



Lives and Livelihoods: How Socioeconomic Realities Shape Community Participation in Managing the Tanguar Haor Wetlands in Bangladesh

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ABSTRACT

This study delves into how local communities engage in the management of Tanguar Haor, a vital wetland in northeastern Bangladesh designated as an Ecologically Critical Area (ECA) and a Ramsar site. The study looks at relationships between important socioeconomic factors like income, education, age, gender, and local participation in wetland governance using household-level data from twelve villages. Employing a mixed-methods approach, the study integrates quantitative household survey data with qualitative interviews and focus group discussions to capture both statistical trends and community perceptions regarding participation in wetland governance. Roles in decision-making, project implementation, evaluation, and benefit-sharing procedures are among them. In contrast to their mainland counterparts in the Sunamganj district, the Tanguar Haor region, which has been inhabited for generations, is home to communities primarily impoverished and socioeconomically marginalized. The degree of meaningful participation is nonetheless unequal and frequently limited by structural inequities, despite the government's efforts to promote a co-management model incorporating governmental actors and local communities. The study finds that while the most underprivileged groups continue to be under-represented, those with greater socioeconomic status are substantially more involved in wetland management. These results emphasise how crucial it is to address socioeconomic inequality in order to promote inclusive and sustainable wetland governance. The study contributes to the broader discourse on environmental justice, local stewardship, and the role of equity in natural resource management.

KEYWORDS

Tanguar Haor; socioeconomic status; community participation; wetland management; rural livelihoods; sustainable governance; Bangladesh

INTRODUCTION

People's participation in wetland management has gained increasing scholarly attention, especially in the context of socio-ecological systems where human and ecological well-being are deeply intertwined (Adger, 2006). In Bangladesh, this has become more critical than ever, particularly in the case of Tanguar Haor, one of the country's most significant freshwater wetlands. Designated a Ramsar site in 2000 and declared an Ecologically Critical Area (ECA) in 1999, Tanguar Haor holds both national and international ecological importance. It serves as a lifeline for tens of thousands of people whose livelihoods depend on fishing, agriculture, and seasonal labour. It is also a critical habitat for resident and migratory waterfowl and home to a rare freshwater swamp forest and diverse aquatic biodiversity (IUCN, 2016).

The Tanguar Haor Management Plan represents a pioneering policy effort in Bangladesh to integrate biodiversity conservation with sustainable resource governance. Unlike earlier top-down models, it aims to decentralise management by re-engaging local communities, particularly women, in resource stewardship and habitat restoration efforts (Kachali; Dawson; & Loos, J. 2024). However, scholars have pointed out that such policy frameworks often fall short of transforming entrenched governance structures. They tend to preserve rather than disrupt the status quo due to persistent political and economic inertia (Khan, 2011; Newaz, 2019).

The broader literature on wetland governance in Bangladesh highlights a tension between centralised administrative control and the lived realities of local resource users. Historically, government-led approaches have tended to marginalise traditional institutions and knowledge systems, thereby weakening the legitimacy of community-based practices (Khan & Haque, 2010; Toufique, 1997). This disconnect is further complicated by institutional fragmentation, where multiple government bodies operate with overlapping mandates, creating bureaucratic entanglements that hinder effective coordination.

Despite these challenges, empirical studies suggest that local communities possess adaptive capacities to navigate environmental uncertainties. In Tanguar Haor, for instance, local people have developed flexible and informal governance systems to manage fisheries and other natural resources, often drawing on indigenous ecological knowledge and social reciprocity (Khan, 2011; Sharmin & Khan, 2012). Such adaptive mechanisms are not only context-specific but also emotionally and culturally embedded, reflecting a sense of custodianship that extends beyond utilitarian resource use (Berkes, 2004; Agrawal, 1995).

This study builds upon this body of literature by critically examining the extent and quality of people's participation in wetland governance. It interrogates how local stakeholders engage in decision-making, implementation, monitoring, and benefit-sharing processes under the evolving governance framework. It also situates these dynamics within broader discourses of environmental justice, political ecology, and decentralisation. While the Tanguar Haor Management Plan formally acknowledges community participation, the realities on the ground

often reveal asymmetries of power, exclusionary practices, and limited agency among marginalised groups, particularly women and landless fisher folk (Ahmed et al., 2018; Xu, 2019).

In sum, a more nuanced understanding of people's participation in Tanguar Haor requires moving beyond formal policy rhetoric to explore the informal, negotiated, and contested spaces of governance. Recognising these grassroots dynamics is essential not only for ecological sustainability but also for the empowerment of communities that have historically borne the brunt of environmental degradation and policy neglect.

