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Enhancing Tourism Attractiveness through Proper Haor Tourism Management: A Case Study of Tanguar Haor

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ABSTRACT: This study focuses on enhancing the tourism potential of Tanguar Haor—an ecologically vital and biodiverse Ramsar Site in Bangladesh—through sustainable tourism practices and effective management strategies. Situated in the Sunamganj district, Tanguar Haor is abundant in natural resources such as wetlands, diverse wildlife, and indigenous cultural heritage. However, it faces significant environmental threats due to overuse and a lack of proper infrastructure. The research aims to develop a holistic tourism framework that ensures a balance between ecological conservation and economic development. It explores key tourist attractions in the region, examines visitor experiences and satisfaction levels, and assesses the socio-economic impact of tourism on local communities. Additionally, the study investigates how demographic factors shape tourists' attitudes and behaviors. Major challenges identified include environmental degradation, insufficient infrastructure, and unsustainable resource use. To address these issues, the study recommends solutions such as promoting community-based tourism, enhancing infrastructure, and implementing long-term sustainable tourism management systems. By aligning tourism development with community empowerment and environmental preservation, the study aims to uplift local livelihoods and foster economic growth. It emphasizes the need to protect Tanguar Haor's unique ecosystem while establishing it as a year-round eco-tourism destination. The findings offer actionable recommendations for policymakers, local stakeholders, and development planners seeking to transform Tanguar Haor into a model of sustainable tourism in Bangladesh.

Keywords: Tanguar Haor, Tourism Management, Tourism Attractions, Sustainable Tourism, Eco-Tourism, Biodiversity, Community-Based Tourism, Infrastructure Development, Environmental Preservation, Local Livelihoods, Demographic Factors, Tourism Satisfaction, Tourism Strategy, Wetlands, Ecological Preservation, Tourism Development, Socio-Economic Benefits, Tourism Infrastructure.

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INTRODUCTION

The tourism infrastructure refers to the physical facilities and services necessary to meet the needs and preferences of tourists. It is widely acknowledged that the growth of tourism is strongly linked to the development of such infrastructure, including transportation networks (roads, railways, airports, and waterways), accommodation facilities (hotels, resorts, guesthouses), and food services (restaurants and hygienic eateries) [1,2]. Tanguar Haor, one of only two Ramsar-listed sites in Bangladesh, is a biologically rich and ecologically significant wetland located in the Sunamganj district, covering approximately 10,000 hectares. Renowned for its

biodiversity, scenic beauty, and ecological productivity, it serves as a vital habitat for numerous species and supports the livelihoods of surrounding communities [3]. Despite its international recognition and designation as a wetland of global importance under the Ramsar Convention in 2000, as well as being declared an Ecologically Critical Area by the Government of Bangladesh, Tanguar Haor has experienced significant environmental degradation due to overexploitation of resources, unsustainable practices, and poor infrastructure development [4]. The absence of a unified tourism development strategy has resulted in uncoordinated efforts that fail to balance ecological preservation with community needs. Moreover, the area faces ongoing threats from soil erosion, habitat loss, illegal poaching, water imbalances, and forest degradation [5]. Given its natural richness and contribution to the national economy, Tanguar Haor plays a key role in landscape ecology and biodiversity conservation. Changes in land use and land cover, driven by both human and natural factors, significantly affect the terrestrial ecosystem and contribute to broader environmental shifts [6, 7]. To address these changes effectively, accurate and updated land use data are essential for informed environmental planning and sustainable resource management [8, 9]. In this context, remote sensing (RS) and geographic information system (GIS) technologies offer powerful tools for monitoring ecological dynamics and guiding socio-economic planning. These technologies enable multi-scale analysis of environmental patterns and changes, linking localized ecological studies to national and international conservation efforts [10]. This study seeks to bridge the current gaps in tourism planning by proposing an integrated and sustainable tourism strategy for Tanguar Haor. The goal is to enhance the site's tourism appeal year-round, foster environmentally responsible economic development, and ensure the long-term conservation of this unique ecosystem.

