damaging fishing methods, necessitating all kinds of destructive tactics due to short leases. 3) A significant leasing charge will prohibit non-commercial fishers from accessing the Jalmohals, forcing them to do other jobs instead. 4) Many legal battles have arisen from leaseholder and fisher management differences. The resulting hindrance against managing natural resources and accomplishing the mandates of other government agencies constitutes a significant setback for fish stock management.

To prevent poaching, regulations were enacted in 1973 to guarantee legal fishermen's access to their catch by making it compulsory to pay fees to fish. Non-registered fishers who were likewise poor were shut out of the system since the government only allowed licensing to Fishermen Cooperative Society (FCSs), which record their members. A license was necessary to make "cooperatives" of fishermen eligible to receive "jalmohals."

A License system was first used to better engage genuine fishers in community-based alcohol management and has proven to be quite successful with fishing communities (Thompson, 2004). Nevertheless, it has been seen that, in time, the practice of granting licenses for organizations that have major problems has the general licensing system's trust plummeting. Local elites, politicians, investors, people in business, jotters, and others held sway over the FCSs. Political intervention rendered the leasing committees unable to do their responsibility, which was to pick true fisherman cooperatives.

Management of jalmohals depended on the size of the jalmohal to help manage resources. It was decided that locals would have the same right of entry to fishing if the larger fishing spots were leased to rich fishermen, but the smaller plots would be offered to poorer residents. Though members of the Parishads executive committee would pretend to choose their supporters, in truth, they always did so themselves. The Ministry of Youth and Sports, under 8.10 ha could only be leased. In the government's selection procedure, youth organisations tied to the ruling party had an advantage. People who were influential in the government or economically powerful could influence the District Jalmohals Management Committee to provide lease agreements to those they favoured, thereby taking control of their leased land. Usually, fishers were given a license for a specific piece of gear. When they purchased another kind of gear, they had to pay a license fee for it. Fishing was granted with any gear and in any spot of the Jalmohal provided fishermen received their licenses. Illegal fishing by outsiders caused licensed fishermen's incomes to fall, which caused serious conflict between the fishers and the locals (Fraser et al., 1989).

Fishing without permission in fisheries estates was rampant due to the government's inability to adequately enforce restrictions, as they could not track down violators of fishing laws. Many outsiders set up long-term fishing operations on the Padma-Jamuna without licenses. The instance of outsiders coming into the fishery to do this ranged from three to twelve boats from 1985 to 1988. Some illegal fishermen carried out their fishing activities in the Narisha-Padma fishery, and as a result, licensed fishermen were negatively impacted in their fishing operations. Others have to gain by engaging in combat and thus lose much of their fear of each other. For example, those in the Kanglar Haor in the Sunamganj district of Bangladesh could protect their fishing resources by hiring guards to patrol the area and assign fishing shifts to their members. They created a plan for local subsistence fishing, using the Jalmohal, designed to keep unauthorized fishermen out. The Department of Fisheries (DoF) took part in putting together a collective of legal fishermen to prevent unauthorized fishermen from poaching Kanglar Haor. Additionally, the DoF gave more fishing privileges to underprivileged fishermen without licenses. Because of the DoF's current capabilities, the organization will need the direct cooperation of local fishermen to build an efficient monitoring system and safeguard huge wetlands.

The Ministry of Land encourages the competitive leasing system to raise revenues as much as possible. After independence in 1971, there were attempts to put in place policies for fishing, but Huda (2003) recorded that the only relevant change made was that leasing was given to registered fishery cooperatives in 1974. Restricted leasing was established in Jalmohals management in 1976, replacing the previous restricted leasing system that had been in place since Jalmohals was set up. The ministry in charge of wildlife and fisheries had control of Jalmohals since 1980 when the land ministry (Ministry of Land, or MoL) handed it over. The MoFAR used two different systems of leasing, one for the registered FCSs, and one for other companies and people. Jalmohals bidding was only open to registered FCSs under restrictions. Because the less organized fishermen, who failed to join the FCS, were cut out of the lease process. In direct negotiation, powerful organizations and high government officials had easy access to and were successful in allying with government agencies or other powerful organizations. It meant powerful organizations and high government officials benefited greatly from the system while ordinary citizens suffered.