This study aims to unpack how socioeconomic status influences community participation across different phases of wetland management in Tanguar Haor. While policies increasingly call for participatory governance, the actual patterns of inclusion often reflect deeper structural inequalities. As such, this research not only investigates *who participates* but also interrogates *how* and *why* certain groups remain marginalised. The focus lies on the relationship between key socioeconomic variables, such as age, gender, education, and income and the level and type of community engagement in wetland management activities. Particular attention is given to evaluation processes, which are often overlooked in participatory frameworks but are critical for accountability and adaptive governance. Accordingly, this study is guided by the following research questions:

RQ1: To what extent does age influence community participation in the evaluation phase of wetland management?

RQ2: How does educational attainment affect involvement in evaluating wetland-related interventions?

RQ3: What is the role of gender in shaping participation in evaluation activities?

RQ4: Is there a significant relationship between household income levels and participation in the evaluation of wetland management programs?

By systematically examining these questions, the study seeks to illuminate how participation is socially structured and to what extent current co-management efforts genuinely empower marginalised groups within the Tanguar Haor landscape.

The remainder of the article is organised into five main sections. The next section outlines the theoretical foundations of the study, drawing on Environmental Justice, Community-Based Natural Resource Management (CBNRM), and Social Capital Theory to frame the analysis of participatory dynamics in wetland governance. This is followed by the methodology section, which details the mixed-methods approach employed for data collection and analysis across twelve villages in the Tanguar Haor region. The findings are then presented thematically, focusing on community participation across four key domains of wetland governance: decision-making, implementation, evaluation, and benefit-sharing. A subsequent section explores the broader political and institutional factors that influence participatory outcomes, with particular attention to issues of power, legitimacy, and exclusion. The article concludes with a critical reflection on the implications of the findings for advancing inclusive, equitable, and sustainable

models of community-based wetland governance in ecologically and socially vulnerable contexts.

THEORETICAL FRAMEWORK

The investigation's foundation is the convergence of Social Capital Theory, Community-Based Natural Resource Management (CBNRM), and Environmental Justice Theory. Combined, these frameworks provide a thorough lens through which to view how socioeconomic position affects involvement in wetland governance.

The equitable distribution of environmental benefits and costs and the meaningful participation of all individuals in environmental decision-making, irrespective of their class, colour, or income, are the focus of environmental justice (EJ) theory. Environmental Justice theory is vital to comprehending the obstacles to participation and access to the advantages of wetland co-management in Tanguar Haor, where most of the population is economically marginalised. According to the hypothesis, environmental exclusion can result from social and economic disparities, leading to unfair governance outcomes.

Community-based natural resource management aims to enable local communities to sustainably manage and maintain their natural resources (Berkes, 2004; Khan, Islam, & Haque, 2024). In order to improve livelihood outcomes and environmental stewardship, this paradigm advocates for decentralisation and participatory government. This framework aligns with the government's co-management program in Tanguar Haor, which aims to promote cooperation between local actors and governmental organisations. To determine how truly involved community people are in different phases of wetland management decision-making, implementation, monitoring, and benefit-sharing, the study used CBNRM as a guiding principle.

Social capital theory explains the relational dynamics that either help or impede participation. Putnam (1993) asserts that social capital, which is characterised by networks, norms, and trust, is essential for facilitating civic involvement and group action. Social capital frequently dictates who participates, how decisions are made, and whose views are heard in rural wetland communities where formal institutions may be weak (Yang et al., 2024). This idea makes understanding the unofficial social networks and hierarchies that mediate access to environmental governance easier (Basnet et al. 2025; Leach et al., 1999).

Combining these three theoretical stances, the study develops a sophisticated understanding of how social ties, institutional frameworks, and socioeconomic position influence local engagement in managing the Tanguar Haor wetlands. These theories highlight the agency-based and structural elements affecting environmental governance in ecologically vulnerable and marginalised areas.

METHODOLOGY

This study employs a mixed-methods approach to explore how socioeconomic status (SES) shapes community participation in wetland management in the Tanguar Haor region of

Bangladesh. Grounded in the principles of Community-Based Natural Resource Management (CBNRM) (Berkes, 2004; Kibria et al. 2025), the research design integrates both quantitative and qualitative methods to capture the complexity of human-environment interactions and local governance practices in this ecologically critical landscape.

Fieldwork was carried out across twelve villages situated within or adjacent to the Tanguar Haor wetland ecosystem, all of which fall under the government's co-management framework. These settlements were purposively selected due to their direct dependence on the wetland's resources and their active involvement, formally or informally, in resource governance. The socioeconomic conditions in these villages are shaped by deep reliance on natural capital, with most households engaged in fishing, small-scale agriculture, and seasonal wage labour. Given their geographical exposure and economic vulnerability, these communities offer valuable insight into how participation unfolds in practice.