MATERIALS AND METHODS

The observational study was conducted in Tanguar Haor, Bangladesh, total 156 people consisting of storekeepers, motorbike drivers cum owners, boat rowers, local tour guides, villagers and tourist were included in this study. Baseline survey, checklists, preliminary discussion with communities, face to face questionnaires survey and FGDs were conducted from study respondents. Purposive sampling was conducted for data collection because Tanguar haor is a vast area and many people obtain different benefits from this haor. Secondary data has been collected from different journals, reports, research papers, websites, and government and non-government organizations. Especially commentary method and face-to-face discussions with the locals and the stakeholders and tourists were done. Besides, a focus group (includes 6 to 8 peoples) discussion became arranged where we had the chance to talk easily about the possibility of introducing sustainable tourism management there and approaches to engage the local communities as well. Moreover, we interviewed total 156 people consisting of storekeepers, motorbike drivers cum owners, boat rowers, local tour guides, villagers and tourist. This implies that this form of qualitative research has an iterative nature in which preliminary data analysis coincides with data collection often results in altering questions as the researcher learns more about the subject. On the other hand explanatory research is conducted to investigate or find out some problems that are not studied in detail. Descriptive research answers questions of what, where, when and how; explanatory questions, of why. It is also necessary because only qualitative research or quantitative research is not sufficient to fully understand, and the problem and strengths of one method can be used to overcome the weaknesses of another method. Mixed methods (both qualitative and quantitative) have been employed in this study. In this study, respondents have been selected purposively. Qualitative research approach has been used in this study because qualitative research is the systematic inquiry into social phenomena in natural settings. These phenomena can include, but are not limited to, how people experience aspects of their lives, how individuals and/or groups behave, how organizations function, and how interactions shape relationships. And quantitative research approach provides opportunities to have a statistical analysis and justify the hypothesis properly. The researcher has taken the opportunity of cross-checking the data collected from the field. A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. Purposive sampling is also known as judgmental, selective, or subjective sampling. Accidental sampling is, as the name implies, a sample you chance upon by accident. The sample is convenient or available to you for some reason.

RESULTS

Table 1: Demographic Characteristics of the Study Respondent

Demographic variables		Number	Percent
Gender	Male	124	79.41
	Female	32	20.51
Age	Below 50	122	78.21
	Above 50	34	21.79
Marital status	Married	93	59.62
	Unmarried	63	40.38
Educational Degree	Below graduate	54	34.62
	Above Graduate	102	65.38
Origin	Bangladeshi	148	94.87
	Foreign	08	5.13
Previous experience	First visit	108	42.19
	Repeat	148	57.81

The table indicates that participants in creative activities exhibited homogeneity regarding socio-demographic factors. The majority, 124 (79.41%), were male, while 32 (20.51%) were female. The predominant age group was under 50 years, including 122 individuals (78.21%). The married population accounted for 93 individuals (59.62%). Those with postgraduate education were 102 (65.38%). Bangladeshi participants totaled 148 (94.87%), while foreigners constituted 8 (5.13%). Previous experience was reported by 148 individuals (57.81%).

Table 2: Pattern of Tanguar Haor Respondents (n=156)

	Frequency	Percentage
International NGOs	19	12.18
Local government representatives	41	26.28
Self - visit	96	61.54

The sampling percentage of the total 156 respondents represent that 19(12.18%) respondents are taken from international NGOs while 41(26.28%) respondents from local government representatives and rest 96(62.54%) respondents are taken from self-visit.

Table 3: Root Cause of Loss of Biodiversity in Tanguar Haor (n=156)

	Frequency	Percentage
Cutting swamp forest	50	32.05
Illegal fishing	53	33.97
Mismanagement of Tourism	19	12.18
Increasing Trace metal	6	3.85
Hunting Migrated Bird	28	17.95

A number of factors have been contributed in loss of biodiversity of Tanguar Haor. Cutting swamp forest, illegal fishing, mismanagement of tourism, increasing trace metal, hunting migratory bird, mixing silt soil with wetland water etc. have been contributed in loss of biodiversity. Above bar chart shows that 33.97 percent respondents believe that illegal fishing is the root cause of loss of biodiversity while 32.05 percent respondents believe that cutting swamp forest is the root cause of loss of biodiversity in Tanguar Haor. About 17.95 percent

believe hunting migratory bird, 12.18 percent believe mismanagement of tourism and rest 3.85 percent believe increasing trace metal are the root cause of loss biodiversity of Tanguar Haor.