When the MoL reclaimed control of the alcohol administration in 1983, the restricted leasing system was still in use. After the Upazila system was established in 1984, jalmohals ranging in size from 1.21 to 8.10 ha were given to Upazila Parishads under the previous condition. Consequently, it failed to protect the interest of genuine fishermen. The impact of the restricted leasing plan on legal fishermen could not be ascertained because there needed to be a central body to monitor it.

5.2.1 The Jalmohals (Wetlands) Management Policies (1986 – 2005)

The New Fishery Management Policy (NFMP) of 1986 and the National Fisheries Policy of 1998 both sought to facilitate and benefit legal fishermen (Firoz K. et al., 2016). They could have been more effective because of the legal entitlement of the Department of Fisheries (DoF), institutional inefficiency, and a lack of resources. Non-local elite groups took advantage of the new policies. The Jalmohals Management Policy, enacted in 2005 to decentralize the system, was recognized as a significant advance in wetland management. The approach sought

to broaden the legal institutions. The Ministry of Land (MoL) decentralized management authority, making it simpler for varied entities to participate in resource management.

Since 2000, a limited number of jalmohals have been transferred to the DoF to manage development initiatives using a co-management/community-based approach as part of a ten-year Memorandum of Understanding (MOU) between the two ministries. Tanguar Haor, a huge jalmohal was given to the MoEF for biodiversity protection with the local people's participation. The MOU, however, did not include a leasing price waiver, and it was the responsibility of the relevant institutions to ensure that the lease fee was paid to the MoL (Khan, 2010). According to the program, all jalmohals larger than 8.10 hectares had to be leased out by the district administration. The jalmohals should be leased for three years to the registered FCS with the highest bid. The lease cost was increased by 15% over the previous lease value to establish the minimum lease charge for the bidding procedure. If the fishing cooperatives could not achieve these financial conditions, a new bidding process for the sale of jalmohals was planned that would be open to the public. Subleasing jalmohals by any lessee was strictly prohibited and resulted in the lease being cancelled. However, resource management policy under successive regimes generally followed SMA and targeted EEF goals. Furthermore, wetland administration processes for tax collection have not yielded long-term, sustainable benefits to the national economy.

From 1996, NGOs were allowed to conduct experiments with the community-based management strategy (Sultana & Thompson, 2010). Community-Based Fisheries Management (CBFM) principles were tested in 18 Bangladeshi locations from 1996 to 2007 with help from the Department of Fisheries and the World Fish Centre. The main objective was to improve fishery management through community organization and conservation measures, micro-credit for alternative livelihoods. Besides CBNRM programs, existing management regimes have proven limited success in controlling resource access and boosting poor fishermen's livelihoods. The powerful elites, intermediaries, and investors influence resource access and control. However, due to the complexities of wetland management and a need for more institutional capacity, the DoF is gradually supporting and facilitating shared management approaches to ensure the sustainability of haor area resources through various development project initiatives.

5.2.2 The Jalmohals (Wetlands) Management Policy, 2009

When the present government assumed office in 2009, jalmohal management policies changed. To guarantee that jalmohals are leased to FCSs of genuine fishermen, the Jalmohals (Wetland) Management Policy was approved in 2009. To represent underrepresented fisher groups in the lease process, provisions were made to allow two members from registered FCSs to serve on the Upazila and District Jalmohal Management Committees. The Jalmohals (Wetlands) Management Policy, 2009 had its limitations: i) Fishermen representatives were selected by bureaucrats and usually biased. ii) Poor fishermen could not participate in the leasing process because they are not members of FCS. As a result, the policy adjustment did not affect the leasing system's revenue, as it maintained the same lease charge structure and collecting techniques as the Jalmohals Management Policy, 2005.

The Bangladesh parliament ratified the 15th amendment to the constitution in June 2011, granting local people access and rights to natural resources. Since local users' access and rights have been acknowledged in the wording of the supreme legislation, it marks a significant turning point in the history of the nation's management of natural resources. Additionally, adjustments to the current natural resource management framework are required to operationally implement this policy, ensuring local resource users' access to and rights on the commons.