To collect quantitative data, a structured questionnaire was designed in Bengali, tested in a pilot village to ensure clarity, and refined for cultural sensitivity. The survey was administered to 60 randomly selected households, with one adult respondent (typically the household head) participating in face-to-face interviews. The questionnaire covered three primary areas: (1) demographic and socioeconomic characteristics such as age, gender, education, income, and landholding; (2) various forms and degrees of participation in wetland governance including involvement in decision-making, implementation, monitoring, and benefit-sharing; and (3) respondents' perceptions of existing governance arrangements, including institutional trust and barriers to participation. Data collection was carried out by trained local enumerators who were familiar with the dialects and social nuances of the region, thereby facilitating more open and accurate conversations. Each session lasted approximately 30 to 45 minutes and was conducted only after obtaining informed consent.

To deepen the understanding of governance dynamics beyond survey responses, qualitative data were gathered through Key Informant Interviews (KIs) and Focus Group Discussions (FGDs). Twelve key informants comprising village elders, local government representatives, leaders of community-based organisations (CBOs), NGO workers, and officials from the Department of Environment and Forests shared insights into the historical, institutional, and political dimensions of participation in the haor context. Additionally, four focus groups were conducted with diverse community members, including women, fishers, and youth, to ensure a more inclusive and nuanced account of local experiences. These sessions highlighted community voices often underrepresented in formal planning and policymaking.

Quantitative data were processed using SPSS version 25.0. Descriptive statistics helped to profile households and understand general trends, while cross-tabulations and chi-square tests were used to identify statistically significant relationships between SES variables and different forms of participation. This allowed for a more precise understanding of who participates, how, and why. Meanwhile, qualitative data were transcribed, translated, and analysed thematically, following Braun and Clarke's (2006) framework. This interpretive layer

helped surface recurrent themes such as trust in institutions, marginalisation, and perceived benefits of participation that added depth to the statistical findings.

Finally, the research adhered strictly to ethical standards. Participants were fully informed about the purpose of the study, and verbal consent was obtained before each interview. Anonymity and confidentiality were ensured throughout, and the study received prior ethical clearance from the relevant academic committee. This approach ensured that the research not only respected community agency but also positioned local knowledge and experiences at the heart of wetland governance discourse.

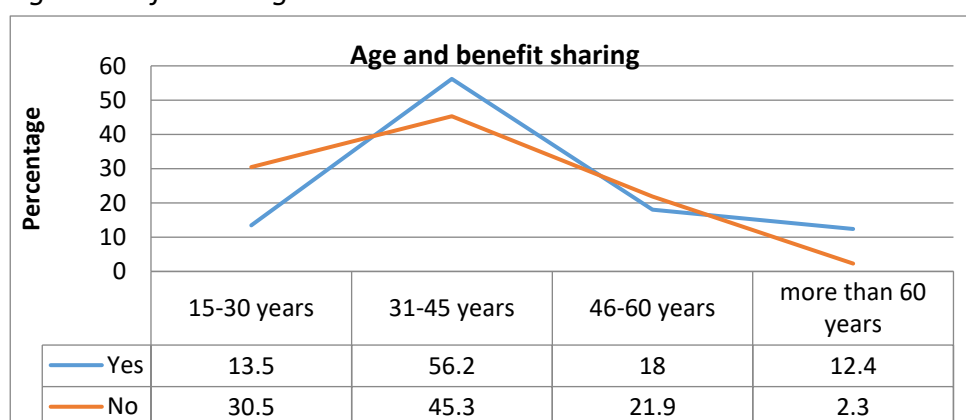
FINDINGS

Age and participation in benefit-sharing activities

This section shows the relationship between socioeconomic status, age, gender, education, income, and people's participation in benefit-sharing activities.

Figure 1.

Age benefit sharing*



Source: Field survey data (2024)