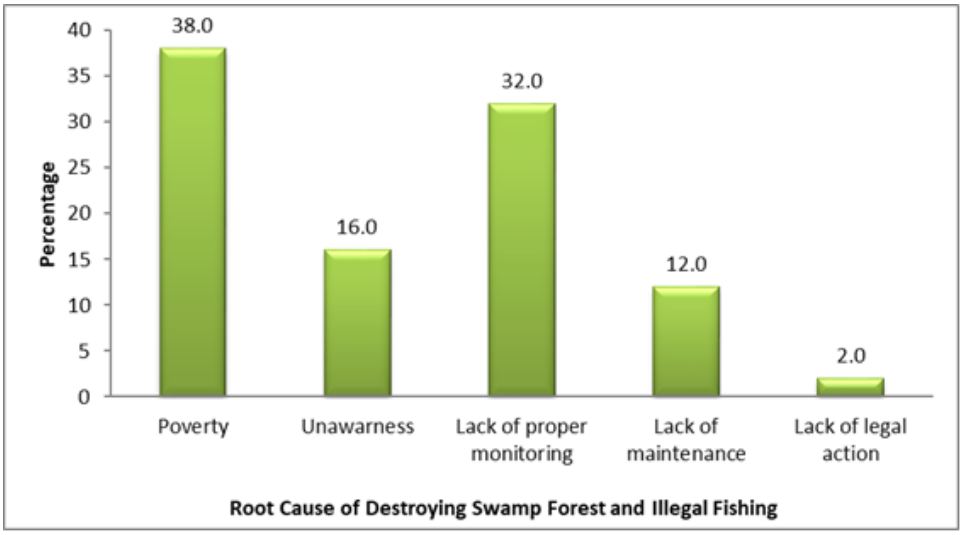

Figure 1: Root Cause of Destroying Swamp Forest and Illegal Fishing

A number of factors are responsible for destroying swamp forests and illegal fishing in Tanguar Haor. According to the above diagram, 38.0 percent of respondents believe that poverty is considered as the root cause of destroying swamp forests and illegal fishing while 32.0 percent respondent believe that swamp forest is destroying due to lack of proper monitoring. 12.0 percent of respondents believe that lack of proper maintenance and 2.0 percent believe that lack of legal action people have been destroying swamp forest and involving illegal fishing.

Table 4: Household Food Sufficiency in Tanguar Haor Areas according to FGD

Time duration household food sufficiency	Number	Percentage
Less than 3 months		45%
Up to 6 months		34%
Whole year (no surplus)		3%
Whole year (surplus sold)		3%

Table shows overview of household food sufficiency in Tanguar Haor. The findings reveal a significant food security issue, 45% of households have food for less than three months, 34% of households have food for up to 6 months and only 3% report food sufficiency throughout the year. Seasonal unemployment and natural disasters contribute to these challenges.

Table 5: Trip Profiles of Tourists

Travel behavior		Number	Percentage
Source of information	Tourists	12	7.69
	Travel agent	30	19.23
	Internet	66	42.31
	Friends and relatives	23	14.74
	Others	25	16.03
	Alone	8	5.13

Co-tourist	Family	36	23.08
	Friend	47	30.13
	Group	45	28.85
	Others	8	5.13
Length of stay	Below 2 nights	114	73.08
	2-4 nights	30	19.23
	4-6 nights	4	2.56
	Above 6 nights	8	5.13
Purpose of Visit	Leisure	97	62.18
	Adventure	7	4.49
	Visiting friends and relatives	9	5.77
	Business	16	10.26
	Other	27	17.31
Booking source	Agent	81	51.92
	Self	47	30.13
	Sponsored	12	7.69
	Others	16	10.26