6. Navigating institutional and policy conflicts in wetland management

Many institutions' active participation in wetlands has complicated natural resource management and led to various disputes between resource users and managers. It was observed that similar management systems based

on Economic Efficiency Focused approaches are applied from national to field-level government agencies. Government agencies involved in wetland resource management employ the same tools:

1. National-level policy formulation; and
2. Field-level implementation.

The National Development Plan articulates policy objectives and is implemented by field administration. Field-level needs and demands should be considered in the planning processes for defining policy objectives and development activities to generate effective linkages among stakeholders to solve critical field-level difficulties.

In Bangladesh, involving multiple entities without coordination frequently results in complexities and disputes in the management system. The DoF is responsible for the fishery, and the MoL has management responsibility over land resources, including jalmohals, according to the government's allocation of business. Similarly, the DoE, MoA, Ministry of Water Resources and Water Development Board, LGRD, and

MoYS administer natural resources without control over land resources. The lack of coordination and inter-departmental conflicts seriously harmed sustainable resource management objectives. Fishery resource management policies, for example, have been implemented at three levels of government:

Table 2: Distribution of wetlands and responsible authority

Types of jalmohals	Area	Responsible authority
Larger	more than 8.10 ha	District Administration
Medium	1.21 to 8.10 ha	Upazila administration
Small	less than 1.21 ha	Union Parishad

Source: Khan. M. H., (2011)

The Department of Fisheries frequently is unable to play a meaningful role in fisheries management due to this manner of management. As a result of the involvement of so many other parties in wetlands management, the DoF has little authority to decide its institutional role in practice. The DoF's ability to undertake any development efforts by assuming control of jalmohals from the MoL was complicated by institutional arrangements in wetland resource management. Long bureaucratic processes for transferring jalmohal administration power from the Ministry of Land to the Department of Fisheries cause pointless delays in implementing development initiatives. Delays are also caused by the DoF's failure to provide commendable outcomes.

Even though numerous institutions are actively pursuing varied interests in wetland management, inter-institutional conflicts and limits have substantially impacted resource management sustainability factors.

7. The dynamics of exclusion: Understanding marginalization

The current Jalmohal leasing system transfers the possession rights of the wetland to private ownership. This renting system promotes the exploitation of resources through state mechanisms. Individual investors benefit economically, and the conservation and protection of resources are ignored. Tanguar Haor is not eligible for leasing, according to this analysis; however, Kalma-Hania beel is due to be leased out due to a High Court order (The ruling was executed in 1980). To maintain fish productivity, the leaseholders use a variety of fishing gear that is legally prohibited. In the haor area, leaseholders use the dewatering method of fishing. Leases also restrict poor local communities' access to resources, severely limiting their livelihood activities and making them more vulnerable to extreme poverty.

Policymakers prefer increasing revenue collection by transferring customary property rights and systematically excluding local people from management activities. My research in the Tanguar Haor region supports the idea

that SMA and the corresponding legal, financial, and regulatory tools increase residents' susceptibility and marginalization. This is especially true for the producers themselves.

Although the current Wetland Management Policy- 2009 gives priority to the FCS, it still engages in malpractice by giving non-fishers access rights to fishermen's cooperative societies. The latter group operates by creating and promoting fake cooperatives. Fisherman cooperatives must agree to pay ever-rising leasing costs, application fees, and upfront bidding amounts with each subsequent lease term to access a alcohol. Fisherman cooperative groups cannot take part in the lease process due to these problems. In addition, 'gang fishing' by powerful outsiders, increases the transaction costs of jalmohal management because impoverished fishermen are frequently unable to protect their jalmohals.

The real fisherman needs more cash to cover all of the financial commitments imposed by the bidding system. Poor fishermen borrow money at a high interest rate from local moneylenders to participate in the bidding process. FCSs are hesitating to be involved in the bidding system because they are sceptical of their return on investment. If they are unable to maximize the profit, they will become debt-ridden. Another cause is, increased lease fees (15% increase), which make it more difficult for them to obtain funds. Toufique elaborated on fishermen's limited ability to manage access compared to elites (1997; 2000).