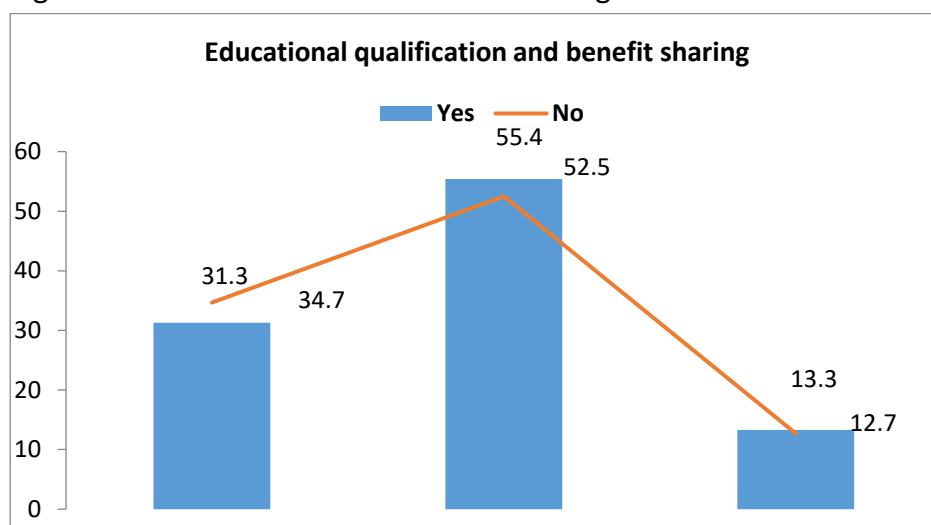
Figure 1 shows a statistically significant association between age distribution and participation in benefit-sharing activities (chi-square = 16.246, $p = 0.001$). Significant differences were observed in two age categories: 15–30 years ($p = 0.006$) and over 60 years ($p = 0.005$). In these groups, the proportion of individuals involved in benefit-sharing activities differs markedly from those who are not. In contrast, no statistically significant differences were observed in the other age categories, indicating that the impact of age on benefit-sharing participation is concentrated within specific age brackets.

The data reveal that only 14% of respondents aged 15–30 participated in benefit-sharing, compared to a much higher 56.2% of respondents aged 31–45. This suggests that individuals in their middle working years are more actively engaged in benefit-sharing processes, potentially due to greater socioeconomic responsibilities, stability, or influence within community structures. Overall, the analysis underscores a strong relationship between age and

participation in benefit-sharing, which has important implications for designing inclusive and age-responsive co-management strategies. (See Appendix 1)

Educational status and participation in benefit-sharing activities

Figure 2: Educational status* benefit sharing



Source: Field survey data (2024)

Figure 2 illustrates that educational attainment has no statistically significant relationship with participation in benefit-sharing activities in wetland management (chi-square = 0.257, $p = 0.881$). Despite the absence of statistical significance, the descriptive data offer some noteworthy observations. Over half (55.4%) of respondents with primary education reported participation in benefit-sharing, suggesting a relatively higher engagement among this group. In contrast, illiterate respondents were less likely to participate, with the non-sharing group outnumbering those who shared benefits.

These findings suggest that while education may influence awareness or capacity for engagement, it does not independently determine participation in benefit-sharing mechanisms within the current governance structure. The lack of a significant statistical association implies that other socioeconomic or institutional factors, such as social capital, network access, or power dynamics, may play a more decisive role than formal education. Overall, the data highlight the need for inclusive benefit-sharing strategies that go beyond educational attainment and address broader barriers to participation.

Gender and Participation in Benefit-Sharing Activities

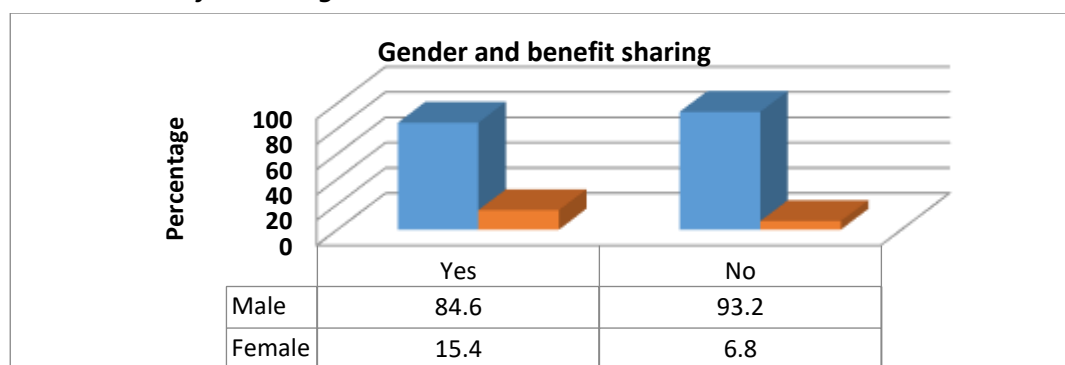
Figure 3 reveals a statistically significant relationship between gender and participation in benefit-sharing activities in wetland management (chi-square = 4.355, $p = 0.045$). The data indicate a striking gender disparity: approximately 85% of male respondents reported receiving benefits, compared to only 15.4% of female respondents.

This gender gap in benefit-sharing reflects more profound structural inequalities in access to natural resource governance. Despite women's critical roles in wetland-dependent livelihoods such as fishing, fuel collection, and post-harvest processing, their limited presence in decision-making spaces continues to restrict their access to the benefits of co-management

initiatives. Cultural norms, limited mobility, and lack of representation in local institutions may further compound this exclusion. The significant variation illustrated in the data underscores the urgent need for gender-responsive strategies in wetland governance. If these inequalities are not addressed through inclusive policies and meaningful support for local communities, the vision of fair and sustainable wetland management will remain out of reach.