The respondent's trip profile depicted that most of the tourists got information about Tanguar Haor from the internet (42.31%) followed by Travel agent (19.23%). Very few tourists got information from Tourists (7.69%) and friends and relatives (14.74%). Most of the tourists travelled with their friends and families (53.21%). Majority of tourists spent under 2 nights (73.08%) with leisure as purpose of tour (62.18%). The trip profile revealed that the maximum tourists were on their first visit agent booking (51.92%) with self-booking (30.13%).

Table 6: Over Crowd of Tourists and Mismanagement Hampers Biodiversity

Number of respondents	Frequency	Percentage
Strongly agreed	75	48.08
Agree	44	28.21
Neutral	12	7.69
Disagree	19	12.18
Strong disagree	6	3.85
Total	156	100.00

Table 6 shows that 48.08 percent of the respondents agreed with the statement that over crowd of tourists and mismanagement hampers the biodiversity of Tanguar Haor. 28.21 percent of the respondents agreed and neutral while 7.69 percent disagreed and 3.85 percent strongly disagreed with the statement.

Table 7: Perception about depletion of ecosystem services in Tanguar Haor by FGD and KII

Ecosystem services depleting factor	Tourist	Residential
Environmental palliation	285	790
Sedimentation of haor	378	1255
Mismanagement of biodiversity	600	1478
Natural hazards	242	863
Use of fertilizer/ pesticides	229	534
Illegal hunting	393	625
Political interfere/ computation	497	1178

Habitat change/ destruction	402	746
Over exploitation	506	833
Climate change	584	1229
Water quality loss	160	567
Structural development	166	290
Land use change	372	1070
Population pressure	598	1131

Table 8: Preferred Time to Enjoy Seasonal Attractions

Season	Frequency	Percentage
Rainy Season	75	48.08
Post Rainy Season	48	30.77
Winter	33	21.15
Total	156	100.00

Rainy Season is the most preferred time for seasonal attractions, with 48.08% of respondents choosing it followed by 48(30.77%) were post rainy season. Winter is the next popular choice at 21.15%.

Table 9: Comprehensive Survey to identify the available tourism attractions and recent tourism plans developed in Tanguar Haor

Tourism Attractiveness	Very Low	Low	Moderate	High	Very High
Haor wetland beauty	0	6	36	63	51
Lakmachora Waterfall	5	7	27	71	46
Jadukata River	6	9	59	67	15
Barek Tila	7	8	62	64	15
Shimul Bagan	4	7	49	69	27
Niladri Lake	6	5	43	74	28
Border Hill	0	7	47	77	25
Bengal Vita	0	4	41	81	30
Guest Bird	0	5	40	83	28
Folk Museum of Hason Raza	3	7	65	59	17
Dry season Beauty (hizal tree, land crops)	4	7	52	71	22
Occasion (Wangala dance at Poush)	6	5	43	75	27
Attractiveness of local costume	7	11	121	14	03
Attractiveness of local food	5	7	23	76	45
Attractiveness of local handicrafts	8	19	71	32	26
Others attractiveness (Sunset Point, Night view, Folk Party, Community, Khasia Palli, sunflower garden, Saheed Miner,Razbari, Cheng Bill, Haor Bilas, british Plant of BCIC)	2	5	26	79	44
House Keeping Services	38	58	39	21	0

Table 9 presents findings from a comprehensive survey assessing the tourism attractions and development plans in Tanguar Haor. Respondents rated various attractions on a scale from "Very Low" to "Very High" in terms of tourism appeal. Natural attractions such as Haor wetland beauty, Lakmachora Waterfall, Jadukata River, Niladri Lake, Bengal Vita, and the presence of guest birds received predominantly "High" to "Very High" ratings,

reflecting strong tourist interest in natural and scenic locations. Cultural features like the Folk Museum of Hason Raja, Wangala dance occasion, and local food also scored highly. However, aspects such as the attractiveness of local costume, local handicrafts, and especially housekeeping services received relatively low ratings, indicating areas with potential for development and improvement. The poor performance of housekeeping services suggests a significant gap in basic tourism infrastructure and service quality. Overall, the table highlights the diverse tourism potential of Tanguar Haor while underscoring the need for improved hospitality services and promotion of local cultural elements.