Poor fishermen, in general, have no benefit in the new bidding system (open to everyone) initiated by the state-governed management authority. The new bidding system is the highest open bidding mechanism. However, big investors can mobilize funds to engage in the leasing process and maximize profit where poor fishermen are neglected. Consequently, the haor area becomes an economically viable and profitable venture for big investors. They are not interested in reinvesting their capital in the local area. Genuine fishermen are being pushed out of the local resources and management activities under the current management strategy.

Another important aspect is that resource extraction approaches by local fishermen and non-local fishers are fundamentally different. Non-local fishermen are not interested in wise use or sustainable use of resources. They are very keen to maximize their profit within the stipulated lease period. It is harmful to wetlands that non-local investors illegally extract other resources except fish. They are involved in corruption and manipulate the management authority by bribing them. Residents also claim that management authority permits the bird hunters in exchange for a fee. A local fisherman of Tanguar Haor has fallen into a helpless situation to earn their livelihood; national newspapers and relevant journals regularly cover this type of news. Poverty, vulnerability and marginalisation are the three main dimensions of fishing communities' general deprivation (Christophe, B., 2010).

7.1. Financial toll of marginalization: Unpacking the economic burdens of exclusion

Bangladesh has done tremendously well in reducing poverty and vulnerability. The scenario of the haor area is different from this statement. The financial constraints and procedural difficulties are major roadblocks for local disadvantaged populations interested in participating in the haor leasing system. For participating in the bidding process, FCS has to pay a 5% fee on the bidding amount and 100% payment within seven days of the first year value if selected as the highest bidder. Also, tax and VAT must be paid. The value increases by 15% in the second year. Before renting or renewing an existing jalmohal, a local fisherman must raise money. Poor fishermen are often forced to withdraw from the leasing procedure due to a lack of funds to pay these financial obligations.

Fishermen in the Tanguar Haor area represent the poorest segment of the rural classes. Mahajan, informal creditors or local moneylenders, take advantage of poor fishermen's circumstances because they borrow money from Mahajan to keep their fishing operations afloat. Mohajans commonly take on leases and give out loans to fishermen as sub-lease agreements. It is evident in the study area that moneylenders forcefully purchase the catch (fish) of the fishermen at a lower price, which also burdens them. As a result, poor fishermen lose their income and pay interest rates from their reduced income, making them marginalized and vulnerable.

Poor fishermen cannot borrow money from NGOs like Grameen Bank, ASA, and BRAC, because those institutions do not issue credit for the fisheries sector in the Tanguar Haor area. Micro-credit facilities in the haor region are limited because the fishermen community is mostly landless, and their ability to repay the loan amount. As a result, the fishermen's community rely on Mohajans.

Local impoverished fishermen are not supported by financial institutions when leasing jalmohals and fishing operations. On the other hand, genuine fishermen have restricted access to finance through Bangladesh Krishi (agricultural) Bank (BKB), a government-owned institution. Fishermen must mortgage their land to the bank to obtain such credit. In most situations, poor fishermen cannot obtain credit because they lack land ownership to offer as security. The documentation process is highly difficult, and local fishermen have a low level of acceptance. Furthermore, fishermen need to be made aware of BKB's credit window. Even if local fishermen abide by the bank's terms, the loan amount is insufficient to meet their financial needs.

The formal institutional structure and management practices are critical in enabling local people to participate in the governance process. The leasing system in haor (wetlands) replaces the customary property rights without considering social, economic and contemporary political structures that may result from dysfunctional governance practices. The main purpose of including a local indigenous community in resource management is to enable them to adopt a complex resource management system that ensures sustainable management practices (Agrawal, 2002) From a theoretical perspective, the state frequently tries to make a real improvement in natural resource management to improve the condition of disadvantaged communities, whose livelihoods depend on local natural resources. After the independence of Bangladesh in 1971, GoB announced its aim to overhaul the leasing system of jalmohals by instituting a licensing system. Licensing systems will allow genuine fishermen to manage haor resources, but this system needs to collect revenue as the government expected. Consequentially, the government switched from a licensing system to a previous leasing system. Poor communities have been deprived, exploited and denied access to resources. Though the provisions in the lease policy give precedence to FCSs to secure impoverished fishermen's participation in the bidding process, it is difficult for them to execute against politically and financially sound elite and influential. Fishermen Cooperative Society is disorganized because of a visionary leadership crisis. So-called registered FCSs had devolved water lords, touts, and non-local investors, eventually excluding genuine fishermen from the Jalmohal administration.