Figure 3.

Gender benefit sharing*



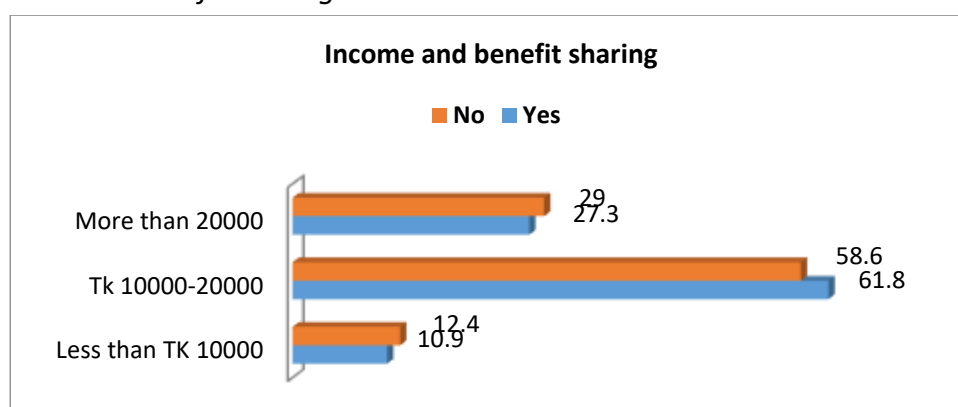
Source: Field survey data (2024)

This finding contributes to the broader discourse on environmental justice by highlighting how gender, like other socioeconomic factors, plays a crucial role in determining who benefits and who is left behind in natural resource management.

Income and Participation in benefit Benefit-Sharing Activities

Figure 4.

Income benefit sharing*



Source: Field survey data (2024)

Figure 4 demonstrates no statistically significant relationship between household income and participation in benefit-sharing activities related to wetland management (chi-square = 0.00018, $p = 0.999$). This extremely high p -value indicates a complete lack of association between income level and involvement in benefit-sharing, suggesting that economic performance does not independently influence access to or inclusion in benefit-sharing mechanisms within the Tanguar Haor context.

Despite the absence of statistical significance, the descriptive data reveal that a majority (approximately 60%) of benefit-sharing respondents reported a monthly income within the range of Tk. 10,000–20,000. However, this concentration within a specific income bracket appears more reflective of the region's broader socioeconomic structure than any meaningful correlation with benefit-sharing participation.

These findings suggest that the current benefit-sharing framework may not differentiate participants based on income due to the equitable design of the distribution process or the lack of targeted outreach to more economically disadvantaged groups. The analysis also implies that other non-economic factors, such as social networks, institutional affiliation, or household roles, may be more decisive in shaping access to wetland management benefits. In summary, income alone does not determine participation in benefit-sharing activities in the Haor region.

Socioeconomic status and participation in decision-making

This section analyses how key socioeconomic factors, such as age, education, gender, and income, affect community participation in decision-making processes related to wetland management in the Tanguar Haor region.

The findings (*Appendix-1*) reveal that **age** plays a statistically significant role (Fisher's Exact Test = 9.360, $p = 0.031$), particularly among older adults (60+) and middle-aged individuals (31–45 years), the latter showing the highest engagement in decision-making activities (58.2%).

Educational status emerged as the strongest predictor, showing a highly significant relationship with decision-making participation (chi-square = 23.947, $p < 0.0001$). Notably, illiterate and primary-educated respondents exhibited marked differences in participation levels, underscoring the importance of basic education in fostering civic engagement.

Gender differences were also significant (chi-square = 8.342, $p = 0.003$), with full male participation (100%) contrasted sharply by the underrepresentation of women, reflecting entrenched gender disparities in access to environmental governance. Conversely, **income level** did not demonstrate a significant association (chi-square = 0.196, $p = 0.924$), indicating that economic standing alone does not determine involvement in decision-making. The analysis underscores the need for **targeted, inclusive strategies** considering age, education, and gender to promote equitable participation in community-based wetland governance.

Socioeconomic factors and participation in the implementation of wetland management

This section explores the influence of age, education, gender, and income on the community's participation in the **implementation phase** of wetland management within the Tanguar Haor region.

Data (*Appendix-1*) reveals a **statistically significant relationship** between age and participation in the implementation of wetland management initiatives (Fisher's Exact Test = 16.718, $p = 0.001$). Younger individuals (15–30 years) are notably more active, with 42.4% participating, and the difference between participating and non-participating groups in this age cohort is highly significant ($p < 0.001$). A similarly strong association is observed in the 31–45 age group ($p = 0.007$), indicating that **youth and early middle-aged adults** constitute the core

implementation workforce. This pattern reflects both the physical demands of implementation activities and the mobilisation potential of younger populations.