Table 10: Comprehensive Survey to Identify the Available Tourism Attractions and Recent Tourism Plans Developed in Tanguar Haor

	Very Low	Low	Moderate	High	Very high
Hospitality of locals	16	13	42	52	33
Cost of accommodation	27	35	44	36	14
Varieties of food and beverage	34	32	54	28	8
Quality of food and beverage	19	36	62	30	9
Customer support	56	51	22	11	6
Cost of food and beverages	27	36	54	30	9
Transport connectivity with others place	57	37	28	21	7
Quality of transport in Tanguar haor	68	51	37	21	00
Cost of transportation	24	47	53	24	8
Recreational activities in Tanguar Haor	7	9	42	67	31
Shopping attractions	39	58	34	25	00
Sightseeing points	18	32	27	68	11
Heritage walk	36	47	32	26	15
Availability of tourist information centers	49	47	33	11	06
Availability of government licensed guides	65	42	26	16	07
Availability of internet services	47	59	35	15	00
Availability of cellular services	43	54	43	11	05
Availability of banking and ATM services	77	52	38	11	00
Availability of toilets and wash rooms	64	57	26	9	00
Hygiene and Cleanliness at sites	36	48	38	23	11
Hygiene and Cleanliness at accommodation	34	52	39	26	5
Hygiene and Cleanliness at food outlets	32	61	44	12	7
Prices of tours in Tanguar haor compared to similar destinations in Bangladesh	17	28	36	52	23
Risk from terrorism	23	33	68	21	11
Language barriers	28	30	43	38	17
Feelings about the Natural Beauty of Haor	00	04	24	83	45
Environment of Tanguar Haor as a Tourist	37	44	54	13	8

The survey highlights Tanguar Haor's strong appeal in natural beauty, recreational activities, and local hospitality, while identifying key weaknesses in transport quality, customer support, hygiene, tourist services, and infrastructure such as licensed guides, ATMs, and toilets. The findings emphasize the need for targeted improvements to enhance the overall tourist experience.

DISCUSSION

The present study provides a comprehensive overview of the tourism dynamics, socio-demographic characteristics of participants, biodiversity threats, and the food security situation surrounding Tanguar Haor. The findings reveal a relative homogeneity among participants engaged in creative or tourism-related activities, with a majority being male (79.41%), under the age of 50 (78.21%), and possessing postgraduate education (65.38%). A large portion of the respondents were Bangladeshi (94.87%), indicating a domestic inclination toward engagement in haor-based tourism, though a small percentage of international participants (5.13%) also participated. Similar socio-demographic homogeneity was reported in the findings of Remoaldo *et al*. [11]. The data suggest that Tanguar Haor holds strong potential as a tourism destination. A significant portion of respondents (61.54%) visited the area independently, while others came via local government (26.28%) or international NGOs (12.18%). This suggests increasing local interest in ecotourism and an acknowledgment of the value of Tanguar Haor in terms of both biodiversity and economic potential. However, these perceptions and initiatives must be further validated through continuous and structured research. The study also highlights pressing environmental concerns. A considerable portion of respondents identified illegal fishing (34.05%) and cutting of swamp forests (33.97%) as the primary contributors to biodiversity loss in Tanguar Haor. Other noted threats include hunting of migratory birds (17.95%), tourism mismanagement (12.18%), and increasing metal pollution (3.85%). These findings echo those of Islam *et al*., who emphasized poverty, lack of monitoring, and insufficient legal enforcement as root causes of swamp forest degradation and illegal resource exploitation [12]. The ecological deterioration has also impacted local fauna. Migratory bird populations, once numbering 60,000–120,000 annually, are reportedly declining. This aligns with respondents' views: 64% believe that hunting of migratory birds has not decreased despite government and NGO interventions. Only 36% observed some improvement, supporting similar trends reported by Islam *et al*. [12].