The negative impact of the commercial leasing system is being used to privatize the ‘commons’ and shift advantages from underprivileged areas to the wealthier section of society. The Economic Efficiency Focused (EEF) leasing system largely denies the ecological components, facilitating resource acquisition by powerful individuals or organizations. A system like this marginalizes poor rural people and forces them to migrate to semi-urban areas. These types of migration create unemployment and lead them to extreme poverty. In the real sense, the leasing system creates inequality for genuine fishermen. Also, resource destruction and depletion, restrictions and limited access to resources accelerate societal damage and negative influence on resource sustainability, which is a key threat in the Tanguar Haor area.

The tenure of the leasing period is a source of contention. A short-term leasing tenure, such as one to three years, often provides no conservation actions. Because they are unsure if their lease will be renewed for the next tenure, leaseholders desire to maximize the exploitation of wetland resources throughout their lease time. Long-time leasing permits the same leaseholders to use resources for an extended period, but there is also no guarantee that leaseholders will develop wetlands. The MoL’s current management system lacks the institutional capability to establish an adequate monitoring mechanism to safeguard the jalmohal ecosystems' long-term viability (Thomson et al., 1999)

The Wetlands (Jalmohals) Management Policy 2005 does not adequately address jalmohals management's failure to protect local people’s access rights and entitlements in the implementation phase of different policy regimes. This policy also accelerates the exclusion of locals from resource rights. The management structure in Tanguar Haor has resulted in practically all of the haor's resource-rich jalmohals falling into the hands of the government. Residents have limited financial resources and political influence, making it difficult to organize professional pressure organizations to preserve their interests and access rights under the current system. As a

result, the local people lack de jure management authority over the jalmohals and de facto rights to the resources necessary to support their way of life.

Vulnerability suffers a multitude of effects as a result of marginalization. Marginalization has reduced local institutional and social capacities to establish common boundaries. Tanguar Haor's marginalization is mostly caused by political, legal, and financial processes, with the poorest local fishing communities continuing to sustain the greatest sufferers. Since Tanguar Haor's socioeconomic conditions and physical environment have become worse as a result of economic efficiency-based SMA, the exploitation process has resulted in more tragedies.

8. Conclusion

Traditional approaches to natural resource management focus only on economic considerations. It ignores social, political and ecological components of resource distribution. Also, it exacerbates exclusion, deprivation, injustice and inequality in haor areas. The economic benefit approach greatly hampered resource privileges and involvement in the decision-making process of the local poor people. The SMA's short-term economic goal jeopardizes wetland resource sustainability by pushing leaseholders to earn more profit by destroying natural resources.

The Jalmohal leasing system in Bangladesh also creates conflict and mistrust among stakeholders. It also discourages collective actions, which is more effective in resource management. It is evident from the study that the licensing and leasing system cannot effectively address resource distribution inequality and marginalisation, ensuring local people's participation in the benefit-sharing mechanism, decision-making, implementation and evaluation processes.

The legacy of the existing policy framework crates such mismanagement and lack of coordination. In these circumstances, a community-based management or co-management approach is the right choice for the policymaker to address the participation issue and reduce the marginalization and vulnerability of local people. The community-based management strategy has improved livelihood security for local people in Bangladesh, Cambodia and India (Thomson & Gray, 2009).

The formation of the leasing system privatizes the natural resources rights and hampers social comfort. Such privatisation significantly impacts rural local institutions with the combination of local power structures. It is thought that local institutions always protect the interests of the poor people of the locality in the wetland management system. The integrated and sustainable management approach needs to involve local people in decision-making. Wetland resources in Bangladesh have degraded quickly over the last century for lacking local people's active and proper participation in the management.

The output from the co-management in the Tanguar Haor area demonstrated the differences between EEF and community-based management approaches. Co-management approach substantially establishes a decision-making mechanism, benefit-sharing facility, implementation, and monitoring and evaluation capabilities. Increasing people's participation can reduce inequality and injustice in resource management.

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