Data shows that **educational attainment is significantly associated** with implementation participation (chi-square = 10.702, $p = 0.002$), particularly among the illiterate population ($p < 0.01$). Interestingly, individuals with **primary education** are the most actively involved, with 65.4% reporting participation. This suggests that **those with limited formal education** are often mobilised for labour-intensive roles, possibly due to fewer alternative employment opportunities or a stronger dependency on the wetland for livelihood.

As shown in the data (*Appendix 1*), gender does not have a statistically significant association with implementation participation (chi-square = 0.646, $p = 0.463$). However, the descriptive data reveal **87.1% of participants were male**, indicating a **practical gender disparity** in implementation roles. Although the difference is not statistically significant, the dominance of men likely reflects traditional gender norms and role allocations in rural haor communities. The absence of women in physically demanding or field-based tasks may also be attributed to cultural constraints and safety concerns.

Data shows that income levels are **not significantly related** to implementation participation (chi-square = 0.806, $p = 0.676$). Nevertheless, descriptive analysis highlights that **63% of participants earn Tk. 10,000–20,000**, with about a quarter earning more than Tk. 20,000. These figures suggest that **middle and low-income groups are more actively involved**, possibly reflecting their dependence on wetland-based livelihoods and community-led development initiatives.

Relationship between socioeconomic status and participation in evaluation activities

This section examines whether age, education, gender, and income influence community members' participation in the **evaluation phase** of wetland management initiatives.

As shown in the data (*Appendix 1*), age is **not significantly associated** with participation in evaluation (Fisher's Exact Test = 5.224, $p = 0.134$). However, there is a **noteworthy trend**: respondents aged **46–60** show a more substantial presence in evaluation, with significance approaching the 5% threshold. Approximately **43%** of those involved in evaluation activities fall within the **31–60** age range, suggesting that **mature adults are more inclined or entrusted** to assess the outcomes of wetland projects. Despite this trend, no clear statistical significance exists across broader age categories.

Data indicates that (*Appendix-1*) **education does not have a statistically significant relationship** with participation in evaluation (Fisher's Exact Test = 4.530, $p = 0.093$). However, when examined more closely, a **marginally significant association** (at the 10% level) is observed between **illiterate and primary education groups**. Among all respondents involved in the evaluation, **77% have primary-level education**, implying that while formal education might not be essential for participation, basic literacy could play a facilitative role.

As illustrated in **the data**, gender also shows **no statistically significant association** with evaluation participation (chi-square = 0.302, $p = 0.711$). Despite the statistical insignificance, the

descriptive data highlight a **striking gender imbalance**. **Over 93% of evaluation participants are male**. This suggests that **deep-rooted gender norms and social exclusion** continue to marginalise women from oversight roles in human development activities, raising concerns about inclusive governance and equity in natural resource management.

As per the **data**, income level is also **not significantly associated** with evaluation participation (Fisher's Exact Test = 4.109, $p = 0.111$). However, a marginally significant relationship (at the 10% level) is observed in the income extremes respondents earning **less than Tk. 10,000** and those **above Tk. 20,000**. Notably, **half of all evaluation participants** earn more than Tk. 20,000, indicating that individuals with higher economic standing may have greater access, awareness, or influence in the evaluation process, possibly due to better connections or leadership roles in local institutions.

The analysis reveals that **age and gender** are significant determinants of participation in benefit-sharing activities, with middle-aged individuals more actively involved and males disproportionately represented. **Decision-making** in wetland management strongly correlates with **age, gender, and educational status**, particularly among primary-educated and middle-aged groups. **Implementation** of projects is also significantly linked to age and education, where younger respondents (15–30 years) and those with primary education show higher levels of engagement. However, **evaluation** activities do not display significant relationships with most socioeconomic variables, reflecting limited community involvement and possibly top-down processes dominated by officials. Gender disparities are consistently observed across all phases, indicating persistent exclusion of women due to socio-cultural and structural barriers. In contrast, **income level** does not significantly influence participation in any phase, although middle-income individuals are relatively more engaged in decision-making and evaluation.

These findings underscore that while some socioeconomic factors facilitate meaningful engagement in wetland governance, others, particularly gender and education, pose barriers that must be addressed for inclusive and effective community-based resource management.

Beyond Socioeconomic Status (SES) and other key factors shaping people's participation in wetland management

The findings from the "Beyond SES" analysis underscore the **profound influence of political dynamics** on people's participation in wetland management governance in Tanguar Haor. Political interference emerges as a significant barrier to community engagement, especially in **benefit-sharing** and **decision-making processes**, where its disruptive effects are statistically strong and widely acknowledged by respondents.