In terms of food security, the study reveals an alarming situation. Approximately 45% of households have food sufficiency for less than three months, 34% for up to six months, and only 3% for the entire year. These statistics are consistent with findings by Raihan *et al*. and Mahmud *et al*, who reported high levels of seasonal food insecurity in haor regions due to unemployment, landlessness, mono-crop agriculture, and natural disasters [13, 14]. The seasonal nature of the haor economy forces many families into food insecurity during off-peak periods, often leading to increased exploitation of natural resources such as forests and fisheries for survival [18]. When assessing public perception, 76% of respondents agreed that it is possible to conserve Tanguar Haor while promoting tourism simultaneously. A comparable figure was found in the study by Islam *et al*., where 80% believed in the coexistence of conservation and tourism development [12]. Furthermore, 68% of respondents felt that authorities take disciplinary action against environmental violations, a sentiment closely reflected in Islam *et al*.'s findings. However, tourism-related challenges remain evident. Nearly half of the respondents (48.08%) agreed that overcrowding and mismanagement negatively impact biodiversity. This again aligns with Islam *et al*., who reported similar concerns [12]. Inadequate infrastructure, lack of tourist guidelines, poor sanitation, and insufficient administrative regulation contribute to ecological degradation during peak tourism seasons. Seasonality also plays a critical role in tourism preferences. The rainy season was identified as the most attractive time to visit, with 48.08% of respondents selecting it, followed by the post-rainy season (30.77%) and winter (21.15%). These patterns reflect the region's natural hydrological rhythm, which offers stunning water landscapes during monsoon, attracting "sun lust" tourists. As noted by Kamal *et al*., the average annual water temperature in the haor remains around 26°C, supporting aquatic biodiversity and appealing tourism conditions during wet seasons [19]. Overall, the study underscores the need for a balanced approach to tourism development that incorporates environmental preservation, improved infrastructure, and community involvement. Strategies such as community-based tourism organizations, regulatory enforcement, and sustainable livelihood opportunities are essential to mitigate threats while unlocking the economic potential of Tanguar Haor. Tanguar haor is currently considered Bangladesh's virgin tourism treasure. Wetlands, such as large lakes and swamp forests, have been successfully converted into tourist attractions in several countries throughout the world.

Keeping ecological and environmental concerns in mind, they established large establishments such as flora and fauna museums in such places. We can create some creative amenities in Tanguar Haor for tourists.

CONCLUSION

Tanguar Haor holds great potential as a sustainable tourism destination, offering attractions in both monsoon and dry seasons. By developing eco-friendly infrastructure and engaging local communities through community-based tourism, the region can boost its economy while preserving its unique ecosystem. Strategic planning and inclusive management are key to unlocking its full potential.