Conversely, a clear consensus exists that **reducing political interference** would substantially enhance participation, with over 90% of respondents affirming that their involvement would improve if politics were depoliticised. The **role of the government** is seen as pivotal; the data reveal a significant expectation among local stakeholders for state intervention to curb political manipulation and ensure more equitable participation. Although **implementation and evaluation** phases exhibit weaker statistical associations with political

interference, qualitative insights show that political dynamics influence these areas indirectly by shaping stakeholder access and legitimacy. The analysis thus highlights that **real participatory governance in wetland management cannot be achieved without addressing the structural and institutional impacts of political interference.**

For community engagement to truly work, including people from different economic and social backgrounds is insufficient. There also needs to be real political accountability. This means the government must actively support and protect people's ability to participate meaningfully from planning to implementation and follow-up. Without that commitment, participation can easily become symbolic or superficial rather than a genuine part of decision-making. (Cornwall, 2008; Fung, 2006; Reed, 2008; Wesselink et al., 2011).

DISCUSSION

The governance of the Tanguar Haor wetlands reveals the complex interplay between socioeconomic stratification and participatory inclusion in natural resource management. Consistent with findings from other parts of South Asia, this study confirms that socioeconomic attributes, particularly age, education, and gender, significantly influence who participates in various phases of wetland governance, while income level tends to have a marginal or inconsistent effect (Agarwal, 2001; Akhter & Uddin, 2016). However, these patterns are not isolated: they reflect entrenched institutional and cultural norms that shape access to environmental decision-making across the Global South.

Similar dynamics are observed in participatory forest or water management programs in India and Nepal, where women and low-income groups are often formally included but remain substantively excluded due to structural constraints, tokenism, and elite capture (Nightingale, 2011). In the case of Tanguar Haor, middle-aged and relatively better-educated males dominate governance spaces, particularly in decision-making and benefit-sharing activities. This aligns with Béné et al. (2010), who argue that even well-intentioned participatory frameworks tend to reproduce existing inequalities when the enabling environment is weak or politically compromised.

Furthermore, the statistically weak or marginal associations between SES variables and participation in evaluation processes highlight the top-down nature of monitoring and assessment in many community-based programs. As observed in other co-management initiatives in Bangladesh and elsewhere, the evaluation phase is often monopolised by state or NGO actors, with little room for grassroots voices, especially those of women or the landless (Islam & Sato, 2012; Reed, 2008). This calls into question the transformative potential of co-management unless evaluation and feedback loops are democratised.

Crucially, the study underscores political interference as a cross-cutting impediment to equitable governance. This echoes broader critiques in environmental governance literature, which identify political patronage, rent-seeking behaviour, and lack of institutional accountability as persistent challenges in participatory development (Ribot et al., 2006;

Cornwall, 2008). Respondents' widespread belief that depoliticising local institutions would enhance their participation mirrors findings from participatory irrigation management in India and community forestry programs in Nepal, where state withdrawal or neutrality facilitated more authentic engagement.

Therefore, this study contributes to a growing body of scholarship arguing that meaningful community participation is contingent not only on socioeconomic inclusion but also on structural political reform. Without addressing the broader institutional and power asymmetries, co-management risks becoming performative, rather than transformative, governance.

CONCLUSION

This study examined how socioeconomic factors, such as age, education, gender, and income, shape community participation in the governance of Tanguar Haor, an ecologically and economically vital wetland in northeastern Bangladesh. Drawing on mixed-methods data from twelve villages, the study found that while age and education consistently influence participation across various governance phases, gender-based disparities remain particularly stark, and income has limited predictive power. Crucially, participation in evaluation remains the weakest and least inclusive, suggesting that deeper structural reforms are needed to democratize governance beyond surface-level involvement.

The findings reinforce the relevance of Community-Based Natural Resource Management (CBNRM), Environmental Justice, and Social Capital theories in understanding participatory dynamics. However, they also reveal the limitations of these frameworks when institutional environments are characterised by political interference, elite capture, and fragmented accountability. As such, participatory wetland governance must be situated within a broader political ecology that recognises both the enabling and constraining forces shaping community engagement.

For participatory governance in ecologically sensitive areas like Tanguar Haor to be truly inclusive and sustainable, it must move beyond narrow socioeconomic diagnostics to address systemic inequalities, institutional power dynamics, and political legitimacy. Future research should explore the longitudinal impacts of governance interventions, particularly how shifts in political leadership, donor influence, and climate change adaptation reshape participatory landscapes in wetland regions. Ultimately, advancing environmental justice in Bangladesh's wetlands requires not only empowering communities but also transforming the governance systems within which they operate.

Disclosure statement

The author declares no conflict of interest.

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Appendix -1

Table 1.