REFERENCES

1. Akinade, O., Oyedele, L., Oyedele, A., Davila Delgado, J. M., Bilal, M., Akanbi, L., ... & Owolabi, H. (2020). Design for deconstruction using a circular economy approach: barriers and strategies for improvement. *Production planning & control*, *31*(10), 829-840.
2. Agbaba, R. (2024). *Menadžment turističke destinacije u kriznim situacijama* (Doctoral dissertation, University of Rijeka. Faculty of Tourism and Hospitality Management).
3. Fahad, K. H., Hussein, S., & Dibs, H. (2020). Spatial-temporal analysis of land use and land cover change detection using remote sensing and GIS techniques. In *IOP conference series: materials science and engineering* (Vol. 671, No. 1, p. 012046). IOP Publishing.
4. Tolessa, T., Dechassa, C., Simane, B., Alamerew, B., & Kidane, M. (2020). Land use/land cover dynamics in response to various driving forces in Didessa sub-basin, Ethiopia. *GeoJournal*, *85*(3), 747-760.
5. Sultana, M. A., Pandit, D., Barman, S. K., Tikadar, K. K., Tasnim, N., Fagun, I. A., ... & Kunda, M. (2022). A review of fish diversity, decline drivers, and management of the Tanguar Haor ecosystem: A globally recognized Ramsar site in Bangladesh. *Heliyon*, *8*(11).
6. Winkler, K., Fuchs, R., Rounsevell, M., & Herold, M. (2021). Global land use changes are four times greater than previously estimated. *Nature communications*, *12*(1), 2501.
7. Murray, C. J., Aravkin, A. Y., Zheng, P., Abbafati, C., Abbas, K. M., Abbasi-Kangevari, M., ... & Borzouei, S. (2020). Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The lancet*, *396*(10258), 1223-1249.
8. Nath, A., Koley, B., Choudhury, T., Saraswati, S., Ray, B. C., Um, J. S., & Sharma, A. (2023). Assessing coastal land-use and land-cover change dynamics using geospatial techniques. *Sustainability*, *15*(9), 7398.
9. Alphan, H., Karamanli, E., Derse, M. A., & Uslu, C. (2022). Analyzing pattern features of urban/rural residential land use change: The case of the southern coast of Turkey. *Land Use Policy*, *122*, 106348.
10. Cardille, J. A., Crowley, M. A., Saah, D., & Clinton, N. E. (Eds.). (2023). *Cloud-based remote sensing with google earth engine: fundamentals and applications*. Springer Nature.
11. Remoaldo, P., Ghanian, M., & Alves, J. (2020). Exploring the experience of creative tourism in the northern region of Portugal—a gender perspective. *Sustainability*, *12*(24), 10408.
12. Islam, K. N., Jashimuddin, M., Hasan, K. J., Khan, M. I., Kamruzzaman, M., & Nath, T. K. (2022). Stakeholders' perception on conservation outcomes of forest protected area co-management in Bangladesh. *Journal of Sustainable Forestry*, *41*(3-5), 240-256.
13. Raihan, F., & Melon Hossain, M. (2021). Livelihood vulnerability assessments and adaptation strategies to climate change: a case study in Tanguar haor, Sylhet. *Journal of Water and Climate Change*, *12*(7), 3448-3463.
14. Mahmud, A., Siddika, S., Shan, T. B., Chanda, A. C., Hasan, K., & Ahmed, J. U. (2024). Assessing socioeconomic vulnerability and adaptive strategies in the Nikli haor community of Bangladesh: A descriptive approach: Socioeconomic Vulnerability and Adaptation in Nikli Haor. *Journal of the Sylhet Agricultural University*, *11*(2), 01-10.
15. Hussain, M. G. (2021). Biological diversity status of fish genetic resources at Tanguar Haor wetland in Bangladesh. *Bangladesh Marit. J*, *5*, 193-206.
16. Sunny, A. R., Alam, R., Sadia, A. K., Miah, Y., Hossain, S., & Mofiz, S. B. (2020). Factors affecting the biodiversity and human well-being of an ecologically sensitive wetland of Northeastern Bangladesh. *Journal of Coastal Zone Management*, *23*(1), 471.

17. Rahman, S. M. F., UDDIN, S., HASAN, A., & RAHMAN, M. (2020). Flood hazard adaptation of Haor people in Nikly Upazilla under Kishoreganj district of Bangladesh. *Int. J. Soc. Dev. Inf. Syst*, *11*(3), 05-10.
18. Khan, M. S., Apu, M. R., Begum, S., & Billah, M. M. (2021). Sectoral impacts of flash flood in Tanguar Haor in Sunamganj of Bangladesh. *Asian Journal of Geographical Research*, *4*(2), 55-64.
19. Kamal, M. A. H. M., Kawsar, M. A., Pandit, D., Kunda, M., Tabassum, K., & Alam, M. T. (2022). Fish biodiversity at Kawadighi Haor of northeastern Bangladesh: addressing fish diversity, production and conservation status. *Aquatic Sciences and Engineering*, *37*(3), 151-160.