Summary of Statistical Relationships between Socioeconomic & Political Factors and People's Participation in Wetland Management

Independent Variable	Dependent Variable	Test Used	Chi-square / FET Value	p-value	Statistical Significance		
Socioeconomic Characteristics							
	Age	Benefit Sharing	Pearson's Chi-square	16.246	0.001	Significant	
		Decision-Making	Fisher's Exact Test	9.360	0.031	Significant	
		Implementation	Fisher's Exact Test	16.718	0.001	Significant	
		Evaluation	Fisher's Exact Test	5.224	0.134	Not Significant	
	Education Status	Benefit Sharing	Pearson's Chi-square	0.257	0.881	Not Significant	
		Decision-Making	Pearson's Chi-square	23.974	<0.001	Highly Significant	
		Implementation	Pearson's Chi-square	10.702	0.005	Significant	
		Evaluation	Fisher's Exact Test	4.530	0.093	Marginally Significant (10% level)	(10%
	Gender	Benefit Sharing	Pearson's Chi-square	4.355	0.045	Significant	
		Decision-Making	Pearson's Chi-square	8.342	0.003	Significant	
		Implementation	Pearson's Chi-square	0.646	0.463	Not Significant	
		Evaluation	Pearson's Chi-square	0.302	0.711	Not Significant	
	Income Group	Benefit Sharing	Pearson's Chi-square	0.0001	0.999	Not Significant	
		Decision-Making	Pearson's Chi-square	0.196	0.924	Not Significant	
		Implementation	Pearson's Chi-square	0.806	0.676	Not Significant	
		Evaluation	Fisher's Exact Test	4.109	0.111	Marginally Significant (10% level)	(10%

Independent Variable	Dependent Variable	Test Used	Chi-square / p-value	Statistical Significance
Political Factors				
Political Interference	Benefit Sharing	Fisher's Exact Test	13.517	0.001 Significant
Political Interference	Non-Benefit Sharing	Pearson's Chi-square	26.398	<0.001 Highly Significant
Gov't Role Interference	vs. Benefit Sharing	Pearson's Chi-square	14.897	0.001 Significant
Political Interference	Decision-Making	Fisher's Exact Test	9.829	0.006 Significant
Political Interference	Non-Decision-Making	Fisher's Exact Test	14.563	0.001 Significant
Gov't Role Interference	vs. Decision-Making	Pearson's Chi-square	18.376	<0.001 Highly Significant
Political Interference	Implementation	Fisher's Exact Test	2.521	0.307 Not Significant
Political Interference	Non-Implementation	Fisher's Exact Test	6.627	0.037 Significant
Gov't Role Interference	vs. Implementation	Pearson's Chi-square	12.064	0.002 Significant
Political Interference	Evaluation	Fisher's Exact Test	2.180	0.308 Not Significant
Political Interference	Non-Evaluation	Fisher's Exact Test	3.727	0.154 Not Significant
Gov't Role Interference	vs. Evaluation	Fisher's Exact Test	5.129	0.083 Marginally Significant (10% level)

Appendix 2

Table 2.

Study area details by District, Upazila, Union & Villages

Region	District	Upazila	Union	Villages
Haor	Sunamganj	Tahirpur	North Sreepur	Golabari
				Jaipur
				Mohiajuri
			South Sreepur	Lamagaon
				Janjail
				Hukumpur

Brief description of Tanguar Haor:

Tanguar Haor is a unique wetland ecosystem in the Sunamganj district of northeastern Bangladesh. It covers approximately 100 square kilometres and is a Ramsar-listed wetland of international importance due to its rich biodiversity and ecological significance. The haor serves as a crucial habitat for over 200 species of birds, including migratory species from Siberia and the Himalayas, as well as diverse fish and plant species. It also plays a vital role in local livelihoods, supporting fishing and agriculture. During the monsoon season, the haor transforms into a vast waterbody, while in the dry season, it becomes a series of interconnected bays (small lakes). Tanguar Haor is also an important site for ecotourism and conservation efforts in Bangladesh.

Brief description of Sunamganj District:

Sunamganj is a district in the Sylhet Division of northeastern Bangladesh, known for its scenic wetlands, rivers, and cultural heritage. It covers an area of approximately 3,669 square kilometres and shares a border with the Indian state of Meghalaya. The district is famous for **Tanguar Haor**, a Ramsar-listed wetland, and numerous other haors that play a vital role in the local ecosystem and economy. Sunamganj is also rich in history and folklore, the birthplace of **Hason Raja**, a renowned Bengali mystic poet and songwriter. Agriculture, fishing, and remittances from expatriates significantly contribute to the district's economy. With its picturesque landscapes, vibrant folk traditions, and biodiversity, Sunamganj is a key cultural and environmental hub in Bangladesh.